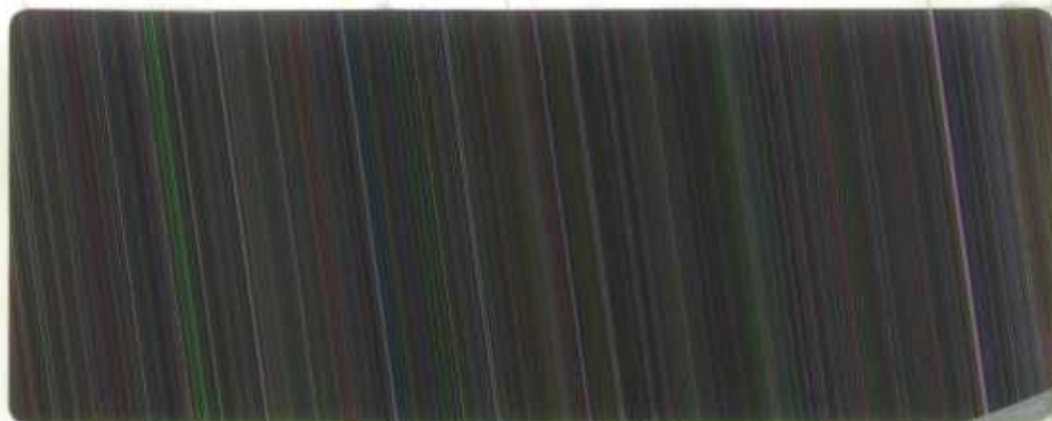


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National Accounts and Analytical Studies  
System of National Accounts  
Input-Output Division

**Input-Output Accounts of the Canadian Economy:  
Concepts, Definitions and National Economic Accounting Structure**

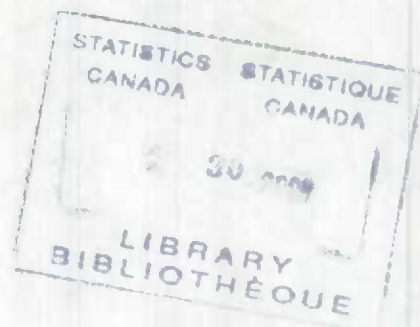
**Volume Two:  
Concepts and Accounting Structure**

**By**

**P.S.K. Murty**

**# 94**

**August, 2001**





# *Input-Output Accounts of the Canadian Economy*

## *CONCEPTS, DEFINITIONS AND NATIONAL ECONOMIC ACCOUNTING STRUCTURE*

*Volume Two  
Concepts and Accounting Structure*

**By**

*P.S.K. Murty, Ph. D.*  
Chief of Research and Development  
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Input-Output Division

*August, 2001*



## **AUTHOR'S PREFACE**

### **Scope and Style**

This is a reference compendium dealing with the Input-Output Accounts of the Canadian economy. It consists of the following three volumes.

- Volume One:           Background and Uses
- Volume Two:           Concepts and Accounting Structure
- Volume Three:         Historical Revision, 1961-1992

The Input-Output Accounts are prepared and published annually for economic analysis particularly for the content analysis of production and disposition of goods and services. The three volumes of this compendium explain, in simple language, the background and uses, concepts, definitions and the national economic



accounting structure of the Input-Output Accounts along with highlights of the recent historical revision.

They have been written in a style different from the traditional presentation, which generally gives a mere narrative and descriptive account without any detailed explanation of the uses and applications of the databases.

I have chosen the different style for three main reasons.

- First, the information should be useful for a larger audience and presented to the readers in a way that makes it indispensable even for elementary study by college students and beginners in economic analysis.
- Second, the presentation should be simple, unambiguous, and easily understood.
- Third, it should give, where possible, illustrations, tabular information, charts and analytical context to make it well understood by the broader audience to encourage more application of the Input-Output Accounts in economic and business analysis.

## Goals

I have two goals in preparing this document.

- My first goal is to try and embody my extensive in-depth knowledge and experience in a detailed manner, rather than in broad generalities, to preserve the institutional memory of the discipline. Consequently, besides other uses, this document is designed as a reference tool primarily to train the professional

and technical support staff by making the style and manner of presentation easy to follow and suitable for teaching purposes.

- My second goal is not to limit the use of this document to only a few sophisticated readers such as the professional staff who are already well acquainted with the subject, but rather, to extend the benefits even to the beginners by giving extensive narrative descriptions where needed, and by answering simple questions that are normally posed by all those who are interested in learning more about economic analysis by using the key data of the Input-Output Accounts.

The Accounts may sound like a mystery for those who do not have familiarity with the details such as ‘what’ they are, ‘why’ they are produced and ‘how’ they can be used for different analytical needs. My primary goal is to demystify the position and change the perception by explaining clearly ‘what’ the Accounts are meant to accomplish, ‘why’ they are created and ‘how’ they can be used in many situations to answer various questions. Let me elaborate on some of the driving forces for the underlying theme of presentation to place the subject in a better perspective.

Generally speaking, presenting the information on the Input-Output Accounts to the audience in an interesting and useful way by keeping the aforesaid objectives in mind is always a challenge, because the authors are faced with the problem of how to begin the study. As the information on the Input-Output Accounts is massively wide and deep which has to be compressed into some meaningful and practical generalities, one can begin the presentation with the explanation indicating the

need for such Accounts, their practical usage and applications for different studies, and their conceptual framework within the internationally used national economic accounting system, which is called the System of National Accounts. There is indeed so much to know for a better understanding of the Input-Output Accounts.

One can also begin the study with a mere narrative and descriptive summary of the existing presentation only, without providing any answers to questions such as those starting with ‘what’, ‘why’ and ‘how’, and without writing anything about the numerous changes that occurred in the recent historical revision program which reshaped the past structure and modernized the Accounts.

A mere narrative and descriptive account presented in this manner without any mention of the past nor any mention about the underlying need of the Input-Output Accounts is inevitably a dull collection of facts.

Readers want to know, for example:

- What are the Input-Output Accounts?
- Why do we produce them in the first place?
- How are they put together?
- What are their concepts and definitions?
- What is their national economic accounting structure?
- Why did we change the previous concepts and definitions?
- Why did we introduce changes to the previous structure of the accounting framework?



- Which specific items in the concepts and accounting structure did we change in the modernization program?

Answers to these questions would make the topic more interesting, illuminating and inspiring to the beginners as well as other readers. While answering those questions, it is also desirable to give examples of numerous uses and applications along with the inherent limitations, so that a clear and unbiased view of the subject could emerge in such a theme. Then, the subject would be transformed from a dull nature to an interesting and thought - provoking type. Such a manner of presentation is user - friendly and would also attract the attention of many new readers, since the information would be more palatable and useful to them. That is the style and type of approach that would indeed instill the interest and fire up the appetite of the readers for more information on the related issues. Also, the reinforcement of the interest of the readers, on the subject at the beginning in the first volume would ensure a better reception of the more complicated information on concepts, definitions, and structure of the national economic accounting framework, which is presented in the second volume.

There is also another advantage. By generating more interest among the readers on the various ways of applying the data to different issues at the very outset, the basic empirical knowledge needed for economic analysis could be disseminated more easily to a larger audience. As a consequence, many readers would be well-informed. That kind of approach would facilitate the training of a broad spectrum of well-informed new analysts in the long-run. The upshot of such a step would be

certainly beneficial to the community at large, because the newly trained analysts could be able to utilize the databases and evaluate the emerging events in the economy. Thus, eventually, the interests of the broader audience would be well served. These are just a few illustrations of advantages that would flow from the different style adopted here.

Having explained my two goals which prompted me to write this document in a style different from the traditional pattern of presentation, let me also explain the need and the benefits of a broader audience.

### **Benefits of a Broader Audience**

One may question why this document with three volumes should be focussed for a broader audience at this time. In answer to this question, I wish to highlight a few important benefits that would accrue by following such an approach.

- First, a broader audience including trainees and beginners is needed now to develop and strengthen a knowledge - based economy in Canada. Such an audience would be able to benefit from this reference compendium by understanding one of the important and currently available basic tools of economic analysis.
- Second, we would be able to increase the analytical potential in human resources to fill the gaps that are constantly created by the retirement of senior professionals.
- Third, the training programs of government statistical offices would be able to use this document for teaching purposes.

- Fourth, universities and colleges, which desire to introduce both short-term and long-term courses on the subject in the field of applied economics ranging from say, three weeks to three months, would have a ready-made textbook for their needs.
- Fifth, a flagship course in macro-economic input-output analysis could be developed in any statistical organization such as Statistics Canada using this document as the basic text book. Such a course would be enormously beneficial not only for beginners, but also for those who have already been working in the area to strengthen their basic knowledge and to sharpen their analytical and research skills.
- Sixth, this compendium has been written taking into account the Input-Output Accounts in general although, for the sake of examples, reference is made to the Accounts of the Canadian economy in particular. Since the Canadian Accounts follow closely the international Accounts recommended in the 1993 System of National Accounts of the United Nations and other major international organizations, this compendium is relevant for a reference document as well as for a text book not only in Canada but also in other countries of the world which have a system similar to the international system.

## Courses

Then, the next question that follows is: Where can we have such a specialized course at the present time to obtain all those benefits?



We know that universities and colleges teach the basic theories in Economics. However, specialized fields of applications such as the National Economic Accounts and their components (e.g., Input-Output Accounts) are generally left to the government departments which have the responsibility to produce those accounts. Therefore, at the present time, only the government offices which eventually get the benefit of knowledge in those specialized areas would have to introduce a training course tailored primarily to specific programs of work where such specialized knowledge is required using this as a text book.

Therefore, no matter how one looks at it, it is inarguable that a reference document such as this compendium outlining the details of the concepts, definitions and the national economic accounting structure with some answers to questions starting with 'what', 'why' and 'how' is highly desirable, timely, and useful for a broader audience. This conclusion appears to be very relevant at this stage, and the goal to provide conceptual knowledge and analytical know-how for all users, including trainees, in the new millennium, which is one of the driving forces of this publication, is not out of place.

### **Acknowledgements**

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I am hopeful that this compendium would serve the interests of various users in their quest for knowledge on the much-desired quantifiable type of economic analysis not only in Canada but also in other countries and would also provide them with an important analytical tool for use in special studies on technological changes as well as in the general economic analysis in this new millennium.

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August 2001

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Development



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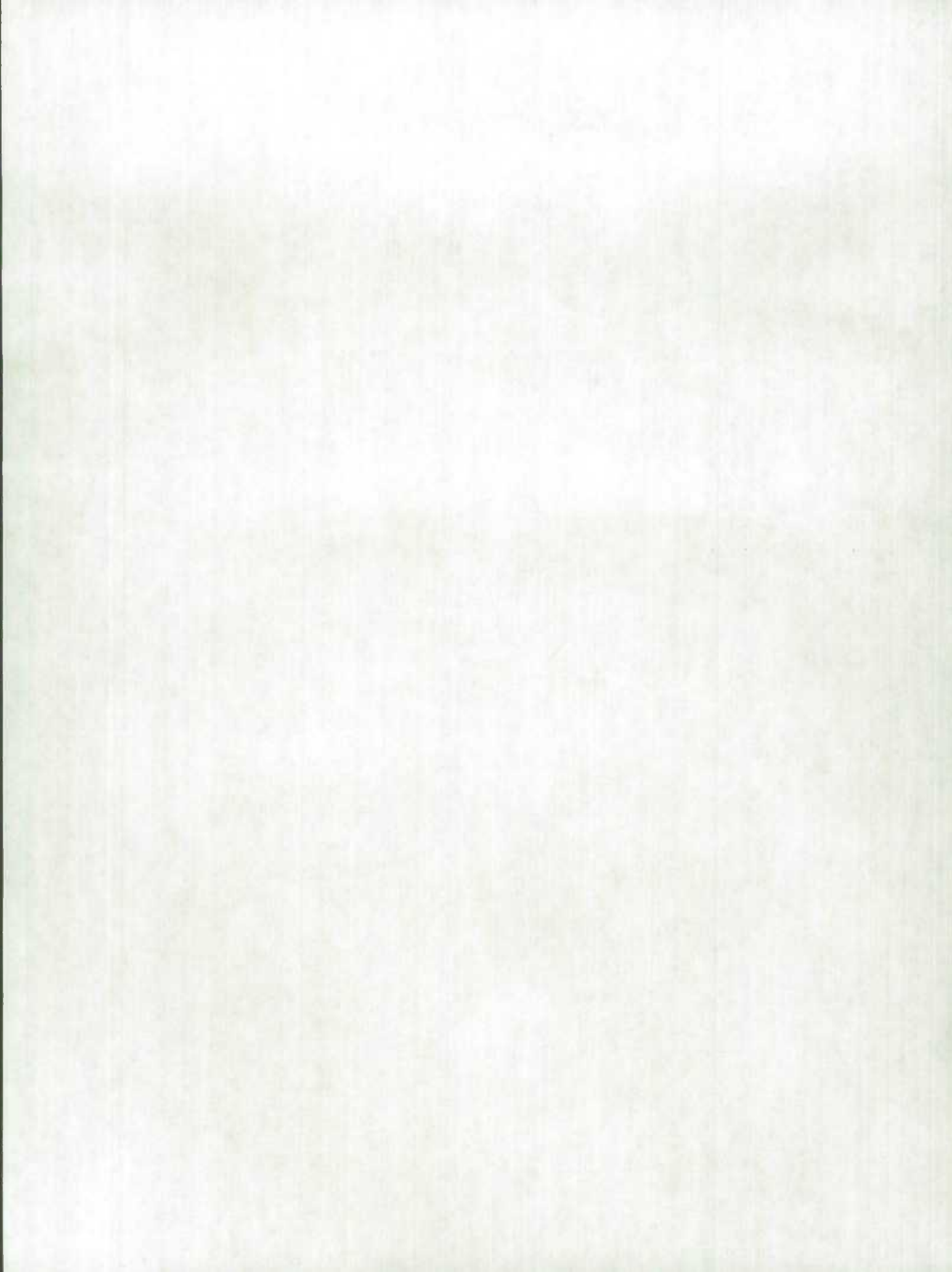
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***Volume Two:***

***Concepts and  
Accounting Structure***





## CONCEPTS AND ACCOUNTING STRUCTURE

### 1. KNOWLEDGE-BASED ECONOMY

As noted in the Introductory Chapter I, one of the objectives of this Compendium with three volumes is to reach the widest possible audience with a view to facilitating and promoting a knowledge-based economy for Canada. It is needless to say that Canada, like the rest of the countries in the world, may face the demographic problem of scarce 'trained personnel' as the older trained group in the population retires from active service. Therefore, Canada also has to gear the administration programs for training the needed workforce in all fields of activities



to ensure Canada's competitiveness in the global knowledge-based economy and to maintain it in this millennium.

This publication foresees such a future need and tries to provide the relevant information for the knowledge-based economy in the field of applied economics. Every effort has been made to keep the discussion as non-technical and unambiguous as possible to accelerate successful training process of uninitiated readers coming to the Accounts for the first time. Therefore, in its own way, this compendium aims to promote knowledge-based economy for Canada.

The Input-Output Accounts use several technical terms to record the transactions in the economy. We need to explain what is meant by those terms, so that the analysts and those who want to know more about the Accounts can understand what are the items measured, how the Accounts facilitate the economic analysis and how the economy can be evaluated in the various analytical studies.

First, let us see what are the concepts and how are they different from definitions. If we use the dictionary meaning of the terms 'concepts' and 'definitions' it is apparent that 'concepts' provide only a 'general explanation' of the terms with a general notion or idea. However, in most cases the general notion or idea of the terms is not sufficient for a proper understanding. In such cases, more precision is needed to explain the nature of the things or the meaning of the words in order to give a clear image of the subject matter with details of the implications in the key

words used in the terms concerned. Such precision requires the identification of the actual content of the terminology along with the specification of the parameters involved. Therefore, the general notion conveyed by the concepts has to be sharpened to give a clear meaning. Also, specific descriptions are needed to give precision in the meaning. This kind of explanation is generally called 'definition' and it is also required in addition to the 'concepts'. In other words, mere concepts which cover only the general ideas are not enough for a proper explanation and the concepts have to be accompanied by definitions which, in most some cases, have to sharpen the description of the terms used. Although in common practice, both concepts and definitions are used in an interchangeable manner, the distinction between the two terms is worth recognition.

Second, we have to recognize the fact that both concepts and definitions are the most fundamental building blocks. If we do not have the concepts and definitions, it would be impossible to arrange the facts in such ways as to make it possible to analyze and draw conclusions from them. They provide the guidance to develop a practical structure of the Input-Output Accounts which is described in the next chapter. In other words, the facts as reflected in the Statistics cannot be arranged properly in a meaningful structure if we do not have the concepts and definitions in the first place.

In this connection, Professors J.R. Hicks, Albert Gailford Hart, and James W. Ford wrote in their book on *The Social Framework of the American Economy*<sup>1</sup> as follows:

*'The method of modern economic investigation is the same as the method of all science. Economics studies facts and seeks to arrange the facts in such ways as make it possible to draw conclusions from them. As always, it is the arrangement which, is the delicate operation. Facts, arranged in the right way, speak for themselves; unarranged, they are dead as mutton. One of the main things we have to learn is how to arrange our facts properly'.*

Therefore, in order to arrange our facts in the Input-Output Accounts, this chapter tries to explain the relevant concepts and definitions of the terms used in the Input-Output Accounts.

Third, to facilitate the development of proper statistical information in the right way, we need the concepts and definitions. It is only then that both the suppliers of data and recipients of those data will be able to organize the information in such a way as to make it possible to draw valid conclusions from them.

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<sup>1</sup> J.R. Hicks, Albert Gailford Hart, and J.W. Ford, *The Social Framework of the American Economy*, New York, 1955, P. 5.



The above reasons reinforce the fact that there is a continuing need to be well informed of the underlying concepts and definitions not only for the collection of basic data, but also for on-going experiments and analysis based on those data.

As mentioned in the first volume, the Input-Output Accounts arrange the transactions of the economy in terms of the following four main groups:

- Industries;
- Commodities;
- primary inputs; and
- final demand categories.

As the structure is needed in the form of these four main groups, the transactions relating to the production and disposition functions have to be classified in terms of these four groups. The concepts and definitions of these groups follow.

## **2. CONCEPTS AND DEFINITIONS**

Before discussing the terms used in the four types of Accounts, it is necessary to explain the definition of Gross Domestic Product as it is the central measure for economic analysis. This will be followed by industries, commodities, primary inputs, and final demand categories.



### A) *Gross Domestic Product*

The Gross Domestic Product (GDP) is the central point of interest, within the structure of the Input-Output Accounts for economic analysis. As such, it needs to be defined precisely as the statistics required depend on the definition assigned to the GDP.

The Economic Accounts in general and the Input-Output Accounts in particular are mainly designed to measure 'production' and 'disposition' of goods and services in the economy. As such, the transactions involved in the production and disposition are the fundamental elements that need to be measured in the Accounts.

GDP consists of the total 'unduplicated' value of goods and services produced by 'residents' within a 'domestic economy'. It is a comprehensive measurement of production and disposition of goods and services.

The production should be 'unduplicated'. Also, it is only the 'residents' that have to produce the unduplicated production within a 'domestic economy'.

Let us now see the definitions of the terms 'unduplicated', 'residents' and 'domestic economy', which are vital in the above definition of GDP.

#### i) 'Unduplicated'

The term 'unduplicated', means that it is counted only once and that there is no double-counting.

To clarify the term 'unduplicated', let us take a simple example for a better understanding. Suppose a farmer produced wheat and sold it for \$1000 to a miller. Let us assume for simplicity that he has no expenses for seeds and fertilizer, etc., which are commonly referred, to, as 'input costs'.

The miller processed the wheat and sold the flour to a baker for \$1200. Then, the baker processed the flour into bread and sold it to the consumer for \$1500.

Assuming there were no other transactions in the economy, the unduplicated value of goods and services produced is only \$1500, which, by definition, is the GDP. The 'produced value' of wheat, namely \$1000, is counted only once, along with the values of \$200 from the miller, and \$300 from the baker, which amounted to \$500. It should be noted that the \$1000 value of wheat appeared three times - (once with the farmer, once with the miller, and once with the baker), – but was counted only once. There is therefore no duplication in the value of production determined to be of \$1500, as exemplified below in the measurement of GDP.

Value added by the farmer =	\$1000
Value added by the miller (1200 less 1000) =	\$200
Value added by the baker (1500 less 1200) =	\$300
Total unduplicated production in these transactions =	\$1500

Thus, in all the above cases, the value added is counted only once. If the term 'unduplicated' is not well understood at any stage of compilation of statistics, it

would be possible for double counting which could jeopardize proper economic analysis.

## ii) 'Resident'

Now, let us examine the term 'resident'. According to the 1993 international System of National Accounts,<sup>2</sup> 'resident', means both individuals and institutions such as government agencies, corporations, and non-profit organizations which have a 'centre of economic interest', such as a building or a dwelling and engage in economic activities for one year or more in the country's 'economic territory'.

Logically, then, anyone who has a centre of economic interest for less than a year has to be classified as a 'non-resident'.

Based on this definition, 'residence' of individuals and institutions in a given country for a year or more is an important element to qualify their production as 'domestic'. This 'one year' residence rule is designed, so that due to their long stay in the country, their general centre of economic interest normally rests in the given country to consume goods and services and to participate in production in the 'domestic territory' on a lasting basis.

There is, however, an exception to this general 'one year' rule, in the case of persons who, in spite of one year's residence should not be qualified for 'resident' status. Those persons are the foreign diplomatic, embassy, trade, and consular

<sup>2</sup> System of National Accounts 1993, op. Cit., p. 319.



representatives and members of the armed forces who may be stationed in the given country for one year or more. They are 'non-residents' in the countries of their residence despite the length of their stay. They will have to be counted in the countries to which they belong. In order to avoid 'double counting' of GDP, they will be treated as 'non-residents' in the countries of their actual residence. This exception is necessary, because they are expected to be counted in the GDP calculations of their respective countries, as will be explained in the next section under 'Domestic Economy'.

However, the foreign staff of the international bodies such as, the United Nations and its agencies, are regarded as residents of the countries in which the international institutions are located if they live for 'one year' in the countries of their location. This is in contrast to the position explained for foreign embassies, and diplomatic, consular, and trade representatives and members of the armed forces, who despite the 'one year' residence should not be regarded as residents. This departure in the case of staff of international institutions is necessary, because there will be no 'double counting' in the GDP by such a practice. The wages and salaries earned by the staff of the international institutions who are 'residents' for one-year or more would be considered as payments to 'residents' and counted as payments for services rendered in the GDP of the country in which they are 'residents'. Thus, they will be routed as 'exports of services' to the international institutions by the residents who will be considered as, 'producers of services' in the unincorporated business category. In other words, the wages and salaries

earned by these residents will be counted in the 'Mixed Income' category of the Income-based GDP, and 'exports of services' in the Expenditure-based GDP.

Such being the definition of a 'resident' and its impact on the GDP, let us enumerate who then are the non-residents. Those non-residents should have residence only for less than one year.

- (a) Foreign visitors and tourists whose specific purpose is mainly recreation, holidays, medical care, religions observances, family affairs, participation in national or international sports events, conferences and other meetings, participation of study tours and student programs, etc;
- (b) Crew members of foreign ships and airlines en-route to other destinations;
- (c) Seasonal workers who will be in the given country explicitly for purposes of seasonal employment only;
- (d) Foreign business travelers, repair and maintenance staff of non-resident enterprises who will be in the given country explicitly for the purposes of arranging business affairs, or repairing, installing and maintaining machinery and equipment;
- (e) Foreign employees of international institutions who are on specific assignments of less than one year in duration.
- (f) Foreign entertainers such as singers, dancers, etc. whose main purpose is to give the performances during their visits. They are residents of the countries in which they live, not the countries in which they give entertainment performances.



- (g) Border workers who cross the border between two countries regularly in order to work in one country but live in the other country are the non-residents in the country of their work. They are residents of the countries in which they live, not the countries in which, they are employed.

The individuals of the above categories, will have their centre of economic interest in their own countries and their production should be counted in the GDP of their countries, not in the countries where they might be stationed temporarily for less than a year.

### iii) Domestic Economy

The term 'domestic economy' refers to a country's economy within the 'domestic territory' or simply called 'economic territory'<sup>3</sup> that comprises a country's geographical territory administrated by the government, embracing the airspace, territorial waters, and territorial enclaves such as embassies, consulates, trade centres, and military bases, scientific stations, information and immigration offices, aid agencies, etc. that are physically located in other countries. It includes any islands which are subject to the same government administration of the mainland.

It excludes international organizations such as the United Nations and territorial enclaves used by foreign governments (such as foreign embassies) that are physically located within the geographical boundaries of that country, but are

<sup>3</sup> *Ibid.*, P. 319.

classified as non-residents institutions operating in territorial enclaves used by international organizations and foreign governments<sup>4</sup> even though they are physically located in that country.

However, bonded warehouses or factories operated by resident business enterprises in other countries are not considered as territorial enclaves. They are considered as part of the economic territory of the country in which they are physically located.

Based on the above definition of economic territory, the Canadian domestic economy or economic territory, covers ten provinces and three territories and includes Canadian embassies and trade missions, located in other countries, but does not include international organizations such as the International Civil Aviation Organization (ICAO) and foreign embassies physically located within those ten provinces and three territories.

In order to give more precision to the definition of the term 'domestic economy', let us enumerate all the components covered by the 'economic territory' of Canada.

They are:

- (a) 'Resident' industries that are engaged in production of goods and services; this category covers all Canadian establishments as well as foreign

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<sup>4</sup> *Ibid.*, P. 319.

establishments engaged in production as long as their residence in the domestic territory is *for one year or more*;

- (b) Ships operated by residents in international waters;
- (c) Aircraft operated by residents;
- (d) Fishing fleets and vessels operated by residents in international waters;
- (e) Floating platforms, oil and natural gas rigs engaged in extraction by residents in areas in which the country has the exclusive rights to exploitation by virtue of international agreements or pronouncements; and
- (f) Space stations and satellites operated by residents in the space.

The items, (b) to (d) are considered part of the domestic economic territory for two reasons.

- First, the facilities will be subject to the laws, regulations and protection of Canada.
- Second, they are likely to be linked more closely with the Canadian economy than that of other countries which, they may visit in the course of their productive activities.

It follows, then, that any production that takes place within the confines of the 'domestic economic territory' will be part of 'domestic production'.

The terms 'resident' and 'domestic economy' determine the main boundaries of domestic production of any country. The GDP is estimated, in the context of these boundaries.



Let us take a different situation involving foreign nationals. If, the ships, aircraft, fishing vessels, oil rigs and space stations mentioned earlier in items (a) to (f) are owned and operated by residents, but are run by foreign nationals as employees of the establishments concerned, the operations will still be classified as resident industries. If the foreign nationals, are employed for one year or more, they will be deemed as residents irrespective of their foreign nationality. If, however, they are temporary employees with a term of less than one year, they will be treated as non-residents employed in the domestic economic territory. Then, the establishments will be importing the services of the foreigners who, for GDP purposes, are deemed to be non-residents of Canada. The foreign employees in this case will be exporting their services to the establishments employing them. This will be similar to the border workers such as U.S citizens of say, Detroit, working in Windsor, Ontario. Let us see in general terms the approaches to measure the GDP in the next section.

**B) *Approaches to measure Gross Domestic Product at Market Prices for the total economy.***

There are two approaches to measure Gross Domestic Product at Market Prices for the total economy.

- The first way is to measure all the incomes generated in the process of production. This is called: the Income-based GDP at Market Prices.



- The second way is to measure all the final expenditures of goods and services by the four sectors of the economy, namely, the Persons, the Business, the Government and Non-residents. This is called: the Expenditure-based GDP at Market Prices.

Let us see the definitions of the terms used in these two approaches.

### C) *Two Approaches to measure Market Price GDP*

- i) Income-based Gross Domestic Product at Market Prices for total economy.

The income-based GDP measure uses the 'sum of incomes' arising in productive activity. The questions that follow then are:

- a) Whose income? And
- b) What kinds of income?

Any production process requires the use of three factors of production, namely, land, labour and capital, which earn income as a result of that production. In modern practice, however, these three factors were narrowed down to two, namely, labour and capital, on the ground that land gets embodied into the category of capital, either in the form of buildings, houses, agricultural land, mines, etc.<sup>5</sup>

The factor income for capital constitutes two main components in the Input-Output Accounts.

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<sup>5</sup> J.R. Hicks, Albert Gailford Hart, and James W. Ford, 'The Social Framework of the American Economy', *op.cit.*, p. 43, p. 65, and p. 92.

- The first one is for corporations in the form of 'surplus' which constitutes 'profits and investment income' and 'capital consumption' allowances of capital assets used in the production process:
- The second component is the 'Mixed Income' for unincorporated businesses which, include self-employed workers and farmers. The 'Mixed Income' represents returns to the 'labour' as well as 'capital'. For example, the 'Mixed Income' of farmers includes 'rent for the use of agricultural land', 'labour income' from self-employment, 'property income' from the use of buildings and machinery, and also 'profits' for entrepreneurship and risk-taking. All of these so-called 'factor earnings' are consolidated in the one measure called 'Mixed Income'.

In addition, we must also consider the contribution of the government for services in the productive activity by way of licensing, regulating and providing other services such as streets, lighting, sewage etc. As is well known, the payment of licence fees is needed to start a commercial or business establishment. Property taxes, which, are normally based on the value of land, buildings, and machinery employed in the establishment, are also needed for other services. As far as the industry is concerned, these payments constitute a part of the cost of producing the goods and services. They are the income to the government in the form of 'indirect taxes'.

Sometimes, the government regulates the business by formulating a pricing policy for the final product (e.g., milk and wheat). Some other times, the government gives financial assistance to business for its current operations and thus shares some costs of the businesses. In such a case, the government gives a transfer payment to the business in order to share the costs, so that the total cost to the business establishment which, has to be passed on the consumers will be lower. Such transfers from government to the business establishments are called 'subsidies'.

These 'subsidies' are taken, as a part of income and profits by the business establishments in their accounts. As far as the GDP is concerned, the subsidies, should be excluded, as they are merely transfers from government, but not the income due to sale of the production. They should not, be used, as part of factor income for 'capital' to measure the value of production. They are therefore, articulated as a negative entry in the Income-based GDP calculations. Although, the "subsidies" are normally recorded separately, they are meant to be a negative adjustment to the factor income (namely, Mixed Income and Operating Surplus) of the capital employed by the business sector.

In essence, then, the factor income of labour and capital along with the indirect taxes paid to the government less subsidies received from the government constitute the Income-based GDP at Market Prices. This is called, the "factor income" method of compiling the GDP and it is the most direct approach of the



measurement as it uses the income items of the factors of production and the government as explained above.

More specifically, the income items that, are measured in the Income-based GDP at Market Prices are the following:

- Wages and Salaries;
- Supplementary Labour Income;
- Mixed Income which includes Net Income of Unincorporated Business and Farmers;
- Other Operating Surplus;
- Indirect Taxes; and
- Subsidies (Negative item).

In the Input-Output Accounts, they are shown, as Primary Inputs in both the Input (Use) matrix of Industries and Final Demand matrix as mentioned in Table F. The sum of these items is the Income-based Gross Domestic Product at Market Prices.

Following are the specific definitions for these items.

### **Use Matrix**

The Use matrix has two parts:

- The first part relates to commodities or goods and services
- The second part relates to primary inputs



Although, it is normally called 'Use matrix' in general usage, it is technically the augmented Use matrix with both commodities and primary inputs shown in it. Thus, the matrix covers all the 'expenditure items' of the producers.

Strictly speaking, this is the 'augmented' use matrix as it incorporates the 'primary inputs' besides 'commodities' or 'goods and services'. In essence, the Input-Output Accounts provide three matrices in three different tables and give a basic statistical picture of the key economic processes. The Use matrix tells us what resources of the economy are used in the production process. In so doing, they depict the income generated by 'labour' and 'capital' (which are technically called the primary factors of production) in the form of 'Labour Income' and 'Operating Surplus' respectively.

Indirect taxes are payments made to government while subsidies are receipts from government by industries. As subsidies are government transfer payments to the industries and are not part of production, they are shown as negative entries in the matrix. Sometimes, the subsidies are called 'negative indirect taxes' although they are meant to be negative adjustments to the returns to capital which, are measured in the form of 'Mixed income' and 'Other operating surplus' in the Input-Output Accounts.

While the augmented 'Use' matrix with the primary inputs, provides items needed for measuring Income-based Gross Domestic Product (GDP), the Final Demand matrix provides the items needed for measuring Expenditure-based Gross Domestic Product (GDP) which, will be discussed in the next section. (See Table F-2 for this exercise).

More specifically, these Accounts provide details of the goods and services used by industries in order to produce other goods and services, which is referred to as 'intermediate use'. This intermediate use is recorded in the 'Use' (Input) matrix only and includes all goods and services purchased from others such as other industries and exporters of other countries. Also, the 'Use' matrix also provides information on the payments made by industries for inputs that are not purchased from others and these inputs are called 'Primary Inputs'. They are:

- wages and salaries;
- supplementary labour income;
- mixed income;
- other operating surplus;
- indirect taxes; and
- subsidies

**Table F-2: Example of GDP at Market Prices and its Derivation from the Input-Output Accounting Framework Using 1992 data.**

<b>\$Millions</b>				
	<b>Commodities</b>	<b>Total use (Inputs) Of all Industries (Appendix V)</b>	<b>Total of Final Demand Categories (Appendix VI)</b>	<b>Total of Primary Inputs Commodity of both Industries and Final Demand Categories</b>
1	Grains	2,396.70	2,244.00	
2	Other Agricultural Products	15,649.70	4,246.50	
3	Forestry Products	7,462.40	168.00	
4	Fish, Seafood and Trapping Products	1,206.90	541.30	
5	Metal Ores & Concentrates	6,891.60	3,399.90	
6	Mineral Fuels	14,403.30	5,357.50	
7	Non-Metallic Minerals	2,017.00	193.30	
8	Services incidental to Mining	3,392.30	-24.30	
9	Meat, Fish and Dairy Products	8,232.70	12,841.20	
10	Fruit, Vegetables & Other Food Products, Feeds	7,664.30	11,118.10	
11	Soft Drinks & Alcoholic Beverages	2,579.80	9,397.50	
12	Tobacco & Tobacco Products	268.00	1,729.50	
13	Leather, Rubber & Plastic Products	7,959.20	-231.90	
14	Textile Products	6,277.20	-979.70	
15	Hosiery, Clothing & Accessories	1,078.10	4,886.60	
16	Lumber & Wood Products	8,742.80	6,348.20	
17	Furniture & Fixtures	330.60	3,806.70	
18	Wood Pulp, Paper & Paper Products	11,995.30	10,329.50	
19	Printing & Publishing	12,577.80	-10.10	
20	Primary Metal Products	16,959.60	3,632.30	
21	Other Metal Products	14,742.60	-1,227.10	
22	Machinery and Equipment	9,675.60	2,002.20	
23	Motor Vehicle, Other Transport Equipment & Parts	29,616.10	24,095.90	
24	Electrical, Electronic and Communication Products	14,356.70	3,036.90	
25	Non-Metallic Mineral Products	6,546.70	-626.40	
26	Petroleum and Coal Products	12,586.40	5,609.90	
27	Chemicals, Pharmaceuticals & Chemical Products	21,998.10	1,180.20	
28	Other Manufactured Products	6,416.70	1,579.20	
29	Residential Construction	--	31,039.20	
30	Non Residential Construction	--	42,488.90	
31	Repair Construction	15,232.80	--	
32	Transportation & Storage	34,646.10	11,430.60	
33	Communications Services	16,116.20	7,961.50	
34	Other Utilities	18,537.60	12,703.10	
35	Wholesaling Margins	24,592.30	26,104.40	
36	Retailing Margins	3,790.30	43,782.60	
37	Gross Imputed Rent	--	59,950.00	
38	Other Finance, Insurance & Real Estate Service	54,586.70	51,849.80	
39	Business & Computer Services	45,680.60	1,428.50	
40	Private Education Services	1,728.90	2,979.90	
41	Health & Social Services	14,934.20	11,750.50	
42	Accommodation Services & Meals	5,764.10	19,528.40	
43	Other Services	21,796.30	23,439.90	
44	Transportation Margins	7,537.80	8,951.70	
45	Operating, Office, Cafeteria & Laboratory Supplies	30,981.00	--	
46	Travel & Entertainment, Advertising & Promotion	24,538.40	70.60	
47	Non-Profit Institutions Serving Households	--	8,668.10	
48	Government Sector Services	--	169,262.60	
49	Non-competing Imports	779.60	-779.60	
50	Unallocated Imports & Exports	1,030.60	-1,030.60	
51	Sales of Other Government Services	2,920.00	818.10	
	<b>Sub Total 1 to 51</b>	<b>579,217.70</b>	<b>647,043.70</b>	
52	Indirect Taxes	55,088.40	51,499.30	106,587.70
53	Subsidies	-12,323.50	--	-12,323.50
54	Wages & Salaries	343,068.90	--	343,068.90
55	Supplementary Labour Income	44,719.60	--	44,719.60
56	Mixed Income	41,127.70	--	41,127.70
57	Other Operating Surplus	175,362.60	--	175,362.60
	<b>Sub Total 52 to 57</b>	<b>647,043.70</b>	<b>698,543.00</b>	<b>698,543.00</b>
	<b>Total</b>	<b>1,226,261.50</b>	<b>698,543.00</b>	



These items are defined below in summary fashion. More detailed definitions are given in the later sections of this chapter.

- |   |  |   |
|---|--|---|
| B) Wages and Salaries; and  | }  | Payments to labour consisting of all employees which is called “Labour Income”; |
| <br>(b) Supplementary Labour Income   |  |   |
| (c) Mixed Income which includes Net   | Payments made to the owner-  |   |
| operators of unincorporated businesses and farmers (e.g. Self employed persons such as doctors and engineers and farmers who utilize their own “capital” and their own “labour” services). Thus, the mixed income, in this context, relates to the combined total of both “capital” and “labour”. |  |   |
| (d) Other Operating Surplus   | Other operating surplus<br>includes: profits of corporations<br>and government business enterprises; Plus:<br>Capital consumption allowances of corporations<br>and unincorporated businesses;<br><br>Plus: interest paid by both corporations and<br>unincorporated businesses;<br><br>Minus: interest received by both<br>corporations and unincorporated<br>businesses. |   |



(e) Indirect Taxes

Plus: Inventory valuation adjustment of both corporations and unincorporated businesses;

Indirect taxes are payments to government by all sectors of the economy and they are related to either production process (e.g. licences and property taxes) and consumption (e.g. sales taxes), but not on income (e.g. income taxes). The taxes which, are related to income are called “direct taxes” and they are not measured as such in the Input-Output Accounts because the income items (a), (b), (c) and (d) mentioned above are on a gross basis including direct taxes;

(f) Subsidies

Subsidies are transfer payments. As such, they are shown as a negative entry representing receipts by industries from government which, should not be measured as production.

While indirect taxes are payments made to government in the form of sales taxes, property taxes and the like by all sectors of the economy, the subsidies are payments received by industries from government as transfer payments.

These items are the income items of labour, capital and government and they constitute the Income-based Gross Domestic Product at market prices. The above summary definitions are elaborated next.

### **Payments to labour consisting of all employees which is called "Labour Income"**

#### **Wages and Salaries**

Wages and salaries include all earnings which are part of remuneration from employment or work performed by Canadian residents whether they are paid in cash or kind such as free boarding and lodging. Based on this definition, they include earnings from employment obtained through commissions, directors' fees, tips, bonuses and allowances such as cost of living allowance. Payment for holidays and leave with pay (e.g. sick leave, maternity leave) are also included in this category. All these earnings should be included before deducting income tax or any other items such as contributions to pension, unemployment and other social insurance programs. As such, they are "gross" earnings before any deductions.

Although, some of these items such as bonuses, commissions, and retroactive increases are paid by employers in the periods unrelated to the actual employment, they are measured in the periods in which they are actually paid because of the statistical difficulties of allocating them to the periods in which they are earned by employees.

Excluded from this category are earnings from self-employment or partnership, income from independent professional or occupational practice, income from farming and fishing as these types of earnings are included in another category called "Net income of unincorporated business" which is otherwise called "Mixed income". Because these earnings contain returns to two factors of production, namely, labour and capital, which cannot be separated, it is called the "Mixed income" consisting of earnings from employment as well as entrepreneurship.

Based on this concept of wages and salaries, military pay which, used to be a separate category before the historical revision, is now included in the "wages and salaries" category. In view of the general concept of wages and salaries, all wages and salaries paid to First Nations are included in this category.

The wages and salaries paid to employees of the First Nations Organizations consist of two items. The first item is the employment income which, represents wages and salaries paid to Status Indians who have elected to contribute to Canada Pension Plan as well as the wages and salaries paid to Non-Status Indian employees. The second item is the estimated insurable earnings which, represent the income of Status Indians who are not required to report employment income for income tax purposes. They must however, report their insurable earnings for Employment Insurance purposes. This second item, which used to be in the Local Government administration of the Government Sector has been moved to the Personal sector.



In the case of Life Insurance Commissioned Agents, there are two types of reporting patterns for income tax purpose. The first type relates to those agents who are actually employees of insurance companies whose commissioned income is similar to employment income. This is included in wages and salaries. The second type relates to agents who are not employees of the insurance companies as they are self-employed independent agents. Their commission is similar to business income of unincorporated nature and is a part of "Mixed Income" category, but not wages and salaries.

Generally speaking, employees get reimbursed for travel in the form of travelling allowances. This item is not part of remuneration, but it is merely a payment for travel performed in the course of official duties.

Similarly, there are car allowances, daily allowances, housing allowances, education allowances, etc. All these types of allowances are in effect, not a part of remuneration and hence they should not be included in wages and salaries.

However, there are some other type of allowances such as directors' allowances which form a part of remuneration for services rendered such as attending meetings, participating in special task forces, etc. This type of allowances should be included in wages and salaries, since they are not reimbursements for expenses.



## Supplementary Labour Income

This category consists of expenditures incurred by employers on account of labour that can be regarded as payment for employees' services. Based on this concept, employers' contributions to pensions, welfare, employment insurance and workers' compensation programs are included in this category.

In addition to these contributions employers give "severance pay" or "termination pay" "early retirement bonuses", "golden handshake bonuses" and the like all of which can be called "retirement allowances" paid to the employees for past services at the time of leaving. These expenditures are also tantamount to payment for employees' services paid at the time of severance from employment. As these payments are not systematically captured prior to the historical revision, this omission has now been rectified in the 1997 historical revision by including them in the Supplementary Labour Income category. In addition to these expenditures, employers make actuarial assessments of pension funds and contribute the estimated deficits periodically to the Pension funds. These expenditures are also included in the Supplementary Labour Income category based on the definition mentioned earlier.

In Canada, the Workers' Compensation Boards pay 100% of the cost of all services provided to injured workers for hospital treatment and medical aid which includes visits to physicians, chiropractors, physiotherapists and rehabilitation clinics in addition to incidental expenses such as home care nursing, travel to and from

treatment centres, clothing allowances, medication, and medical devices (e.g. eye glasses, crutches, artificial legs, braces etc.). Employers are not billed for these expenses. Instead, the Workers' Compensation Boards incur these costs out of the general assessment revenue collected from employers. Prior to the historical revision, these payments were treated as transfer payments but not as supplementary labour income. This has been changed in the historical revision on the grounds that these are costs incurred by employers on account of labour.

The Workers' Compensation Boards also levy special surcharges on the employers who have poor safety-performance records. Employers with good record of safety are rewarded by a rebate. These special surcharges and rebates are the results of actuarial results of industries for long term disabilities, short-term disabilities, and medical aid as well as trends in work related injuries. If an industry has increasing costs of benefits concerning medical aid benefits, the rate of assessment on the employers in that industry will increase. Thus, the total amount paid by employers to the Workers' Compensation Boards includes these surcharges net of rebates and it is included in the supplementary labour income category.

Prior to the historical revision, payroll taxes were included in the Supplementary Labour Income on the ground that they were also costs to the employers on account of labour. Although these taxes were incurred on account of labour, they are not specifically meant to be solely for a specified economic benefit to the employees as in the case of contributions to pensions and social security programs

such as employment insurance and workers' compensation. Therefore, these taxes are now treated as indirect taxes, but not as supplementary labour income. This is just a classification change from Supplementary Labour Income to Indirect taxes category.

### **Mixed Income**

Mixed Income includes payments accruing to the owner-operators of unincorporated business (e.g. self-employed professionals such as doctors and engineers; and others such as farmers who provide both capital and their own services (i.e. labour).

Because these earnings contain returns to two factors of production, namely, labour and capital, which cannot be separated, it is called the "Mixed income". In other words, it consists of earnings from employment as well as entrepreneurship.

This category covers two components. The first one relates to the non-farm unincorporated business (i.e. all others excluding farmers) which is called the 'Net income of non-farm unincorporated business'. The second one relates exclusively to the farm production of farmers in the unincorporated business which, is called 'Accrued net income of farm operations from farm production'. The profits of incorporated farms appear in the other category called 'Other Operating Surplus'.



Both components of this category include government subsidies, and they are considered, as incomes of one of the factors of production, namely, capital.

However, the total subsidies are eliminated by articulating in another category in a negative entry as they do not form part of productive activity. For example, all the farm subsidies are included in 'Accrued net income of farm operators from farm production' and the same subsidies are excluded as a negative entry in the separate category called "subsidies".

### **Other Operating Surplus**

This category includes several items as listed below:

Other Operating Surplus includes: profits of corporations including government business enterprises;

Plus: Capital consumption allowances of corporations and unincorporated businesses;

Plus: interest paid by both corporations and unincorporated businesses;

Minus: interest received by both corporations and unincorporated businesses;

Plus: Inventory valuation adjustment of both corporations and unincorporated businesses.

The 'profits of corporations' represent the 'net earnings' after deduction of capital consumption allowances which, are added later on in order to derive the 'Operating surplus'. The corporations file their financial statements showing income, expenditures, and profits as calculated for their own books. The basic data



received from those statements are scrutinized further by the Industrial Organization and Finance Division of Statistics Canada and several adjustments are made to the profits data to derive the 'profits' figure based on the national accounting concepts. For example, corporations include Canadian dividends received from other corporations. These dividends are excluded as the 'profits' for the National Accounts should be measured before distribution of dividends. All capital gains or losses are also excluded, since they do not represent any production in the economy. They represent only transfers from the paying unit to the receiving unit. Also, 'bad debts written off' and 'charitable contributions paid' which are deducted by corporations to derive the book profits are added back as they are also transfer payments. In effect, then, the book profits calculated and reported by corporations are adjusted and then used in the SNA. Besides the profits, 'operating surplus' contains other additions and deductions for items such as 'capital consumption allowances', 'interest and dividends' as mentioned earlier.

They are discussed below.

The capital consumption allowances represent the using up of capital in the productive process. The interest item includes all categories of interest, namely, interest on bonds; interest on mortgages; interest on bank deposits; and yield on treasury bills. The inventory valuation adjustment represents gains and losses on the stocks of inventories which, must be removed in order to measure the value of current production. It is the difference between the change in inventory book

values and the value of physical change in inventories and it represents the net holding gain or loss realized by business as a result of price changes and included in their profits. All these adjustments to the profits will yield the 'operating surplus' as defined for the Input-Output Accounts. This is the general approach for all industries except for the Finance industry which, includes Banks and similar deposit-receiving establishments (e.g. credit unions, trust companies).

### **Imputed Interest**

Profits of corporations in Finance industry and also the operating surplus calculated for the Input-Output Accounts for these institutions include an additional estimate for imputed interest received by Financial institutions such as Banks. The rationale for this adjustment lies in the concept of income originating in an industry. The conventional procedure for estimating income originating in a particular industry, is by adding together all payments made by the industry to the factors of production in the form of wages and salaries for the labour and operating surplus for the capital. As noted earlier, the concept of operating surplus requires two explicit adjustments to exclude interest received and to add interest paid. If these adjustments are made to the profits of the financial institutions such as banks which finance the bulk of their activities from the excess of 'interest income received from loans' over 'interest paid to depositors', the income originating will be either negative or too small as the explicit monetary service charges which are collected from customers represent only a relatively small portion of their total revenues.

This is the result of short-circuiting accounting work of direct costs attributable to transactions involving services to depositors and borrowers for services rendered as elaborated below. What is obscured in such transactions, is the fact that financial intermediaries provide a variety of services to their depositors without a specific charge for their services such as accounting, checking, and investment services. The institutions themselves finance these services by retaining part of the revenues earned from investing the depositors' funds. The result of this procedure, is to short-circuit the accounting work of income and expenditure transactions which would show up explicitly if all revenues earned by investing depositor' funds are paid out to depositors, and if specific charges were then levied for all the services rendered to depositors which will reflect in their income. In the system of National Accounts and also in the Input-Output Accounts, this problem is resolved by making an imputation of service charge for the short-circuited transactions, namely, the services rendered to depositors without a specific charge. The amount of the imputation for such services is a part of the difference between the 'interest income received from loans given to borrowers' and the 'interest paid to depositors'. This imputed amount is allocated between depositors and borrowers, because the specific charges due from borrowers for the funds borrowed by them are included in the interest received by charging them a higher rate than what it would cost them to receive deposits. Thus, the borrowers, too, receive services from the financial intermediaries as the institutions would have to check on the credit rating of borrowers, provide some reserves for bad loans, bear costs for internal accounting etc. That is why, a portion of the difference between the



interest income and the interest payments is attributable to the borrowers of funds also.

However, the entire imputation is added back to profits. Then the total interest received is deducted, while the interest paid is added in the calculation of operating surplus of the finance industry.

### **Indirect Taxes**

Indirect Taxes are payments to government by all sectors of the economy. Taxes are compulsory payments to governments by individuals and businesses. They are levied on income, property, production, sales, production process, and production machinery and equipment etc. They can be grouped into two categories.

- The first category is the 'direct' tax. It is called "direct" because it has no intermediaries and it is levied on the individuals and businesses who ultimately bear the burden of it especially on 'income'. Therefore the 'direct' taxes are essentially 'income' taxes and the like whether they are called income taxes or not.
- The second category is the 'indirect' tax. It is called 'indirect' because it has intermediaries and it is levied on property, production, sales, production process, and means of production (i.e. gadgets, machinery and equipment which can be used for production) which may eventually generate income. Examples of these indirect taxes are: property taxes on houses; excise taxes on alcohol and



tobacco; sales taxes; licences to run businesses; hunting and fishing licences; motor vehicle licences and the like.

These “indirect” taxes can be disaggregated into two types based on their nature.

- The first type is ‘commodity indirect tax’, which is levied on a particular ‘product’ manufactured or sold. These commodity indirect taxes are also called “taxes on products”. Examples of these taxes are: sales taxes; Goods and Service Taxes (GST). In this type of indirect taxes, the vendor who sells the goods and services is the intermediary and the consumer pays the tax through this intermediary. The vendor collects the taxes from the consumers to whom the goods are sold and remits the taxes to the government periodically (e.g. monthly).
- The second type is ‘non-commodity indirect tax’ and it is not based on a particular product manufactured or sold. It is based only on the property namely houses, production equipment used for various operations such as fishing, hunting or manufacturing, and other production, all of which may eventually generate income to the producer. In this type of indirect tax, income-producing factors are generally used as the basis for taxation. The owners who possess these factors of production are liable to pay this type of taxes.

## Subsidies

Subsidies are transfer payments. As such, they are shown as a negative entry representing receipts by industries from government which, should not be measured as production.

These items, which are shown, below are the income items of labour, capital and government and they constitute the Income-based Gross Domestic Product at market prices.

- Wages and salaries;
- Supplementary labour income;
- Mixed income;
- Other operating surplus;
- Indirect taxes; and
- Less: subsidies

While indirect taxes are payments made to government in the form of sales taxes, property taxes and the like by all sectors of the economy, the subsidies are payments received by industries from government as transfer payments.

Subsidies are government grants on current account to business establishments.

One of the examples which, falls into this category is the milk subsidy which is paid to the farmers. In the context of this general definition, the industries receiving the subsidies are obviously supposed to sell their products cheaper to consumers as some of the costs are borne by the government in the form of

subsidies. In other words, the payment of subsidy to industries is tantamount to sharing the production costs of the industries concerned, so that the commodity prices fixed by those industries would be lower to the extent of those subsidies. It follows, then, that if the government does not give the subsidies to industries, the production costs and also sale prices would be that much higher, other things being equal subsidies can be classified into two types:

- (i) 'commodity subsidies'; and
- (ii) 'non-commodity subsidies'.

As the name implies, the 'commodity subsidies' are associated with specific products such as subsidies given to milk producers and Canada Post Corporation. These are also called 'subsidies on products'.

In contrast, the 'non-commodity subsidies' are not associated with specific products. Examples include subsidies given to industries for work force training, for disaster relief, and for sharing high interest costs. These subsidies have the characteristics of sharing the operating costs of the business establishment concerned irrespective of the commodities produced. These subsidies are also called 'subsidies on production'.

If one is interested to know what the prices for the products of those industries would have been, had it not been for the subsidies, one could mechanically allocate them to the production of the receiving industries based on the assumption that the



receiving industries pass on the subsidies through lower prices (i.e. prices which otherwise would have been higher).

ii) Expenditure-based Gross Domestic Product at Market Prices for the Total Economy

What is “expenditure-based GDP?

As is evident in the title itself; the GDP measure in this case is based on the “sum of expenditures”.

We have seen earlier how the GDP is based on the ‘sum of incomes’ of the factors of production and the government arising out of the productive activity to generate the final output. In the ‘expenditure-based’ approach, the disposition of the final output through the various channels such as consumers, governments, business enterprises, and non-residents is accounted for in the form of various aggregates shown in the Final Demand matrix of the Input-Output Accounts. The Final Demand Categories are discussed next.

As the Final Demand matrix shows categories of expenditure contributing to the Gross Domestic Product at market prices, it is also called the ‘Expenditure-based Gross Domestic Product’. The categories in this matrix provide details of goods and services finally utilized in the economy for consumption or investment or exports.



They are listed below for information.

- (a) Personal expenditure on goods and services;
- (b) Net Government current expenditure on goods and services;
- (c) Gross fixed capital formation (Business and Government);
- (d) Value of physical change in inventories (VPC);
- (e) Exports of goods and services; and
- (f) Imports of goods and services. (Negative entry as the goods and services are produced outside Canada and they do not form part of the domestic production, but unavoidably counted in the other final demand categories of expenditure on goods and services).

In other words, the expenditure-based GDP is equivalent to the sum of items (a) to (f) shown above.

In the Input-Output Accounts, all these categories contain sub-categories within them as will be discussed in later chapters. These sub-categories contain data for goods and services and they can also be aggregated into the above six main categories for analytical purposes. Thus, as the Final Demand matrix contains good and services data for the Expenditure-based Gross Domestic Product, it can also be used, among other things, to study the commodity composition of Gross Domestic Product at market prices.

## Final Demand Categories

In addition to the Make and Use matrices, the Input-Output Accounts provide details about the purchase of goods and services by persons, government and foreigners, as well as the purchase of investment goods by industries and governments for final consumption. This is called the 'Final Demand' matrix. The purchases of foreign goods and services imported into Canada, are also shown here as a negative entry, as these goods and services originate outside the domestic production, but are used up in the other categories of final consumption such as personnel expenditure, government expenditure, gross fixed capital formation, exports, and inventories, in addition to intermediate inputs of industries.

The following final demand categories at the Small (S) level of aggregation with the corresponding work sheet (W) level are shown in Table 42.

Personal expenditures, durable goods

Personal expenditures, semi-durable goods

Personal expenditures, non-durable goods

Personal expenditures, services

Machinery & equipment, non-government sector

Machinery & equipment, government sector

Construction, excluding housing, non-government sector

Housing construction, non-government sector

Construction, government sector

Inventories (Value of Physical change in inventories)  
Government net current expenditures on goods and services  
Exports of goods and services

By definition, the government and households are consumers and they utilize the goods and services for their consumption. The purchases by foreigners are considered, as exports and they form a part of consumption by foreigners as far as the Input-Output Accounts are concerned. In such a case, some of the exports can be utilized for intermediate consumption by foreign industries to produce other goods (i.e. lumber).

Imports of goods and services (Negative entry as the goods and services are produced outside Canada and as they do not form part of the domestic production of Canada).

The sum of these categories represents the Expenditure-based Gross Domestic Product at Market Prices. This can be disaggregated by commodity by using the Final Demand Matrix, because the Input-Output Accounts are compiled by commodity. In other words, the value of each commodity for the above categories can be added together to derive the commodity content of the Expenditure-based Gross Domestic Product at market prices.



Both the Input matrix and the Output matrix represent only the domestic production, whether it is based on resources produced within the country, or imported from other countries. The imported commodity values are not deducted in both the matrices.

However, in the Final Demand matrix, the imports are deducted at the total level for the economy as a whole irrespective of who consumed it - - whether it is the industry or one of the categories of Final Demand.

Also, the total value of output in the output matrix is duplicated in the sense that the value of output of an industry which is used as input in other industries is measured twice – once in the industry which used it to produce other goods (i.e., producing industry) and second time in the industry which used the output of producing industry as its inputs. Therefore, the output matrix shows only ‘Gross Output’, but not an unduplicated output. This unduplicated measure can only be obtained in the final demand matrix from the expenditure side or by adding the factor incomes of both the Input and Final Demand matrices.

Item (ii) (d) above, reflects the change in inventories either by way of additions to or withdrawals from, the previous stock at the beginning of the given accounting period. The additions represent ‘unsold’ goods while ‘withdrawals’ devote the previous accounting period’s which should not be counted in the present period.

Item (f) represents the production of non-residents and it is deducted by way of a



negative entry as we are interested in measuring the production of the residents within the domestic economic territory. It should be remembered, in this approach, that only purchasers of final output should be included in the various expenditure categories. In other words, intermediate production, such as purchaser of raw materials between industries must be excluded as the value of such intermediate production (inputs) is implicitly included in the final sale of the end product. In the example given under the term 'unduplicated' can be referred to here also. The intermediate inputs of wheat and flour should be excluded in the value of bread.

Item (c) represents the value of capital which includes roads, highways, buildings, machines, tools, transportation equipment, etc. which are used to produce further goods and services. In other words, the capital items are 'producers' goods which, can be used in any way so as to generate further goods and services in the subsequent accounting periods. The term 'fixed' does not mean fixed in location, but it only means the money spent in producing the capital goods becomes 'fixed' for a long time depending on the type of the asset. The usage of the term 'fixed' in this context should be understood in the context of the term 'circulating capital' which means that the money spent on acquiring the materials is released again as soon as the materials are sold and the funds get reused again in the business.

This expenditure approach to measure the GDP serves as a check against the income approach. Both the approaches are complimentary to one another and the data used in them provide significant insights in economic analysis.

## Personal Expenditure on Goods and Services

Personal expenditure on goods and services represents the consumption of the Personal sector in the economy. It includes all the goods and services classified into four main categories such as durable goods (e.g. passenger cars, household appliances and furniture), semi-durable goods (e.g. clothing and foot wear), non-durable goods (e.g. food, beverages, tobacco, toilet articles and supplies, electricity, and pharmaceutical products), and services covering outlays such as gross rents (including the rental value of owner-occupied housing), repair services, recreational services, medical care, educational services, child care, transportation, communication, financial services, and operating expenditures of non-profit organizations serving households).

Table 44 shows a full list of commodities included in this category in terms of S (Small) level and W (Work sheet) level aggregations. Although all the commodities mentioned in that table are self-explanatory, a brief explanation of the commodity W48 'Net expenditures abroad' needs special mention here.

The 'Net expenditures abroad' category includes two components. They are:

- (a) Expenditures of Canadian residents temporarily abroad (e.g. tourists and members of Armed Forces). This is a positive item and it is offset by a negative entry for similar expenditures of non-residents, which is:

- (b) Expenditures of non-residents temporally in Canada (e.g. tourists) that are already counted in 'Exports' and also in the four categories of personal expenditures (namely, durable goods, semi-durable goods, non-durable goods, and services) mentioned earlier. This negative entry is needed to avoid double counting -- once in the exports and a second time in the estimates of personal expenditures. It should be noted that the expenditures of Canadian residents abroad are also included in the "Imports" (which is a negative category). The positive item in the personal expenditure for imported goods and services is offset by this negative item in 'imports' and thus the foreign production is eliminated in the GDP measure.

Another item which needs special mention, is the 'used goods'. As we are interested in measuring the current production only, the purchase of used goods by persons is excluded from the concerned categories, but the dealers' commissions and other factor incomes associated with the transactions are included in the current production as well as in the concerned consumption categories. Thus, the balance is maintained between the Income-based GDP and the Expenditure-based GDP.

### **Government Net Current Expenditures on Goods and Services**

This category consists of the current, non-capital outlays for goods and services of the federal, provincial, and municipal governments along with the expenditures of hospitals, residential care facilities, and educational institutions which are



classified to the government sector. It does not include either the Government Business Enterprises which are classified to the Business sector or the government purchases on capital account which are classified elsewhere in the Gross Fixed Capital Formation components (e.g. government construction and machinery and equipment). The estimates include defence current expenditures and military capital equipment such as warships and jet fighters along with the general operating expenses of government departments and agencies. They consist mainly of wages and salaries of employees, office expenses, maintenance and repair costs, and services of various types such as accounting, engineering, legal, and travelling. The estimates also include capital consumption allowances of the government sector's fixed assets which are classified to the final demand category called 'Gross Fixed Capital Formation' (GFCF).

It should be emphasized that these expenditures relate to government current purchases of goods and services offset by the sales revenues received by government. Hence, it is called the government sector's 'Net' current expenditures.

The Government Sector is defined here to include two components, namely, (a) the government departments and agencies; and (b) non-profit institutions largely funded by government. The actual classification of the entities included in these two components is carried out by the Public Institutions Division of Statistics



Canada in consultation with the Divisions in the System of National Accounts Branch as a part of work relating to the design and maintenance of the 'Public Sector Universe'.<sup>6</sup>

Another important point to be emphasized, is the fact that these current expenditures do not represent the 'total government spending' for all purposes, because the government transfer payments in terms of subsidies to industries, transfer payments to persons, foreign aid to other countries etc. are not included. Those items are not reflected in the Input-Output Accounts as they are outside the exchange economy. They are available only in the supplementary tables and sector accounts of the Income and Expenditure Accounts<sup>7</sup>.

### **Government Gross Fixed Capital Formation**

This category consists of construction expenditures for schools, hospitals, waterworks, sewerage systems, roads, harbours, airports, etc. and also, for machinery and equipment. It includes defence expenditures which are of a non-military nature and which are used for civilian purposes also.

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<sup>6</sup> For further information on the Public Sector Universe, please contact Graham Lyttle, Public Institutions Division, Statistics Canada, 20<sup>th</sup> Floor, Section D, R.H. Coats Building, Tunney's Pasture, Ottawa, Ontario, K1A 0T6, telephone (613) 951-1849, Fax (613) 951-0661, E-mail: graham.lyttle@statcan.ca.

<sup>7</sup> See catalogue No. 13-001 SPB, *National Economic and Financial Accounts*.

## Defence Equipment Reclassified to Gross Fixed Capital Formation from Current Expenditure on Goods and Services to Gross Fixed Capital Formation

Before the historical revision, capital goods acquired for defence purposes for both military and non-military purposes was not recognized, as capital investment.

Hence, they were treated as current expenditure on goods and services in the Defence sub-sector.

In the historical revision, following the new 1993 SNA, the non-military capital goods acquired for defence purposes, have been reclassified to capital formation from the current expenditure on goods and services. In other words, capital goods acquired for defence purposes, are treated in two different categories as shown below.

- |  |   |
|--|---|
| <p>(i) Military destructive weapons and their supporting systems.<br/>Eg: Bombs; Missles; Vehicles and Equipment such as Warships, Military Aircraft, Tanks, Missile Carriers and Launchers, Etc. used to deliver weapons.</p> | <p>Treated as current expenditures they are not in fact used repeatedly continuously in production. Although some of them are durable goods useful for more than one time, they are all treated as single-use goods for the purpose of the National Accounts.</p> |
| <p>(ii) Non-military items such as buildings, structures and computers used by defence.<br/>Eg. Airfields; Docks; Roads;</p>   | <p>Treated as capital expenditures</p>  |

Hospitals and other capital  
**Equipment which is used in**  
 Much the same way as similar  
 Civilian items.

### **Business Gross Fixed Capital Formation**

This category includes construction expenditures for housing and other types such as those needed for various industries (e.g. pipeline, transportation). It also includes expenditures for Machinery and Equipment broken down by industries as shown in Table 42 which shows a full list of the industries at the Small (S) level of aggregation with corresponding Worksheet (W) level codes.

While the content of the final demand categories for Machinery and Equipment is self-explanatory based on the title of each item, it needs a special mention for construction categories.

It should be noted from Table 42 that the final demand categories of construction expenditures are shown in the following three parts at the S level aggregation. The corresponding W level aggregation codes, are also shown against the S level codes in that table for reference.

- S7 Construction excluding housing, non-government sector;
- S8 Housing Construction, non-government sector;
- S9 Construction, government sector



While S7 and S8 represent the construction utilized by the Business sector of the economy, S9 represents the construction utilized solely by the Government Sector. Also, while the Business sector's utilization of residential construction (i.e. housing) is shown separately in S8, it is not done the same way for the Government Sector. Instead, the government sector's utilization of residential construction is merged with the non-residential construction in S9. Thus, the entire utilization (whether residential or non-residential) is shown in one code for the government sector.

Another interesting observation in the set up of the codes relates to the transfer costs such as legal charges etc. relating to the construction categories. The transfer costs associated with the residential construction part are combined with the expenditures on "Housing" in the relevant code i.e. S8 at the S level or W146 at the Worksheet level. However, in the case of transfer costs associated with the non-residential construction are shown separately in the Worksheet level code '143 Transfer costs, non-residential construction'.

It should also be noted that the construction final demand categories of the government sector which are shown exclusively in S9 have no breakdown either for residential and non-residential types or transfer costs thereof. All such details, are combined together into the separate categories reflected in S9, which show sub-sectoral classification of expenditures at the Worksheet level. (See codes 147 to 151 in Table 42).



## **Value of Physical Change in Inventories**

The accounts of inventories include two adjustments. The first one is a positive adjustment to reflect that portion of current production, which has not yet been sold, but goes into inventories for future sale. The second one is a negative adjustment to eliminate that portion of previous years' production, which is implicitly included in sales of the current year. The result of these two adjustments should be valued at the average market prices of the period and a complex set of calculations are needed by each commodity to derive the value to be included in this category. This adjustment is made for all the farm and non-farm inventory stocks.

## **Exports and Imports of Goods and Services**

In the broad economic sense, there are two kinds of transactions between residents and non-residents. The first kind of transaction with non-residents that has to be considered is the selling of goods and services to the non-residents as defined earlier and it is called 'exports'.

The second kind of transaction with non-residents is the buying of goods and services from non-residents and it is called 'imports'. Imports are of two types:

- Competitive imports; and
- Non-competitive imports.

The goods and services in the competitive imports are those that are produced within the country also. Example: wheat

The goods and services in the non-competitive type are those that are not produced within the country. Example: Tropical fruits. These two types, are extensively used in the modeling of Input-Output data for economic analysis.

These are the broad definitions of 'exports' and 'imports'. In other words, the term 'exports' means all goods and services sold by 'residents' to 'non-residents'. The term 'Imports' means all goods and services bought by residents from 'non-residents'.

There are two categories in both exports and imports. They are:

- i) Visible; and
- ii) Invisible.

The exports and imports that pass through customs records of the countries are 'visible' as they can be seen by the customs officials. Those that cannot be seen by the customs officials to get recorded in the documents are 'invisible'. For example, the shipping services for transportation of goods from one country to another which is called 'freight', and passenger services, other charges such as airfield fees, international settlements on account of post, telephone, radio and television transmission services, insurance services, advertising fees, management and consultations fall under the category of 'invisible'. Another example of an invisible transaction is the goods and services consumed by foreign tourists and other non-residents. In this case, if the U.S. tourists and foreign government

representatives who are considered as 'non-residents' buy goods and services from 'residents', Canada is 'invisibly' exporting those goods and services. Similarly, when Canadian residents travel in U.S., the U.S. is invisibly exporting and Canada is invisibly importing. These invisible transactions also include the direct purchases in the domestic market by the extra-territorial bodies such as the United Nations and its agencies.

Of course, both exports and imports contain only goods and services exchanged between the residents and non-residents. If, however, some funds are transferred from residents to non-residents or *vice-versa* without linking to any flow of goods and services, those funds do not form part of exports and imports as they have to be classified under transfers which have no characteristics of *quid pro quo*. In other words, if and when transfers of funds are involved without apparent transactions of 'visible' or 'invisible' types, the rule of *quid pro quo* which is the characteristic of exchange should be applied in order to determine their eligibility to be classified as exports or imports. A *quid pro quo* transaction usually has an underlying exchange of goods and services between the parties while a transfer is usually a one-way transfer of exchangeables of goods and services which increases the net worth of the recipient and decreases the net worth of the donor. Thus, the main characteristic of a transfer is when a one-way transfer is involved, it has no recompense and no one-to-one relationship of exchange of goods and services exists.



In essence, then, exports of goods and services include current receipts from sales to non-residents and it is a positive item as it represents one of the categories through which the disposition of production took place in the economy.

Imports of goods and services include current payments from purchases from non-residents. This is a negative item as it represents the production by non-residents which, has to be subtracted in order to derive the correct sum of the domestic production.

These estimates for both exports and imports are those published by another subsystem of the Canadian System of National Accounts which is called the 'Balance of Payments and Financial Flows Accounts' and a full description of the concepts and definitions underlying the Exports and Imports is available in a reference publication which will be released shortly.

The above Final Demand Categories make up the Expenditure-based GDP also.

#### D) *Types of Gross Domestic Product*

We have so far explained the two approaches to measure the GDP from the data available in the Input-Output Accounts. Let us now see the types of GDP that can be calculated from the Input Output database. There are two types of Gross Domestic Product in the present literature. They are:

- (i) Gross Domestic Product at factor cost; and



(ii) Gross Domestic Product at market prices.

Let us see what they represent.

### i) Gross Domestic Product at Factor Cost

‘Factor cost’ is what it costs an industry to pay for ‘factors of production’, namely labour and capital, used to produce the goods and services. The term ‘factor cost’ can also be called, ‘factor income’ as it merely represents the income accruing to the factors of production: labour and capital. Let us elaborate.

The process of production can be described with a simple model in summary fashion as follows:

- First, we need some capital equipment, for which the enter for even makes the investment. For example, a sawmill.
- Second, we also need some workers to work with the capital equipment to generate goods.
- Third, we need some raw material inputs (for example lumber and other materials) to produce a final product (for example a wooden cabinet). For these raw material inputs also, the entrepreneur makes the necessary investment.
- Fourth, the entrepreneur also draws the blueprint for the cabinet to help the workers with ideas to produce the final product.

All the above steps, can be summed up into two types of services: ‘labour services’ and ‘capital services’. As such, both labour and capital are called the factors of production in economics.

Gross Domestic Product at factor cost is the sum of incomes earned by these actors of production, namely, labour and capital. In the Input-Output Accounts, the income accruing to the factor of labour are the 'wages and salaries' (Primary Input code W676) and 'supplementary labour income' (Primary Input code W677). The income accruing to the capital consists of two items: 'Mixed income' (Primary Input code W678) and the 'Other Operating Surplus' (Primary Input code W679). For any industry, the values of these two factors as reflected in the aforesaid four Primary Input codes (at the Worksheet level 676, 677, 678, and 679) constitute the Gross Domestic Product at factor cost.

This is also the unduplicated cost, because the value of the intermediate inputs purchased from all other industries is not included in this measure.

## ii) **Gross Domestic Product at Market Prices**

Gross Domestic Product at Market Prices is composed of the (GDP) at factor cost explained above plus value of the following additional costs incurred over and above the cost of labour and capital to sell the products to consumers. These additional costs, are represented by:

- Indirect taxes on products (Primary Input code W672);
- Indirect taxes on production (Primary Input code W675);
- Less: Subsidies on products (Primary Input code W673); and
- Less: Subsidies on production (Primary Input code W674).

While the indirect taxes are payments to government and additions to the factor cost, the subsidies are deductions as they are paid back to the industries by the government.

This measure, namely (Gross Domestic Product at Market Prices) is applicable only to the total economy. It cannot be applied to any specific industries because, the indirect taxes on products which are consumption taxes are paid by consumers who are listed in the 'Final Demand Categories' which, by definition, measure the consumption of goods and services produced by all industries combined plus imports from other countries.

### iii) **Gross Domestic Product at Industry Cost**

In addition to the "GDP at factor cost" and "GDP at market prices" discussed already, there is a need in the literature to identify the total cost of generating the goods and services for each industry by giving a name to it. This need can be satisfied by simply calling the measurement as 'Gross Domestic Product at industry cost'. In other words, this measure shows what it cost to the industry not only by way of charges on account of labour and capital which is called 'factor cost', but also by way of other costs such as net payments to the government in the production process. The payments to government arise as the industries have to pay certain taxes such as licences to run the business and property taxes for the land, buildings, machinery etc. These costs are not reflected in the 'factor cost' concept, because it only measures the cost element for two specific factors of



production, namely, labour and capital. While taking into account the out-payments to government, by way of indirect taxes, the subsidy in-flows from the government should be deducted to arrive at the net indirect taxes paid by the industry. In other words, the government subsidies are tantamount to sharing some of the costs incurred by the industry in the production process. This type of sharing the cost is shown in the accounts as a negative item, because it is an inflow of funds from the government to the industry and also a reduction to the total cost to the industry. While the taxes are an addition to the cost, the subsidies are a reduction.

In essence, then, the GDP at factor cost by industry plus the indirect taxes paid by the industry to the government minus the subsidies paid by the government to that industry, equals the GDP at 'Industry Cost' for that specific industry. The data for identification of the measure, namely the GDP at Industry cost, are available in the Input-Output Accounts and they can be used by industries and analysts to compare the cost structure for any specific industry or groups of industries.

**(iv) What is the relationship between the three aforesaid measures?**

- GDP at factor cost by industry;
- GDP at Industry cost for specific industries; and
- GDP at Market prices?



First it should be noted, all the three measures are unduplicated and there is no duplication in them.

Second, the GDP at market prices is valid for the total economy only. It does not apply to the individual industries.

Third, the other two measures, namely, GDP at factor cost and GDP at industry cost are valid for each individual industry as well as for the total economy.

Fourth, the GDP at Industry cost is relevant for each industry as it gives a good idea of what the industry in particular incurred by way of costs. The other two measures do not provide such total cost information for the industry concerned.

Fifth, the relationship between the three measures can be shown in the following formula:

$$\begin{array}{r}
 \text{GDP at factor cost for all industries in the economy;} \\
 \text{Plus} \\
 \text{Indirect taxes paid by all industries;} \\
 \text{Minus} \\
 \text{Subsidies received by all industries;} \\
 \text{Equals} \\
 \text{GDP at Industry cost for all those industries in the economy} \\
 \text{Plus} \\
 \text{Indirect taxes paid by final demand categories} \\
 \text{Equals} \\
 \text{GDP at market prices for the total economy}
 \end{array}$$

### E) *Gross Domestic Product and Gross Output*

What is the difference between Gross Output and Gross Domestic Product?

We mentioned earlier that the Output (Make) matrix contains the gross output of each industry in the 'industry' column. This gross output can be summed up for all industries in the total economy. In fact, the sum total of gross output for all industries in the Canadian economy is shown in the last column of the Output (Make) matrix. This 'gross output' measure for the total Canadian economy contains three following elements:

- iii) Value added by all industries which is reflected in the value of specific goods and services produced by all industries;
- iv) Goods and Services produced domestically and used domestically as intermediate goods and services which industries use them as ingredients in further production. This is a duplication reflected in the Input matrix as well as in the Output matrix; and
- v) Industry purchases of imported goods and services which are the products of non-residents outside the economic territory of Canada and which are technically included in the intermediate inputs of goods and services. As the value of the total inputs is also the value of total outputs, the output matrix for each industry as well as for the total economy embodies the imported goods and services that are used as intermediate inputs.

It should be noted that generally speaking if a retailer purchases goods specifically for resale, that is, without any processing, that kind of purchase *per se* is not reflected in the input matrix. It is only the costs associated with bringing the goods to the market for sale, that will be reflected in the items concerned. Those costs are:

- Transportation charges of a trucking company;
- Wages and salaries of the employees to handle the merchandise and put price labels etc.;
- Supplementary labour income for the employees involved in handling the merchandise;
- Other costs such as storage of merchandise before it is finally sold, etc.

However, an exception is made to the treatment of alcoholic beverages.

This commodity (alcoholic beverages) is split into two commodities depending on where it is sold. They are:

- Alcoholic beverages sold in licensed premises such as hotels and restaurants, are treated as an intermediate input to the business that buys and sells them.
- Alcoholic beverages sold in stores (other than hotels and restaurants) are considered to incur a retail margin just like any other product (or good) bought and sold by retailers.



Therefore, the Gross Output measure of the Canadian economy includes alcoholic beverages purchased for resale by the licensed premises such as hotels and others which are already counted as output by the industries that produced them. This item, is also a duplication.

It should also be noted that the qualifier 'gross' does not mean the same thing for both 'gross output' and 'Gross Domestic Product'. It only means that there is an element or elements for exclusion from the total measure in order to derive the 'net' concept for analysis.

In the case of 'Gross Domestic Product', we mean that the 'product' is gross of 'capital consumption allowances' which represent the portion of capital assets used up in the production process. The expenditure on such assets was already counted at the time of their acquisition and hence the counting of the capital consumption allowances constituted the counting of the same thing for a second time. Let us elaborate this point.

- First, the Gross Domestic Product contains the product within the geographical boundary of the country in its economy territory. It eliminates the production of foreigners by deducting the imports.
- Second, it is an unduplicated measure, because the intermediate goods and services used by industries as ingredients in further production are not counted, because the market - price value of the final products is what is counted.

Analytically, the Gross Domestic Product is widely used for these reasons. In



order to understand the term 'Gross Output', let us go back to the definition of GDP and review the example of 'farmer, miller, and baker' given in the discussion under 'unduplicated'. In this case, gross output without any deductions is \$1000 for the farmer, \$1200 for the miller and \$1500 for the baker.

As already explained earlier, we can see from the foregoing how the qualifier 'gross' means different things for 'gross output' and 'gross domestic product'.

Thus, if one adds up the Gross Output of the three entities involved in this example, the sum will be \$3700 ( $\$1000 + 1200 + 1500$ ). In fact, there was double counting to the extent of the gross output of the farmer (\$1000) plus the miller (\$1200) which adds up to \$2200 and it should be deducted from \$3700 to derive the unduplicated output of \$1500.

Such is the relationship between the Gross Output and GDP.

Thus, the value of the gross output of any industry includes the value of its intermediate consumption to produce other goods. The measure of Gross Output, which represents the total value of outputs for any specific industry can be useful to analyze the trends in the time series for that industry. However, for the total economy, it has a very limited use for analysis. More often, a measure free of the value of the intermediate consumption, is desired for analysis. Hence, the GDP

has more analytical usefulness than the Gross Output although they both are very useful indicators depending on the objectives of the analysis that is carried on by the analysts.

**F) *Some General Questions on the Gross Domestic Product (GDP)***

**(i) *Can the “GDP of Canada” be called as “Canadian GDP”?***

This depends on the usage of the term ‘Canadian’. If it is used to represent the ‘residents’ of Canada, the answer is in the affirmative. If, however, the term ‘Canadian’, is used to represent the ‘Canadian nationals or citizens of Canada’, then the answer is in the negative, because the GDP concept does not distinguish between Canadian nationals, (or Canadian citizens), from foreigners in so far as the ‘one year’ residence is followed. The foreigners (i.e. who are not Canadian nationals or citizens) who have “one year” residence in the domestic territory of Canada are deemed to be ‘residents’ of Canada and their production, is also counted in the GDP. However, such production of foreigners does not belong to Canadian nationals or citizens.

If it is desired, to measure the production of Canadian nationals, a different concept called the ‘Gross National Product’ (GNP) has to be employed instead of the ‘Gross Domestic Product’. If that measure is employed, the Gross National Product of Canada represents the value of production of goods and services of Canadian citizens and it can be called the Canadian Gross National Product. In

order to arrive at this GNP measure, two separate adjustments are needed to the GDP.

- First, the value of earnings of Canadian factors of production originating in other countries such as interest, dividends and miscellaneous investment income, should be added.
- Second, the value of earnings of non-resident factors of production such as interest, dividends and miscellaneous investment income arising out of activities in Canada should be eliminated.

If these two adjustments are made to the GDP, the resulting measure will be called the 'Gross National Product' of Canada.

This measure is available in the Income and Expenditure Accounts in a supplementary table for analytical purposes<sup>8</sup>.

(ii) *Can the GDP of Canada be equated to the well-being of Canadians?*

No, because the measure was not designed to represent the level of well-being of the people. It was only designed to measure the economic production of goods and services within the geographical boundaries of any country regardless of whether the factors of production belong to 'residents' or 'non-residents'. More elaboration of this answer will be given in the last chapter, dealing with 'Challenges'. Perhaps, for the present, one can consider that the larger the GDP, the larger the goods and

<sup>8</sup> For example, see table 30 of Annual publication for 1961-1992, catalogue No. 13-001-SPB.



services available in the economy, and the better will be the well-being of the population as more goods and services are generated and made available in the supply. This does not mean to say that poverty can be eliminated by higher reduction only. It needs distribution, and the required social structure to eliminate the economic inequalities. This is, of course, a separate subject altogether.

*(iii) How is 'National Income' Different from GDP?*

The term 'National Income' is the abbreviation for 'Net National Income at Factor Cost'. As mentioned above, the Gross National Product (GNP) at market prices provides the value of production of goods and services of Canadian factors of production.

The 'Net National Income at Factor Cost' can be derived from the GNP by deducting the non-factor costs of production such as capital consumption allowances, indirect taxes, and subsidies – costs which enter into the market price of goods and services. The resulting value represents the Net National Income at factor cost" or simply 'National Income' of Canada and it accrues to the Canadian nationals. The value of production accruing to the non-residents is eliminated in this measure.

In contrast, the GDP contains the production of non-residents as long as they qualify to be 'residents' within the geographical boundaries of Canada as defined in the term 'economic territory'. Such is the difference between the two measures.



- (iv) *If the international agencies located in Canada are extraterritorial (i.e. outside the domestic territory of Canada), how do they impact on the GDP of Canada?*

In Canada, there is only one international agency, that is, the International Civil Aviation (ICAO) Headquarters in Montreal. This international agency is outside the domestic territory of Canada. The ICAO employees can be classified into four following categories:

- (a) Canadian Citizens employed on a temporary basis for less than one year duration;
- (b) Canadian Citizens employed on a permanent basis for one year or more;
- (c) Foreigners, that is citizens of countries other than Canada employed on a permanent basis for one year or more; and
- (d) Foreigners employed on a temporary basis for less than one year duration.

The salaries paid by the ICAO to the above categories have to be treated as follows:

In the case of a) and b) containing Canadian Citizens employed by ICAO either for less than one year or for one year or more are 'residents' of Canada working outside the domestic territory of Canada and earning remuneration for their services to ICAO. They should be treated as 'self-employed' workers rendering services to a foreign entity outside the domestic territory of Canada.

Consequently, the remuneration earned by them will be a part of 'Mixed Income'

category of Income-based GDP; it will also be a part of “exports” of services in the Expenditure-based GDP of Canada. Although in actual practice, no GDP Accounts are produced for ICAO or other international agencies, one can see how these transactions can be articulated in the GDP of ICAO if the GDP is produced<sup>9</sup>.

In the ICAO’s GDP (if produced using the existing definitions), the remuneration paid to these employees will be in the ‘government expenditure on goods and services’ category of the Expenditure-based GDP. It will also be reflected in the ‘imports’ of services in the same Expenditure-based GDP as a negative item. Thus, the positive item in the ‘government expenditure on goods and services’ will be cancelled out by the negative item in the ‘imports’ of services. The result will be a Zero GDP for the ICAO.

In the case of (c), non-Canadian employees employed for one year or more are deemed to be ‘residents’ of Canada. They will also be treated in the same way as (b), for the GDP Accounts of Canada as well as those of ICAO.

However, in the case of (d), the situation will be different. They are foreigners working outside the domestic territory of Canada for less than one year. They are not ‘residents’ of Canada although in actual practice they may be living on the Canadian soil. The remuneration paid to them should not be part of GDP of

<sup>9</sup> International organizations do not produce their GDP like the countries. One can argue that the GDP of international organizations is mostly reflected in the countries of their location.

Canada as it falls outside the boundaries required to be counted as production of Canada. In other words, their production is outside the 'economic territory' of Canada. The countries to which they belong have to reflect their production in their respective GDP Accounts. Here again, these employees should be considered as 'self-employed' and exporting services from their own countries.

As far as the ICAO's GDP concerned, there will be no change in the treatment as articulated in the case of (a) and (b). This is so because, the remuneration paid to the employees in category (d) will still be reflected as "government expenditure on goods and services" as a positive item with an offset in 'imports of services' in the Expenditure-based GDP of ICAO. The result will be zero GDP in this case also. Thus, the remuneration paid to employees in category (d) will be a part of GDP of their own countries and it will have no impact whatsoever on the GDP of Canada.

(v) *What is the position regarding foreign embassies, Trade Missions, and Cultural Offices situated in Canada?*

The position of the foreign embassies, trade missions and cultural offices that are situated in Canada is exactly the same as that of the international agencies. They too are outside the domestic territory of Canada. The one-year rule for "residence" qualification does not apply to them also as they are outside the 'economic territory' of Canada. Their employees can be classified into the following categories:



- a) Temporary workers who are Canadian citizens employed for less than one year;
- b) Permanent workers who are Canadian citizens employed for one year or more;
- c) Temporary workers who are foreigners (i.e. non-Canadians) employed for less than one year; and
- d) Permanent workers who are foreigners employed for one year or more.

In the case of (a) and (b), the workers are 'residents' of Canada rendering their services outside the 'domestic territory' of Canada to 'non-residents'. As such, they are exporting their services as self-employed workers. The foreign embassies, trade missions, and cultural offices employing them are in effect importing the services from Canada.

The GDP of the countries to which these institutions belong will treat the payments to the workers identified in (a) and (b) as imports from Canada.

The GDP of Canada will treat the remuneration received by these workers as "Mixed Income" of self-employed in the Income-based GDP and as "exports" of services in the Expenditure-based GDP.

However, in the case of (c), the workers are 'non-residents' employed outside the 'domestic territory' of Canada. As they are not 'residents', the remuneration paid



to them will not reflect in the production of Canada. It will reflect in the production of the countries to which they belong. Those countries are producing the services in this case.

In the case of (d), the permanent foreign workers are also 'non-residents' employed outside the 'domestic territory' of Canada. Even though, they have the residence on the soil of Canada for one year or more, they are not 'residents'. They are "non-residents" working in the foreign territory. Their remuneration will reflect in the GDP of their respective countries. There will be no impact on the GDP of Canada as far as their remuneration is concerned. However, their expenditures on food etc. within Canada will be treated as 'imports' from Canada into their respective countries the GDP of Canada will treat their expenditures in Canada as 'exports' to non-residents. The same is true in the case of (c) also, as far as their expenditures within Canada are concerned.

(vi) *What about the position regarding "Border" workers? For example, Canadians from Windsor working in Detroit; and U.S. Citizens from Detroit working in Windsor?*

Let us take one side at a time. Let us take Canadians from Windsor working in Detroit. These workers are crossing the border probably daily and their permanent abode is in Canada. As such, they are 'residents' of Canada working outside the 'domestic territory' of Canada. They are exporting their services as self-employed workers and their remuneration will be treated as exports from Canada to U.S.

Their expenditures in U.S. on food etc. are “imports” of Canada and exports of U.S.

So in the GDP of Canada, their remuneration will be counted in the ‘Mixed Income’ category of the Income-based GDP and “exports” in the Expenditure-based GDP. This is because the compensation received by the border workers who are ‘residents’ in this case is received from non-residents who are situated outside the domestic territory.

In the case of U.S. Citizens from Detroit working in Windsor, the remuneration paid to them by residents will be ‘imports’ of services from U.S. and their expenditures on food etc. within Canada are exports from Canada to U.S.

*(vii) If a foreign-owned company is operating in Canada, what will be the position regarding its employees?*

If a foreign owned company is operating in Canada, it will be working within the ‘economic territory’ of Canada. If the duration of its operation is less than one year, it will be treated as a ‘non-resident’ working in Canada with headquarters in its home country. If this ‘non-resident’ company is temporarily employing ‘residents’ of Canada for less than a year, it will only be extending its operations from the base of its Headquarters situated outside the ‘domestic territory’ of Canada. The employees, although they are residents, should be deemed to have been employed by the Headquarters situated outside the country. Their

remuneration is an 'export' of services to the non-resident company although temporarily located in Canada.

In the GDP of Canada, the remuneration paid to the employees will be treated as 'Mixed Income' in the Income-based GDP and as 'exports' of services in the Expenditure-based GDP. Also, the other expenditure on goods and services of this non-resident company should be treated as 'exports' just like the expenditures of the foreign tourists within Canada.

If, however, the foreign-owned company has its permanent office in Canada for one year or more, it will be qualified as a 'resident' company operating within the 'economic territory' of Canada. In such a case, the employees will be treated as 'residents' working for a 'resident' company just like any other Canadian-owned company operating in Canada. They will be employees of the company and their remuneration will be counted as 'wages and salaries' category of the Income-based GDP. The expenditures of such a business organization will be treated exactly in the same way as other Canadian-owned business organizations.



*(viii) If a Canadian-owned shipping company is operating a fleet of ships transporting goods in international waters from one country to another, how are the transactions of this company treated?*

First, of all it is a Canadian owned company with its permanent office in Canada. As such, it is a 'resident' of Canada as the 'residence' is undoubtedly for a duration of one year or more.

Second, it is operating in extra-territorial waters of Canada rendering transportation services for both Canadian customers as well as foreign customers.

Third, if the service is rendered to the Canadian customers, the payment for that service is just like a transaction within the "economic territory" of Canada.

Fourth, if the service is rendered to the foreign customers, the payment for that service is an 'export' from Canada. The GDP of Canada will reflect the production of this company in the exports of transportation services.

*(ix) If a foreign-owned shipping company situated outside Canada is rendering service to a Canadian company in transporting the goods to a foreign destination, how are the transactions treated?*

The foreign-owned company situated outside Canada is a non-resident working outside the 'domestic territory' of Canada. If a Canadian company utilizes the services of that company in transporting goods, the Canadian company is importing services. As such, the transaction reflects in the imports of Canada.



However, if the shipping company spends funds for ships stores etc. when the ships are docked, at ports in Canada the expenditures will be treated as “exports” of Canada.

(x) *How are the expenditures of foreign tourists in Canada treated? Also, how are the expenditures of Canadian tourists abroad treated in the Canadian GDP of Canada?*

First, let us see the situation of foreign tourists in Canada. The foreign tourists are ‘non-residents’ of Canada as their residence is less than one year. Their expenditures in the ‘domestic territory’ of Canada are their imports from Canada and exports of Canada.

Second, the Canadian tourists abroad are ‘residents’ of Canada but ‘non--residents’ in the countries they visit. Their expenditures made outside the “domestic territory” will be treated as ‘imports’ of Canada.

(xi) *What about the expenditures of international organizations and foreign embassies in Canada?*

The international agencies and foreign embassies are ‘non-residents’ and their expenditures, will be routed as ‘exports’ of Canada. The treatment accorded to remuneration of employees of these organizations was already explained in earlier in the answer to question (iv).

(xii) *What about foreign aid and how is it treated?*

Foreign aid is a general term and it can consist of several elements such as the following:

- a) cash donation;
- b) goods (e.g. wheat); and
- c) technical services of experts.

Cash donations will be treated as capital transfers and the GDP will not reflect them.

If however, the foreign aid is in the form of goods such as wheat, it will be shown as exports of wheat going out of Canada irrespective of the mode of payment such as payment in Canadian currency or foreign currency.

If the aid is in the form of expert technical services, the payment made to the experts by the host government will be in 'exports' of services category of the Expenditure-based GDP. It will also be in the wages and salaries or 'Mixed-income' categories of the Income-based GDP depending on the circumstances. If the experts are already employed by the government, the remuneration will be in the 'wages and salaries'. If they are hired from the self-employed category outside the government concerned, the remuneration will be reflected in the 'Mixed Income'.

There can however, be practical problems in articulating the transactions as stated above in the case of government employees who are 'resident' experts and temporarily assigned to tasks to render technical assistance abroad. In such cases, the remuneration paid to the 'resident' experts who are already 'employees' of the government concerned, can be reflected in the 'government expenditure of goods and services' instead of in 'exports'. In such cases, some adjustments are needed depending on the magnitude of the technical assistance projects.

*(xiii) If a group of Canadian citizens who are specialists in computer services establish a company in Texas and render services to the customers both in Canada and U.S., how are the transactions treated?*

If the company of the Canadian citizens who are specialists in computer services is operating in Texas for one year or more, it becomes a 'resident' institution as far as U.S. is concerned. It will be a 'non-resident' institution as far as Canada is concerned. If the technicians, who are Canadians in this case, visit Canada temporarily and stay for less than a year to render services to customers within Canada in the capacity 'non-resident' institution's employees, the payment for their services will be "imports" of Canada. Their expenditures on food etc. within Canada will be 'exports' of Canada<sup>10</sup>. Their remuneration as employees of "non-resident" institution will be a part of U.S. GDP in Wages and Salaries of the Income-based GDP.

<sup>10</sup> The exact method of estimating the expenditure in this regard will be dealt with in the forthcoming separate volume on Sources and Methods.



If, however, they station in Canada for one year or more, and render services to customers within Canada in the capacity of representatives from the 'non-resident' institution and receive remuneration from their Head Office in Texas, they will be 'residents' of Canada as they stayed for one-year or more. However, they are representing a 'non-resident' institution which, situated outside Canada and rendering services to customers within Canada in that capacity. Although they are Canadian citizens with 'resident' status, they are rendering services in the capacity of representatives of a non-resident institution. As such, the services rendered by them within Canada are still 'imports' of Canada from Texas. The remuneration which they earn from their Head Office in Texas will be deemed to be 'Mixed Income' category of Canada's GDP. In this case, they are employees of the "non-resident" institution of Texas, they will be deemed to be self-employed workers and earning 'Mixed Income' for their services. They will be similar to the Canadian residents working for foreign embassies situated in Canada.

*(xiv) If a U.S. company employs agents in Canada and pays them based on the volume of business, how are the transactions treated?*

If a U.S. company employs Canadian citizens as agents who stay in Canada for one year or more, the agents will be residents of Canada. As such, if they render services to the company, their remuneration for the volume of business will be treated as 'exports' from Canada to U.S. in the Expenditure-based GDP and in 'Mixed Income' category of Income-based GDP. Their expenditures on food etc.

will be part of Personal Expenditure on goods and services in the Expenditure-based GDP of Canada.

(xv) *If the government of Canada hosts an international conference in Canada and invites delegates from other countries, how are the transactions treated?*

The expenditures for the arrangements of the international conference, will be part of GDP of Canada in various categories such as 'wages and salaries' for employees' services, 'operating surplus' of corporations, and 'Mixed Income' category of unincorporated business which render services. In the expenditure-based GDP, the 'government expenditure of goods and services' will include all the expenses in this regard.

The expenditure of the delegates of other countries on food etc. will be 'exports' of Canada in the Expenditure-based GDP and in several categories of the Income-based GDP such as wages and salaries, operating surplus, 'Mixed Income' of the institutions which are involved in rendering services to the delegates. The expenditure of the delegates from Canada (who are residents) will be in 'Personal expenditure on goods and services'.

(xvi) *Can the GDP definition be used for regions and provinces within a country?*  
Although the GDP is meant for countries at the national level, the same definitions can be used for regions and provinces also. In fact, the provincial dimension was

added to the Canadian SNA from 1961 onwards. The provincial Economic Accounts of Canada, are produced for each province and territory of Canada since that time.

It is also possible to develop the GDP for areas smaller than a province such as municipalities within a province as long as territorial boundaries are well-defined and data for each such area are available to compile the Accounts. It should be remembered, however, that the smaller the area the more difficult it will be to construct the GDP Accounts particularly when the areas are land-locked. The cross-border flows of goods and services in a land-locked area will be relatively difficult to measure and serious problems of data availability can exist in such cases.

*(xvii) If a foreign embassy stationed in Canada brings in capital equipment such as computers, passenger cars from its own country, will those goods be considered as imports of Canada as they are coming into the country?*

Under normal circumstances, all goods that are coming into Canada from abroad go through the customs documents and will be counted as imports by Canada. But, we have to apply the definition of GDP in each case, and particularly in the case of foreign embassies and all other bodies that are outside the boundaries of domestic economic territory and ensure that the transaction in question falls within the parameters required for the measurement. If, however, the transaction is outside the domestic boundary, appropriate adjustments to the data of imports should be



made if already included in those data. By applying the GDP definition to the transaction in question, we can conclude the following:

- a) The foreign embassy is outside the domestic economic territory of Canada although it is physically situated within the geographical boundary of Canada.
- b) It is also a non-resident institution as far as Canada is concerned.
- c) Therefore, it can be concluded, that a non-resident institution is bringing in goods from abroad into its own economic territory and that the transaction falls outside the scope of GDP of Canada. As such, the goods should not be measured in imports of Canada. If, however, imports data normally compiled through custom documents included those data, necessary deductions should be made for use in the Input-Output Accounts.

*(xviii) If a Canadian embassy stationed abroad in another country takes computers and office equipment from Canada for its own use, will those goods be treated as exports of Canada?*

Here again, we have to apply the GDP definition to the transaction and analyze the situation as in the case of the previous question (xvii). Under normal circumstances, as the goods are going out of Canada, they may be included in customs exports data. However, our GDP definition tells us that the Canadian embassy stationed in another country is a part of Canadian domestic economic territory. The Canadian embassy is a 'resident' of Canada taking goods into the same domestic economic territory for its own use. Therefore, the transaction is not

an 'export' of goods. If, however, the customs exports data included the transaction, the necessary deduction should be made, for the purpose of the Input-Output Accounts.

*(xix) If a Canadian embassy constructs a new office building abroad, should we include the expenditures as capital expenditures for GDP?*

Yes, because the Canadian embassy abroad is Canada's domestic economic territory and the capital investment should be part of GDP of Canada. Conversely, if the U.S. embassy in Ottawa constructs a new office building, it should not be a part of GDP of Canada as it should be measured in the U.S. GDP.

*(xx) If a Canadian company receives profits and dividends from its operations abroad, should those receipts be included in the "operating surplus" for the GDP of Canada?*

No, because GDP of Canada should measure only the domestic production of goods and services which occurred within the 'domestic economic territory'. As such we should not measure the profits and dividends from foreign operations in the GDP of Canada as they are the results of production outside the domestic economic territory. If however, the profits reported by the company included the transaction in the calculations of company profits, necessary deductions should be made to measure the 'Operating surplus' for GDP measurement.

(xxi) *If a Canadian company leases and operates foreign ships, how is the transaction treated?*

- First, we must understand that the concept of Gross Domestic Product is not determined based on nationality of assets.
- Second, we must also keep in mind that the geographical boundary of operations is an important factor.
- Third, we must also ensure that the operators of those ships, be it real owners or those who leased them with an operating lease, are residents of Canada.

So, based on the leasing arrangements, the Canadian company pays rental to the foreign owner for the lease. The outflow of rental to the foreign owner is an expense and it reduces the operating surplus of the Canadian company. But, of course, the income which it generates by operating the ships might more than offset the rental outflow and end up eventually in a substantial increase in the operating surplus.

Such operating surplus will be reflected in the GDP which, also might benefit from the increased operating surplus.

If, however, there is a loss in the operations, it will impact on the level of GDP. In other words, assuming other things are equal, the GDP will also decline depending on the level of loss in this case.



The rental earned by the foreign company towards the lease will be its income and reflected in its operating surplus. The GDP of the country in which the company is a resident will also increase to the extent of the operating surplus involved in this transaction.

The above twenty one questions and answers are by no means exhaustive. They are only illustrations of the magnitude of conceptual knowledge that is needed to demarcate the boundaries of domestic production to measure the GDP properly. There could be several other similar questions that arise in the operations of the statistical offices from time to time, and each situation should be examined in the context of the peculiarities involved.

#### G) *Supply and Disposition of Goods and Services*

The total 'supply' of goods and services is equal to:

Total supply of goods and services to residents;
--

Plus

The total supply of Canadian produced goods and services to non-residents
---

It is composed of two categories:

- (a) domestic output; and
- (b) imports.

Exports represents the supply to non-residents. Therefore, if exports are deducted from the total supply, we can derive the total 'domestic' supply which, is in other words, called 'the supply to the domestic market'.

In essence, then, two formulae will hold good in this regard.

They are:

$$(i) \quad \text{Total supply} = \left\{ \begin{array}{l} \text{Domestic output} \\ \text{Plus} \\ \text{imports} \end{array} \right.$$

$$(ii) \quad \left. \begin{array}{l} \text{Total supply to} \\ \text{to domestic market} \end{array} \right\} = \left\{ \begin{array}{l} \text{Total supply} \\ \text{Minus} \\ \text{Exports} \end{array} \right.$$

To put it in another way:

$$\left. \begin{array}{l} \text{Total supply to} \\ \text{Domestic market} \end{array} \right\} = \left\{ \begin{array}{l} \text{Total domestic output} \\ \text{Plus} \\ \text{imports} \\ \text{Minus} \\ \text{Exports} \end{array} \right.$$

For any particular commodity (either a good or service), or for all commodities the total supply is equal to the domestic output plus imports. The data for the domestic output are available in the output matrix by each commodity and also for the total of all commodities produced in the economy. The data for the imports are

available in the Final Demand matrix as a negative. The negative has to be removed, and added to the domestic output in order to derive the total supply of all goods and services. This equation can be applied, either for a particular single commodity or for the total of all commodities depending on the analytical requirements.

The total 'disposition' of goods and services consists of the total utilization of goods and services. It is composed of two categories:

- (a) intermediate utilization; and
- (b) final utilization.

For any particular commodity (either a good or service) or for all commodities, the total disposition is equal to the intermediate utilization plus final utilization.

The intermediate category includes raw materials or semi-finished goods for further processing and represents the goods and services that are used up in the production process to generate other goods and services such as final products.

The final products are those that do not need further processing and readily usable for consumption.

While the data for the intermediate category are available in the Input Matrix, the data for the final utilization are in the Final Demand Matrix. Thus, using the data



for 1992 shown in Appendix IV, V and VI (See Chapter VI), the total domestic supply is equated to the total domestic disposition as shown below:

Total Supply:  
(See Make (Output) Matrix in  
Appendix IV of Chapter VI)

\$ Millions

Total Supply for 1992:

Total Domestic Output of 1992  
for all Goods and Services

(see the last column of the Appendix)

=

1,226,262.0

Plus

Imports

(see column 13 of Appendix VI Final Demand  
Matrix for 1992)

192,394.0

Equals

Total Supply of all Goods and Services  
for both residents and non-residents

1,418,656.0

Total Supply:  
(See Make (Output) Matrix in  
Appendix IV of Chapter VI)

\$ Millions

Total Disposition for 1992:

Intermediate use by industries - Commodity 1 to 51 579,218.0

of Use (Input) matrix (see Appendix V of Chapter VI)

**Plus**

Final Demand Matrix (See Appendix VI for 1992):

Personal Expenditure:

- Personal expenditures, durable goods 48,809.0
- Personal expenditures, semi-durable goods 38,129.0
- Personal expenditures, non-durable goods 108,306.0
- Personal expenditures, services 217,696.0

**Sub-Total of Personal Expenditure 412,940.0**

**Plus**

Machinery and Equipment:

Machinery & equipment, non-government sector 38,651.0

- Machinery & equipment, government sector 4,509.0

**Sub-Total of Machinery and equipment 43,160.0**

Total Supply:  
(See Make (Output) Matrix in Appendix  
VI in Chapter VI)

\$ Millions

Plus

Construction:

Construction excluding housing, non-government sector	29,655.0
8 Housing construction, non-government sector	39,903.0
• Construction, government sector	14,327.0
Sub-total construction	<u>83,885.0</u>

Plus

• Inventories: Value of Physical Change	<u>8,094.0</u>
---	----------------

Plus

• Government net current expenditures	169,263.0
---------------------------------------	-----------

Plus

Non-resident Sector:

• Exports	<u>189,783.0</u>
-----------	------------------



Total Supply:  
(See Make (Output) Matrix in Appendix VI in Chapter VI)

\$ Millions

Less: Primary Inputs - Commodity 52 to 57 of Final Demand matrix already included in the Final Demand Categories mentioned above	- 51,499.0
<b>Equals: Total Disposition</b>	<b><u>1,418,656.0</u></b>

Thus, the total supply is identical to the total disposition in the economy as demonstrated above by using 1992 data in the Input-Output matrices. In effect, then, the following equations can be utilized by using the Input-Output Accounts to derive the data for the 'total supply' and 'total disposition' of goods and services.

$$\left. \begin{array}{l} \text{(i) Total supply} \\ \text{of a commodity} \end{array} \right\} = \left\{ \begin{array}{l} \text{Total disposition} \\ \text{of that commodity} \end{array} \right.$$

$$\begin{aligned} \text{(ii) Total supply} &= \text{(a) Total domestic output or} \\ &\quad \text{production by all industries;} \\ &\quad \text{Plus} \\ &\quad \text{(b) Total imports from non-residents} \end{aligned}$$

$$\begin{aligned}
 \text{(iii) Total disposition} &= \text{(a) Total consumption by} \\
 &\quad \text{business establishments as} \\
 &\quad \text{intermediate inputs to produce other} \\
 &\quad \text{goods and services;} \\
 &\quad \quad \text{Plus} \\
 &\quad \text{(b) Total consumption by persons} \\
 &\quad \text{(Personal Sector);} \\
 &\quad \quad \text{Plus} \\
 &\quad \text{(c) Total consumption by government to} \\
 &\quad \text{deliver government services to the} \\
 &\quad \text{public;} \\
 &\quad \quad \text{Plus} \\
 &\quad \text{(d) Total capital formation by business} \\
 &\quad \text{establishments (construction and} \\
 &\quad \text{machinery equipment);} \\
 &\quad \quad \text{Plus} \\
 &\quad \text{(e) Total capital formation by} \\
 &\quad \text{government (construction and} \\
 &\quad \text{machinery \& equipment);} \\
 &\quad \quad \text{Plus}
 \end{aligned}$$

- (f) Inventory valuation adjustment to reflect the net effect of additions to inventories and with-drawls from inventories as they relate to past production;

Plus

- (g) Exports.

These three equations are valid for each commodity (i.e. good or service) or for the total of all goods and services in the economy, but not applicable to primary inputs. This is a very important reason to distinguish commodities (or goods and services) from primary inputs.

If, however, it is needed to derive the total domestic supply of goods and services (excluding primary inputs), exports have to be subtracted as they are supplied to non-residents from both the total supply and disposition.



	<u>\$ Millions</u>
Total supply to residents and non-residents	<u>1,418,656.0</u>
Less: Exports	<u>-189,783.0</u>
Equals: Total Domestic supply	<u>1,228,873.0</u>
Total disposition to residents and non-residents	1,418,656.0
Less: Exports	<u>-189,783.0</u>
Equals: Total Domestic Disposition	<u>1,228,873.0</u>

The same equations can be applied for any particular single commodity or for any group of commodities to calculate either, the total supply and disposition for both residents and non-residents or total domestic supply and disposition to residents only.

#### H) *Producers' Prices and Purchasers' Prices*

Who are the producers? As the term implies, 'producers' are those who produce goods and services. The producers are of various kinds, and they are identified as industries in the Input-Output Accounts. Therefore, each industry can be identified as a different kind of producer making different goods and services for supply.

The next question that arises is 'what are the producers' prices'?

We have seen earlier that the Input (Use) matrix provides all the inputs of goods and services – intermediate and primary – along with their values classified by

each type of producer (i.e., industry). We have also seen that this Input matrix provides the total cost to the industry in order to produce the goods and services shown in the Output matrix. The values of this Output matrix are at the producers' prices because that is what it cost the producer to provide the specific goods and services shown in this output matrix. Let us see how this works by referring to the Appendix V which, contains the data for 1992.

The value of output produced by industrial establishments is at their cost. Such costs include the value of 'Primary Inputs' which, were described earlier plus the value of all other goods and services (i.e., intermediate inputs) which are normally produced and sold by other establishments (i.e., other than the establishment under observation). For example, an establishment producing bread buys wheat flour from millers; the millers buy wheat from farmers while the farmers buy fertilizers from chemical products industry and so on. The value of all these intermediate inputs is recorded in the books of the producing establishments at their cost which, is what they paid in the market place.

In the Output (Make) matrix, the output of the producers is shown by each commodity, at 'producers' prices'. In other words, the value charged and received by the producers for the products generated by them are shown here.

Each column of these Input and Output matrices shows the category of producer at the top of the tables. The total values for each producer shown in the columns are

identical in both the Input and Output matrices (see the bottom of each column of these tables). For example, the first column showing Agriculture in the Use (Input) matrix of 1992 (Appendix IV) has a total of \$24,556 at the bottom which is identical to the total in the Output matrix for Agriculture (Appendix V).

The value of the inputs in the Use (Input) matrix, which is normally at the purchasers' prices is converted to producers' prices, for the purpose of commodity balancing by showing the margins in separate commodities. Let us elaborate on this point for a better understanding of the reasons for such a procedure.

Let us take the commodity 'Grains', which is the very first item in the Make (Output) matrix for 1992 in Appendix IV. The total value at the level of the producer was \$4641 million. This is what is called the producers' price value.

Over and above, the producers' price value, there will be margins added on at every stage of the distribution chain. For example, there will be the transportation margin, wholesaling margin, retailing margin by the time the grains reach the consumers. These are additional costs and they get added on to the producers' price values. They are shown as separate commodities.

For example, see commodities 35 for Wholesale margins, 36 for Retailing margins, and 44 for Transportation margins. The tax margin which is a cost to the producer in fixing the selling price structure is reflected in the "Indirect Taxes" (commodity 52 of Appendix IV) which in turn reduces the level of "Other Operating Surplus",



(commodity 57 in Appendix IV) as the surplus is derived by subtracting costs (items 1 to 55) from revenues.

Therefore, by the time the grains reach the consumers, the value would be definitely higher than the producers' price value of \$4641 million mentioned earlier. As the value of production has to be equal to its disposition in the Input-Output Accounts, the margins have to be separated from the purchasers' price value and shown as separate commodities in the Input-Output accounting.

Thus, for any commodity, the value in the Make (Output) matrix shown as production in the last column should be equal to the total of the values shown in the other two matrices (namely, the Use matrix and the Final Demand matrix).

For example, the value of grains can be traced in the Accounts as follows:

	Total \$million
Make (Output) matrix	
(Total producers' price value -	
See Appendix IV)	\$4641
Use (Input) matrix	
(See Appendix V)	2397
Final Demand matrix	
(See Appendix VI)	2244
Total disposition	<hr/> 4641 <hr/>

Thus, the total production of grains for 1992 was equal to its disposition as demonstrated in this example. The same situation is valid for all other goods and services also. This procedure does not apply to the primary inputs as they do not exist in the Make (Output) matrix. This is one of the distinctions between the commodities, which are specific goods and services, and the primary inputs.

Also, the columns of each industry in these Use and Make matrices are identical. By this process, the total inputs of all industries (\$1226262 million for 1992 of Appendix

IV) is equated to the total Outputs of all industries (\$1226262 million of Appendix V).

## **Margins**

A brief explanation of the margins in the Input-Output structure is necessary at this stage to clarify the difference between the values at producers' prices and the purchasers' prices. As shown in chart 42, the starting point is the value at producers' prices and the margins get added on to reach the value at purchasers' prices. This is because the producers' prices are the prices determined by the suppliers. There are seven kinds of margins. They are:

- Wholesale margin;
- Retailing margin;
- Gas margin;
- Pipeline margin;
- Storage margin;
- Transportation margin; and
- Tax margin.

Each one of them is discussed here.

### ***Wholesale Margins (Commodity 35 in Appendix IV)***

Wholesale margin is generated when the producers sell goods to wholesalers at their cost with delivery at the factory gate. The wholesalers purchase the goods, transport them to their establishment, add on the costs of transportation and their

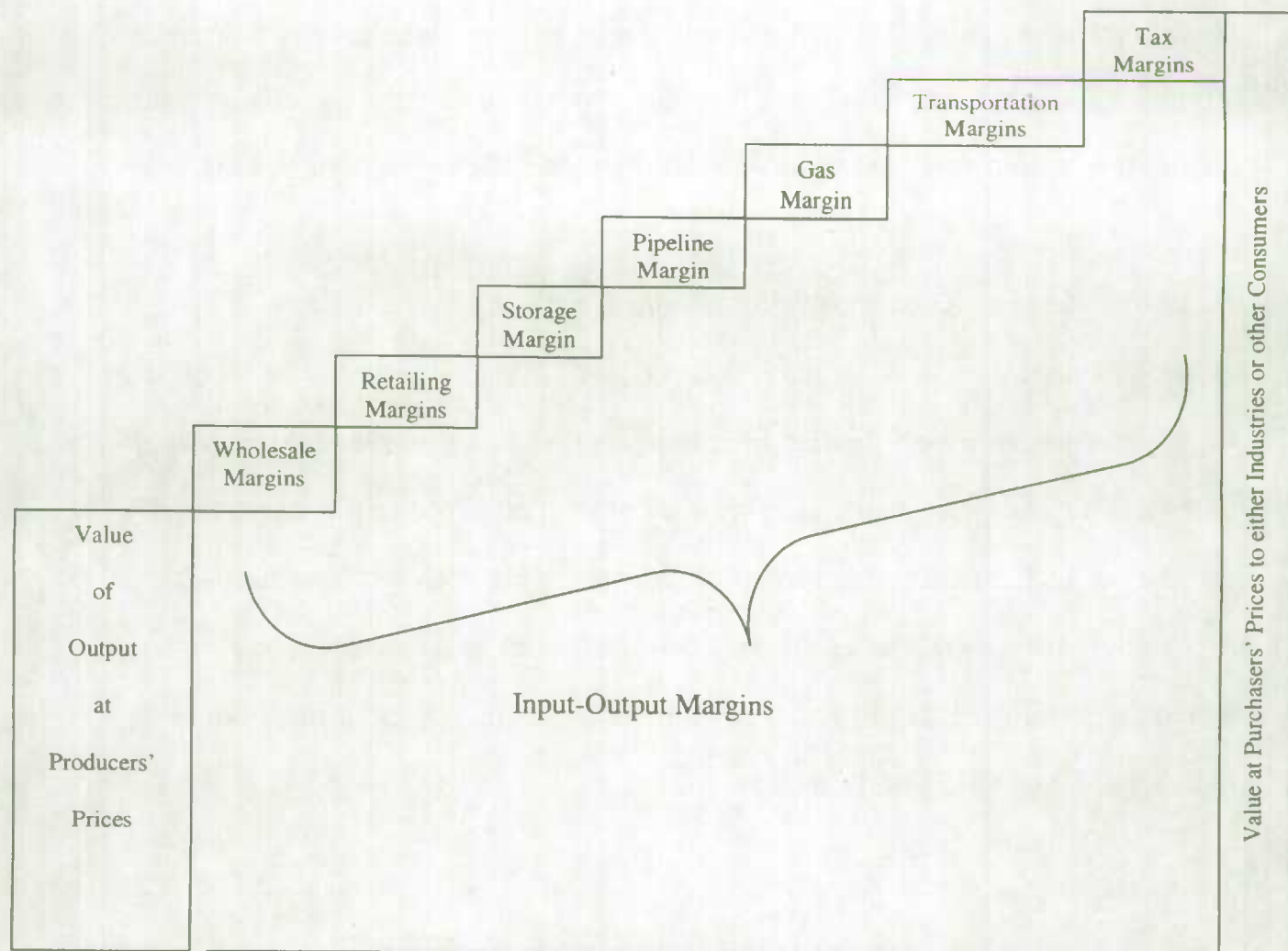


other costs and profit margin to the value paid to the manufacturers, and finally sell the products to retailers. In other words, the wholesalers add on margins for transportation and their costs and profits (i.e. operating surplus) and sell the goods for all inclusive prices. The difference between what the wholesalers pay to the suppliers and what they finally get from their sales is called the 'wholesale margin' and it constitutes the output of the wholesale trade industry. (S9 or W192).

### ***Retailing Margins (Commodity 36 in Appendix IV)***

Retailing margins arise when the retailers take delivery of goods at the wholesaler establishments, transport them to their locations, add on the costs of transportation to their costs and profit margins, add on the taxes paid to government and finally sell the products to the consumers. The difference between the purchase value of the retailers from others and sales values of the goods and services to consumers is called the 'retailing margin' and it constitutes the entire output of the retail trade industry (S10 or W193 of Table 43).

**Chart 43: Input-Output Margins between Values at Producer and Purchaser Prices**



### *Gas Margin; Pipeline Margin; and Storage Margin*

'Gas Margin' consists of the local gas distribution costs of natural gas (but not gasoline). The industry which owns and operates the local natural gas distribution facilities incurs charges residential and commercial users of natural gas (incurs costs and adds on its profits for this local distribution. As these costs include its profits (i.e., surplus) also, the total costs are its output. In other words, at the worksheet level, it is W190: 'Gas distribution Systems industry' that produces the output commodity called 'Gas distribution' W580. This output of the Gas distribution Systems industry, is treated as the 'gas margin' and gets added to the value of natural gas generated by the establishments concerned.

Essentially, then, the gas margin is generated by the Gas distribution Systems industry as output in the form of two specific commodities, which are:

- W42 Natural gas excluding liquefied; and
- W444 Liquid petroleum gas including liquefied natural gas.

In the case of '*Pipeline Margin*', the industries that utilize the services of pipelines must pay costs of transportation through pipelines. These costs include profits of the industries concerned and they are called the output namely, 'pipeline transportation' commodity W572. That output is also called the pipeline transportation margin and it gets added on to the value of gas and oil which gets transported by these pipelines.



At the worksheet level, industry 181 'Natural gas pipeline transport industry' and industry 182 'crude oil and other pipeline transport industry' produce the commodity 572 'pipeline transportation'. The value of this commodity is the value of the pipeline transportation margin which, gets added to the cost of the commodities such as the following that get transported through the pipelines. The commodities to which this pipeline margin is added are:

- W41 crude mineral oils
- W42 Natural gas excluding liquified;
- 437 Gasoline;
- 438 Aviation fuel;
- 439 Diesel oil;
- 440 Light fuel oil; and
- 444 Liquified petroleum gases including liquified natural gas

The purchasers of these commodities pay the pipeline margin in the market as it gets embodied in the purchasers' price values of the commodities concerned.

Similarly, the *Storage Margin* also arises in the case of specific industries only. They are: W183 'Grain elevator industry' and W184 'Other storage and warehousing industry'. These industries are involved in storing products such as wheat, barley, and canola and produce storage services which, are classified to two commodities:

- W574 Grain storage
- W575 Other storage and warehousing

The output of these industries is the revenue derived from storage services and it is called 'storage margin'. It gets added to the costs of the producers of the commodities concerned to derive the purchasers' price values.

### *Transportation Margins (Commodity 44 in Appendix IV)*

- The transportation margin arises only in the case of 'for-hire' transportation, but not 'own account' type of transportation. The 'for hire' type of transportation arises when the manufacturers ship the goods to the wholesalers or when the wholesalers ship their goods to the retailers, using contracted trucking companies, and other transportation systems such as railways, ships, and airlines. In other words, if the manufactures ship the goods to the wholesalers in their own vehicles, the accounting in the manufacturers' books will not show expenses as transportation costs; it will show as inputs to operate the trucks such as:
  - Wages and salaries for the labour involved;
  - Supplementary labour income for the labour involved;
  - Fuel to operate the vehicles such as gasoline or diesel oil;
  - Other items such as operating supplies or spare parts.

In contrast, the 'for hire' trucking companies, will charge specific amounts for the required transportation which can be identified as such in the manufacturers' books. This is the item that is picked up in our surveys and used as transportation margin.

There are other reasons why transportation margin does not consider 'own account' transportation. They are:

- First, if the manufacturers own their trucks and transport their goods to the purchasers, the costs involved in the operation of the trucks will be included in the manufacturers' overhead costs and also in the sale prices. It is not separable as the total cost of such trucking operations will be reflected in various items such as gasoline, wages and salaries mentioned earlier.
- Second, the Input-Output Accounts do not aim to strip off from the sale prices or purchasers' prices, all costs attached to transportation of merchandise. The statistical system does not permit such a venture.
- Third, the commodities have to be valued at the same price throughout the system in order to balance them and to produce Commodity Accounts. The Accounts have chosen producers' prices as the basis of valuation to balance the value of the commodities and to produce Commodity Accounts for the entire economy.
- Fourth, the valuation procedures at the producers levels have been taken into account in the design and operation of the Accounts in order to be practical and realistic.



As the 'for hire' transportation is the item that gets added on to the producers' prices values, the transportation margin includes only that transaction for the reasons explained above.

In each of these cases, the costs of transportation can be identified in special surveys to calculate the estimated transportation margin. The revenue generated by the "for hire" transportation services is called the "transportation margin" and it constitutes the output of the "transportation margin" industry (S19 or W230 of Table 43).

However, it should be noted, that the transportation margin does not arise in the case of the following transactions:

- Transportation of used goods;
- Transportation between two or more locations of the same establishment which is taken for statistical surveys;
- Transportation for return of goods; and
- Transportation for repair or other maintenance services.

It should be noted, however, that in the case of international trade, the following concepts apply as far as transportation costs are concerned.

### Transportation in Exports

In the case of exports, the value of exports should be valued at the Canadian border of shipment to foreign countries. Hence, the transportation costs from the factories to the Canadian border of shipment will be included in the purchases price value of the goods exported. The costs associated with the transportation from the Canadian border to the foreign countries will be considered as “exports of services” if the Canadian operators render that service. If, however, those transportation services are rendered by foreign operators at the cost of the foreign importers, they do not appear in the Canadian output or GDP. They appear in the output or GDP of the countries concerned which render those transportation services.

### Transportation in Imports

In the case of imports, the value of imports should be at the point of shipment in the foreign countries in the same way as the exports. The transportation costs from the border of shipment abroad to the Canadian border will be “imports of services” if the services are rendered by foreign operators. If, however, Canadian operators render those transportation services from the foreign countries to the Canadian border, those services will be treated as “freight” and included in the service commodity concerned. For example, if it is “Air transportation”, the freight will be included in commodity ‘S32 Transportation and Storage’ at the small level or “W551 Air transport, freight” at the worksheet level. Similarly, if it is water transportation, it would be included in the same S32 at the small level or “W561,

water transport, freight” at the Worksheet level. If it is railway transportation, it will be included in the same S32 at the small level or W565 “Rail transport, freight” at the worksheet level.

The transportation margin arises only if “for hire” transportation arrangements are made for transporting the imported goods from the Canadian border of landing to the destination of the Canadian importer. As such, the transportation margin applies only for transactions within Canada.

In the definition and measurement of the transportation margin, a question normally arises as to what happens if the “for hire” transportation facilities are not utilized and the transportation activity is performed by foreign exporters. The simple answer to this question is that the costs associated with such transportation get measured as “imports” by the establishments utilizing those facilities, who, in this case happen to be the importer of goods from abroad such as a wholesaler or retailer.

Another question which arises in connection with proper definition for transportation margin is: “what happens when a producing establishment (such as a logging company) hires a trucking company to transport logs from one location to another, say, from the forest to the manufacturing factory?” As such a cost is an intermediate input to the manufacturing activity of the industry concerned, say “wood products”, it gets included in the “truck transportation” commodity 567 at



the worksheet level. It does not get included in the transportation margin.

Therefore, the “transportation margin” arises only in the case of final goods which are transported for sale in the market. It does not arise in the case of intermediate costs and the foreign transactions explained earlier. Also, the margin arises only in the transactions within Canada for costs associated with ‘for hire’ transportation facilities.

### *Indirect Taxes (Commodity 52 in Appendix IV)*

Indirect taxes are of two kinds:

- Indirect tax on products; and
- Other indirect tax on production

The first kind relates to commodity type of taxes such as sales and excise taxes which are commodity - specific such as tobacco, alcohol, etc. or advalorem (percentage of sale price). Commodity indirect taxes are called ‘Indirect Taxes on Products’ as they relate to specific products or commodities.

The second kind relates to non-commodity type taxes such as property taxes and licences. They are called “indirect taxes on production” as they are related to the production process, but not to any particular commodity.

The 'Tax Margin' in the Input-Output Accounts relates to the first type only, which is called commodity taxes, but not to the non-commodity type.

The non-commodity type relates to the general operations of the business establishment covering the value of land, buildings, machinery, etc. and they are allocated only to the industries which paid them. Thus, this type of taxes apply to all the goods and services produced by the concerned industries, but not to any specific product as in the case of 'indirect taxes on products'. These two types of indirect taxes contain several kinds of taxes at federal provincial and municipal levels. For example, the indirect taxes on production contain at the federal level the following:

- Capital tax
- Deposit Insurance corporation premiums
- Agriculture levy
- Various other licences issued by departments such as Consumer and Corporate Affairs; Environment; Fisheries and Oceans; Indian Affairs; etc.

At the provincial level, there are various taxes such as the following:

- Corporation and Capital tax;
- Motor Vehicle licences;
- Real and property taxes;
- Crop Insurance premiums;
- Insurance premium taxes;
- Payroll tax;
- Land transfer tax; and

- Various other licences.

At the municipal level, these taxes are in the form of the following:

- Real and personal property taxes;
- Local developers' fees;
- Grants in lieu of taxes; and
- Various licences;

The indirect taxes on products (i.e., commodity taxes) are also of different kinds at federal, provincial and municipal levels as shown below:

Federal

- Excise duties;
- Excise taxes;
- Goods and services taxes;
- Gasoline taxes;
- Air transportation tax;
- Customs import duties;
- Lottery revenues from provinces; and
- Race track revenue from provinces;



### Provincial

- Sales taxes;
- Liquor gallonage taxes;
- Trading profits of lotteries and Liquor control boards;
- Gasoline taxes; and
- Amusement taxes;

### Municipal

- Sales taxes; and
- Amusement taxes

The allocation of all these various kinds of commodity taxes to particular goods and services depends on the Tax Blueprints which are developed in the Public Sector Section of the Input-Output Division. These Blueprints show the taxability of the goods and services by each category of consumers who is liable to pay the taxes. The development of the Tax Blueprints is a very detailed exercise which involves considerable research and study of the concerned tax legislation and interpretation circulars issued by federal and provincial tax departments. In other words, the allocation of the commodity taxes to the related commodities is the tax margin which is embedded in the purchaser price values.

In the case of business establishments, the indirect taxes paid to the government in the production process are considered as costs to the producers. For example, the

property taxes, licences, etc. are costs to the producers for maintaining business establishments composed of buildings, machinery and equipment. In some cases, the businesses pay sales taxes also to the government for the materials and supplies used outside the production process such as office use, etc. Here again, these taxes are costs of using the related materials and supplies in the production. Such taxes are added on to the production expenditures and then deducted from the total revenues in order to derive the net return to the entrepreneur in the form of either 'Mixed Income' or 'Other Operating surplus'. As a consequence of deriving 'Mixed Income' and 'Other Operating surplus' as residual components, the total value of output sold in the market is equated to the value of all inputs including 'Mixed Income' and 'Other Operating Surplus' of the industries in the Input and Output matrices.

It should also be noted in this connection that both the Government Sector and Non-Profit Institutions are treated as industries in the new structure of the Input and Output matrices. The margins discussed earlier are applicable to these new industries also and they are not limited only to the profit-oriented businesses. In both cases, the difference between the 'Outputs' (i.e. which is the value received for sale of goods and services) and the 'Inputs' (i.e. the total expenditure on all inputs, both intermediate and primary inputs) is a negative value as the cost of inputs is higher than the outputs. The net cost (i.e. after deducting sales revenue from total expenditure on goods and services) is considered as the 'cost' to government for providing their services to the community. This is because, the

bulk of their output is utilized by themselves and not sold in the market. In this context, the negative values in both cases are treated as the value of output sold to themselves and reflected in two separate commodities in the Make (Output) matrix showing 'Government services' for Government sector (see commodity 48 in Appendix IX) and 'Non-profit institutions serving households' (see commodity 47 in Appendix IX) for the non-profit institutions. The value of these commodities i.e. 'Government services' (S48) and 'non-profit institutions serving households' (S47) are routed to the relevant final demand categories of the Final Demand matrix.

In effect, then, the purchasers' prices are those that the purchasers pay to acquire goods and services in the market as shown in chart 42. The purchasers can be either industries which produce goods and services or consumers who utilize the goods and services for themselves. The producers' prices and purchasers' prices can be illustrated by the following equation:



<b>Value at Producers' Prices</b>
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**Plus**

<b>Wholesale margin</b>
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**Plus**

<b>Retail margin</b>
----------------------

**Plus**

<b>Storage margin</b>
-----------------------

**Plus**

<b>Pipeline margin</b>
------------------------

**Plus**

<b>Gas margin</b>
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**Plus**

<b>Transportation margin</b>
------------------------------

**Plus**

<b>Tax Margin</b>
-------------------

**Equals**

<b>Value at Purchasers' Prices</b>
------------------------------------

Note: This is an overall list of all margins. It does not mean that all goods and services will have all the margins. Some may have all; some others may have only a few; and some others like non-taxable services may not have any.

## I) *Sectors*

Although Input-Output Accounts do not provide data by Sectors, it is important for analysts to have a good understanding of the definition of Sectors and its use in other parts of the SNA.

First, it should be noted that the term 'sector' is used in the SNA to mean "institutional sectors" but not industrial groups such as manufacturing, and mining.

Second, the institutional sectors are the institutions which have common behavioral patterns and similar motivations. These are the sectors that are discussed here.

As we know, millions of economic activities such as producing, distributing, selling and buying take place in the economy everyday. These activities are called 'transactions'. The transactors who make the transactions are numerous and they include individuals, business establishments, governments at all levels, non-profit institutions, residents, and non-residents. These transactors are grouped into four main categories for economic analysis and these groups are called 'Sectors'. In essence, then, the Sectors of the economy are the 'transactors' and their activities are 'transactions'.

The four institutional sectors of the SNA are the following:

Persons;

Government;

Business; and

Non-residents.

### **Personal Sector**

Each of the four sectors represents a class of transactors on the basis of the particular role it plays in the economy. Thus, the Personal Sector includes all persons, households and non-profit institutions serving households. Its main role is essentially concerned with transactions comprising final consumption of goods and services. The Final Demand Category “Personal Expenditure on goods and services” represents the Personal Sector.

### **Government Sector**

The Government Sector includes all public authorities and encompasses all levels of government – federal provincial, and local - and non-profit institutions mainly funded by government. This sector exerts a powerful influence on the level and direction of economic activities by its policies in regulating, taxing, spending patterns and financing arrangements. Also, it redistributes incomes by giving transfer payments to other sectors and regulates economic activities through its fiscal and other policies.



This sector includes the following components:

- a) Federal government including defence;
- b) Provincial and territorial government;
- c) Local government;
- d) Universities mostly funded by provincial government;
- e) Colleges, vocational and Trade Schools;
- f) Public Hospitals mostly funded by provincial and local governments;<sup>11</sup>
- g) Residential Care facilities mostly funded by provincial government;
- h) School Boards mostly funded by provincial and local government<sup>12</sup>.

It does not include Government Business Enterprises (GBE) such as Air Canada, Canada Post, Ontario Hydro, Municipal Transit Systems as these establishments are included in the Business Sector.

For the purpose of the Input-Output Accounts, the components of the government sector are regrouped into the following six categories at the Work sheet (W) level of aggregation.

- a) Defence Expenditures (GCE116)<sup>13</sup>.

This category excludes schools which are combined in Education expenditures (GCE115). This Defence category here includes Royal

<sup>11</sup> Privately operated hospitals are included in the Business Sector.

<sup>12</sup> Privately operated schools are included in the Business sector.

<sup>13</sup> These code numbers can be seen in the list available in Table 44.

Military College and Defence Hospitals as they are not separated due to statistical problems.

b) Other Federal Government Expenditures (GCE119).

This excludes Schools which are covered in 'Education Expenditures' (GCE115). It also excludes Hospitals along with Residential Care Facilities Expenditures which are covered in another category (GCE114).

c) Other Provincial and Territorial Government Expenditures (GCE118).

This category excludes Universities, Colleges, and Schools which are included in 'Education Expenditures' (GCE115). It also excludes Hospitals along with Residential Care Facilities which are shown as a separate category 'Hospitals and Residential Care Facilities' (GCE114).

d) Education Expenditures (GCE115).

This includes Defence Schools (which are deducted from Defence Expenditures), Universities, Colleges, and Schools (which are excluded from Provincial government expenditures), and also Municipal School Boards (which are deducted from Municipal government expenditures), and other private educational institutions which are mostly funded by government.

e) Hospitals and Residential Care Facilities (GCE114).

This category includes all Hospitals and Residential Care Facilities as they are mostly funded by government at different levels – federal, provincial, and local. However, it does not include Defence Hospitals as they cannot be

separated from Defence departmental expenditures due to statistical problems.

f) **Other Municipal Government Expenditures (GCE117).**

This includes all Regional and Local Government, but does not include School Boards and Hospitals funded and controlled by the local governments as they are included in separate categories as explained earlier. (See GCE115 for Education Expenditures; and GCE114 for Hospitals and Resident Care Facilities).

The six categories<sup>14</sup>, namely, GCE114, 115, 116, 117, 118, and 119 represent the Government Sector's Net current expenditure. The capital portion of expenditures are included in the Gross Fixed Capital Formation along with the data for the Business Sector.

## **Business Sector**

The Business Sector covers transactors who produce goods and services for sale at a price not only to cover costs but also to yield a profit. All business establishments are included here whether they are privately or publicly owned.

They include corporations, unincorporated business enterprises, independent self-employed professional practitioners, and government business enterprises.

<sup>14</sup> Please see Table 42 for a complete list in both Small (S) and Worksheet (W) levels of aggregation.



If, however, persons have a part-time business activity, those activities form a part of the business sector. For example, persons who own residential dwellings are assumed, to be operating a business enterprise in the capacity of a landlord as far as their house-owning activity is concerned. Similarly, the government sector and the non-profit institutions may be operating a business such as producing and selling goods and services whether they make a gain or not. These business activities form a part of the business sector and they are assigned appropriate industrial classification depending on the nature of their activities. Hence, the industries in the Input-Output Accounts cover all the business activities representing the total Business Sector.

In the Final Demand categories, two categories contain the data of the Business Sector. They are: Gross Fixed Capital Formation and Value of Physical change in Inventories.

### **Non-Resident Sector**

The three sectors mentioned here, namely, Persons, Government, and Business, are domestic sectors and they are “residents” in the country concerned. These “resident” sectors deal with the rest-of-the-world outside the country. All the transactions that take place between the “resident” sectors and the rest-of-the-world are grouped together into another sector called the “Non-resident” sector in order to show the inter-relationship between the domestic sectors and foreign countries. Thus, for example, if the resident sectors buy goods and services from

the Non-resident sector, the transactions will appear in 'imports' of Canada.

Conversely, if the non-resident sector consisting of "non-residents" buy goods and services from the residents of Canada, those transactions will appear in exports of Canada.

The Final Demand Categories representing this Non-Resident sector are: Exports of Goods and Services; and Imports of goods and services.

#### J) *Industries*

As already mentioned earlier, the Input-Output Accounts consist of double-entry book keeping of Inputs and Outputs of the economy. The book keeping is about production and disposition of goods and services which are otherwise called 'commodities'. The production is generated by establishments which are grouped into industries according to the Standard Industrial Classification (SIC) System. The SIC industries are further re-grouped into industries of the Input-Output Accounts in order to build-up a more manageable industry structure to display the production and disposition of goods and services. These re-grouped industries form the basis for the double-entry book keeping of the Input-Output Accounts. These industries are discussed next. The definition of industries is given in the next section and it is followed by commodities.

A reasonably good working description of the Input-Output Accounts is to say that these Accounts attempt to construct a statistical counterpart of the real economy by measuring the flows of production and disposition of all goods and services. In the economy, the production of goods and services for sale with a profit margin is the general behaviour of the Business Sector which, is composed of two components:

- a) Incorporated business; and
- b) Unincorporated business.

The government sector and some non-profit organizations classified to the Personal sector also produce some goods and services, which are mostly sold at cost. They are therefore the non-business or non-commercial category. The incorporated business is composed of entities, which are legally registered as corporations under the legislation of the government authorities. These registered entities enter into contract with others in the registered names and provide goods and services as determined in their charters. In contrast, the unincorporated business consists of self-employed individuals and one or more partners which are called partnerships.

Both the incorporated and unincorporated business components of the Business Sector can consist of two kinds of operating entities. (i) Single establishment; and (ii) multi-establishment. The first type is the single establishment company which is usually located in one place such as a factory, mine, retail store, farm, hotel, restaurant, doctor's office, legal office, accountant's office. This kind of single



establishment entity is the smallest unit capable of reporting all elements of basic operating statistics such as sales, labour, materials, profits.

In the second type, the single-location establishments can have one or more branches situated elsewhere, but managed and controlled by the entity of one location. This kind of entity is a multi-establishment unit which can produce different categories of goods and services (example: shoe manufacture in one unit and leather tanning in another unit). It owns and manages the property of the organizations, enters into contracts, receives and disposes of all its income, and maintains one profit and loss statement for both units combined. This is in effect a combination of operating units managed and controlled by one entity. Both these types of entities exist in the economy. If such is the case, questions arise as to how the multi-establishment entities can be classified to industries.

By definition, an industry should represent a homogeneous economic activity such as shoe manufacturing or leather tanning. If both these activities are combined into one operation, to which industry can the multi-establishment be classified? In these cases, the economic activity which produces predominantly more revenue to the multi-establishment entity is the basis for classifying the entire operations of this entity.

Based on this cardinal principle, thousands of entities in the economy are classified to the industries by the survey Divisions of Statistics Canada using the Standard Industrial Classification Manual as a guide. These basic data by industries are then

converted into Input-Output industries based on concordance between the classification systems. Finally, the Input-Output industries and their data are derived and used in the compilation of the Input-Output Accounts.

As the users are aware, one thing that the Input- Output Accounts provide is the most detailed accounting for all goods and services produced in the Canadian economy by each industry. This is called the 'Make' (Output) matrix. In addition, these Accounts also provide details of the goods and services used by industries in order to produce other goods and services, which is referred to as 'intermediate use'. This intermediate use is recorded in the 'Use' (Input) matrix and includes all goods and services purchased from others such as other industries and exporters of other countries. The 'Use' matrix also provides information on the payments made by industries for inputs that are not purchased from others and these inputs are called 'Primary Inputs' which are already discussed earlier.

The Input-Output industries at the Small (S) level of aggregation with the corresponding Work sheet (W) level are shown in Table 43. These industries are based on specific economic activities and they are aggregated using 'establishment' concept. This 'establishment' concept is essential for the Input-Output Accounts in order to capture the production and disposition of all the intermediate inputs which are used in making the final products in which the intermediate goods get incorporated.

As the industries purchase raw materials and services from other industries and utilize them to produce goods and services, the photographer would produce another snapshot of goods and services that are used up at an intermediate step in the production process. In this intermediate process of production, some goods and services such as machinery and equipment are used for capital purposes. In the third picture, the photographer would show the goods and services consumed by various groups such as government, foreigners (non-residents) and households as explained under the section for Final Demand Categories.

Similar to this photographer's two snap shots, the Input-Output Accountants produce what are called 'matrices' which display the industry and commodity structure of economic production and disposition with a special focus on inter-industry transactions underlying intermediate consumption.

The first matrix is called 'Use' matrix containing all inputs in order to generate other goods and services. This is also called the 'Input' matrix which is similar to the first snapshot.

The second one is the 'Make' matrix which shows the outputs of goods and services. It is also called the 'Output' matrix. The sum of the value of the Inputs and Outputs for every industry has to be identical in these two matrices to balance both 'Inputs' and 'Outputs', because what it cost to the industries (see Use matrix)



is what is charged by the producers (see Make matrix) at the total industry level as well as for the total economy.

The third matrix is called the 'Final Demand' matrix showing the disposition of all goods and services produced in the economy and this is similar to the third snapshot mentioned earlier. So the Input-Output accountant produces three snapshots of the economy and they are what are called the Input-Output Accounts. Statistics Canada developed a Standard Industrial classification (SIC) system and the SIC industries are regrouped again for the purpose of the Input-Output Accounts in a manner to reflect the transactions of the economy in a manageable and meaningful way.

### K) *Commodities*

Commodities are both goods and services

For the Input-Output commodity structure involving goods, the Principal Commodity Groups of the Harmonized Commodity Classification (HCC) are regrouped to account for the production and disposition of the goods generated in the economy. The construction of the Input-Output commodity classification is linked to the industrial classification discussed in the previous section. This linking between the commodity classification is important in order to make it possible to analyze commodity flows within the context of industry statistics. By linking the commodity classification to the industry classification, the data will throw light on the way production, is organized within the establishments.

Although it will be an ideal situation to have one establishment producing only one commodity, in the real world this ideal situation does not exist. Even quite small establishments may engage in the production of a range of products. These different commodities may be closely related to one another, and they may usually differ in the content of the raw materials used, in the amount of skills of labour employed or the kind of capital equipment needed to produce. The classes of inputs and outputs of such establishments give an idea of how these establishments are organized if the commodities are linked to the industries.

A very large number of commodities or goods and services are named in terms of the material out of which the commodity is made e.g. leather goods, plastic building supplies, etc. (See Table 44 for details). Obviously, no problem arises as to where a particular commodity has to be classified when it is made entirely of one material. But there may be a problem when the commodity is composed of two or more materials. For purposes of classification, account needs to be taken of the material out of which it is chiefly or primarily made. In many cases, this means the classification is made to the commodity which contains the largest constituent of the materials used. The terms 'chiefly' and 'primarily' simply mean the largest constituent that has the greatest value.

In the case of construction, the end use is the important criteria in the development of commodities (e.g. residential construction, non-resident construction, etc.). In the case of service commodities, the kind of intangible economic product that is

produced by an establishment is the main item of information used in designing the commodity classification of the Input-Output Accounts. This is because, there is no standard service classification system that exists at the present time similar to the goods. If and when such a system is produced by the Services Division of Statistics Canada, there will be a linkage between the two systems.

The commodities at the Small (S) level of aggregation with the corresponding Work sheet (W) level are shown in Table 44. The Input-Output Commodities are products and services available in the Canadian economy. They are be used in two ways:

- One way is to use for intermediate consumption, that is, as ingredients for further production. e.g., wheat.
- The other way is to use for final consumption, that is use without further production process. e.g., Bread.

In addition to the aforesaid goods and services, there are primary inputs which are also used in the production process.

As already mentioned in the previous section, the primary inputs are used to measure the Income-based GDP of the total economy by combining the portions relating to Industries and Final Demand categories of Appendices VIII and IX attached to Chapter VIII. This GDP is shown in the last column of the table. The Income-based GDP is identical to the Expenditure-based GDP which is derived by



summing up all the Final Demand categories. The commodities are shown in three matrices:

- Output (Make) matrix;
- (ii) Input (Use) matrix; and
- (iii) Final Demand matrix.

These matrices are discussed next. In addition to the commodities produced in the market economy, the Input-Output Accounts use 'fictive commodities, for the purpose of the balancing the Accounts.

#### L) *Output (Make) Matrix*

Output is the total value of goods and services produced in the economy. It is measured in terms of market value of goods and services produced. The business sector has two components:

- *Component producing output for profit.*  
*This consists of corporations and unincorporated business establishments including self-employed professionals such as doctors, accountants, and lawyers.*
- *Component producing output for no-profit.*  
*This consists of government sector and non-profit institutions serving households.*

The first component produces the bulk of the output while the second component produces a small portion.

Output can be classified into the following components:

- a) Output produced and sold in the market by the business sector;
- b) Output added to inventories;
- c) Output imputed for such items as the owner-occupied houses and banking services; and
- d) Output produced and sold in the market by the non-business component of the business sector.
- e) Own-account construction not sold in the market.

Most of the output thus generated by the business sector is sold in the market in the 'exchange' economy. However, there are exceptions to the general rule of measuring the goods and services exchanged in the economy. These exceptions are discussed below under market activities and non-market activities.

### **Market Activities**

#### **Illegal transactions**

Illegal transactions such as prostitution and production and distribution of banned drugs are not measured explicitly as they are outside the scope of measurement although these transactions take place in the exchange economy. The value of output in this regard is not in the official measure of output in Canada. However,

the demand to produce the output of these illegal activities is reflected in the inputs needed to generate the output.

### **Purchases and sales of “used” goods**

The purchase and sale of “used” goods has two components embodied in their value. The first one is original value when it was sold for the first time. As this was already counted in the year it was sold for the first time, this was not counted as output when it was sold again as a “used” good the second time. However, what is included the second time is the dealer’s commission which was added on to the value at the time of the sale for the second time. For example, a ten-year old house or a car was already counted as a part of output in the year in which it was produced. To include the same value for a second time in a later period when it was sold as a second-hand product would be to “double-count” output. However, the commission of the intermediary who is involved in selling the used products constitutes production of new output and it is included in the output in the period when the service was produced.

### **Unrecorded and unreported Transactions**

In any economy, there could be some unrecorded and unreported transactions for various reasons. For example, an establishment might not maintain records for inter-divisional transactions such as use of products manufactured by itself within the same establishment. The output of such products might not be captured in the official output measures. There could be other



examples such as the transactions normally measured in the underground economy. These situations pose practical problems to balance the Accounts and they will be discussed further in Chapter VII dealing with 'Challenges'. Suffice it to say for this section on the concept of output that it is presently confined to market transactions where goods and services are exchanged between sellers and buyers. These transactions can be organized as follows:

- Transactions within an establishment (i.e. own account transactions) are conceptually excluded except for own-account construction.
- Transactions that do not involve money flows are generally excluded conceptually except imputed banking services and rents of owner-occupied housing.
- Transactions that are not recorded involving purchase of goods and services in exchange for money are conceptually included although in practice there may be some problems in measurement due to lack of data.

### **Non-market Activities**

There are several non-market activities for which specific imputations are made as explained below:

#### **Barter transactions**

Barter transactions involving exchanged services are generally unrecorded in the books of the transacting parties. For example, a lawyer may prefer to render legal services to a carpenter without taking any cash payment when

the carpenter renders his own carpentry services to the lawyer. Such barter transactions are generally unrecorded and also unreported in the official surveys. In these cases, it would be difficult to estimate the output. Hence, the official measure of output does not contain such unrecorded and unreported barter transactions which take place in the real world within the exchange economy. If, however, these transactions are reported for statistical purposes, they would be included.

In the case of goods bartered, the output is generally recorded and reported. Supposing a car manufacturer exchanged cars for stoves. Both the car manufacturer and the stove manufacturer have to account for their output first in their books. This is picked up in the surveys. If the barter takes place between the two manufacturers, the bartered goods will also be recorded as inputs in their books similar to cash purchases. Therefore, there appears to be no problem in the case of bartered goods as the data would be available from the normal channels.

### **Farm products consumed on farms**

Some products generated on farms are partly consumed by farm households and they are not sold in the exchange economy. However, their value is included in the total farm output as well as its consumption on the ground that such production is a part of output which should be counted as such irrespective of whether it is sold for cash or consumed in kind by the farm households.

### **Own-account Construction**

Another non-market activity which is also treated similar to the 'farm products consumed on farms' is 'own-account construction'. Establishments utilize their own employees and materials for construction activities such as repair construction, road construction etc. In such cases, the materials used and salaries paid to employees are removed from the industries which utilized them and classified to the output of the relevant construction industries as mentioned earlier. The output generated in those separate industries by way of own-account construction is routed as consumption by the industry which utilized the own-account resources.

### **Own-account intra-establishment production**

Establishments having several departments which are inter-dependent and inter-related are counted as one unit for statistical purposes. In other words, if a car manufacturing company has a separate department to produce a tires and if that department supplies the tire output to the car-assembly plant, the output is not counted since the internal transactions of output and intermediate use cancel out. These are considered as intra-establishment transactions and only the final products of the establishment get counted as output.

### **Gross rents of owner-occupied housing**

The owner-occupiers of housing are the beneficiaries of the rental services generated by the buildings in the same way as the landlords who would receive



rents from tenants for the services of the buildings. Based on this reasoning, rents are imputed for the owner-occupied housing and included in the output as a part of production and consumption.

### **Food and lodging provided to employees in lieu-of-wages**

Hotels, restaurants, ships and other establishments operating in remote areas normally provide food to their employers in lieu-of-wages. This kind of transaction is a form of additional income to the factor of production 'labour' and it represents a payment for services rendered by the employers. A value for such transactions is imputed as output of the businesses concerned and also as consumption by the employees receiving the food and lodging.

### **Banking Services Imputation**

Financial intermediaries render services to both depositors and borrowers. In the case of borrowers, the charges for such services are included in the interest they charge and thus collect the service charges from the borrowers. However, in the case of depositors, they do not charge them explicitly for the entire services they provide. They charge them explicitly for a part of the services involving special transactions such as cashing cheques over a certain limit, travelers' cheques, etc. For most of the services, however, they charge them implicitly. They pay the depositors a lower rate of interest and cover their costs for services by the difference between the rate of interest they earn on the deposited funds and the rate of interest they pay to the depositors. In other words, they pay a lower rate of

interest to the depositors and cover their costs for services by earning a high rate of return on loans and investments. Due to the anomaly created by this short-circuiting of transactions, an imputation is made for the total service charge which the financial intermediaries implicitly collect from their customers by the aforesaid accounting techniques.

### **Household production for own consumption**

The domestic work done within the households by the members of the households is not counted as part of production as it is not exchanged in the economy. This is a controversial item and it will be discussed at length as one of the challenges of our time.

### **‘Voluntary’ work done by individuals**

Here too, there is an element of production of goods and services. For example, a neighbour can cook food to handicapped or aged people living in the same neighbourhood. This is definitely a productive type of work, which generates output. There is a good reason to consider including such a transaction as output. Yet, we do not include it in our output measure at the present time. This is also one of the challenges which will be discussed at length in the last chapter (X).

### M) *Gross Value of Output*

Except for the items listed above, the general definitions of output can be well understood by the following formula assuming that there are no indirect taxes and subsidies in the transactions.

$$\begin{array}{lcl}
 \text{Gross Value of output} & \left. \vphantom{\begin{array}{c} \text{Gross Value of output} \\ \text{or} \\ \text{Gross Output} \end{array}} \right\} & \begin{array}{l} \text{Labour income consisting of wages and} \\ \text{salaries; and supplementary labour} \\ \text{income;} \end{array} \\
 \text{or} & = & \text{Plus} \\
 \text{Gross} & & \text{cost of materials and services} \\
 & & \text{(intermediate inputs);} \\
 \text{Output} & \left. \vphantom{\begin{array}{c} \text{Gross} \\ \text{Output} \end{array}} \right\} & \text{Plus} \\
 & & \text{capital consumption allowances or} \\
 & & \text{depreciation;} \\
 & & \text{Plus} \\
 & & \text{Operating profits.}
 \end{array}$$

In other words, profits here are defined to equal to the gross value of the output minus the expenses incurred to produce the output which include labour income, cost of materials and services used up in order to produce the output, and depreciation of the capital assets employed in generating the output.

This is the basic formula for the Gross Output. The cost of materials and services used up in the production activity are those that are supplied by other producers. If



it is deducted from the 'Gross Output' of the above formula, we can derive the 'Gross Product' without a double count of the materials and services produced by others. This is also called 'Gross value added' the 'Net Product' which is also called 'Net value added' can be derived by deducting capital consumption allowances or depreciation from the Gross Product. In summary, then, the formulae will be as follows:

$$\left. \begin{array}{l} \text{Gross Product} \\ \text{or} \\ \text{Gross value} \\ \text{added} \end{array} \right\} = \left\{ \begin{array}{l} \text{Gross Output} \\ \text{less} \\ \text{cost of materials and services supplied} \\ \text{by others.} \end{array} \right.$$

$$\left. \begin{array}{l} \text{Net Product} \\ \text{or} \\ \text{Net value} \\ \text{added} \end{array} \right\} = \left\{ \begin{array}{l} \text{Gross Product} \\ \text{less} \\ \text{Capital consumption allowances} \end{array} \right.$$

Or, to put it in another way:

$$\left. \begin{array}{l} \text{Net Product} \\ \text{income} \\ \text{or} \\ \text{Net value} \\ \text{added} \end{array} \right\} = \left\{ \begin{array}{l} \text{Labour income consisting of wages} \\ \text{and salaries and supplementary labour} \\ \text{Plus} \\ \text{Operating profits. (This excludes, of} \\ \text{course, capital consumption} \\ \text{allowances).} \end{array} \right.$$

These Equations are true for any individual firm taken separately or for any industry consisting of a group of figures.

#### N) *Inputs (Use)*

Inputs are of two kinds: (a) intermediate inputs; and (b) primary inputs. In other words, intermediate inputs are defined as those goods and services purchased from other establishments. For example, wheat is an input to the miller to generate flour; this flour is an input to the baker to produce bread; this bread is an input to a caterer or a restaurant to produce meals.

So, the wheat, the flour, and the bread are the inputs or commodities used as inputs in the production processes of the miller, baker, and the caterer or restaurant.

Besides these materials and services purchased from other producers, the production process requires some other inputs not produced by any other industry and they are called the primary inputs. (See Table 41). Without these primary inputs, the production process cannot function. For example, the miller needs an operator to run the mill to turn the wheat into flour; the baker needs a dough maker to transform the flour into bread; the caterer needs a cook to transform the bread into a dish for the meal. Also, some capital equipment to manufacture and a building to house the equipment and furniture are essential to start the business establishments of these examples. The return to these capital assets and the entrepreneurship is called profits which are derived by subtracting all the costs

associated with the production process from the revenue generated by sales of the production. In addition to the return to the entrepreneur, there is also an element of capital consumption allowance which is the portion of the capital assets used up in the production process.

In addition, there is also the government which comes into the picture in order to regulate the business and to provide general services to the community. It is for the role it plays, the government receives indirect taxes by way of licences, property taxes, and sales taxes. These indirect taxes are income to the government.

In some cases, the government shares the cost of the producers by giving them subsidies so as to enable them to reduce the selling prices to consumers. In the business accounting, these subsidies are included as an item of revenue by the producers and reflected in their surplus. As these subsidies are simply transfer payments from government to the producers and as they do not represent the production, they are deducted by a negative entry to offset the entry in the surplus<sup>15</sup>. In essence, then, the government plays a role of collecting indirect taxes and giving subsidies. The outflows of indirect taxes and inflows of subsidies are also essential items as far as the industries are concerned and they form the basis for economic analysis just like labour and capital. Hence they are regarded as a part of primary inputs in the Input Output accounting.

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<sup>15</sup> The surplus is identified either as 'mixed income' for unincorporated business and farmers or 'other operating surplus' for corporations.



All other commodities (i.e. other than the primary inputs) can be broken down into goods or services. In general, goods are essentially products which can be felt and stored as inventories. Services, however, have no such characteristics. They can neither be felt nor stored as inventories. They have to be consumed as and when they are produced. These are the main differences between goods and services.

#### O) *Special Categories: Fictive Industries and commodities*

Input-Output Accounts contain 243 industries which use or produce a total of 672 commodities (i.e. goods and services) at the most detailed (i.e. worksheet) level of aggregation. Among them, there are 'fictive' (dummy) commodities which are not identifiable in the market place of the economy.

Some fictive commodities, such as office supplies, are just as easily identifiable as many W level commodities. The fictive commodities are used to reduce the level of detail in the input matrix.

Of the 672 goods and services, all are accounted for on the supply side either as outputs or inputs. On the demand side, however, we effectively reduce the number of commodities by taking certain groups of commodities and aggregating them in fictive commodities.

Each “fictive” industry produces a ‘fictive’ commodity. The fictive commodities are not “real” and they are not identifiable in the market place as such. They are listed below for information.

In the case of these ‘fictive’ industries, there are no primary inputs as they do not exist in the real world. It is only the other industries that have the primary inputs. Hence, the GDP which consists of only primary inputs does not exist for the ‘fictive’ industries.

#### **Fictive Commodities and Industries of the Input-Output Accounts**

<b>“Fictive” commodity number</b>	<b>Fictive commodity and industry title</b>	<b>Fictive industry number</b>
643	Operating supplies such as spare parts and maintenance supplies	224
644	Office supplies	225
645	Cafeteria supplies	226
646	Transportation margins	230
647	Laboratory equipment and supplies	227
648	Travelling and entertainment	228
649	Advertising and promotion	229

These 'fictive' commodities are catch all categories for which precise content for each purchasing industry is unknown. These are artificial constructs unique in the Input-Output Accounts to route a group of goods and services inputs whose precise purchasers are not known. Therefore, the detailed commodity purchases represented by these 'fictive' industries have to be identified by referring to the Use (Input) matrix of the corresponding fictive industry. For example, the 'fictive' commodity 'Office supplies' is produced by the fictive industry 'Office supplies' by using paper, envelopes, paper clips etc as its inputs. The analytical usefulness of these fictive industries and commodities in the Input-Output Accounts is mainly to balance the commodity production with its disposition particularly for those falling in those categories. This technique of routing some commodities through this mechanism is necessary because some establishments do not report details for these catch-all categories and the information needed to estimate their content is not available.

#### P) *Construction*

There are also construction industries and construction commodities which are types or groups of activities. In these cases, several inputs are included in those construction commodities and what comes out are the outputs which are again types of construction, rather than specific commodities which can be bought and sold in the market place. All the construction types include two types: contract construction; and own-account construction. The own-account construction which is performed by the establishments is removed from their outputs and combined



with the contract construction to reflect the universe of the activity concerned for the total economy.

### Construction Commodities and Industries of the Input-Output Accounts

Construction Commodity number	Commodity and industry title	Industry number
543	Repair construction	163
544	Residential construction	164
545	Non-residential building construction	165
546	Road, highway and airport runway construction	166
547	Gas and oil facility construction	167
548	Electric power, dams and irrigation construction	168
549	Railway, and telecommunication construction	169
550	Other engineering construction	170

The commodities shown in the left-hand side of the above table are essentially categories of work-put-in-place which are produced by the industries shown in the right hand side of the table. In essence, then, each type of construction 'activity'

is gathered together from each industry into a 'construction' commodity with a corresponding 'construction' industry. This means, each construction industry produces one type of construction commodity representing the specific type of activity. Thus, eight categories of construction commodities are gathered from each industry and regrouped into the aforesaid categories. This is one of the peculiarities of the Input-Output Accounts. If, however, it is essential to identify the 'real' commodities (i.e. goods and services) contained in these 'construction' activity-based groups of commodities, one should look at the 'input' structure of the industries which produce them. Because of the direct link of the construction commodities to the corresponding construction industries explained above, the market-oriented commodities can be obtained by referring to the input structure of the relevant construction industries. Also, the end result of the specific type of construction is a marketable 'good' or 'product'. For example, highway construction is not a real commodity, but a highway is a real 'good' or 'product' generated by the construction activity.

This is because the end use and technology were the two important criteria in determining the industries and commodities from construction activities. The term 'technology' is used here to describe the kind of materials, supplies and methods that are used in the projects of construction such as residential non-residential, etc. By classifying the construction projects in this way, it is possible to relate them to the industry or the service that will be using them. Thus, the end use was also an influential factor in determining the kind of industry for the construction activities.

By contrast, the other industries are classified by the type of activity such as farming, fishing, manufacturing etc. and they generate goods and services which are not called based on the criteria of end use and technology as in the case of construction. This is the difference between construction industries and other industries.

Thus, for example, the repair construction industry (138) produces repair construction commodity (543) by using other inputs such as lumber (202), plywood and veneer (206), cement (417) etc. as its inputs. The above eight construction commodities are not market-oriented goods and services. In this sense, they are unique and specially designed for the Input-Output Accounts. The articulation of the construction commodities in the Input-Output Accounts based on the types of work-put-in-place in the economy gives a better ready-made picture of the functional data of the construction activity and this is a convenient way of presenting data for economic analysis.

Such are the concepts and definitions of the National Economic Accounting used in the preparation of the Input Output Accounts. Let us see in the next chapter how the structure of the Accounts is organized in the context of these concepts and definitions.



**Table 41      Income-based Gross Domestic Product – Primary Inputs**

Serial No.	Code No.	Description of Small Level	Serial No.	Code No.	Description of Worksheet Level	
52	52	Indirect taxes	{	671	672	Indirect taxes on product
				672	675	Indirect taxes on production
53	53	Subsidies	{	673	673	Subsidies on products
				674	674	Subsidies on production
54	54	Wages and salaries		675	676	Wages and salaries
55	55	Supplementary labour income		676	677	Supplementary labour income
56	56	Mixed income		677	678	Mixed income
57		Other operating surplus		678	679	Other operating surplus

Table 42: Input-Output Final Demand Categories with Small and Worksheet Levels of Aggregation (Continued)

Serial No.	Code No.	Description of Small Level	Serial No.	Code No.	Description of Worksheet Level
1	1	Personal expenditures, durable goods	1	16	Furniture and floor covering
			2	18	Household appliances
			3	28	New and used (net) motor vehicles
			4	29	Motor vehicles parts and accessories
			5	35	Recreation, sporting and camping equipment
			6	40	Jewelry and watches
2	2	Personal expenditures, semi-durable goods	7	4	Men's and boy's clothing
			8	6	Women's and children's clothing
			9	8	Footwear
			10	20	Semi-durable household furnishings
			11	37	Reading and entertainment supplies
			12	42	Leather goods & other personal effects
3	3	Personal expenditures, non-durable goods	13	1	Food and non-alcoholic beverages
			14	2	Alcoholic beverages bought in stores
			15	3	Tobacco products
			16	13	Electricity
			17	14	Natural gas
			18	15	Other fuels
			19	21	Non-durable household supplies
			20	27	Drugs and pharmaceutical products
			21	31	Motor fuels and lubricants
			22	43	Toilet articles and cosmetics
4	4	Personal expenditures, services	23	5	Men's and boy's clothing repair & alterations
			24	7	Women's clothing, repair & alterations
			25	9	Shoe repair
			26	10	Gross imputed rent
			27	11	Gross rent paid
			28	12	Other shelter expenses
			29	17	Upholstery and furniture repair
			30	19	Household equipment repairs
			31	22	Domestic and child care services
			32	23	Other household services

Table 42: Input-Output Final Demand Categories with Small and Worksheet Levels of Aggregation (Continued)

Serial No.	Code No.	Description of Small Level	Serial No.	Code No.	Description of Worksheet Level
4	4	Personal expenditures, services (Cont'd)	33	24	Medical care
			34	25	Hospital care and the like
			35	26	Accident and sickness insurance
			36	30	Motor vehicle repairs
			37	32	Other motor vehicle related services
			38	33	Purchased transportation
			39	34	Communications
			40	36	Recreation equipment repair and rentals
			41	38	Recreational services
			42	39	Educational and cultural services
			43	41	Jewelry and watch repair
			44	44	Personal care
			45	45	Restaurants and accommodation services
			46	46	Financial, legal & other services
			47	47	Operating expenditures of non-profit orginal
			48	48	Net expenditure abroad
5	5	Machinery & equipment, non-government sector	49	49	Agriculture and related services industries
			50	50	Fishing and trapping industries
			51	51	Logging and forestry industries
			52	52	Mining industries
			53	53	Crude petroleum and natural gas industries
			54	54	Quarry and sand pit industries
			55	55	Service ind. incidental to mineral
			56	56	Food industries
			57	57	Beverage industries
			58	58	Tobacco products industries
			59	59	Rubber products industries
			60	60	Plastic products industries
			61	61	Leather and allied products industries
			62	62	Primary textile and textile products industries
			63	63	Clothing industries
			64	64	Wood industries
			65	65	Furniture and fixture industries



Table 42: Input-Output Final Demand Categories with Small and Worksheet Levels of Aggregation (Continued)

Serial No.	Code No.	Description of Small Level	Serial No.	Code No.	Description of Worksheet Level
5	5	Machinery & equipment, non-government sector (Cont'd)	66	66	Paper and allied products industries
			67	67	Printing, publishing and allied industries
			68	68	Primary metal industries
			69	69	Fabricated metal product industries
			70	70	Machinery industries (except electrical machinery)
			71	71	Transportation equipment industries
			72	72	Electrical and electronic products
			73	73	Non-metallic mineral products industries
			74	74	Refined petroleum and coal products industries
			75	75	Chemical and chemical products industries
			76	76	Other manufacturing industries
			77	77	Construction industries
			78	78	Transportation industries
			79	79	Pipeline transport industries
			80	80	Storage and warehousing industries
			81	81	Communication industries
			82	82	Other utility industries
			83	83	Wholesale trade industries
			84	84	Retail trade industries
			85	85	Finance, insurance and real estate
			86	86	Business service industries
			87	87	Health and social services industry
			88	88	Accommodation, food and beverage service industries
			89	89	Amusement and recreational service industries
			90	90	Personal & household service industries
			91	91	Other service industries
			92	92	Used cars, equipment, and scrap
			93	93	Membership organization industries
			94	94	Educational service industries (exclusive university)

Table 42: Input-Output Final Demand Categories with Small and Worksheet Levels of Aggregation (Continued)

Serial No.	Code No.	Description of Small Level	Serial No.	Code No.	Description of Worksheet Level
6	6	Machinery & equipment, government sector	95	95	Universities
			96	96	Hospitals
			97	97	Federal government service industries
			98	98	Provincial and territorial government service industries
			99	99	Local government service industries
7	7	Construction, excluding housing, non-government sector	100	100	Agriculture and related services industries
			101	101	Fishing and trapping industries
			102	102	Logging and forestry industries
			103	103	Mining industries
			104	104	Crude petroleum and natural gas industries
			105	105	Quarry and sand pit industries
			106	106	Service ind. incidental to mineral
			107	107	Food industries
			108	108	Beverage industries
			109	109	Tobacco products industries
			110	110	Rubber products industries
			111	111	Plastic products industries
			112	112	Leather and allied products industries
			113	113	Primary textile and textile products industries
			114	114	Clothing industries
			115	115	Wood industries
			116	116	Furniture and fixture industries
			117	117	Paper and allied products industries
			118	118	Printing, publishing and allied industries
			119	119	Primary metal industries
			120	120	Fabricated metal product industries
			121	121	Machinery industries (except electrical machinery)
			122	122	Transportation equipment industries
			123	123	Electrical and electronic products
			124	124	Non-metallic mineral products industries

Table 42: Input-Output Final Demand Categories with Small and Worksheet Levels of Aggregation (Continued)

Serial No.	Code No.	Description of Small Level	Serial No.	Code No.	Description of Worksheet Level
7	7	Construction, excluding housing, non-government sector (Cont'd)	125	125	Refined petroleum and coal products industries
			126	126	Chemical and chemical products industries
			127	127	Other manufacturing industries
			128	128	Construction industries
			129	129	Transportation industries
			130	130	Pipeline transport industries
			131	131	Storage and warehousing industries
			132	132	Communication industries
			133	133	Other utility industries
			134	134	Wholesale trade industries
			135	135	Retail trade industries
			136	136	Finance, insurance and real estate
			137	137	Business service industries
			138	138	Health and social services industry
			139	139	Accommodation, food and beverage service industries
			140	140	Amusement and recreational service industries
			141	141	Personal & household service industries
			142	142	Other service industries
			143	143	Transfer costs, non-residential construction
			144	144	Membership organization industries
			145	145	Private educational service industries
8	8	Housing construction, non-government sector	146	146	Housing
9	9	Construction, government sector	147	147	Universities
			148	148	Hospitals
			149	149	Federal government service industries
			150	150	Provincial and territorial government service industries
			151	151	Local government service industries
10	10	Inventories	152	152	Finished goods & goods in process
			153	153	Raw materials & goods purchased for resale



**Table 42: Input-Output Final Demand Categories with Small and Worksheet Levels of Aggregation (Concluded)**

Serial No.	Code No.	Description of Small Level	Serial No.	Code No.	Description of Worksheet Level
11	11	Government net current expenditures	154	154	Hospital & residential care facilities expenditures
			155	155	Education expenditures
			156	156	Defence expenditures
			157	157	Other municipal government expenditures
			158	158	Other provincial & territorial government expenditures
			159	159	Other federal government expenditures
12	12	Exports	160	160	Domestic exports
			161	161	Re-exports
13	13	Imports	162	162	Imports

Table 43: Input-Output Industries with Small and Worksheet Levels of Aggregation

Serial No.	Code No.	Description of Small Level	Serial No.	Code No.	Description of Worksheet Level
1	1	Agricultural and related services industries	1	1	Livestock farms
			2	2	Field crop farms
			3	3	Service industries incidental to agriculture
2	2	Fishing and trapping industries	4	4	Fishing and trapping industries
3	3	Logging and forestry industries	5	5	Logging industry
			6	6	Forestry services industry
4	4	Mining, quarrying and oil well industries	7	7	Gold mines
			8	8	Other metal mines
			9	9	Iron mines
			10	10	Asbestos mines
			11	11	Potash mines
			12	12	Salt mines
			13	13	Other non-metal mines (except coal)
			14	14	Coal mines
			15	15	Crude petroleum and natural gas industries
			16	16	Quarry and sand pit industries
			17	17	Services industries incidental to mineral extraction
5	5	Manufacturing industries	18	18	Meat and meat products industries (except poultry)
			19	19	Poultry products industry
			20	20	Fish products industry
			21	21	Fruit and vegetable industries
			22	22	Dairy products industries
			23	23	Cereal grain flour, flour mixes, & cereal food industries
			24	24	Feed industry
			25	25	Vegetable oil mills (except corn oil)
			26	26	Biscuit industry
			27	27	Bread and other bakery products industry
			28	28	Cane and beet sugar industry
			29	29	Chewing gum, sugar and chocolate confectionery industries

Table 43: Input-Output Industries with Small and Worksheet Levels of Aggregation (Cont'd)

Serial Code		Description of Small Level	Serial Code		Description of Worksheet Level
No.	No.		No.	No.	
5		5 Manufacturing industries (Cont'd)	30		30 Tea and coffee industry
			31		31 Other miscellaneous food products industries
			32		32 Soft drink industry
			33		33 Distillery products industry
			34		34 Brewery products industry
			35		35 Wine industry
			36		36 Leaf tobacco industry
			37		37 Tobacco products industry
			38		38 Tire and tube industry
			39		39 Rubber hose and belting industry
			40		40 Other rubber products industries
			41		41 Natural fibers processing and felt products industries
			42		42 Foamed and expanded plastic product industry
			43		43 Plastic pipe and pipe fittings industry
			44		44 Plastic film and sheeting industry
			45		45 Plastic bag industry
			46		46 Other plastic products industries n.e.c.
			47		47 Leather tanneries
			48		48 Footwear industry
			49		49 Miscellaneous leather and allied products industries
			50		50 Man-made fiber and filament yarn industry
			51		51 Other spun yarn and woven cloth industries
			52		52 Wool yarn and woven cloth industry
			53		53 Broad knitted fabric industry
			54		54 Canvas and related products industry
			55		55 Other textile products industries
			56		56 Carpet, mat and rug industry
			57		57 Men's and boys' clothing industries
			58		58 Women's clothing industries
			59		59 Children's clothing industries
			60		60 Miscellaneous clothing and apparel industries
			61		61 Hosiery industry
			62		62 Sawmill, planing mill and shingle mill products industries
			63		63 Veneer and plywood industries



Table 43: Input-Output Industries with Small and Worksheet Levels of Aggregation (Cont'd)

Serial No.	Code No.	Description of Small Level	Serial No.	Code No.	Description of Worksheet Level
5		5 Manufacturing industries (Cont'd)	64		64 Prefabricated wood buildings, kitchen cabinet & vanity industries
			65		65 Wooden door, window and other millwork industries
			66		66 Wooden box and pallet industry
			67		67 Coffin and casket industry
			68		68 Particle and wafer board industries
			69		69 Wood preservation & other wood industries n.e.c
			70		70 Household furniture industries
			71		71 Office furniture industries
			72		72 Other furniture and fixture industries
			73		73 Pulp industry
			74		74 Newsprint industry
			75		75 Paperboard, building board and other. paper industries
			76		76 Asphalt roofing industry
			77		77 Paper box and bag industries
			78		78 Other converted paper products industries
			79		79 Commercial printing industries
			80		80 Publishing industries
			81		81 Combined publishing and printing industries
			82		82 Platemaking, typesetting and bindery industry
			83		83 Ferro-alloys industry and steel foundries
			84		84 Other primary steel industries
			85		85 Steel pipe and tube industry
			86		86 Iron foundries
			87		87 Non-ferrous metal smelting and refining
			88		88 industries rolling, casting and extruding
			89		89 industries copper alloy roll., cast. and extr. Industries
			90		90 Other roll., cast & extr. non-ferrous metal products industries
			91		91 Power boiler and heat exchanger industry
			92		92 Pre-engineered metal building industries (ex. portable)
			93		93 Fabricated structural metal products industries n.e.c.

Table 43: Input-Output Industries with Small and Worksheet Levels of Aggregation (Cont'd)

Serial No.	Code No.	Description of Small Level	Serial No.	Code No.	Description of Worksheet Level
5		5 Manufacturing industries (Cont'd)	94		94 Ornamental and architectural metal product
			95		95 Stamped, pressed and coated metal industries
			96		96 Wire and wire products industries
			97		97 Hardware, tool and cutlery industries
			98		98 Heating equipment industry
			99		99 Machine shop industry
			100		100 Other metal fabricating industries
			101		101 Agricultural implement industry
			102		102 Commercial refrigerator and air conditioning equipment industries
			103		103 Compressor, pump, turbine & other equipment industries
			104		104 Construction, mining & handling machinery industries
			105		105 Sawmill, woodwork., & other machinery & equipment industries n.e.c.
			106		106 Aircraft and aircraft parts industry
			107		107 Motor vehicle industry
			108		108 Truck and bus body and trailer industries
			109		109 Motor vehicle engine and engine parts industry
			110		110 Motor vehicle wiring assemblies industry
			111		111 Motor vehicle stampings industry
			112		112 Motor vehicle steering and suspension parts industries
			113		113 Motor vehicle wheel and brake industry
			114		114 Plastic parts and accessories for motor vehicles industries
			115		115 Motor vehicle fabric accessories industry
			116		116 Other motor vehicle accessories, parts & assembly industries
			117		117 Railroad rolling stock industry
			118		118 Shipbuilding and repair industry
			119		119 Boatbuilding and repair industry
			120		120 Other transportation equipment industries
			121		121 Small electrical appliance industry

Table 43; Input-Output Industries with Small and Worksheet Levels of Aggregation (Cont'd)

Serial No.	Code No.	Description of Small Level	Serial No.	Code No.	Description of Worksheet Level
5		5 Manufacturing industries (Cont'd)	122		122 Major appliance industries (electric and non-electric)
			123		123 Electric lighting industries
			124		124 Record player, radio and television receiver
			125		125 Telecommunication equipment industries
			126		126 Electronic parts and components industry
			127		127 Other communication and electronic equipment industries
			128		128 Electronic computing and peripheral equipment industries
			129		129 Electronic & other office, store & business machinery industries
			130		130 Electrical transformer industry
			131		131 Switchgear, protection & other electrical industries equipment industries
			132		132 Communications and energy wire and cable industries
			133		133 Battery industry
			134		134 Miscellaneous electrical products industries
			135		135 Clay products industries
			136		136 Hydraulic cement industry
			137		137 Concrete products industries
			138		138 Ready-mix concrete industry
			139		139 Glass and glass products industries
			140		140 Abrasives industry
			141		141 Lime industry
			142		142 Other non-metallic mineral products industries
			143		143 Refined petroleum products industries
			144		144 Other petroleum and coal products industries
			145		145 Industrial inorganic chemical industries n.e.c.
			146		146 Industrial organic chemical industries n.e.c.
			147		147 Agricultural chemical industries
			148		148 Plastic and synthetic resin industry
			149		149 Pharmaceutical and medicine industry
			150		150 Paint and varnish industry
			151		151 Soap and cleaning compounds industry



Table 43: Input-Output Industries with Small and Worksheet Levels of Aggregation (Cont'd)

Serial No.	Code No.	Description of Small Level	Serial No.	Code No.	Description of Worksheet Level
5	5	Manufacturing industries (Cont'd)	152	152	Toilet preparations industry
			153	153	Other chemical products industries
			154	154	Indicating, recording and controlling instr. industries
			155	155	Other scientific and professional equipment industries
			156	156	Jewelry and precious metal industries
			157	157	Sporting goods industry
			158	158	Toys and games industry
			159	159	Sign and display industry
			160	160	Floor tile, linoleum and coated fabric industry
			161	161	Musical instrument and sound recording industry
			162	162	Miscellaneous manufactured products industries n.e.c.
6	6	Construction industries	163	163	Repair construction
			164	164	Residential construction
			165	165	Non-residential building construction
			166	166	Road, highway and airport runway construction
			167	167	Gas and oil facility construction
			168	168	Electric power, dams and irrigation construction
			169	169	Railway, and telecommunication construction
			170	170	Other engineering construction
			171	171	Construction, other activities
7	7	Transportation and storage industries	721	172	Air transport and related service industries
			173	173	Railway transport and related service industries
			174	174	Water transport and related services industries
			175	175	Truck transport industries
			176	176	Urban transit systems industry
			177	177	Interurban and rural transit systems industry
			178	178	Taxicab and other transportation industries
			179	179	School and other bus operations industries
			180	180	Other service industries incidental
			181	181	Natural gas pipeline transport industries
			182	182	Crude oil and other pipeline transport industries
			183	183	Grain elevator industry
			184	184	Other storage and warehousing industries

Table 43: Input-Output Industries with Small and Worksheet Levels of Aggregation (Cont'd)

Serial No.	Code No.	Description of Small Level	Serial No.	Code No.	Description of Worksheet Level
8		8 Communication and other utility industries	185		185 Radio and television broadcasting industries
			186		186 Cable television industry
			187		187 Telecommunication carriers industries
			188		188 Postal and courier service industries
			189		189 Electric power systems industry
			190		190 Gas distribution systems industry
			191		191 Water systems and other utility industries n.e.c.
9		9 Wholesale trade industries	192		192 Wholesale trade industries
10		10 Retail trade industries	193		193 Retail trade industries
11		11 Finance, insurance and real estate industries	194		194 Central bank
			195		195 Banks and other deposit accepting intermed.
			196		196 Credit unions and caisses populaires
			197		197 Other financial intermediary industries
			198		198 Real estate operator industries
			199		199 Insurance and real estate agent industries
			200		200 Insurance industries
			201		201 Owner occupied dwellings
12		12 Business service industries	202		202 Computer and related services
			203		203 Accounting and legal services
			204		204 Architectural, engineering, & other scientific & technical services
			205		205 Advertising services
			206		206 Miscellaneous business service industries
13		13 Educational service industries	207		207 Educational service industries
14		14 Health and social service industries	208		208 Other health and social service industries
			209		209 Health practitioners & medical laboratories industries

Table 43: Input-Output Industries with Small and Worksheet Levels of Aggregation (Cont'd)

Serial Code No.	Description of Small Level	Serial Code No.	Description of Worksheet Level
15	15 Accommodation and food services industries	210	210 Accommodation service industries
		211	211 Food and beverage service industries
16	16 Other service industries	212	212 Motion picture, audio and video products & distribution
		213	213 Motion picture exhibition
		214	214 Other amusement and recreational service industries
		215	215 Lotteries, bingos, casinos, etc
		216	216 Laundries and cleaners
		217	217 Other personal service industries
		218	218 Photographers
		219	219 Machinery & equipment, automobile & truck rental & leasing services
		220	220 Business and professional membership association
16	16 Other service industries (Cont'd)	221	221 Travel services
		222	222 Other services n.e.c.
		223	223 Other repair services & services to buildings & dwellings
17	17 Operating, office, cafeteria and laboratory supplies	224	224 Operating supplies
		225	225 Office supplies
		226	226 Cafeteria supplies
		227	227 Laboratory supplies
18	18 Travel & entertainment., advertising & promotion	228	228 Travel & entertainment
		229	229 Advertising & promotion
19	19 Transportation margins	230	230 Transportation margins
20	20 Non-profit institutions serving households	231	231 N.B. - P Religious organizations
		232	232 N.B. - P Welfare organizations
		233	233 N.B. - P Sports & recreation clubs
		234	234 N.B - P Educational institutions
		235	235 N.B. - P Other organizations



Table 43: Input-Output Industries with Small and Worksheet Levels of Aggregation (Concluded)

Serial No.	Code No.	Description of Small Level	Serial No.	Code No.	Description of Worksheet Level
21		21 Government sector	236		236 N.B. - G Hospitals
			237		237 N.B. - G Residential care facilities
			238		238 N.B. - G University education
			239		239 N.B. - G Other educational services
			240		240 N.B. - G Defence services
			241		241 N.B. - G Other municipal government
			242		242 N.B. - G Other provincial & territorial government
			243		243 N.B. - G Other federal government

**Note:** In this table, "N.B." means "non-business". "P" means "Personal Sector"; and "G" means "Government Sector".

Table 44: Input-Output Commodities and Primary Inputs with Small and Worksheet Levels of Aggregation

Serial Code		Description of Small Level	Serial Code		Description of Worksheet Level
No.	No.		No.	No.	
1	1	Grains	1 5		Wheat, unmilled, excluding imputed feed
			2 6		Wheat, unmilled, imputed feed
			3 7		Grain corn, excluding imputed feed
			4 8		Corn fodder, imputed feed
			5 9		Barley, excluding imputed feed
			6 10		Other grains, excluding imputed feed
			7 11		Other grains & fodder, imputed feed
2	2	Other agricultural products	8 1		Cattle & calves
			9 2		Hogs
			10 3		Poultry
			11 4		Other live animals
			12 12		Fluid milk, unprocessed
			13 13		Eggs in the shell
			14 14		Honey & beeswax
			15 15		Fresh fruit, excluding tropical
			16 16		Potatoes, fresh or chilled
			17 17		Other vegetables, fresh or chilled
			18 18		Hay & straw, excluding imputed feed
			19 19		Hay & straw, imputed feed
			20 20		Seeds, excluding oil seeds
			21 21		Nursery stock, flowers, etc.
			22 22		Canola
			23 23		Soybeans & other oil seeds
			24 24		Raw tobacco
			25 25		Raw wool and mink skins
			26 26		Services incidental to agriculture
			27 27		Services incidental to forestry
3	3	Forestry products	28 28		Logs
			29 29		Poles, piling, bolts, etc.
			30 30		Pulpwood
			31 31		Fuelwood & other crude wood
			32 32		Custom forestry
4	4	Fish, seafood and trapping products	33 33		Fish & seafood, fresh, chilled
			34 34		Hunting & trapping products

**Table 44: Input-Output Commodities and Primary Inputs with Small and Worksheet Levels of Aggregation (Cont'd)**

Serial Code		Description of Small Level	Serial Code		Description of Worksheet Level
No.	No.		No.	No.	
5	5	Metal ores & concentrates	35	35	Gold & alloys in primary forms
			36	36	Radioactive ores & concentrates
			37	37	Iron ores & concentrates
			38	38	Bauxite & alumina
			39	39	Other metal ores & concentrates
6	6	Mineral fuels	40	40	Coal
			41	41	Crude mineral oils
			42	42	Natural gas, excluding liquefied
7	7	Non-metallic minerals	43	43	Sulphur, crude & refined
			44	44	Asbestos, crude & milled
			45	45	Gypsum
			46	46	Salt
			47	47	Peat
			48	48	Clays
			49	49	Natural abrasives & industrial diamonds
			50	50	Other crude minerals
			51	51	Sand (excluding silica) & gravel
			52	52	Stone & silica sand for industrial use
			53	53	Stone for construction
8	8	Services incidental to mining	54	54	Services incidental to mining
9	9	Meat, fish, and dairy products	55	55	Beef, fresh, chilled, frozen
			56	56	Pork, fresh, chilled, frozen
			57	57	Other meat, fresh, chilled, frozen
			58	58	Edible offal, fresh, chilled, frozen
			59	59	Cured meat
			60	60	Prepared meat products
			61	61	Animal fat & lard
			62	62	Margarine & shortening
			63	63	Sausage casings
			64	64	Feeds from animal byproducts
			65	65	Raw animal hides & skins
			66	66	Animal byproducts for industry use
			67	67	Custom work, meat & food



Table 44: Input-Output Commodities and Primary Inputs with Small and Worksheet Levels of Aggregation (Cont'd)

Serial Code		Description of Small Level	Serial Code		Description of Worksheet Level
No.	No.		No.	No.	
9	9 Meat, fish, and dairy products (Cont'd)		68	68	Poultry, fresh, chilled, frozen
			69	69	Fluid milk, processed
			70	70	Fresh cream
			71	71	Butter
			72	72	Cheese
			73	73	Evaporated & condensed dairy products
			74	74	Ice cream
			75	75	Powder dairy products
			76	76	Other dairy products
			77	77	Mayonnaise, salad dressing & mustard
			78	78	Fish & seafood products fresh, chilled, frozen
			79	79	Other fish & seafood products
10	10 Fruit, vegetable and other food products, feeds		80	80	Frozen fruit & juice
			81	81	Other fruit juice
			82	82	Other fruit products
			83	83	Fruit & jam in airtight containers
			84	84	Frozen potatoes
			85	85	Other frozen vegetables
			86	86	Other preserved vegetables
			87	87	Vegetables & juice in airtight containers
			88	88	Soups in airtight containers
			89	89	Infant & junior foods, in airtight containers
			90	90	Sauces, pickles, etc.
			91	91	Vinegar
			92	92	Mineral water, fruit drinks & ice
			93	93	Pasta products, excluding dry pasta
			94	94	Prepared meals
			95	95	Feed supplements & premixes
			96	96	Complete feeds
			97	97	Feeds from grain byproducts
			98	98	Feeds from vegetable byproducts
			99	99	Pet feeds
			100	100	Wheat flour
			101	101	Starches

**Table 44: Input-Output Commodities and Primary Inputs with Small and Worksheet Levels of Aggregation (Cont'd)**

Serial Code No. No.		Description of Small Level	Serial Code No. No.		Description of Worksheet Level
10		10 Fruit, vegetable and other food products, feeds (Cont'd)	102	102	Breakfast cereal products
			103	103	Biscuits
			104	104	Bread & rolls
			105	105	Other bakery products
			106	106	Food snacks
			107	107	Cocoa & chocolate
			108	108	Nuts
			109	109	Chocolate confectionery
			110	110	Other confectionery
			111	111	Sugar
			112	112	Oil-cake feeds
			113	113	Crude vegetable oils
			114	115	Other flours & processed grains
			115	116	Maple sugar & syrup
			116	117	Other syrup
			117	118	Prepared cake & other mixes
			118	119	Dehydrated soup mixes & bases
			119	120	Roasted coffee
			120	121	Tea
			121	122	Potato chips & flakes
			122	123	Spices
			123	124	Peanut butter
			124	125	Food & drink powders
			125	126	Other food products
			126	127	Infant & junior foods, excluding in airtight containers
			127	128	Dry pasta
11		11 Soft drinks and alcoholic beverages	128	129	Soft drink concentrates
			129	130	Carbonated soft drinks
			130	131	Distilled alcoholic beverages, bought in stores
			131	132	Distilled alcoholic beverages, consumed on licenced premises
			132	133	Beer, including coolers, bought in stores
			133	134	Beer, including coolers, consumed on licenced premises

**Table 44: Input-Output Commodities and Primary Inputs with Small and Worksheet Levels of Aggregation (Cont'd)**

Serial Code		Description of Small Level	Serial Code		Description of Worksheet Level
No.	No.		No.	No.	
11	11	Soft drinks and alcoholic beverages (Cont'd)	134	135	Wine, including coolers, bought in stores
			135	136	Wine, including coolers, consumed on licenced premises
12	12	Tobacco and tobacco products	136	137	Unmanufactured tobacco
			137	138	Cigarettes
			138	139	Other tobacco products
13	13	Leather, rubber, and plastic products	139	140	Waterproof footwear
			140	141	Passenger car tires
			141	142	Truck, bus & off-highway tires
			142	143	Other tires & tubes
			143	144	Tire repair material & retreaded tires
			144	145	Conveyor & transmission belting
			145	146	Self-adhesive tape
			146	147	Other rubber products for industrial use
			147	148	Hose & tubing, mainly rubber
			148	149	Plastic film & sheet
			149	150	Foamed & expanded plastics
			150	151	Other plastic products, including cups
			151	152	Plastic building supplies
			152	153	Other rubber end products
			153	154	Plastic containers & closures
			154	155	Plastic pipe & pipe fittings
			155	156	Leather & other leather goods
			156	157	Footwear, excluding waterproof
			157	158	Leather gloves
			158	159	Luggage, briefcases, etc.
			159	160	Handbags, wallets, etc.
14	14	Textile products	160	161	Cotton yarn
			161	162	Cotton woven fabric
			162	163	Tire cord fabric
			163	164	Bedding
			164	165	Wool & wool mix yarn & thread
			165	166	Wool & wool mix woven fabric



**Table 44: Input-Output Commodities and Primary Inputs with Small and Worksheet Levels of Aggregation (Cont'd)**

Serial Code		Description of Small Level	Serial Code		Description of Worksheet Level
No.	No.		No.	No.	
14	14	Textile products (Cont'd)	166	167	Felt
			167	168	Man-made staple fibres
			168	169	Polyamide resins, including nylon
			169	170	Filament yarn
			170	171	Yarn of staple fibres
			171	172	Tire yarn
			172	173	Man-made fabric for clothing
			173	174	Man-made fabric for industrial use
			174	175	Pile fabric
			175	176	Cotton thread
			176	177	Man-made thread
			177	178	Rope & twine
			178	179	Narrow fabrics, including lace
			179	180	Textile floor covering
			180	181	Textile dyeing & finishing service
			181	182	Awnings, tarpaulins, etc.
			182	183	Tents, sleeping bags, sails, etc.
			183	184	Other household textile products
			184	185	Textile medical products
			185	186	Other textile products
			186	188	Knitted fabrics
15	15	Hosiery, clothing and accessories	187	187	Hosiery
			188	189	Men's & boys' knitted clothing
			189	190	Sweaters
			190	191	Women's knitted clothing
			191	192	Children's knitted clothing
			192	193	Men's & boys' clothing
			193	194	Women's underwear & sleepwear
			194	195	Other women's clothing
			195	196	Children's wear
			196	197	Other clothing & accessories
			197	198	Dressed furs
			198	199	Fur apparel
			199	200	Custom tailoring

**Table 44: Input-Output Commodities and Primary Inputs with Small and Worksheet Levels of Aggregation (Cont'd)**

Serial No.	Code No.	Description of Small Level	Serial No.	Code No.	Description of Worksheet Level
18	18	Wood pulp, paper and paper products (Cont'd)	235	236	Paper boxes, cartons & drums
			236	237	Plastic bags
			237	238	Corrugated paper & board
			238	239	Wallpaper
			239	240	Other coated paper & products
			240	241	Aluminum foil
			241	242	Paper diapers & sanitary napkins
			242	243	Textile hygiene products
			243	244	Paper containers for commercial use
			244	245	Paper stationery
			245	246	Other stationery supplies
			246	247	Photographic paper
			247	248	Other paper end products
19	19	Printing and publishing	248	249	Newspapers
			249	250	Magazines & periodicals
			250	251	Books
			251	252	Greeting & post cards, maps, etc.
			252	253	Banknotes, cheques & stamps, etc.
			253	254	Printed business forms
			254	255	Advertising flyers, catalogues, directories
			255	256	Other printed matter
			256	257	Advertising in print media
			257	258	Specialized publishing service
			258	259	Printing plates, type, etc.
20	20	Primary metal products	259	260	Ferro-alloys
			260	261	Iron & steel ingots, billets, etc.
			261	262	Steel castings
			262	263	Steel bars & rods, non-alloy, excluding reinforced
			263	264	Reinforcing bars & rods
			264	265	Alloy steel bars & rods
			265	266	Flat iron & steel, not alloy, not coated
			266	267	Flat iron & steel, alloy, coated
			267	268	Iron & steel railway construction material

**Table 44: Input-Output Commodities and Primary Inputs with Small and Worksheet Levels of Aggregation (Cont'd)**

Serial Code		Description of Small Level	Serial Code		Description of Worksheet Level
No.	No.		No.	No.	
20	20	Primary metal products (Cont'd)	268	270	Carbon & graphite products
			269	271	Oil & gas casing & drill pipe
			270	272	Oil & gas line pipe
			271	273	Other iron & steel pipes & tubes
			272	274	Other cast iron products
			273	275	Grinding balls & ingot moulds
			274	276	Cast iron pipe & fittings
			275	277	Other iron & steel pipe fittings
			276	278	Nickel in primary forms
			277	279	Copper in primary forms
			278	280	Lead in primary forms
			279	281	Zinc in primary forms
			280	282	Aluminum & alloy ingots, billets, blocks &
			281	283	Aluminium & alloys, other primary forms
			282	284	Precious metals in primary forms excluding
			283	285	Other non-ferrous base metals
			284	286	Other non-ferrous base & fabricated materials
			285	287	Other inorganic bases & metallic oxides
			286	288	Metal scrap, excluding iron & steel
			287	289	Iron & steel scrap
			288	290	Aluminum & aluminum alloy fabricated
			289	291	Copper fabricated materials
			290	292	Copper alloy fabricated materials
			291	293	Lead & lead alloy fabricated materials
			292	294	Nickel & nickel alloy fabricated materials
			293	295	Zinc & zinc alloy fabricated materials
			294	296	Soldering rods & wire
21	21	Other metal products	295	297	Fabricated steel plate
			296	298	Metal tanks
			297	299	Power boilers
			298	300	Iron & steel structural materials
			299	301	Prefabricated metal buildings
			300	302	Prefabricated metal structures
			301	303	Metal doors and windows
			302	304	Other metal building products
			303	305	Corrugated metal culvert pipe



**Table 44: Input-Output Commodities and Primary Inputs with Small and Worksheet Levels of Aggregation (Cont'd)**

Serial Code		Description of Small Level	Serial Code		Description of Worksheet Level
No.	No.		No.	No.	
21	21	Other metal products (Cont'd)	304	306	Iron & steel stampings
			305	307	Metal roofing, siding, ducts, etc.
			306	308	Metal kitchen utensils
			307	309	Other kitchen utensils
			308	310	Other metal containers & closures
			309	311	Food, beverage and other cans
			310	312	Iron & steel wire & cable
			311	313	Iron & steel wire fencing & screen
			312	314	Chain, excluding motor vehicle & power transmission
			313	315	Welding rods & wire electrodes
			314	316	Wire products, including springs
			315	317	Fastener hardware
			316	318	Builders' hardware
			317	319	Other hardware
			318	320	Machine tools
			319	321	Tool accessories
			320	322	Hand & measuring tools
			321	323	Scissors, razor blades, industrial cutlery, etc.
			322	327	Non-electric furnaces & heating equipment
			323	328	Commercial cooking equipment
			324	329	Custom metal working
			325	330	Iron & steel forging
			326	331	Valves
			327	332	Metal plumbing fixtures & fittings
			328	333	Plastic plumbing fixtures & fittings
			329	334	Gas & water meters
			330	335	Fire fighting & traffic control equipment
			331	336	Firearms & military hardware
22	22	Machinery and equipment	332	337	Bulldozers, farm & garden tractors
			333	338	Other agricultural machinery
			334	339	Bearings
			335	340	Mechanical power transmission equipment
			336	341	Pumps, compressors, fans & blowers
			337	342	Conveyors, elevators & hoisting machinery
			338	343	Industrial trucks & material handling equipment

**Table 44: Input-Output Commodities and Primary Inputs with Small and Worksheet Levels of Aggregation (Cont'd)**

Serial Code		Description of Small Level	Serial Code		Description of Worksheet Level
No.	No.		No.	No.	
23	23	Motor vehicle, other transport equipment and parts (Cont'd)	372	377	Motor vehicle stampings
			373	378	Motor vehicle steering & suspension
			374	379	Motor vehicle wheels & brakes
			375	380	Motor vehicle plastic parts & trim
			376	381	Motor vehicle fabric accessories
			377	382	Other motor vehicle parts & accessories
			378	383	Locomotive, railway & urban trans. rolling
			379	384	Parts for loc, railway & urban trans. rolling stock
			380	385	Ships, boats & parts, excluding. pleasure
			381	386	Ship repairs
			382	387	Snowmobiles
			383	388	Pleasure boats & sporting craft
24	24	Electrical, electronic and communication products	384	324	Household clothes washers & dryers
			385	325	Household dishwashers
			386	326	Mowers, snowblowers, sprinklers, etc.
			387	389	Microwave ovens
			388	390	Small household appliances
			389	391	Electric furnace & other electric heating equipment
			390	392	Household refrigerators & freezers
			391	393	Household cooking equipment, excluding microwave ovens
			392	394	Radio, stereo, cassette & CD players, & accessories
			393	395	TV, VCR, accessories, & unrecorded tape
			394	396	Telephone & related equipment, including facsimile
			395	397	Broadcasting & radio communications equipment
			396	398	Radar & radio navigation equipment
			397	399	Semi-conductors
			398	400	Printed circuits
			399	401	Integrated circuits

**Table 44: Input-Output Commodities and Primary Inputs with Small and Worksheet Levels of Aggregation (Cont'd)**

Serial Code		Description of Small Level	Serial Code		Description of Worksheet Level
No.	No.		No.	No.	
24	24	Electrical, electronic and communication products (Cont'd)	400	402	Other electronic equipment components
			401	403	Electronic alarm & signal systems
			402	404	Welding machinery & equipment
			403	405	Power generation & marine prop., non-electric
			404	406	Electrical generators & motors
			405	407	Ballast
			406	408	Transformers & converters
			407	409	Industrial electric equipment, including safety
			408	410	Batteries
			409	411	Wire & cable, insulated, excluding aluminum
			410	412	Aluminum wire & cable
			411	413	Wiring materials & electrical meters
			412	414	Electric light bulbs & tubes
			413	415	Electric lighting fixtures, excluding portable
			414	416	Vehicle lighting equipment
25	25	Non-metallic mineral products	415	417	Cement
			416	418	Lime
			417	419	Concrete products
			418	420	Ready-mix concrete
			419	421	Bricks & other clay building products
			420	422	Porcelain insulators
			421	423	Ceramic household products
			422	424	Refractory products
			423	425	Natural stone products
			424	426	Gypsum building products
			425	427	Mineral wool building products
			426	428	Asbestos products
			427	429	Other non-metallic mineral basic products
			428	430	Glass and other glass products
			429	431	Safety glass
			430	432	Optical fibre cables
			431	433	Glass fibre batts, mats, etc.
			432	434	Glass containers
			433	435	Mirrors & glass household products
			434	436	Abrasive products



**Table 44: Input-Output Commodities and Primary Inputs with Small and Worksheet Levels of Aggregation (Cont'd)**

Serial Code		Description of Small Level	Serial Code		Description of Worksheet Level
No.	No.		No.	No.	
26	26	Petroleum and coal products	435	269	Tar & pitch
			436	437	Motor gasoline
			437	438	Aviation fuel
			438	439	Diesel oil
			439	440	Light fuel oil
			440	441	Heavy fuel oil
			441	442	Lubricating oils & greases
			442	443	Benzene, toluene & xylene
			443	444	Liquid petroleum gases, including natural gas
			444	445	Naphtha
			445	446	Asphalt compound, hot bulk
			446	447	Other asphalt products
			447	448	Petrochemical feed stock
			448	581	Coke
27	27	Chemicals, pharmaceuticals & chemical products	449	114	Nitrogen function compounds
			450	449	Animal & vegetable fertilizers, imputed
			451	450	Animal & vegetable fertilizers, excluding
			452	451	Potash
			453	452	Chemical fertilizers
			454	453	Ethylene polymers
			455	454	Vinyl polymers
			456	455	Other polymers
			457	456	Cellulosic plastic film & sheet
			458	457	Monoethylene glycol
			459	458	Pharmaceuticals
			460	459	Paints & related products
			461	460	Refined vegetable oils
			462	461	Oral care products
			463	462	Soaps
			464	463	Detergents
			465	464	Other cleaning products
			466	465	Other industrial chemical preparations
			467	466	Cosmetic products
			468	467	Hair care products
			469	468	Other personal care products

**Table 44: Input-Output Commodities and Primary Inputs with Small and Worksheet Levels of Aggregation (Cont'd)**

Serial Code		Description of Small Level	Serial Code		Description of Worksheet Level
No.	No.		No.	No.	
27	27	Chemicals, pharmaceuticals & chemical products	470	469	Bleach and fabric softeners
			471	470	Chlorine
			472	471	Oxygen
			473	472	Phosphorous
			474	473	Other chemical elements
			475	474	Sulphuric acid
			476	475	Other inorganic acids & oxygen compounds
			477	476	Ammonia
			478	477	Caustic soda
			479	478	Sodium chlorate
			480	479	Sodium phosphates
			481	480	Sodium carbonate
			482	481	Other metallic salts & peroxysalts
			483	482	Deuterium oxide (heavy water)
			484	483	Radioactive chemicals
			485	484	Other inorganic chemicals
			486	485	Ethylene
			487	486	Butylenes
			488	487	Butadiene
			489	488	Styrene
			490	489	Vinyl chloride
			491	490	Other hydrocarbons & derivatives
			492	491	Methyl alcohol
			493	492	Other alcohols & derivatives
			494	493	Ethers, alcohol peroxides, etc.
			495	494	Other phenols, aldehydes & ketones
			496	495	Organic acids & derivatives
			497	496	Organo-inorganic compounds
			498	497	Other organic chemicals
			499	498	Titanium dioxide, excluding. slag
			500	499	Carbon
			501	500	Pigments, lakes & dyes
			502	501	Synthetic rubber
			503	502	Antifreezing preparations
			504	503	Additives & automobile chemicals

**Table 44: Input-Output Commodities and Primary Inputs with Small and Worksheet Levels of Aggregation (Cont'd)**

Serial No.	Code No.	Description of Small Level	Serial No.	Code No.	Description of Worksheet Level
27	27	Chemicals, pharmaceuticals & chemical products (Cont'd)	505	504	Rubber & plastic compounding agents
			506	505	Explosives & non-military ammunition
			507	506	Military ammunition & ordnance
			508	507	Crude vegetable materials & extracts
			509	508	Insecticides & herbicides
			510	509	Adhesives
			511	510	Catalysts
			512	511	Metal working industrial chemicals
			513	512	Printing & other inks
			514	513	Polish, cream & wax products
			515	514	Other oils, fats & waxes
28	28	Other manufactured products	516	515	Aircraft & nautical navig. instruments, excluding radio
			517	516	Lab & scientific instruments, & flight
			518	517	Measuring & controlling instruments
			519	518	Medical & dental equipment & supplies
			520	519	Ophthalmic goods
			521	520	Personal medical goods
			522	521	Industrial safety equipment
			523	522	Watches, clocks, etc.
			524	523	Optical & photo equipment
			525	524	Photocopy & microfilm equipment
			526	525	Photographic film & plate
			527	526	Jewelry, silverware, flatware, etc.
			528	527	Brooms, brushes, mops, etc.
			529	528	Bicycles
			530	529	Recreational equipment
			531	530	Toys & games, including electronic
			532	531	Impregnated & coated fabrics
			532	532	Floor & wall covering, excluding vinyl
			534	533	Advertising signs, displays, etc.
			535	534	Shades & blinds
			536	535	Custom work, refined petroleum and coal
			537	536	Other custom work
			538	537	Animal hair, fur dyeing, etc.



**Table 44: Input-Output Commodities and Primary Inputs with Small and Worksheet Levels of Aggregation (Cont'd)**

Serial Code		Description of Small Level	Serial Code		Description of Worksheet Level
No.	No.		No.	No.	
28	28	Other manufactured products (Cont'd)	539	538	Other metal end products
			540	539	Sewing needs
			541	540	Recordings, musical instrument, artists' supplies, etc.
			542	541	Smokers' supplies
			543	542	Art & decorative goods, misc. end products
29	29	Residential construction	544	544	Residential construction
30	30	Non-residential construction	545	545	Non-residential building construction
			546	546	Road, highway & airport runway construction
			547	547	Gas & oil facility construction
			548	548	Electric power, dams & irrigation construction
			549	549	Railway & telecommunications construction
			550	550	Other engineering construction
31	31	Repair construction	551	543	Repair construction
32	32	Transportation and storage	552	551	Air transport, passenger
			553	552	Air transport, freight
			554	553	Air transport, specialty
			555	554	Services incidental to air transport
			556	555	School bus & other transportation
			557	556	Ambulance services
			558	557	Travel agents, tour wholesaler & operator services
			559	558	Parking services
			560	559	Other services incidental to transport
			561	560	Water transport, passenger
			562	561	Water transport, freight
			563	562	Water transport, other
			564	563	Services incidental to water transport
			565	564	Rail transport, passenger
			566	565	Rail transport, freight
			567	566	Services incidental to rail transport
			568	567	Truck transportation
			569	568	Bus transport, interurban & rural, passenger

**Table 44: Input-Output Commodities and Primary Inputs with Small and Worksheet Levels of Aggregation (Cont'd)**

Serial Code		Description of Small Level	Serial Code		Description of Worksheet Level
No.	No.		No.	No.	
32	32	Transportation and storage (Cont'd)	570 569		Bus transport, interurban & rural, parcel express
			571 570		Urban transit
			572 571		Taxicab transportation
			573 572		Pipeline transportation
			574 573		Highway and bridge maintenance
			575 574		Grain storage
			576 575		Other storage and warehousing
33	33	Communications services	577 576		Radio & television broadcasting, including
			578 577		Telephone & other telecommunications
			579 578		Postal services
34	34	Other utilities	580 579		Electric power
			581 580		Gas distribution
			582 582		Water supply
			583 583		Other utilities
35	35	Wholesaling margins	584 584		Wholesaling margins
36	36	Retailing margins	585 587		Retailing margins
			586 588		Retailing service
37	37	Gross imputed rent	587 604		Gross imputed rent
38	38	Other finance, insurance, and real estate services	588 589		Central bank
			589 590		Implicit charges, banks & other dep. acc. intermed.
			590 591		Paid charges, banks & other dep. acc. intermed.
			591 592		Implicit charges, credit unions & caisses populaire
			592 593		Paid charges, credit unions & caisses populaire
			593 594		Royalties & licence fees (excluding natural resource)
			594 595		Stock & bond commissions
			595 596		Implicit charge, sales finance & consumer loan
			596 597		Mutual funds

**Table 44: Input-Output Commodities and Primary Inputs with Small and Worksheet Levels of Aggregation (Cont'd)**

Serial Code		Description of Small Level	Serial Code		Description of Worksheet Level
No.	No.		No.	No.	
38	38	Other finance, insurance, and real estate services (Cont'd)	597	598	Other financial intermediary services
			598	599	Real estate commissions & management fees
			599	600	Life insurance
			600	601	Non-life insurance
			601	602	Trusteed pension funds
			602	603	Insurance commissions
			603	605	Gross paid residential rent
			604	606	Imputed lodging
			605	607	Lodging in universities
			606	608	Other paid lodging, excluding universities
			607	609	Non-residential rent
39	39	Business and computer services	608	621	Architect, engineering, & scientific services
			609	622	Accounting & legal services
			610	623	Advertising services
			611	634	Software products development
			612	635	Computer lease & rental (hardware)
			613	636	Professional & processing computer service
			614	637	Other services to business & persons
			615	638	Courier service
40	40	Private education services	616	610	Private education services
41	41	Health and social services	617	611	Private hospital services
			618	612	Private residential care facilities
			619	613	Child care, outside the home
			620	614	Other health & social services
			621	615	Health practitioners & laboratory services
42	42	Accommodation services and meals	622	625	Accommodation services
			623	626	Meals
43	43	Other services	624	585	Repair service for machinery & equipment
			625	586	Rental of office equipment

**Table 44: Input-Output Commodities and Primary Inputs with Small and Worksheet Levels of Aggregation (Cont'd)**

Serial Code		Description of Small Level	Serial Code		Description of Worksheet Level
No.	No.		No.	No.	
43	43	Other services (Cont'd)	626	616	Motion picture, audio, & video prod. & distribution
			627	617	Motion picture exhibition
			628	618	Lottery and other gambling
			629	619	Race track services
			630	620	Other recreational services
			631	624	Laundry and dry cleaning
			632	627	Barber & beauty services
			633	628	Funeral services
			634	629	Child care, in the home
			635	630	Private household service
			636	631	Other personal services
			637	632	Photographic services
			638	633	Services to buildings & dwellings
			639	639	Rental of automobiles & trucks
			640	640	Membership organization dues (excluding religious)
			641	641	Rental, video & recreation equipment
			642	642	Rental, other machinery & equipment including construction
44	44	Transportation margins	643	646	Transportation margins
45	45	Operating, office, cafeteria and laboratory supplies	644	643	Spare parts & maintenance supplies
			645	644	Office supplies
			646	645	Cafeteria supplies
			647	647	Laboratory equipment & supplies
46	46	Travel & entert., advertising & promotion	648	648	Travelling and entertainment
			649	649	Advertising & promotion
47	47	Non-profit institutions serving households	650	650	Religious organizations services
			651	651	Welfare organizations services
			652	652	Non-profit sports & recreation services
			653	653	Non-profit educational services
			654	654	Other non-profit services



**Table 44: Input-Output Commodities and Primary Inputs with Small and Worksheet Levels of Aggregation (Concluded)**

Serial No.	Code No.	Description of Small Level	Serial No.	Code No.	Description of Worksheet Level
48	48	Government sector services	655	655	Government funding of hospital
			656	656	Government funding of residential care
			657	657	Government funding of universities
			658	658	Government funding of other education
			659	659	Defence services
			660	660	Other municipal government services
			661	661	Other provincial government services
			662	662	Other federal government services
49	49	Non-competing imports	663	664	Raw cotton
			664	665	Natural rubber & gums
			665	666	Raw sugar
			666	667	Cocoa beans
			667	668	Coffee, not roasted
			668	669	Tropical fruit
50	50	Unallocated imports and exports	669	670	Unallocated imports & exports
51	51	Sales of other government services	670	671	Sales of other government services
52	52	Indirect taxes	671	672	Indirect taxes on products
			672	675	Indirect taxes on production
53	53	Subsidies	673	673	Subsidies on products
			674	674	Subsidies on production
54	54	Wages and salaries	675	676	Wages and salaries
55	55	Supplementary labour income	676	677	Supplementary labour income
56	56	Mixed income	677	678	Mixed income
57	57	Other operating surplus	678	679	Other operating surplus



# VI

## NATIONAL ECONOMIC ACCOUNTING STRUCTURE OF THE INPUT-OUTPUT ACCOUNTS

### 1. THE NEED FOR A STRUCTURE

The accounting structure is a frame of reference and contains the type and the format of the accounts. Therefore, the national economic accounting structure consists of economic transactions covering the whole nation with a specific frame of reference showing the type and the format of several tables included in them. The contents of the Input-Output Accounts depend not only on the accounting structure itself, but also on the concepts, definitions and classifications of the items

included in these accounts. We have seen in the previous chapter (V), the concepts and definitions along with the main classifications such as industries, commodities and primary inputs, final demand categories, institutional sectors, etc. Let us now study the accounting structure in this chapter.

All accounting systems need a predetermined manner in which they have to be constructed just like a building or home, or machine, which must have a “Blueprint” before construction. Without such a ‘Blueprint’, it is impossible to develop a well-organized final system. The Input-Output Accounts are no exception to this general principle. This chapter outlines the type of structure or the manner in which the Input-Output Accounts are organized and developed.

In the first chapter, we answered the general question ‘What are Input-Output Accounts’ to give an idea of the framework and its content. Some of the points mentioned in the context of that question: are worth repeating here before dealing with the detailed structure of the Input-Output Accounts.

In a summary form, what is the structure of the Input-Output Accounts?

The Input-Output Accounts contain three types of Accounts. They are:

- i) Inputs;
- ii) Outputs; and
- i) Final Demand Categories.



They are shown in chart 42 and a brief explanation follows.

As explained before, the Input Output Accounts depict both the production and disposition of goods and services in a special framework called 'accounting framework'. This accounting framework has two parts. The first part contains production of goods and services while the second part relates to the disposition of the production.

The part relating to the production has two dimensions: (a) industries (i.e. producers that produce the goods and services; and (b) commodities (i.e. goods and services produced). The dimension of commodities is displayed in two matrices – one for the output by the industries in the 'Make' matrix and the other for the use of goods and services in the 'Use' matrix.

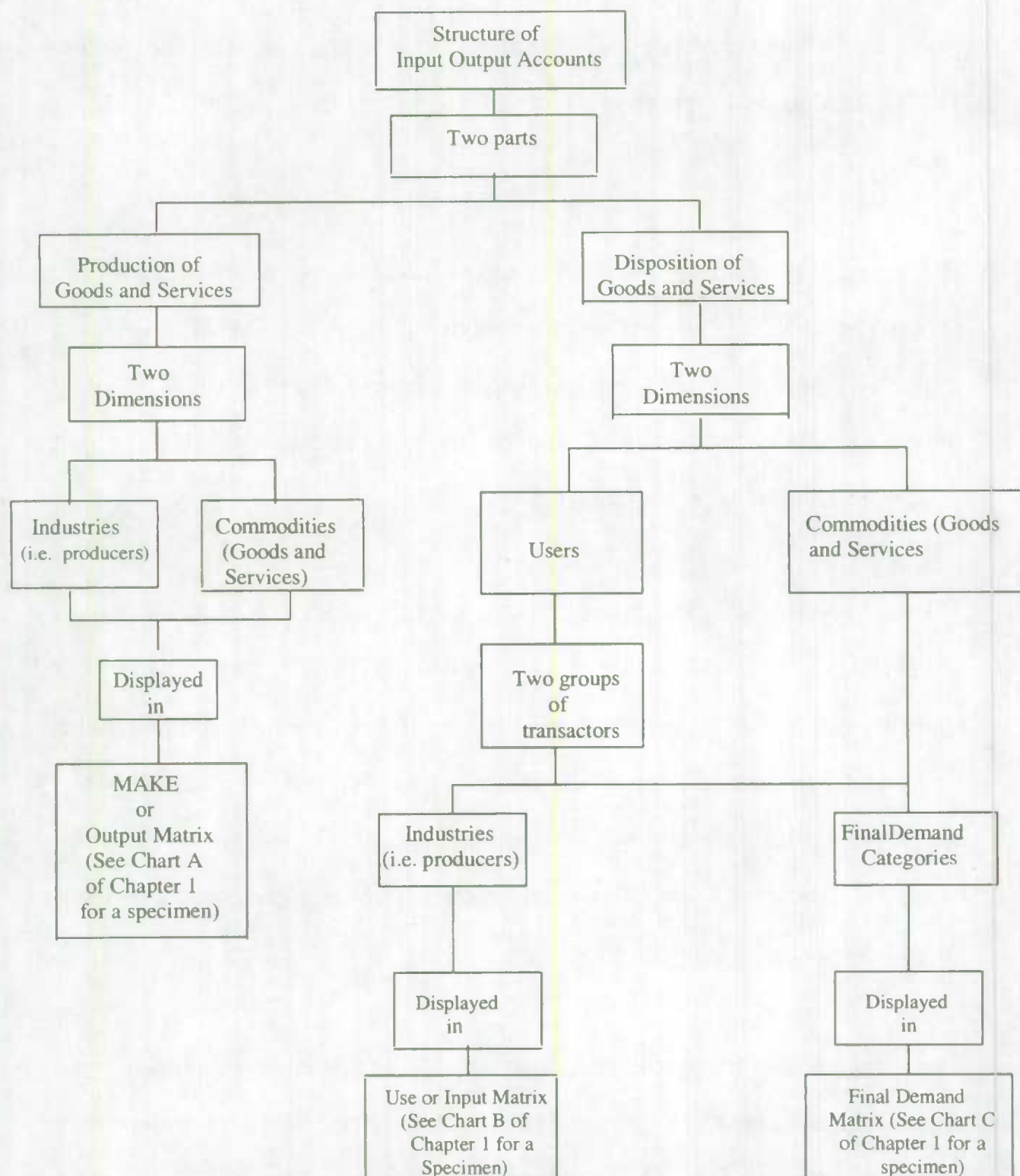
The part dealing with the disposition of goods and services has also two dimensions: (a) Users of the production, which can be divided into two groups of transactors. The first group contains the industries, which use the production as inputs to generate other goods and services (see Use matrix). The second group contains final demand categories which are essentially the four main sectors (i.e. households, governments, business, and non-residents that utilize the goods and services on a final basis (see Final Demand matrix); (b) commodities (i.e. goods and services) involved in the disposition.

Therefore, the structure of the accounting framework consists of three components, namely, industries, goods and services, and final demand categories as summarized in Chart 42.

As can be seen from Chart 42, the common dimension in both the production and disposition is that of the commodities (i.e. goods and services) which gets displayed in the accounting framework in the form of three matrices Make (Output), Use (Input), and Final Demand (See the specimen for these three matrices in charts A, B and C of Chapter I in the first volume).

As the structure of the accounting framework boils down to three main components (Industries; Commodities (goods and services); and Final Demand categories), the changes relating to these three of the former accounting framework are called the 'structural changes' of the historical revision.

Chart 42



The first type shows Accounts containing all 'outputs' of goods and services generated by industries. This is called the 'Output' Accounts or 'Make' Accounts. These Accounts will show the value of all 'outputs' coming out of the production process.

The second type relates to Accounts containing all 'inputs' of goods and services required by industries to generate other goods and services. This is called the 'Input' Accounts or 'Use' Accounts. These Accounts will show the value of all 'inputs' such as raw materials and supplies used by each industry which produces goods and services in the economy.

The third type includes the Accounts containing disposition of the generated goods and services. This is called the 'Final Demand' Accounts. These Accounts will show the value of all outputs consumed in the economy as final products. When we try to explain the structure of the Input-Output Accounts, it is necessary to outline the explanation within the context of these three types of Accounts for a better understanding of the 'Blueprint' which is followed to construct the Input-Output Accounts of Canada.

These three types of Accounts, taken together, will explain the supply and disposition of all goods and services in the economy and they are the elements of the blueprint for the Input Output Accounts.



It follows, then, that in this chapter concerning the structure of the Input-Output Accounts, we have to discuss the basic elements without which the three types of Accounts cannot exist. In other words, Input-Output Accounts exist only with the following main elements:

- Industries;
- Commodities and primary inputs; and
- Final Demand Categories.

These basic elements are discussed in this chapter.

## **2. INPUT-OUTPUT CLASSIFICATION FOR INDUSTRIES, COMMODITIES, AND FINAL DEMAND CATEGORIES**

From the foregoing discussion, it is apparent that the Input-Output Accounts need three sub-structures - - the first is for the Industries, the second is for the commodities (i.e. Goods and Services); and the third is for the Sectors which are depicted in the Final Demand Categories. Let us deal with them in the same order.

### **Industries**

In the Canadian Input-Output Accounts, we have a total of 243 industries at the Worksheet (W) level (see Appendix I). There are 230 commercial industries which deal essentially with activities to cover costs and profit. The remainder 13 are non-commercial industries which contain non-profit institutions and government sector and they deal essentially with activities without any profit

margin. The Appendix<sup>16</sup> shows Worksheet (W) level of detail which can also be aggregated and converted into Link (L), Medium (M), and Small (S) levels as noted against each industry.

### Commodities and Primary Inputs

We have 679 commodities and primary inputs at the Worksheet level as shown in Appendix II. At the Worksheet level, one of the commodity numbers (i.e. 663) is reserved for any future service commodity<sup>17</sup> and it is retained as a blank code without any description for the present. In essence, then, we have only 678 commodities<sup>18</sup> and primary inputs in the existing structure of the Input-Output Accounts. These 678 commodities and primary inputs can also be aggregated into Link (L), Medium (M), and Small (S) levels. (Appendix II).

<sup>16</sup> Although we have the Worksheet (W) level codes for publication purposes, the daily operations within the Input Output Division are carried out in another code called "Operational Working level". These "Operational Working level" codes are slightly different from the Worksheet level codes as shown in Appendix IA. The concordance between the "Worksheet Level Codes" and the "Operational Working Level Codes" is also shown in that Appendix for information. The Worksheet level code which is shown in the first column of Appendix IA, is essentially a sequential code of the goods and services utilized in the present Input Output Accounts. However, the "Operational Working level" code employed in the daily operations of the database which is slightly different from the Worksheet level code is shown in the second column of that Appendix. The concordance of the "Operational Working level" code with the "Worksheet" level code which is used for conversion purposes is also shown for information.

<sup>17</sup> For example, there will be a need in a few years to treat the "First Nations" as a separate sub-sector of the Government Sector and a code is needed to articulate the "services" of that sub-sector.

<sup>18</sup> It can be noticed from Columns 1 and 2 of Appendix II that the serial number and Worksheet level code are the same. This is because, the Worksheet level code is essentially a sequential code of the goods and services utilized in the present Input Output Accounts. However, it should be noted that the "Operational Working level" code employed in the database is slightly different from the Worksheet level code as shown in Appendix IIA. The concordance of the "Operational Working level" code with the "Worksheet" level code is also shown in that Appendix for information.

Of the 678 commodities, 670 (1 to 671 less 1 for the blank code 663) are goods and services which are produced and consumed either as 'Intermediate Inputs' or 'Final Demand' Commodities. The remaining 8 are called 'Primary Inputs' (672 to 679) and they are essentially utilized by each industry for its own production process.

### **Sectors and Final Demand Categories**

There are four broad institutional sectors in the economy. They are based on common behavioral patterns and motivations in their operations. They are:

- i) Personal Sector consisting of households and non-profit institutions serving households.
- ii) Government Sector consisting of three levels of government and institutions funded mainly by the government such as Universities, Schools, Hospitals, Residential Care Facilities. This does not include Government Business Enterprises (GBE) as they are included in the Business Sector.
- iii) Business Sector consisting of establishments primarily engaged in commercial operations business institutions as well as to cover costs and gain profit. This sector includes private public business institutions which are otherwise called Government Business Enterprises (GBE)
- iv) Non-Resident Sector consisting of foreigners.



These four sectors are reflected in the detailed Final Demand Categories of the Final Demand Matrix. For example, see Appendix IV for 1992 data. The categories of the Final Demand Matrix can be regrouped into the sectors as shown in Table 45.

**Table 45: Regrouped Final Demand Categories Showing Sectoral Distribution**

<b>Sector</b>	<b>Regrouped Final Demand Category</b>	<b>Appendix III Items</b>
Personal Sector:	Personal Expenditure on Goods and Services	1 to 48
Government Sector:	Government Current Expenditure on Goods and Services	154 to 159
Government Sector:	Gross Fixed Capital Formation: Machinery and Equipment	95 to 99
Government Sector:	Gross Fixed Capital Formation – Construction	147 to 151
Business Sector:	Gross Fixed Capital Formation – Machinery and Equipment	49 to 94
Business Sector:	Gross Fixed Capital Formation – Construction Value of Physical Change in Inventories	100 to 146 152 to 153
Non-Resident Sector:	Exports of Goods and Services Imports of Goods and Services	160 to 161 162



Personal Expenditure on goods and services (PE) shown in Appendix III (items 1 to 48) relate to the Personal Sector and they are also called the 'consumer expenditure on goods and services'.

The next 50 items from 49 to 94 relate to the expenditures of the Business Sector on Gross Fixed Capital Formation (GFCF) for Machinery and Equipment (M&E).

Items 100 to 146 relate to Construction Expenditures (CON) of the Business Sector. The items 95 to 99 relate to the expenditures of the Government Sector on Gross Fixed Capital Formation for Machinery and Equipment. The items 147 and 151 relate to the construction expenditures of the Government Sector.

Items 152 and 153 represent the Value of Physical Change in inventories (VPC) of the Business Sector cross-classified into a) finished goods and goods in process, and b) raw materials and goods purchased for resale.

Items 154 to 159 relate to the government sector and they represent the current expenditure on goods and services (GCE) which is disaggregated into six sub-categories listed below:

- a) Hospitals and Residential Care Facilities;
- b) Education;
- c) Defence;

- d) Municipal;
- e) Provincial and Territorial; and
- f) Federal other than Defence.

Finally, the last three items 160 to 162 relate to the Non-Resident Sector on international trade with Canada. Our exports shown in items 160 and 161 represent the goods and services produced in Canada as well as re-exports of imported goods sold to non-residents. Our imports (item 162) show what the non-residents sold to Canada.

In essence, then, all these items 1 to 162 represent the Final Demand Categories of the Input-Output Accounts which can be identified by the four sectors referred to earlier.

Therefore, at the Worksheet level of detail, we have 679 commodities and primary inputs, 243 industries, and 162 Final Demand Categories which can also be aggregated into other levels such as Link (L), Medium (M), and Small (S). When the aggregation of the Worksheet level is converted into Link (L), Medium (M), and Small (S) levels, the following will be the summary results (see Table 46).

**Table 46: Total number of Industries, Commodities, and Final Demand Categories at Different Levels of Aggregation**

	<b>Worksheet</b>	<b>Link</b>	<b>Medium</b>	<b>Small</b>
Industries	243	154	50	21
Commodities	679	476	109	57
Final Demand Categories	162	122	37	13

For example, at the Small (S) level of aggregation, the Input-Output Accounts will show only 57 commodities with 21 industries and 13 Final Demand Categories.

The historical data from 1961 to 1992 were published at the S level aggregation in our catalogue No. 15-201 XPB. The concerned tables on Outputs, Inputs, and Final Demand Categories by 57 commodities for 1992 and 1961 are reproduced in Appendices IV, V, VI, VII, VIII and IX to show an example of the Input-Output Tables at the S level. The table showing Outputs is also called Make matrix while the table showing Inputs is called Use matrix.

This is the broad structure or the manner in which the Canadian Input-Output Accounts are constructed and presented for each year. Of course, they are first constructed at the Operational Working Level then transformed into other levels of aggregation based on the relevant concordances.



### 3. KINDS OF CLASSIFICATION SYSTEMS

#### Industries

If the blueprint containing the three types of Accounts explained in the previous section has to be implemented, what kind of classification systems are needed?

Let us keep in mind the primary purpose of the Input-Output Accounts, which is to measure the total supply and disposition of goods and services in the economy. In this context, the first question which has to be answered is : ‘Who is producing the goods and services’? The answer is: Industries containing establishments produce goods and services. So, we need to identify all the industrial establishments and classify them into various industries. For this purpose, then, we need an ‘Industrial Classification System’ showing various types of industries which contain the producing establishments. Therefore, we need a Standard Industrial Classification (SIC) for the Input-Output industry Classification.

#### Commodities

Commodities are essentially goods and services. But, besides goods and services, industries use primary inputs also in order to generate goods and services. In the normal usage, both elements, namely, goods and services as well as primary inputs are grouped under ‘commodities’. However, for this publication, both the elements are treated differently for proper understanding of their distinction.

Then, the question that follows is: ‘What are the goods and services and primary inputs that the industries are using in order to produce their outputs’?



## Goods and Services

In the economy, one can identify millions of goods and services. It will not be manageable to deal with all the millions of goods and services that can be identified in the market place. Therefore, we need a manageable number of goods and services in order to measure them meaningfully in the structure of the Input-Output Accounts. For that purpose, we need a 'Commodity Classification System'. Therefore, we use the "Standard Commodity Classification" in order to group various goods and services into a manageable limit for the Input-Output Commodities. In other words, this Input-Output Commodity Classification enables us to identify which goods and services are produced and which are consumed in the economy.

## Primary Inputs

As the name implies, the 'inputs' are those that are 'primarily' required are called 'primary inputs'. Thus, in an industry, these primary inputs are required in order to carry on its production process with a view to generating goods and services.

In order to elaborate these points, let us take the example of a single establishment of an industry.

- First, it requires some employees to render some primary services such as answering the telephone calls, looking after the production process, selling the finished goods, repairing, maintenance, cleaning, looking after the customers' services, and so on. For such services of the employees, the establishment has

to pay 'wages and salaries' and incur other costs which are incidental to hiring employees such as paying for their pension plans, workers' compensation in case of accidents while on duty, etc. These additional costs are called 'supplementary labour income'.

So, we can see from the foregoing why 'wages and salaries' and 'supplementary labour income' which are simply called 'labour services' are 'primary inputs' for the establishment.

- Second, the establishment also needs some capital investment for essential items, such as acquiring office buildings, constructing access goods, and investing in the needed machinery and equipment, which are 'primarily' required for the production process. For this kind of capital services, the establishment has to generate a 'profit' which is called 'operating surplus', because it comes out of its operations as a residual loss also, after deducting all expenses from its total revenue. This term 'operating surplus' represents 'profit' or loss of corporations where services of labour and capital can be easily distinguishable as there is a clear demarcation line.

In the case of unincorporated business, however, the demarcation line is rather blurred. The proprietors usually are self-employed (e.g., doctors, accountants, dentists, lawyers, farmers, etc.) and they render both types of services, namely, labour services and capital services. The distinction where labour service

'ends' and capital service 'begins' cannot be easily made in these cases. Consequently, the so called 'profit' or 'surplus' (i.e., after deducting all expenses from total revenues) contains payment for both labour and capital services. It is for this reason, the 'profit' or 'surplus'<sup>19</sup> of unincorporated business is called 'mixed income'.

In essence, then, both categories, namely, 'operating surplus' for corporations and 'mixed income' for unincorporated business and farmers, are also 'primarily' required for the production process and hence they too are called 'primary inputs' in the Input-Output Accounts.

- Third, the establishment also requires government services. For example, municipal services such as garbage removal services, utility connections for water and power supplies, police security services, fire protection services, etc. are essential for the smooth conduct of the business. For all such government services, the government collects property taxes, which are indirect taxes for our purpose, from all members of the community including the business establishments to render the 'collective service' to all taxpayers. Also, the business establishment needs to register with the concerned government departments and pay the licence fees, which are also in the category of 'indirect taxes'.

<sup>19</sup> Although, the business establishment aim for profits in their operations, there can be losses in some cases if their total expenditures are higher than their total revenues. Such losses also are reflected in the terms 'surplus' or 'mixed income'.



Thus, the category 'indirect taxes' is also a 'primarily' required input for the business establishment.

- Fourth, sometimes, the governments help businesses by sharing their costs through 'transfer payments' which are called 'subsidies' for our purpose. These subsidies are not earned by business by selling its products. Therefore, they should not be counted as economic production. As such, 'subsidies' are shown as a negative item in measuring the value of domestic product at 'market prices', because they are not earned in the market by selling their goods. (They are simply transferred from government revenues to the business which is tantamount to sharing of the business costs by the government).

As the subsidies are usually accounted for as income by the business, they are normally reflected in the profits which are measured for our purposes as 'operating surplus' for corporations or 'mixed income' for unincorporated business and farmers. In the measurement of production, the subsidies by their negative entry offset the indirect taxes and thus, reflect the net cost of government services for the business.

Essentially, then, all the primary inputs, which are attributable to the services 'primarily' required, are shown in the Accounts separately for various analytical purposes.



## Final Demand Categories

The third question that follows in the analysis of outputs is: 'Who is consuming the produced goods and services'? In other words, this question should be answered to explain how the output, namely, the produced goods and services are disposed of. Of course, here too, there are millions of transactors who are consuming the production. These transactors have to be grouped into a manageable number in order to measure them in a practical and meaningful manner. In the System of National Accounts and also in the Input-Output Accounts, these transactors are grouped into various 'sectors' having common characteristics. So we need a 'Sectoral Classification System' for this purpose. As the sectors are broad categories of transactors in the economy, we also need the categories which represent each sector and its demand for goods and services to be shown in the Input-Output Accounts. This grouping of demand categories is commonly called the 'Final Demand Categories' both in the System of National Accounts and also in the Input-Output Accounts.

In essence, then, we need three types of classification systems, namely, a Standard Industrial Classification to identify the producing industries; a Standard Commodity Classification to identify the various goods and services; and a Standard Sectoral Classification with Final Demand Categories to identify the demand by the common transactors who are consuming the goods and services. These three types of classification systems are the basic classification systems that are needed in order to meet the requirements of the Input Output Accounts. They

will enable us to produce the set of Accounts that are outlined in the Blueprint of Input-Output Accounts mentioned earlier.

#### 4. PECULIARITIES OF THE INPUT-OUTPUT STRUCTURE

As mentioned earlier, there are 243 industries, 679 commodities and primary inputs, and 162 Final Demand Categories at the Worksheet level of aggregation.

Of the 243 industries, 7 are fictive (dummy) industries producing equal number of commodities. Similarly, of the 679 commodities, 7 are fictive (commodities) which are produced by the 7 fictive industries as in Table 43.

**Table 47: Fictive Industries and Commodities in the Input-Output Accounts**

Worksheet Level	Fictive Industry	Worksheet Level	Fictive Commodity
224	Operating Supplies	643	Spare parts & maintenance supplies
225	Office Supplies	644	Office Supplies
226	Cafeteria Supplies	645	Cafeteria Supplies
230	Transportation Margins	646	Transportation Margins
227	Laboratory Supplies	647	Laboratory Equipment and Supplies
228	Travel & Entertainment	648	Travelling & Entertainment
229	Advertising & Production	649	Advertising & Promotion

Each of these fictive industries is producing one fictive commodity only. In the case of other industries, however, the production is not limited to one commodity. Industries other than the fictive type produce several commodities depending on the production process. This is one of the peculiarities of the Input-Output Accounts.

The reason for this is the non-availability of detailed information for the content of these fictive commodities. In other words, the establishments which report information on expenses in the surveys or other sources such as financial statements show details in aggregated catch-all categories such as operating supplies, office supplies, and cafeteria supplies. These reported categories are catch-all types which contain several commodities (i.e. goods and services). Therefore, when the information on expenses of the establishments is aggregated into the industry structure, we end up with a total value of each of these catch-all categories. Consequently, the information on expenses required to estimate the detailed commodity input content of these catch-all categories for each industry is lacking. In order to solve this operational problem, each industry's use of these catch-all categories is summed up and routed to the output of a fictive industry of the same catch-all name.

For example, all the materials and supplies related to the production process that are not specifically reported in surveys and other services are routed to the output of 'Operating Supplies' fictive industry. This is a fictive industry, because in reality it does not exist in the economy as a distinct producing establishment. This type of industry does not have employees or Gross Domestic Product; it does not have establishments with buildings or capital investments such as those used in other industries. It only exists on paper for the purpose of the Input-Output Accounts in order to route the use of commodities assigned to 'catch-all' categories as their 'output'. This is because, by definition, if someone is using a



particular commodity as an 'input' in the operations, someone else must have produced it as its 'output'. This procedure will enable the Input-Output Accountants to track and balance both 'inputs' and 'outputs'. If this technique is not used, more time and resources have to be spent to get the real content of these catch-all categories from the establishments concerned. The cost and response burden in this case will be enormous. In addition to this, many establishments may have practical difficulties in reporting the required details as they may not keep the necessary information in their books in the same form as the requirements of the Input-Output Accounts.

Another factor which has to be kept in mind by the users is that the Input-Output Division of Statistics Canada does not conduct any surveys to collect the information for the 679 commodities from the 243 industries; it only uses the information as compiled by other divisions within the statistical organization along with any other available relevant administrative data already compiled by other departments such as Revenue Canada, Health Canada, Industry Canada, Transport Canada as well as other levels of governments (e.g. provincial and local governments) and their agencies. Of course, the survey conducting Divisions do take the requirements of the Input-Output Accounts into consideration in their operations and maintain a balance between the costs involved and the response burden on the industrial establishments in the economy. If, however, surveys are conducted, we should list all the existing 671 commodities (679 less 7 fictive commodities less 1 for blank code = 671) and obtain statistics from 236 industries



(243 excluding 7 fictive catch-all categories). The cost and response burden will be extensive. This option of conducting detailed surveys for all the hundreds of commodities from all industries has to be abandoned and special techniques such as using administrative data (e.g., data of the Income tax returns) have to be used to solve the operational problems mentioned above.

It should also be mentioned in this connection that a similar problem of non-availability of information exists in the case of construction activities. For example, establishments engaged in construction activities do not report details of materials and supplies used for the type of construction such as 'Residential Construction', 'Non-Residential Construction' etc. Therefore, in order to solve the operational problem for construction, a similar routing technique such as the one explained for 'fictive commodities' is also followed. It should be noted, however, that the construction industries employ workers and have a measure of Gross Domestic Product while the fictive industries do not have the same. In effect, then, the following are the construction commodities which are generated by the same number of construction industries with the same name as shown below in Table 48.

**Table 48: Construction Commodities and Industries in the  
Input-Output Accounts**

Commodity		Industry	
Worksheet Level	Description	Worksheet Level	Description
543	Repair Construction	138	Repair Construction
544	Residential Construction	139	Residential Construction
545	Non-Residential & Building Construction	140	Non-Residential & Building Construction
546	Road, Highway and Airport Runway Construction	141	Road, Highway and Airport Runway Construction
547	Gas and Oil Facility Construction	142	Gas and Oil Facility Construction
548	Electric Power, Dams and Irrigation Construction	143	Electric Power, Dams and Irrigation Construction
549	Railway, and Telecommunication Construction	144	Railway, and Telecommunication Construction
550	Other Engineering Construction	145	Other Engineering Construction

Therefore, 7 fictive commodities and 8 construction commodities are catch-all categories with the same number in the industry structure. The routing of the commodities to the inputs and outputs of the Input-Output Accounts is basic for the techniques explained earlier in this section. These are some of the peculiarities of the present Input-Output structure. Although there are similarities between the fictive industries and construction industries, there is a basic difference, that is, while the construction industries have primary inputs and the GDP, the fictive industries do not have them. As such, there is no GDP measure for the fictive industries.

## 5. PREPARATION AND PRESENTATION

Two commonly asked questions which this section tries to answer are:

How are the Input-Output Accounts prepared before they are finally published in a document for public use? After they are prepared, how are they presented in a publication such as Catalogue No 15-201 entitled *The Input-Output Structure of the Canadian Economy* for public use?

First of all, it has to be remembered that, in order to prepare the Accounts in a systematic manner, we need a conceptual framework in place, so that the underlying statistics could be gathered from various sources. The conceptual framework was discussed in the last chapter. (Chapter VII). We also need a structure outlining the manner in which the statistics should be compiled, how the



data should be interpreted in the accounting framework, and how the various cells of commodities, industries, and final demand categories should be finally incorporated in the Accounts. All these requirements are the subject of this chapter.

Second, since the Input-Output Accounts do not conduct any surveys, information from a variety of sources are used. Among those sources are surveys conducted by various divisions and administrative information from various departments of all levels of governments, and government agencies. The sources of data and methods of estimation are the subject of the ninth chapter.

Let us now look at the two questions posed earlier and review the procedures used in the preparation and presentation.

### **Preparation:**

#### **i) Inputs and Outputs**

In the preparation part, we produce data for 243 industries and 162 Final Demand Categories with commodity information on their purchases for 679 commodities, which may contain up to 671 goods and services and 8 primary inputs (see Table 45). The primary inputs do not form a part of produced goods and services but are used as inputs in the process of industrial production. For this reason, the primary inputs exist only in the input structure, but not in the output structure. More elaboration on the role of primary inputs is provided in the next section for a better

understanding of the structure of the Input-Output Accounts. In addition, data for the production of the industries which is called 'output' is also displayed in the same commodity details for 1 to 671 (see Table 46). In other words, when the Input-Output Table for any one year is finally completed, the table for inputs will have 678 commodities in rows (670 intermediate inputs + 8 primary inputs)<sup>20</sup> with 243 industries in columns. The Final Demand matrix will have 675 rows (671 goods and services in addition to 4 Primary Inputs) and 162 Final Demand Categories in each of the columns as shown in Table 49. However, in the table for outputs only 670 commodities will be reflected in the outputs (see Table 50).

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<sup>20</sup> Although we have a total of 679 items at the Worksheet (W) level, item 663 is blank without any description. Hence, there are only 678 items for which data are compiled and organized.

**Table 49: Specimen of Organization of Commodities Purchased by Industries and Final Demand Categories in the Input-Output Tables**

Commodities		Industries				Final Demand Categories			
	1	1	2	3	to 243	1	2	3	to 162
	2								
	3								
	4								
	5								
	6								
	7								
	8								
Intermediate	9								
Inputs	10								
and	11								
Final	12								
Demand	13								
Commodities	14								
	15								
	16								
To									
671									
672									
Primary	673								
Inputs to	679								
679									



**Table 50: Specimen of Organization of Production (Output) by Industries in the Input-Output Accounts**

Commodities	Industry					
	1	2	3	4	5	to 243
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
To						
671						

Note: Primary inputs do not appear in the output as they are not produced just like other commodities. They are only employed in the Inputs and they appear in the Input (use) matrix and the Final Demand matrix.

As can be seen from these tables 45 and 46, the number of commodities far exceed the number of industries and, for this reason, the Canadian Input-Output Table is a 'rectangular table' rather than square. The advantage in having the rectangular table is that the production and disposition can be shown in as many types of commodities as the data would permit instead of limiting them to one commodity for each industry which will be the feature of a square Input-Output Table.

## ii) Primary Inputs

As already mentioned, we can distinguish eight 'Primary Inputs' in the context of the production process (see Table 51).

**Table 51: Primary Inputs of Input-Output Accounts in Worksheet (W) level codes**

Serial No.	Commodity	Description
1	672	Indirect Taxes on Products
2	673	Subsidies on Products
3	674	Subsidies on Production
4	675	Indirect Taxes on Production
5	676	Wages and Salaries
6	677	Supplementary Labour Income
7	678	Mixed Income
8	679	Other Operating Surpluses

For example, wages and salaries are paid to employees of establishments whether it is a small establishment with a handful of employees or a large enterprise employing several thousands employees. Also, establishments have to pay indirect

taxes to the government. These indirect taxes consist of sales taxes, property taxes and the like. The sales taxes are related to purchased taxable products and they are called 'indirect taxes on products' as the taxes are related to the products purchased. On the other hand, 'indirect taxes on production' relate to such taxes as the property taxes which are applicable to the value of land and machinery used in industrial establishments for their production process. These taxes are not attached to any particular product consumed in the production process. All establishments producing goods and services have to pay property taxes to the local governments irrespective of what products they produce or sell. In this case, the tax is levied, because a production activity exists in the establishment. Hence, it is called the 'indirect taxes on production' which indicates the existence of 'the process of production' on which the taxes are levied.

Similarly, subsidies are distinguished between those on particular products and those on production. Subsidies are government transfers of funds to industries in order to help the industries to reduce their cost of products and their selling prices in the market place. Some Subsidies are identified by a particular commodity such as milk subsidies and they are called 'Subsidies on products'. Subsidies can also be identified by other considerations such as level of employment. In order to help the industries to increase their employment levels based on government policies, funds are transferred to them by the government. These subsidies are not specifically related to any particular product, but they are related to the entire



production activity. Hence, these types of subsidies are called 'Subsidies on production'.

These four Primary Inputs (i.e. indirect taxes 672 & 673 and subsidies 674 & 675) relating to payments to government in the form of indirect taxes and receipts from government in the form of subsidies are money flows to and from government. Therefore, both are related to transactions of money-flows with the government.

The other four Primary Inputs (i.e. 676, 677, 678, and 679) are related to labour and capital which are the essential factors of production in any industrial establishment. The items '676 wages and salaries' and '677 supplementary labour income' are the costs of employing people in the production process.

Of the items 678 and 679, '678 is 'Mixed income' which represents the net income of unincorporated business for both labour and capital services while 679 is 'Other Operating Surplus' which indicates the surplus income or profits of corporate business. They are both 'returns to capital in the form of profits' and 'returns of capital' in the form of depreciation of capital employed in the production process.

Thus, all the primary inputs are those that the industrial establishments employ in their operations. (See Use (input) matrix). All the other commodities which they use are called 'intermediate inputs' as the establishments purchase them from other establishments, both domestic and foreign, for the purpose of generating 'goods

and services'. These intermediate inputs can be identified from 1 to 671. Both the 'outputs' and 'inputs' are identified by the same numbers 1 to 671. As the primary inputs are also essential for the production process, the augmented Input matrix (see Chart B) will have 1 to 679 commodities while the 'output' matrix will have only 1 to 671. The other eight commodities will be unique to the Input matrix only as they do not appear in the 'output' matrix. There are some indirect taxes shown in the Final Demand matrix as they are paid by some of the Final Demand Categories.

### iii) Final Demand Categories

We have 162 Final Demand Categories (see Appendix III). These categories show the demand or the consumption of the production in the economy. They are also displayed in 672 commodities for all the categories. (see Appendix VI for S level aggregation only for 1992).

In summary, the preparation of the Input-Output Accounts will be in three categories of Accounts, namely, the 'Input Accounts', 'Output Accounts' and 'Final Demand Accounts' by each commodity mentioned earlier. Such is the preparation of all the cells involved in these three types of Accounts. Let us then focus on their presentation for the public use.

### **Presentation:**

After the preparation of the Input-Output Accounts is completed, the balancing and analysis takes place. The 671 commodities representing goods and services and 8 primary inputs are dealt with as two separate sub-groups.

The 8 primary inputs are analyzed in relation to control totals<sup>21</sup> and other related information such as taxation data. They are then finalized after reconciling the discrepancies and inaccuracies, if any.

In the case of 671 goods and services, the supply is balanced with its disposition in a 'commodity balancing procedure' which involves a thorough research and analysis as explained earlier in Chapter II. The balanced commodities by each industry and also by final demand categories are presented in a publication in the form of three different matrices, namely, Use (Input) matrix; Make (Output) matrix; and Final Demand matrix.

The use matrix is technically 'augmented use matrix' with 671 goods and services and 8 primary inputs. The augmented use matrix contains all the 'expenditure items' of the producers that are classified to various industries. In other words, the augmented use matrix is shown by industry for all expenditure items that include

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<sup>21</sup> "Control totals" are those totals that are obtained independently by using other sources which contain relatively comprehensive data for the total universe. For example, the wages and salaries are reported in the T4 slips issued to employees for income tax purposes. A separate tabulation of all the T4 slips gives the "control total" for the universe of "wages and salaries".



671 goods and services in addition to 8 primary inputs. This augmented use matrix is normally referred to as “use matrix” ignoring the qualifier ‘augmented’.

For example, see the publication, Catalogue 15-201 XPB for 1961 to 1992 for historically revised data in Small (S) level aggregation. For the purpose of this chapter, we have reproduced the relevant tables for 1992 showing Make (Outputs) Use (Inputs), , and Final Demand Categories in Appendices IV, V and VI respectively. Each of these matrices are briefly discussed here to explain the techniques used in presenting the data of the publication.

#### i) **Use (Inputs) Matrix (Appendix V)**

In the market place, a producing establishment, say, a manufacturer purchases various outputs of others which are needed as inputs for the production activity. These are called ‘intermediate inputs’. Besides these intermediate inputs, the primary inputs explained earlier are also used in the production process. Both the ‘intermediate inputs’ and ‘primary inputs’ consist of the total expenditure incurred by producers in their operations. These are essentially the costs to the producers – see items 1 to 57 of the Appendix IV) including the Mixed Income and Operating Surplus (items 56 and 57). While the ‘Mixed Income’ represents the ‘Net Income of unincorporated business and farmers’, the ‘Other Operating Surplus’ relates to the corporate business establishments which includes the profit margin of the producers plus depreciation of capital assets used in the production plus interest paid plus subsidies given by the government. They do not include the interest

received as the interest paid is reflected in the operating surplus of the paying industry itself.

## ii) **Make (Outputs) Matrix (Appendix IV)**

The value of output produced by industrial establishments is at their cost. Such costs include the value of 'Primary Inputs' which were described earlier plus the value of all other goods and services (i.e. intermediate inputs) which are normally produced and sold by other establishments (i.e. other than the establishment under observation). For example, an establishment producing bread buys wheat flour from millers; the millers buy wheat from farmers while the farmers buy fertilizers from chemical products industry and so on. The value of all these intermediate inputs is recorded in the books of the producing establishments at their cost which is what they paid in the market place.

In this make matrix, the output of the producers is shown by each commodity at 'producers' prices'. In other words, the value charged and received by the producers for the products generated by them are shown here.

Each column of these Use and Make matrices show the producers at the top of the tables. The total values for each of these columns are equated to one another (see the bottom of each column of these tables). For example, the first column showing Agriculture in the Use (Input) matrix of 1992 (Appendix IV) has a total of \$24,556

at the bottom which is matched with the same total in the column for Agriculture in the Make (Output) matrix (Appendix V).

It should be noted here that the value of the inputs in the Use (Input) matrix which is normally at the purchasers' prices is converted to producers' prices for the purpose of commodity balancing by showing the margins in separate commodities. For example, see commodities 35 for Wholesale margins, 36 for Retailing margins, and 44 for Transportation margins. The tax margin which is a cost to the producer in fixing the selling price structure is reflected in the 'Indirect Taxes' (commodity 52 of Appendix V) which in turn reduces the level of 'Other Operating Surplus', (commodity 57 in Appendix V) as the surplus is derived by subtracting input costs (items 1 to 55) from the value of outputs.

Thus, the columns of each industry in these Use and Make matrices are matched with one another. By this process, the total Inputs of all industries which is \$1226262 for 1992 of Appendix IV is equated to the total Outputs of Appendix V. If both the use and make matrices are taken together, they constitute 'industry accounts' as well as 'commodity accounts' as they contain details of industries in the economy with commodity information of production. In other words, the Input-Output Accounts depict, among other things, the 'industry accounts' as well as the 'commodity accounts' for the total economy.



### iii) Margins

There are seven margins in the Input Output Accounts. They are:

- Wholesale margin;
- Retailing margin;
- Gas margin;
- Pipeline margin;
- Storage margin;
- Transportation margin; and
- Tax margin.

These margins get added on to the 'producers' price' values of the goods and services to derive the 'purchasers' price' values as explained later in this Chapter.

In other words, the purchasers of goods and services pay them in addition to the 'producers' price' values. To put it in another way, the difference between the 'producer price' values and the 'purchasers' price' values contains these margins.

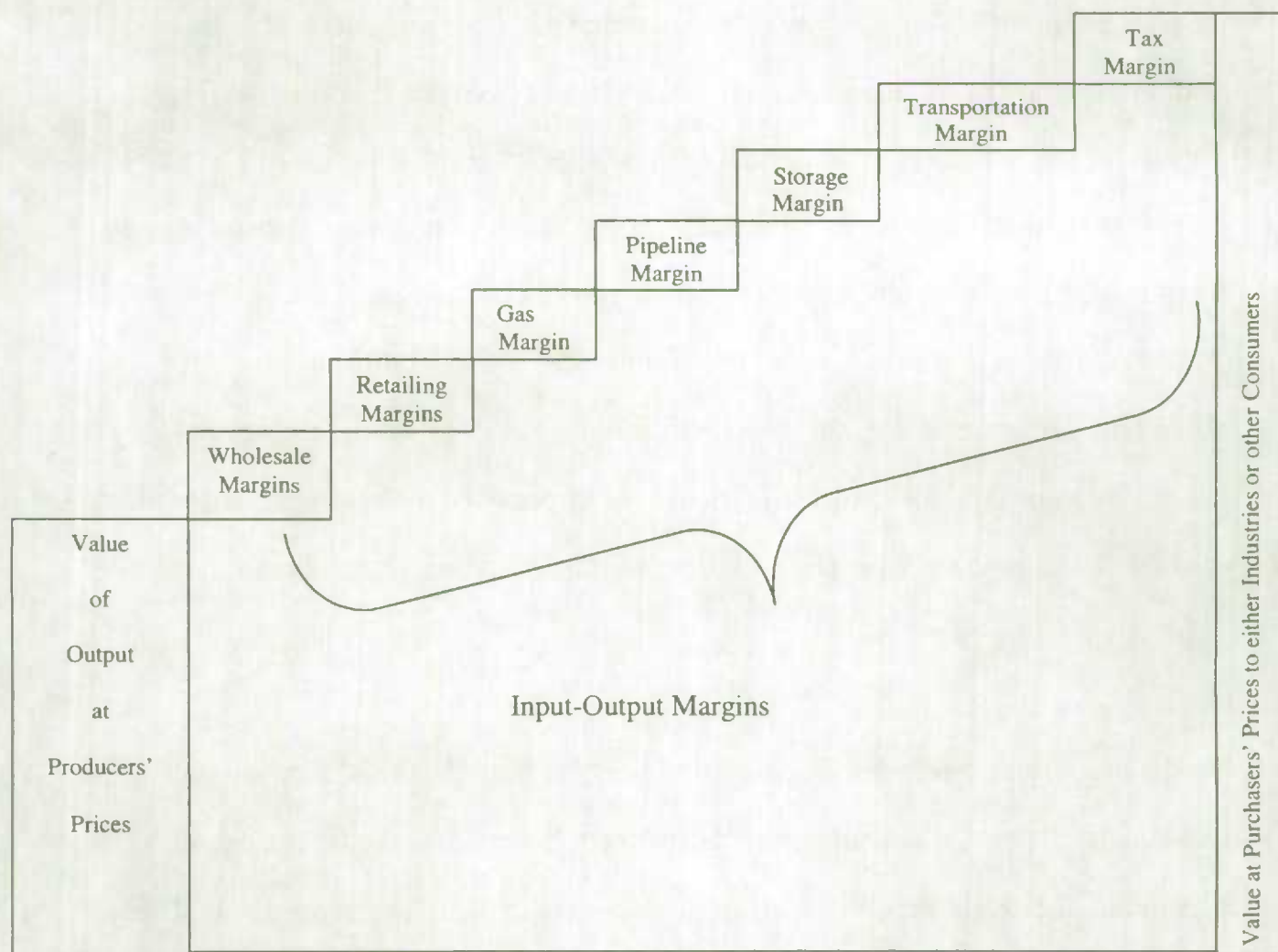
A brief explanation of these margins is necessary at this stage to clarify the difference between the values at producers' prices and the purchasers' prices. In the present Input-Output Accounts, there are two types of values: (a) producers' prices; and (b) purchasers' prices. As the terms imply, the values at which the producers sell their goods and services are the 'producers' prices' while the values at which the purchasers pay are the 'purchasers' prices'. As shown in Chart 44, the starting point is the value at 'producers' prices' and the margins get added on to

reach the value at 'purchasers' prices'. This is the basic difference between the producers' prices and purchasers' prices in the Input Output Accounts.

Thus, the purchasers' prices represent the value of goods and services in the market at the point of delivery to the purchasers. This includes producers' prices plus transport margin plus wholesale margin plus retail margin plus indirect taxes on products. The purchasers' prices can vary with circumstances, depending on the transportation arrangements between the producers and purchasers. For example, if the purchasers pick up the commodity at the producers' point of shipment, the value will be the cost up to that point. If, however, the commodity is hauled by a common or contract carrier at the expense of the producers, the value will be higher as it has to contain the cost of transportation charges paid to the carrier.

Producers' prices represent the selling price at the boundary of the producing establishments excluding sales and excise taxes levied after the final stage of processing, because these taxes are collected on behalf of the government. Thus, the producers' prices will equal to the purchasers' prices less transport margin, less Gas margin and Pipeline margin less Storage margin, less wholesale margin less retail margin less indirect taxes on collected products, where applicable.

**Chart 44: Differences between Producers' Prices and Purchasers' Prices in the Input Output Accounts**





### **Wholesale Margins (Commodity 35 in Appendix IV):**

Wholesale margin is generated when the producers sell goods to wholesalers at their cost with delivery at the factory gate. The wholesalers purchase the goods, transport them to their establishment, add on the costs of transportation and their costs and profit margin to the value paid to the manufacturers, and sell the products to retailers. In other words, the wholesalers add on margins for transportation and wholesale to their costs and profits (i.e. operating surplus) and sell the goods for all inclusive prices.

### **Retailing Margins (Commodity 36 in Appendix IV):**

Retailing margins arise when the retailers take delivery of goods at the wholesaler establishments, transport them to their locations, add on the cost of transportation, to their costs and profit margins, add on the taxes paid to government and finally sell the products to the consumers.

### **Gas Margin:**

At the Worksheet level, the industry '190: Gas distribution systems industry' operates mainly for the distribution of gas in the economy. The costs of this industry in the gas distribution activity are the 'inputs' while the 'commodity 5470: Gas distribution' is the output. The value of this 'commodity 5470: Gas distribution' is added on to the 'producers' price' value at which this industry purchased from the gas producing industries and sold to the purchasers. In essence, then, the value of commodity '5470: Gas distribution' is the 'Gas margin',

namely, the difference between the 'producers price' value and the 'purchasers price' value of gas. The commodities to which this margin applies at the worksheet level are:

- 42            Natural gas excluding liquefied; and
- 444        Liquid between gases including liquefied natural gas

### **Pipeline Margin:**

At the worksheet level, the following industries incur costs which are taken for output of pipeline margin commodities:

- the commodity '540: Pipeline margin', and
- commodity 572 'pipeline transportation' as shown below:

<u>Industries</u>		<u>Margin Commodity</u>	
181	Natural gas pipeline	572	Pipeline
	Transport industry		Transportation
182	Crude oil and other	572	Pipeline
	pipeline transport industry		Transportation

The costs incurred by the above industries is the pipeline transportation of the following relevant commodities consist of the pipeline margin commodity 540.

Pipeline margin is distributed to the following commodities of the Worksheet (W) level:

W 41 Crude mineral oils

W 42 Natural gas excluding liquified

W 437 Gasoline

W 438 Aviation fuel

W 439 Diesel Oil

W 440 Light fuel oil

W 444 Liquified petroleum gases including liquified natural gas

The purchasers of these commodities pay the 'producers' price' values plus 'pipeline margin' which is embodied into the 'purchasers price' values sold in the market place.

### **Storage Margin**

Here again, at the worksheet level, industries '183: Grain Elevator industry' and '184: Other Storage and Warehousing industry' incur costs to store goods such as wheat, barley, canola, and others. These industries produce two commodities:

W 574 Grain storage

W 575 Other storage and Warehousing



The value of these commodities is the total storage margin and it gets allocated to the relevant commodities. In essence, the purchasers' price values of the goods stored by these industries include the value of the storage margin which gets separated in the Input Output Accounts.

### **Transportation Margins (Commodity 44 in Appendix IV):**

Transportation margins are both a fictive commodity and a margin commodity in the present Input-Output Accounts. It is a fictive commodity because it does not exist in the real world and no establishment produces it like other non-fictive commodities such as wheat. It is created for the purpose of the Input-Output Accounts and analyzed separately as one of the margins between the producers' prices and purchasers' prices.

Another factor to the note is that the transportation margin arises only in the case of 'for hire' transportation, but not 'own account' type of transportation. For example, trucks owned and operated by an establishment to render transportation services for other establishments are in the 'for hire' transportation category. On the other hand, if a manufacturing establishment owns and operates trucks to transport its own goods, it is called the 'own account' type of transportation. Generally speaking, the manufacturers ship the goods to the wholesalers while the wholesalers ship their goods to the retailers using contracted transportation systems which are generally operated by trucking companies.

In each of these cases, the costs of transportation can be identified in special surveys and removed from the purchasers' price values of goods and services which embody these transportation costs. In addition to this transportation margin which gets included in the purchasers' price values of the commodities, establishments can purchase transportation services from the producers directly. This direct purchase gets picked up in the related transportation service commodities such as truck transportation, air transportation, railway transportation, water transportation, but not regarded as transportation margin.

#### **Indirect Taxes (Commodity 52 in Appendix IV):**

Indirect taxes are of two kinds. The first kind relates to non-commodity type such as property taxes and licences. They are called 'indirect taxes on production' as they are related to the production process, but not to any particular commodity. The second kind relates to commodity type of taxes such as sales and excise taxes which are commodity - specific such as tobacco, alcohol, etc.

The commodity indirect taxes are called 'Indirect Taxes on Products' as they relate to specific products or commodities. The 'Tax Margin' in the Input-Output Accounts relates to commodity taxes only, but not to the non-commodity type. The non-commodity type relates to the general operation of the business establishment covering licences, permits, and property taxes on the value of land, buildings, machinery, etc. utilized in the production process by the establishments concerned.

In the case of business establishments, the indirect taxes paid to the government in the production process are considered as costs to the producers. For example, the property taxes, licences, etc. are costs to the producers for maintaining business establishments with buildings, machinery and equipment. In some cases, the businesses pay sales taxes to the government for the materials and supplies used outside the production process such as office use etc. Here again, these taxes are costs of using the related materials and supplies in the production. These taxes are added on to the production expenditures and then deducted from the total revenues in order to derive the 'Mixed Income' and 'Other Operating surplus'. As a consequence of this process of deriving 'Mixed Income' and 'Other Operating surplus' as residual components, the total value of output sold in the market is equated to the value of all inputs including 'Mixed Income' and 'Other Operating Surplus' of the industries.

#### iv) **Transport Margin and Direct Purchases of Transportation Services**

The transport margin discussed earlier represents the cost of transportation which is already embodied in the purchaser prices of all goods and services. In addition to that, there is also the transportation cost incurred directly by industries for transporting goods before processing. For example, the logging industry can incur the transportation costs if they hire trucks to transport raw timber to the processing plants. These directly incurred transportation costs are picked up in a separate commodity called 'Truck transportation' (Worksheet level Commodity Number 567). They are not regarded as transportation margin.



v) **Government Sector and Non-Profit Institutions:**

It should be recalled here that the 'Government sector' and 'Non-profit institutions serving households' are also treated as industries in the new structure of the historical revision. In both cases, the difference between the 'Outputs' (i.e. which is the value received for sale of goods and services) and the 'Inputs' (i.e. the total expenditure on all inputs, both intermediate and primary inputs) is negative as the cost of inputs is higher than the outputs. This is because, the bulk of their output is not sold in the market, but utilized by the producing institutions themselves. In this context, the negative values in both cases are treated as the value of output sold to themselves and reflected in two separate commodities in the Make (Output) matrix showing 'Government services' for Government sector (see commodity 48 in Appendix V) and 'Non-profit institutions serving households' (see commodity 47 in Appendix V) for the non-profit institutions.

It should be recalled that both the expenditures of the 'Government sector' and the 'Non-profit institutions serving households' used to be a part of Final Demand matrix only in the previous structure (i.e. prior to the historical revision). Now, they are a part of the industries as articulated in the new structure of the historical revision. Due to this new structure, the difference between inputs and outputs of the non-profit institutions serving households and Government services in commodities 47 and 48 are the only totals reflected in the Final Demand matrix as shown in Appendix VI (see commodity 47 for the Personal Sector's Services and commodity 48 for the Government Sector). For example, in 1992, the commodity

47 was \$8668 million in column 20 of Appendix IV which is the same as the one shown in the 'Services' column of the Personal Sector in Appendix VI. In the case of the Government sector, commodity 48 of Appendix IV (\$169263 million) was the same as the one shown in column 11 of the Appendix VI (Final Demand).

#### vi) 'Inputs' Equal 'Outputs'

The equation 'inputs' equal 'outputs' applies only to the goods and services which are otherwise called 'commodities', but not to the 'primary inputs'.

We said earlier that for each individual commodity, there are two valuation systems. The first one is 'Producer Prices' which is based as what the producer receives at the factory gate. The second one is 'Purchasers' Prices which represents what the purchaser (whether a producer or a final consumer) pays in the market when buying the goods and services. They are different pricing systems as the purchasers' prices include margins over and above the producers' prices. In these circumstances, the normal questions that arise in the minds of the users of Input-Output Accounts are:

- 'Why are inputs equal to outputs?'
- 'How is Input matrix and Output matrix equated to one another both at the industry level as well as at the total economy level?'
- 'What are the steps that are used in the presentation of data in the Input-output publications to achieve the similar totals for these matrices?'

These are important questions and this section tries to answer them as clearly as possible.

As mentioned earlier, the producers incur costs which are shown in the Use (Input) matrix to generate products (i.e. goods and services) indicated in the Make (Output) matrix. As the value charged by the producers for their products is equal to the costs incurred (see Use matrix), the value of the output shown in the Make (Output) matrix is equal to the Use (Input) matrix at the total level for each industry and for all industries in the total economy. However, for each commodity, the values will not be equal to one another (i.e. those shown in the Use matrix and Make matrix) unless they are put on the same basis of valuation. Before the data are presented in the publication, the value of commodities shown in the Use matrix are at purchasers' prices including various margins (i.e. costs associated with transportation, wholesaling and retailing etc.) while the value of commodities in the Make matrix are at producers' prices. For the purpose of commodity balancing, the purchasers' prices of the commodities (i.e. goods and services) are converted to producers' prices with margins shown separately as distinct commodities. This procedure enables us to equate 'Inputs' to 'Outputs' in the Input-Output Accounts for each industry and for the total economy. In other words, it is essential to show the value of commodities at producer prices with the margins indicated separately as distinct commodities such as the following:

- Transportation Margin (commodity S44 at the S level aggregation);
- Wholesaling Margins (commodity S35);



- Retailing Margins (commodity S36);
- Non-profit institutions serving households (commodity S47); and
- Government sector services (commodity S48).

As noted earlier, the commodity S47 is produced and entirely consumed by non-profit institutions serving households while commodity S48 is produced by the government sector and entirely consumed by itself.

#### vii) **Final Demand Categories**

Final users (categories which are referred to as 'Final Demand Categories' such as persons, non-residents, government etc.), pay the all-inclusive prices containing the following:

- value charged by producers at producers' prices
- plus: Gas Margin
- plus: Pipeline Margin
- plus: Storage Margin
- plus: Transportation margin paid by wholesalers and retailers;
- plus: Wholesale margin covering the costs and profits of wholesalers;
- plus: Retail margin covering the costs and profits of retailers;
- plus: Taxes such as sales taxes collected by the vendors on behalf of government.

The total of producers' prices plus these five elements, when added together, equals Purchasers' Prices which are in other words called 'Market Prices'.

In effect, then, the value which the industries and Final Demand Categories, when buying their goods and services, pay in the purchasers' prices covering all margins indicated above. If these margins are removed from the purchasers' prices, the resulting value will be equivalent to the 'producers' prices' of the Output matrix. The value of Final Demand Categories is also shown in producer prices for each commodity which means that the margins are shown separately as distinct commodities as they are removed from the purchasers' prices.

The advantage of showing the value of commodities in producer prices, in all the three matrices is that, for any particular commodity, the value shown in the 'Output' (Make) matrix is equivalent to the combined value shown in both the Input and Final Demand matrices. For example, the output of Grains (commodity 1 in Appendix IV) for 1992 was \$4641 million. This is equivalent to the total of what is shown in the Use (Inputs) matrix (\$2397 million) plus \$2244.0 million in the Final Demand matrix. The approach explained here is necessary to display the values of commodities in a Supply and Demand framework.

## 6. ANALYTICAL USEFULNESS OF STRUCTURE

The numerous uses and applications of the Input Output Accounts have been mentioned in the second chapter. However, from the context of the three types of Accounts presented in the structure, some of the salient features are worth repeating for general understanding.

Illustrative examples presented highlight the descriptive as well as the analytical usefulness of the structure in which the input-output data are presented in tabular form. Observed relationships between industries producing several goods and services on one hand and various users (i.e. sectors) of these goods and services on the other hand allow the identification of certain meaningful relationships between the industries and sectors of the economy. A few examples are provided in this section in order to familiarize the reader with the richness of the basic data provided in the present structure as well as the potential for various other analytical uses.

The illustration uses data of manufacturing industry (No. 5 of Appendix IV), for 1992 and 1961 from the publication *The Input-Output Structure of the Canadian Economy*, Catalogue No. 15-201-XPB for 1961-1992 and the relevant tables are reproduced in Appendices IV, V, and VI for 1992 and Appendices VII, VIII, and IX for 1961. Of the various commodities shown in the Make and Use matrices, petroleum & coal products (No. 26) is taken. Utilizing the data for 1961 and 1992 of these Appendices, the industry can be identified as column 5 of the Make and



Use Matrices and the commodity as row 26 in the Make, Use and Final Demand Matrices. With the present structure and data presented in the publication, we can identify the following uses.

### **Producers**

The simple question, 'who produces what?' is easily answered by referring to the Make Matrix where each row shows the distribution of output of each commodity by industry and where each column lists the distribution of output of each industry by commodity. For example, one may find that in 1961 the manufacturing industry (column 5 of the Make Matrix - Appendix VII) produced \$1,250 million of petroleum and coal products (row 26) whereas all domestic industries combined (row 26 in the last column of the Make Matrix) produced \$ 1,272 million of that commodity. Thus, the manufacturing industry accounted for 98.3 % of the total domestic production of this commodity in 1961  $(1,250/1,272) \times 100 = 98.3\%$ .

In 1992, based on the data contained in column 5 and row 26 of the Make Matrix (Appendix IV), this industry is shown to produce \$ 16,777 million of this commodity. The total domestic output of this commodity, produced by all industries, sums up to \$ 18,196 million. Thus, the manufacturing industry accounted for 92.2% of the total domestic production of petroleum and coal products in 1992  $(16,777/18,196) \times 100 = 92.2\%$ . This simple display of information contained in the two tables (Appendices IV and VII) in question highlights the important observation that the manufacturing industry's market

share of petroleum and coal products declined from 98.2 % in 1961 to 92.2 % in 1992. If this exercise is repeated for other industries also, one can identify the industry which increased its market share in the same time period.

## Users

As noted earlier, the Input-Output Tables display the demand for various goods and services which may be used as intermediate inputs (goods and services that are purchased by an industry from other industries to produce its outputs) in the Use matrix (See Appendix V for 1992 and VIII for 1961) and for final consumption by persons, governments, etc. in the Final Demand matrix (See Appendices VI for 1992 and IX for 1961). So, the question, ‘who buys what?’ is answered by referring to the Use (Input) and Final Demand Matrices.

Elements in the row of the Use Matrix show the use of a particular commodity by various industries whereas elements of the same row appearing in the Final Demand Matrix indicate its use by various categories of final demand. For example, in 1961 (See Appendix VIII), all industries used petroleum and coal products worth \$ 868 million – the sum of row 26 across the columns of the Use Matrix.

Individual entries across row 26 represent individual uses by the industry shown as a column. The use of the same commodity by all industries in 1992 jumped to

\$ 12,586 million – row 26 summed across the columns of the Use Matrix (Appendix V). Similarly, information about the use of this commodity by categories of final demand can be obtained from looking at the same row 26 of the Final Demand Matrix. Thus, the present structure containing the tabular presentation by commodity for all producers and consumers, provides an analytical basis for understanding demand for the products of any given industry as well as any changes occurring over time.

### **Composition of Outputs and Inputs**

The detailed presentation of data on value of goods and services in the outputs and inputs in the existing structure permits analysis of the commodity composition of outputs and inputs of each industry for any one year or for several years, for example, for the historical period of 32 years from 1961 to 1992. Once again, using the Make Matrix (Appendix VII), one is able to observe, say for 1961, that the total output of the manufacturing industry (column 5) amounted to \$ 24,655 million. Of this, petroleum and coal products accounted for \$ 1,250 million which represents 5.1% of the total output of that industry. The corresponding figures for the year 1992 (Appendix IV) stood at \$298,924 million of which petroleum and coal products accounted for \$16,777 million, respectively, representing some 5.6% of the total. It is, thus, appropriate to state that the proportion of the output of petroleum and coal products produced by the manufacturing industry, in relation to the total output of this industry, increased from 5.1 % in 1961 to 5.6 % in 1992.



In a similar manner, inputs that are needed to produce outputs of industries (depicted in the Make Matrix) can be identified in the Use Matrix. For example, column 5 of the Use Matrix lists various inputs needed to produce the output of the manufacturing industry. The magnitude of changes in the value of inputs over time can also be identified and analysed.

### **Gross Domestic Product (GDP) by Industry**

Generally speaking, the gross output of an industry consists of the value of the goods and services produced by that industry. For example, the value of steel produced by the steel industry can be noted in the appropriate column of that industry. Similarly, the value of cars and trucks produced by the motor vehicles manufacturing industry can be noted in the column of that industry and so on. A brief reflection tells us that, for example, the production of steel requires coal and iron ore and other inputs. These goods and services are not the products of steel mills. Rather, they are produced by other industries and used by the steel mills as their inputs. Thus, a measure of the unduplicated production of an industry should exclude all intermediate inputs purchased from other industries.

The Use Matrix displays all the costs incurred in production by an industry: the goods and services used as intermediate inputs; indirect taxes and subsidies; and returns to the factors of production (items 54-57 of the Use Matrix), namely, wages and salaries, supplementary labour income, mixed income and other operating surplus. The latter four entries, when combined, constitute 'Gross

Domestic Product at Factor Cost' representing the contribution of the industry concerned to the total value of production of the economy.

### **Gross Domestic Product (GDP) for the Total Economy**

There are two measures of the Gross Domestic Product which provide valuation of the production of goods and services at different levels. They are: (a) Gross Domestic Product at Factor Cost; and (b) Gross Domestic Product at Market Prices.

Factor cost valuation represents the earnings of the factors of production as mentioned earlier and is measured by the costs of labour (wages and salaries, supplementary labour income) and capital inputs (mixed income and other operating surplus) in the production process. The measure of Gross Domestic Product at Factor Cost for the total economy applies only to industries in the economy and it is derived by adding items 54-57 as already mentioned in the previous section.

Indirect taxes (item 52) are a cost to the industry and are reflected in the market price of goods and services produced by the industry. Subsidies (item 53), where applicable, have the effect of lowering cost to the firms receiving them, and thus reduce the market prices of goods and services produced by the industry. They are shown as negative (-) entries in the Use (Input) Matrix. Both indirect taxes and subsidies affect the market price valuation of goods and services.

While the ‘factor cost’ measure represents the earnings of the factors of production as explained above, the market price measure brings the valuation of production up to the “market price” level.

In order to derive the measure of Gross Domestic Product at Market Prices for the total economy, net indirect taxes (i.e. indirect taxes less subsidies) should also be added to the measure of Gross Domestic Product at Factor Cost as they are a part of the market price of goods and services. The “net indirect taxes” in this case indicate that subsidies (item 53) have been subtracted from the indirect tax total (item 54). It should be noted that indirect taxes are paid not only by the business sector but also by other sectors of the economy which are covered in the Final Demand Matrix of this publication. Subsidies, by definition, apply only to the business sector of the economy. The GDP at Market Prices as calculated in this manner is called Income-based GDP as it shows the income levels of labour, capital, and government. The Input-Output Accounts also incorporate components of Expenditure-based GDP in the Final Demand matrix. This measure is calculated by summing up personal expenditure, capital formation, government current expenditure, change in the value of inventories and net exports (exports less imports) appearing in the Final Demand Matrix.

### **Domestic Availability of Goods and Services**

It may be of interest to know the domestic availability of a particular commodity (or all goods and services) for a particular year or for the entire time series. The



domestic availability of a commodity may be defined as total production less exports plus imports (assuming no inventory change). These values can be read directly from the Input-Output matrices (Make, Use and Final Demand). For example, in 1961, the domestic production of petroleum and coal products was \$1,272 million (last column of the Make (Output) Matrix - Appendix VII) while total exports were \$13 million (column 12 of the Final Demand Matrix - Appendix IX) and imports were \$134 million. Thus, the domestic availability of this product can be derived as: \$1,272 million domestic production - \$13 million exports + \$134 million imports = \$1,393 million.

The corresponding values for 1992 (See Appendix IV and Appendix VI) are: \$18,196 million domestic production - \$3,446 million exports + \$2,708 million imports = \$17,458 million.

Thus, we can see from the data that domestic availability was higher than production in 1961 because imports were greater than exports. The situation is, however, reversed in 1992 when domestic availability is lower than domestic production as exports exceeded imports in that year.

### **Import Share**

The data used in the preceding item also allow the calculation of the import share of a commodity, that is, what portion of the domestic availability of a commodity

comes from foreign countries. From these data, the import share for the same commodity can be calculated as follows:

(Total imports / Total domestic availability) x 100, that is, for 1961:

$$(134 / 1,393) \times 100 = 9.6\%:$$

and for 1992, the import share is:

$$(2,708 / 17,458) \times 100 = 15.5\%.$$

Thus, we can notice that although the domestic production of petroleum and coal products for domestic use rose considerably, imports still accounted for a larger share of the market in 1992.

### **Export Share**

For countries with considerable foreign trade like Canada, there is a keen interest in measures of export performance. A simple indicator of such performance is the proportion of total domestic production that is exported. Using the same commodity as in the previous illustrations, 1.0% of the domestic production of petroleum and coal products was exported in 1961 as follows:

$$(13 / 1,272) \times 100 = 1.0\%.$$

By 1992, this proportion increased to 18.9% as shown below:

$$(3,446 / 18,196) \times 100 = 18.9\%$$

## Indirect Taxes and Subsidies

In the present structure of the Input-Output Accounts, data of purchasers' prices are converted to producers' prices by removing the costs or margins that arise between the value received by the producer (i.e. the value that covers all costs of production) and the value paid by the purchaser. As explained earlier, one of these margins is the value of commodity indirect taxes paid by the purchaser, be it an industry or a category of final demand. All commodity indirect taxes and all other indirect taxes are classified to the industry or final demand category paying them. The total of such taxes agrees with values published in the National Economic and Financial Accounts (Catalogue 13-001-XPB), but the Input-Output Accounts provide additional information such as the industries and final demand categories which pay these taxes. Similarly, in the Input-Output Tables, subsidies are allocated to the industries receiving them. Also, from 1986 onwards, subsidies are broken down into two categories: commodity subsidies and non-commodity subsidies. These details and their routing in the Input-Output Accounts make additional analyses possible, e.g., to determine the effects of taxes and subsidies, and to build certain policy simulation models, etc.

## Analytical Tables (Impact Tables)

Input-output data contained in the Make, Use, and Final Demand Matrices, provide snapshots of the production structure of the Canadian economy for any given year. They are also useful for the identification of many meaningful economic relationships, as described earlier. Richness of the observed data is further



exploited to produce a number of analytical tables. These tables are called Impact tables and they are based on the results obtained by applying the “Open” Input-Output Simulation Model. This model measures the impact of expenditures specified exogenously on the commodity and industry outputs - hence, they are called the *Impact Tables*.

In other words, the impact tables capture the direct and the indirect (i.e., total) requirements of inputs per dollar of delivery to final demand or final expenditure, assuming that this dollar of final demand is spent on domestic goods and services. These total requirements (or effects) are normally called impact multipliers. The tables which show these multipliers are called impact tables. Let us say, for example, that an increase in the final demand for automobiles leads to a direct (and equal) increase in the output of automobiles. This direct stimulus results in increased purchases by the motor vehicles industry from industries producing steel, automotive components, tires, etc., and a long chain of production increases is unleashed since each of the products required for production will, in turn, require various inputs.

Two types of inputs are therefore identified:

- Direct inputs
- Indirect inputs

Direct inputs are those purchased by the industry under consideration which is usually called the first industry. The indirect inputs are those purchased by all other industries in which production is required in order to supply inputs to the first industry. Thus, the impact coefficients summarize the results of chain reactions of an initial impulse in the form of direct and indirect input requirements for a given additional demand in the economy.

For example, one can see impact tables of 1992 data which are published in our publication referred earlier (Catalogue No. 15-201-XPB) and copies of these impact tables are made available here in Appendices X, XI and XII.

The first table, shown in Appendix X shows the total effects of one dollar spent on a particular commodity. For example, a perusal of row 1 (reading column-wise) indicates that an indirect increase in the output of agriculture (column 1) amounts to \$.075 whereas the production of fishing and trapping (column 2) increases fractionally by \$.0001 and so on. Column 22, which is the sum of all industries' direct and indirect effects, reports total gross output of commodity 1 as \$1.7815 – an increase of slightly more than \$0.78. Columns 23 to 25 show the total contribution to GDP arising out of the initial dollar spent on commodity 1. The GDP contribution for the business sector and the non-business sector is shown separately in columns 23 and 24, respectively.

Similarly, the second table in Appendix XI shows the direct and the indirect (total) effects of a dollar's final expenditure on an industry's output. Analogous to the previous explanation, row 1 for example, implies that the indirect impact on agriculture's production amounts to \$0.2673 and indirectly other industries' increases amount to the values listed in the respective columns. Total Gross Output (column 22) is a summation across columns that in this case, amounted to an increase of \$1.9924. Total contribution to the GDP arising from increased outputs has been shown in column 25 with a split between the business and non-business sectors in columns 23 and 24, respectively.

As mentioned earlier, Input-Output Accounts have established 'fictive industries' in addition to utilizing the SIC description of industries. Each fictive industry produces one fictive commodity. Both the fictive industries and fictive commodities are artificial constructs in that they are used to route a group of goods and services inputs whose precise goods and services composition is not known. Although establishments report their goods and services inputs in considerable detail, there are still some inputs that are lumped into 'catch-all' categories, e.g., office supplies; laboratory supplies, etc. Each of these categories entails many input-output goods and services. For example, corresponding to the fictive good, office supplies, a fictive office supply industry is created. At the S level of aggregation, industry 17: 'Operating, office, cafeteria and laboratory supplies'; industry 18: 'Travel, entertainment, advertising and promotion'; and industry 19: 'Transportation margins' fall in this category. Each fictive industry's output is also



identified as a separate fictive good or service: the output of fictive industry 17 is fictive good 45: 'Operating, office, cafeteria and laboratory supplies'; fictive industry 18 is fictive good 46: 'Travel and entertainment, advertising and promotion'; and fictive industry 19 is fictive service 44: 'Transportation margins'.

The reader will also note that in analytical Appendix XI, the impact on fictive goods and services (44-46) is not shown. This is because of the fact that the Input-Output Model, by using the input structure of fictive industries, first, translates the impact of producing fictive goods and services into the identified goods and services. These are, then assigned to respective users of the goods and services before producing the impact table. Note also that the model calculations are performed at the most detailed level of aggregation in order to use all the information of the Input-Output Tables and are subsequently aggregated to the 'S' level.

### **International Comparability**

The structure of the Canadian Input-Output Accounts as explained in this chapter closely resembles the one recommended for all countries in the international *System of National Accounts, 1993*<sup>22</sup>. Because of the similarity with the international system, it is possible to make comparisons of Canadian data with those of other countries if they use the same kind of structure in their Input Output Accounts. If, however, other countries do not use the same structure as the one

<sup>22</sup> *System of National Accounts*, United Nations and other international agencies, New York, 1993, op cit.

recommended by the United Nations, we may have to adjust our database to conform to a comparable structure. Such adjustment depend on the level of closeness with the U.N. System or for that matter, our own system. Of course, care has to be taken to compare the like things by examining the content rather than the name or description of the items concerned.

The foregoing, are just a few examples which demonstrate the practical usefulness of the present structure embodied in the Input-Output Accounts of Canada.

Thus far, we have seen the concepts, definitions and the national economic accounting structure as they apply to the Input-Output Accounts of the Canadian economy. Let us then take a look at the specific revisions that took place in the last historical revision in the third volume.

**Appendix 1: Input-Output Industries from 1981 Onwards at the Worksheet level (W) and their aggregation at the Link (L), Medium (M) and Small (S) levels (Cont'd)**

Serial Number	W Level Code	Description	S	M	L
<b>Part 1. Business Sector Industries</b>					
1	1	Livestock farms	1	1	1
2	2	Field crop farms	1	1	1
3	3	Service industries incidental to agriculture	1	1	1
4	4	Fishing and trapping industries	2	2	2
5	5	Logging industry	3	3	3
6	6	Forestry services industry	3	3	3
7	7	Gold mines	4	4	4
8	8	Other metal mines	4	4	5
9	9	Iron mines	4	4	6
10	10	Asbestos mines	4	4	7
11	11	Potash mines	4	4	8
12	12	Salt mines	4	4	9
13	13	Other non-metal mines (except coal)	4	4	8
14	14	Coal mines	4	4	10
15	15	Crude petroleum and natural gas industries	4	5	11
16	16	Quarry and sand pit industries	4	6	12
17	17	Services ind. incidental to mineral extraction	4	7	13
18	18	Meat and meat products ind. (except poultry)	5	8	14
19	19	Poultry products industry	5	8	15
20	20	Fish products industry	5	8	16
21	21	Fruit and vegetable industries	5	8	17
22	22	Dairy products industries	5	8	18
23	23	Cereal grain flour, flour mixes, & cereal food ind.	5	8	19
24	24	Feed industry	5	8	20
25	25	Vegetable oil mills (except corn oil)	5	8	21
26	26	Biscuit industry	5	8	22
27	27	Bread and other bakery products industry	5	8	23
28	28	Cane and beet sugar industry	5	8	24
29	29	Chewing gum, sugar and chocolate confection. ind.	5	8	19
30	30	Tea and coffee industry	5	8	19
31	31	Other miscellaneous food products industries	5	8	19
32	32	Soft drink industry	5	9	25
33	33	Distillery products industry	5	9	26
34	34	Brewery products industry	5	9	27
35	35	Wine industry	5	9	28
36	36	Leaf tobacco industry	5	10	29
37	37	Tobacco products industry	5	10	29
38	38	Tire and tube industry	5	11	30
39	39	Rubber hose and belting industry	5	11	30
40	40	Other rubber products industries	5	11	30
41	41	Natural fibres processing and felt products ind.	5	15	38
42	42	Foamed and expanded plastic prod. industry	5	12	31
43	43	Plastic pipe and pipe fittings industry	5	12	31
44	44	Plastic film and sheeting industry	5	12	31
45	45	Plastic bag industry	5	12	31
46	46	Other plastic products industries n.e.c.	5	12	31
47	47	Leather tanneries	5	13	32
48	48	Footwear industry	5	13	33
49	49	Miscellaneous leather and allied products ind.	5	13	34
50	50	Man-made fibre and filament yarn industry	5	14	35
51	51	Other spun yarn and woven cloth industries	5	14	35



**Appendix I: Input-Output Industries from 1981 Onwards at the Worksheet level (W) and their aggregation at the Link (L), Medium (M) and Small (S) levels (Cont'd)**

Serial Number	W Level Code	Description	S	M	L
<b>Part 1. Business Sector Industries</b>					
52	52	Wool yarn and woven cloth industry	5	14	36
53	53	Broad knitted fabric industry	5	14	37
54	54	Canvas and related products industry	5	15	38
55	55	Other textile products industries	5	15	38
56	56	Carpet, mat and rug industry	5	15	39
57	57	Men's and boys' clothing industries	5	16	40
58	58	Women's clothing industries	5	6	40
59	59	Children's clothing industries	5	16	40
60	60	Miscellaneous clothing and apparel industries	5	16	40
61	61	Hosiery industry	5	16	41
62	62	Sawmill, planing mill and shingle mill prod. ind.	5	17	42
63	63	Veneer and plywood industries	5	17	44
64	64	Prefab. wood. build., kitchen cabinet & vanity ind.	5	17	44
65	65	Wooden door, window and other millwork ind.	5	17	44
66	66	Wooden box and pallet industry	5	17	45
67	67	Coffin and casket industry	5	17	45
68	68	Particle and wafer board industries	5	17	46
69	69	Wood preservation & other wood ind. n.e.c	5	17	46
70	70	Household furniture industries	5	18	47
71	71	Office furniture industries	5	18	48
72	72	Other furniture and fixture industries	5	18	49
73	73	Pulp industry	5	19	50
74	74	Newsprint industry	5	19	50
75	75	Paperboard, building board and oth. paper ind.	5	19	50
76	76	Asphalt roofing industry	5	19	51
77	77	Paper box and bag industries	5	19	52
78	78	Other converted paper products industries	5	19	53
79	79	Commercial printing industries	5	20	54
80	80	Publishing industries	5	20	54
81	81	Combined publishing and printing industries	5	20	54
82	82	Platemaking, typesetting and bindery industry	5	20	55
83	83	Ferro-alloys industry and steel foundries	5	21	56
84	84	Other primary steel industries	5	21	56
85	85	Steel pipe and tube industry	5	21	57
86	86	Iron foundries	5	21	58
87	87	Non-ferrous metal smelting and refining ind.	5	21	59
88	88	Aluminum rolling, casting and extruding ind.	5	21	60
89	89	Copper and copper alloy roll., cast. and extr. ind.	5	21	61
90	90	Oth. roll., cast & extr. non-ferrous met. prod. ind.	5	21	62
91	91	Power boiler and heat exchanger industry	5	22	63
92	92	Pre-engineered metal build. ind. (ex. portable)	5	22	63
93	93	Fabricated structural metal products ind. n.e.c.	5	22	63
94	94	Ornamental and architectural metal prod. ind.	5	22	64
95	95	Stamped, pressed and coated metal prod. ind.	5	22	65
96	96	Wire and wire products industries	5	22	66
97	97	Hardware, tool and cutlery industries	5	22	67
98	98	Heating equipment industry	5	22	68
99	99	Machine shop industry	5	22	69
100	100	Other metal fabricating industries	5	22	70
101	101	Agricultural implement industry	5	23	71
102	102	Commercial refrig. and air cond. equip. ind.	5	23	72

**Appendix I: Input-Output Industries from 1981 Onwards at the Worksheet level (W) and their aggregation at the Link (L), Medium (M) and Small (S) levels (Cont'd)**

Serial Number	W Level Code	Description	S	M	L
<b>Part 1. Business Sector Industries</b>					
103	103	Compressor, pump, turbine & other equip. ind.	5	23	73
104	104	Construction, mining & handling machinery ind.	5	23	73
105	105	Sawmill, woodwork., & other M&E ind. n.e.c.	5	23	73
106	106	Aircraft and aircraft parts industry	5	24	74
107	107	Motor vehicle industry	5	24	75
108	108	Truck and bus body and trailer industries	5	24	76
109	109	Motor vehicle engine and engine parts industry	5	24	77
110	110	Motor vehicle wiring assemblies industry	5	24	77
111	111	Motor vehicle stampings industry	5	24	77
112	112	Motor vehicle steering and suspension parts ind.	5	24	77
113	113	Motor vehicle wheel and brake industry	5	24	77
114	114	Plastic parts and access. for motor vehicles ind.	5	24	77
115	115	Motor vehicle fabric accessories industry	5	24	77
116	116	Other motor veh. access., parts & assemb. ind.	5	24	77
117	117	Railroad rolling stock industry	5	24	78
118	118	Shipbuilding and repair industry	5	24	79
119	119	Boatbuilding and repair industry	5	24	80
120	120	Other transportation equipment industries	5	24	80
121	121	Small electrical appliance industry	5	25	81
122	122	Major appliance ind. (electric and non-electric)	5	25	82
123	123	Electric lighting industries	5	25	83
124	124	Record player, radio and television receiver ind.	5	25	84
125	125	Telecommunication equipment industry	5	25	85
126	126	Electronic parts and components industry	5	25	85
127	127	Other communication and electronic equip. ind.	5	25	85
128	128	Electronic computing and peripheral equip. ind.	5	25	86
129	129	Electronic & other office, store & bus. mach. ind.	5	25	86
130	130	Electrical transformer industry	5	25	83
131	131	Switchgear, protect. & other electr. ind. equip. ind.	5	25	83
132	132	Communications and energy wire and cable ind.	5	25	87
133	133	Battery industry	5	25	88
134	134	Miscellaneous electrical products industries	5	25	83
135	135	Clay products industries	5	26	89
136	136	Hydraulic cement industry	5	26	90
137	137	Concrete products industries	5	26	91
138	138	Ready-mix concrete industry	5	26	92
139	139	Glass and glass products industries	5	26	93
140	140	Abrasives industry	5	26	94
141	141	Lime industry	5	26	94
142	142	Other non-metallic mineral products industries	5	26	94
143	143	Refined petroleum products industries	5	27	95
144	144	Other petroleum and coal products industries	5	27	95
145	145	Industrial inorganic chemical industries n.e.c.	5	28	96
146	146	Industrial organic chemical industries n.e.c.	5	28	96
147	147	Agricultural chemical industries	5	28	97
148	148	Plastic and synthetic resin industry	5	28	98
149	149	Pharmaceutical and medicine industry	5	28	99
150	150	Paint and varnish industry	5	28	100
151	151	Soap and cleaning compounds industry	5	28	101
152	152	Toilet preparations industry	5	28	102
153	153	Other chemical products industries	5	28	97



**Appendix I: Input-Output Industries from 1981 Onwards at the Worksheet level (W) and their aggregation at the Link (L), Medium (M) and Small (S) levels (Cont'd)**

Serial Number	W Level Code	Description	S	M	L
<b>Part 1. Business Sector Industries</b>					
154	154	Indicating, recording and controlling instr. ind.	5	29	103
155	155	Other scientific and professional equipment ind.	5	29	103
156	156	Jewellery and precious metal industries	5	29	104
157	157	Sporting goods industry	5	29	105
158	158	Toys and games industry	5	29	105
159	159	Sign and display industry	5	29	106
160	160	Floor tile, linoleum and coated fabric industry	5	29	107
161	161	Musical instrument and sound recording industry	5	29	103
162	162	Miscellaneous manufactured products ind. n.e.c.	5	29	103
163	163	Repair construction	6	30	108
164	164	Residential construction	6	30	109
165	165	Non-residential building construction	6	30	110
166	166	Road, highway and airport runway construction	6	30	111
167	167	Gas and oil facility construction	6	30	112
168	168	Electric power, dams and irrigation construction	6	30	113
169	169	Railway, and telecommunication construction	6	30	114
170	170	Other engineering construction	6	30	115
171	171	Construction, other activities	6	30	116
172	172	Air transport and related service industries	7	31	117
173	173	Railway transport and related service industries	7	31	118
174	174	Water transport and related services industries	7	31	119
175	175	Truck transport industries	7	31	120
176	176	Urban transit systems industry	7	31	121
177	177	Interurban and rural transit systems industry	7	31	122
178	178	Taxi cab and other transportation industries	7	31	123
179	179	School and other bus operations industries	7	31	123
180	180	Other service ind. incidental to transportation	7	31	123
181	181	Natural gas pipeline transport industry	7	32	124
182	182	Crude oil and other pipeline transport industries	7	32	124
183	183	Grain elevator industry	7	33	125
184	184	Other storage and warehousing industries	7	33	125
185	185	Radio and television broadcasting industries	8	34	126
186	186	Cable television industry	8	34	126
187	187	Telecommunication carriers industries	8	34	127
188	188	Postal and courier service industries	8	34	128
189	189	Electric power systems industry	8	35	129
190	190	Gas distribution systems industry	8	35	130
191	191	Water systems and other utility industries n.e.c.	8	35	131
192	192	Wholesale trade industries	9	36	132
193	193	Retail trade industries	10	37	133
194	194	Central bank	11	38	134
195	195	Banks and other deposit accepting intermed.	11	38	134
196	196	Credit unions and caisses populaires	11	38	134
197	197	Other financial intermediary industries	11	38	134
198	198	Real estate operator industries	11	38	134
199	199	Insurance and real estate agent industries	11	38	134
200	200	Insurance industries	11	39	135
201	201	Owner occupied dwellings	11	40	136
202	202	Computer and related services	12	41	137
203	203	Accounting and legal services	12	41	138
204	204	Architectural, eng., & oth. scientific & tech. serv.	12	41	138



**Appendix I: Input-Output Industries from 1981 Onwards at the Worksheet level (W) and their aggregation at the Link (L), Medium (M) and Small (S) levels (Concluded)**

Serial Number	W Level Code	Description	S	M	L
Part 1. Business Sector Industries					
205	205	Advertising services	12	41	139
206	206	Miscellaneous business service industries	12	41	137
207	207	Educational service industries	13	42	140
208	208	Other health and social service industries	14	43	141
209	209	Health practitioners & medical laboratories ind.	14	43	141
210	210	Accommodation service industries	15	44	142
211	211	Food and beverage service industries	15	44	142
212	212	Motion picture, audio and video prod. & distrib.	16	45	143
213	213	Motion picture exhibition	16	45	143
214	214	Other amusement and recreational service ind.	16	45	144
215	215	Lotteries, bingos, casinos, etc	16	45	144
216	216	Laundries and cleaners	16	46	146
217	217	Other personal service industries	16	46	145
218	218	Photographers	16	47	147
219	219	Mach. & equip., auto. & truck rent. & leasing serv.	16	47	147
220	220	Business and professional membership assoc.	16	47	147
221	221	Travel services	16	47	147
222	222	Other services n.e.c.	16	47	147
223	223	Oth. repair serv. & serv. to buildings & dwellings	16	47	147
224	224	Operating supplies	17	48	148
225	225	Office supplies	17	48	149
226	226	Cafeteria supplies	17	48	150
227	227	Laboratory supplies	17	48	151
228	228	Travel & entertainment	18	49	152
229	229	Advertising & promotion	18	49	153
230	230	Transportation margins	19	50	154

Serial Number	W Level Code	Description	S	M	L
Part 2. Non-Business Sector Industries					
231	231	N.B. - P Religious organizations	20	51	155
232	232	N.B. - P Welfare organizations	20	51	156
233	233	N.B. - P Sports & recreation clubs	20	51	157
234	234	N.B. - P Educational institutions	20	52	158
235	235	N.B. - P Other organizations	20	51	159
236	236	N.B. - G Hospitals	21	53	160
237	237	N.B. - G Residential care facilities	21	53	161
238	238	N.B. - G University education	21	54	162
239	239	N.B. - G Other educational serv.	21	54	163
240	240	N.B. - G Defence services	21	55	164
241	241	N.B. - G Other municipal govt.	21	56	165
242	242	N.B. - G Other provincial & territorial govt.	21	57	166
243	243	N.B. - G Other federal govt.	21	58	167

Note: In this table, "N.N." means "Non-business"; "P" means "Personal Sector"; and "G" means "Government Sector".

**Appendix I-A: Operational Working Level Codes of the industries in the Input Output Accounts (Cont'd)**

<b>Worksheet Level</b>	<b>Operational Working level</b>	<b>Description</b>
1	001	Livestock farms
2	002	Field crop farms
3	003	Service industries incidental to agriculture
4	004	Fishing and trapping industries
5	005	Logging industry
6	006	Forestry services industry
7	007	Gold mines
8	008	Other metal mines
9	009	Iron mines
10	010	Asbestos mines
11	011	Potash mines
12	012	Salt mines
13	013	Other non-metal mines (except coal)
14	014	Coal mines
15	015	Crude petroleum and natural gas industries
16	016	Quarry and sand pit industries
17	017	Services ind. incidental to mineral extraction
18	018	Meat and meat products ind. (except poultry)
19	019	Poultry products industry
20	020	Fish products industry
21	021	Fruit and vegetable industries
22	022	Dairy products industries
23	023	Cereal grain flour, flour mixes, & cereal food ind.
24	024	Feed industry
25	025	Vegetable oil mills (except corn oil)
26	026	Biscuit industry
27	027	Bread and other bakery products industry
28	028	Cane and beet sugar industry
29	029	Chewing gum, sugar and chocolate confection. ind.
30	030	Tea and coffee industry
31	031	Other miscellaneous food products industries
32	032	Soft drink industry
33	033	Distillery products industry
34	034	Brewery products industry
35	035	Wine industry
36	036	Leaf tobacco industry
37	037	Tobacco products industry
38	038	Tire and tube industry
39	039	Rubber hose and belting industry
40	040	Other rubber products industries
41	041	Natural fibres processing and felt products ind.
42	042	Foamed and expanded plastic products industry
43	043	Plastic pipe and pipe fittings industry
44	044	Plastic film and sheeting industry
45	045	Plastic bag industry
46	046	Other plastic products industries n.e.c.
47	047	Leather tanneries
48	048	Footwear industry
49	049	Miscellaneous leather and allied products ind.
50	050	Man-made fibre and filament yarn industry
51	051	Other spun yarn and woven cloth industries
52	052	Wool yarn and woven cloth industry

## Appendix I-A: Operational Working Level Codes of the industries in the Input Output Accounts (Cont'd)

Worksheet Level	Operational Working level	Description
53	053	Broad knitted fabric industry
54	054	Canvas and related products industry
55	055	Other textile products industries
56	056	Carpet, mat and rug industry
57	057	Men's and boys' clothing industries
58	58	Women's clothing industries
59	059	Children's clothing industry
60	060	Miscellaneous clothing and apparel industries
61	061	Hosiery industry
62	062	Sawmill, planing mill and shingle mill prod. ind.
63	063	Veneer and plywood industries
64	064	Prefab. wood. build., kitchen cabinet & vanity ind.
65	065	Wooden door, window and other millwork ind.
66	066	Wooden box and pallet industry
67	067	Coffin and casket industry
68	068	Particle and wafer board industries
69	069	Wood preservation & other wood ind. n.e.c.
70	070	Household furniture industries
71	071	Office furniture industries
72	072	Other furniture and fixture industries
73	073	Pulp industry
74	074	Newsprint industry
75	075	Paperboard, building board and oth. paper ind.
76	076	Asphalt roofing industry
77	077	Paper box and bag industries
78	078	Other converted paper products industries
79	079	Commercial printing industries
80	080	Publishing industries
81	081	Combined publishing and printing industries
82	082	Platemaking, typesetting and bindery industry
83	083	Ferro-alloys industry and steel foundries
84	084	Other primary steel industries
85	085	Steel pipe and tube industry
86	086	Iron foundries
87	087	Non-ferrous metal smelting and refining ind.
88	088	Aluminum rolling, casting and extruding ind.
89	089	Copper and copper alloy roll., cast. and extr. ind.
90	090	Oth. roll., cast & extr. non-ferrous met. prod. ind.
91	091	Power boiler and heat exchanger industry
92	092	Pre-engineered metal build. ind. (excl. portable)
93	093	Fabricated structural metal products ind. n.e.c.
94	094	Ornamental and architectural metal prod. ind.
95	095	Stamped, pressed and coated metal prod. ind.
96	096	Wire and wire products industries
97	097	Hardware, tool and cutlery industries
98	098	Heating equipment industry
99	099	Machine shop industry
100	100	Other metal fabricating industries
101	101	Agricultural implement industry
102	102	Commercial refrig. and air cond. equip. ind.
103	103	Compressor, pump, turbine & other equip. ind.
104	104	Construction, mining & handling machinery ind.
105	105	Sawmill, woodwork., & other M&E ind. n.e.c.



**Appendix I-A: Operational Working Level Codes of the industries in the Input Output Accounts (Cont'd)**

<b>Worksheet Level</b>	<b>Operational Working level</b>	<b>Description</b>
106	106	Aircraft and aircraft parts industry
107	107	Motor vehicle industry
108	108	Truck and bus body and trailer industries
109	109	Motor vehicle engine and engine parts industry
110	110	Motor vehicle wiring assemblies industry
111	111	Motor vehicle stampings industry
112	112	Motor vehicle steering and suspension parts ind.
113	113	Motor vehicle wheel and brake industry
114	114	Plastic parts and access. for motor vehicles ind.
115	115	Motor vehicle fabric accessories industry
116	116	Other motor veh. access., parts & assemb. ind.
117	117	Railroad rolling stock industry
118	118	Shipbuilding and repair industry
119	119	Boat building and repair industry
120	120	Other transportation equipment industries
121	121	Small electrical appliance industry
122	122	Major appliance ind. (electric and non-electric)
123	123	Electric lighting industries
124	124	Record player, radio and television receiver ind.
125	125	Telecommunication equipment industry
126	126	Electronic parts and components industry
127	127	Other communication and electronic equip. ind.
128	128	Electronic computing and peripheral equip. ind.
129	129	Electronic & other office, store & bus. mach. ind.
130	130	Electrical transformer industry
131	131	Switch gear, protect. & other electr. ind. equip. ind.
132	132	Communications and energy wire and cable ind.
133	133	Battery industry
134	134	Miscellaneous electrical products industries
135	135	Clay products industries
136	136	Hydraulic cement industry
137	137	Concrete products industries
138	138	Ready-mix concrete industry
139	139	Glass and glass products industries
140	140	Abrasives industry
141	141	Lime industry
142	142	Other non-metallic mineral products industries
143	143	Refined petroleum products industries
144	144	Other petroleum and coal products industries
145	145	Industrial inorganic chemical industries n.e.c.
146	146	Industrial organic chemical industries n.e.c.
147	147	Agricultural chemical industries
148	148	Plastic and synthetic resin industry
149	149	Pharmaceutical and medicine industry
150	150	Paint and varnish industry
151	151	Soap and cleaning compounds industry
152	152	Toilet preparations industry
153	153	Other chemical products industries
154	154	Indicating, recording and controlling instr. ind.
155	155	Other scientific and professional equipment ind.
156	156	Jewellery and precious metal industries
157	157	Sporting goods industry
158	158	Toys and games industry

**Appendix I-A: Operational Working Level Codes of the industries in the Input Output Accounts (Cont'd)**

<b>Worksheet Level</b>	<b>Operational Working level</b>	<b>Description</b>
159	159	Sign and display industry
160	160	Floor tile, linoleum and coated fabric industry
161	161	Musical instrument and sound recording industry
162	162	Miscellaneous manufactured products ind. n.e.c.
163	163	Repair construction
164	164	Residential construction
165	165	Non-residential building construction
166	166	Road, highway and airport runway construction
167	167	Gas and oil facility construction
168	168	Electric power, dams and irrigation construction
169	169	Railway, and telecommunication construction
170	170	Other engineering construction
171	171	Construction, other activities
172	172	Air transport and related service industries
173	173	Railway transport and related service industries
174	174	Water transport and related services industries
175	175	Truck transport industries
176	176	Urban transit systems industry
177	177	Interurban and rural transit systems industry
178	178	Taxicab and other transportation industries
179	179	School and other bus operations industries
180	180	Other service ind. incidental to transportation
181	181	Natural gas pipeline transport industry
182	182	Crude oil and other pipeline transport industries
183	183	Grain elevator industry
184	184	Other storage and warehousing industries
185	185	Radio and television broadcasting industries
186	186	Cable television industry
187	187	Telecommunication carriers industries
188	188	Postal and courier service industries
189	189	Electric power systems industry
190	190	Gas distribution systems industry
191	191	Water systems and other utility industries n.e.c.
192	192	Wholesale trade industries
193	193	Retail trade industries
194	194	Central bank
195	195	Banks and other deposit accepting intermed.
196	196	Credit unions and caisses populaires
197	197	Other financial intermediary industries
198	198	Real estate operator industries
199	199	Insurance and real estate agent industries
200	200	Insurance industries
201	201	Owner occupied dwellings
202	202	Computer and related services
203	203	Accounting and legal services
204	204	Architectural, eng., & oth. scientific & tech. serv.
205	205	Advertising services
206	206	Miscellaneous business service industries
207	207	Educational service industries
208	208	Other health and social service industries
209	209	Health practitioners & medical laboratories ind.
210	210	Accommodation service industries
211	211	Food and beverage service industries

**Appendix I-A: Operational Working Level Codes of the industries in the Input Output Accounts (Concluded)**

<b>Worksheet Level</b>	<b>Operational Working level</b>	<b>Description</b>
212	212	Motion picture, audio and video prod. & distrib.
213	213	Motion picture exhibition
214	214	Other amusement and recreational service ind.
215	215	Lotteries, bingos, casinos, etc.
216	216	Laundries and cleaners
217	217	Other personal service industries
218	218	Photographers
219	219	Mach. & equip., auto. & truck rent. & leasing serv.
220	220	Business and professional membership assoc.
221	221	Travel services
222	222	Other services n.e.c.
223	223	Oth. repair serv. & serv. to buildings & dwellings
224	224	Operating supplies
225	225	Office supplies
226	226	Cafeteria supplies
227	227	Laboratory supplies
228	228	Travel & entertainment
229	229	Advertising & promotion
230	230	Transportation margins
231	231	N.B. - P Religious organizations
232	232	N.B. - P Welfare organizations
233	233	N.B. - P Sports & recreation clubs
234	234	N.B. - P Educational institutions
235	235	N.B. - P Other organizations
236	236	N.B. - G Hospitals
237	237	N.B. - G Residential care facilities
238	238	N.B. - G University education
239	239	N.B. - G Other educational serv.
240	240	N.B. - G Defence services
241	241	N.B. - G Other municipal govt.
242	242	N.B. - G Other provincial & territorial govt.
243	243	N.B. - G Other federal govt.
244	244	Retail margin
245	245	Wholesale margin
246	246	Tax margin
247	247	Transport margin
248	248	Gas margin
249	249	Storage margin
250	250	Pipeline margin
251	251	Subsidy margin
252	252	Imports
253	253	P.S.T. (Personal Sector)
254	254	P.S.T. (Other users)
255	255	G.S.T. (Personal Sector)
256	256	G.S.T. (Other users)

Note: In this table, "N.B." means "Non-business"; "P" means "Personal Sector"; and "G" means "Government Sector".

"P.S.T." means "Provincial Sales Tax"; and "G.S.T." means "Goods and Services Tax".



**Appendix II: Input-Output Commodities from 1986 Onwards at the Worksheet level (W) and their Aggregation at the Link (L), Medium (M) and Small (S) levels (Cont'd)**

Serial Number	W Level Code	Description: Part 1: Intermediate or Final Inputs	S	M	L
1	1	Cattle & calves	2	2	1
2	2	Hogs	2	2	2
3	3	Poultry	2	2	3
4	4	Other live animals	2	2	4
5	5	Wheat, unmilled, excl. imputed feed	1	1	5
6	6	Wheat, unmilled, imputed feed	1	1	5
7	7	Grain corn, excl. imputed feed	1	1	6
8	8	Corn fodder, imputed feed	1	1	6
9	9	Barley, excl. imputed feed	1	1	6
10	10	Other grains, excl. imputed feed	1	1	6
11	11	Other grains & fodder, imputed feed	1	1	6
12	12	Fluid milk, unprocessed	2	3	7
13	13	Eggs in the shell	2	3	8
14	14	Honey & beeswax	2	3	9
15	15	Fresh fruit, excl. tropical	2	3	10
16	16	Potatoes, fresh or chilled	2	3	11
17	17	Other vegetables, fresh or chilled	2	3	11
18	18	Hay & straw, excl. imputed feed	2	3	12
19	19	Hay & straw, imputed feed	2	3	12
20	20	Seeds, excl. oil seeds	2	3	13
21	21	Nursery stock, flowers, etc.	2	3	14
22	22	Canola	2	3	15
23	23	Soybeans & other oil seeds	2	3	15
24	24	Raw tobacco	2	3	16
25	25	Raw wool and mink skins	2	3	17
26	26	Services incidental to agriculture	2	3	18
27	27	Services incidental to forestry	2	3	18
28	28	Logs	3	4	19
29	29	Poles, piling, bolts, etc.	3	4	19
30	30	Pulpwood	3	4	20
31	31	Fuelwood & other crude wood	3	4	21
32	32	Custom forestry	3	4	22
33	33	Fish & seafood, fresh, chilled	4	5	23
34	34	Hunting & trapping products	4	6	24
35	35	Gold & alloys in primary forms	5	8	25
36	36	Radioactive ores & concentrates	5	8	26
37	37	Iron ores & concentrates	5	7	27
38	38	Bauxite & alumina	5	8	28
39	39	Other metal ores & concentrates	5	8	29
40	40	Coal	6	9	30
41	41	Crude mineral oils	6	10	31
42	42	Natural gas, excl. liquefied	6	11	32
43	43	Sulphur, crude & refined	7	12	33
44	44	Asbestos, crude & milled	7	12	34
45	45	Gypsum	7	12	35
46	46	Salt	7	12	36
47	47	Peat	7	12	37
48	48	Clays	7	12	38
49	49	Natural abrasives & industrial diamonds	7	12	39
50	50	Other crude minerals	7	12	40

**Appendix II: Input-Output Commodities from 1986 Onwards at the Worksheet level (W) and their Aggregation at the Link (L), Medium (M) and Small (S) levels (Cont'd)**

Serial Number	W Level Code	Description: Part 1: Intermediate or Final Inputs	S	M	L
51	51	Sand (excl. silica) & gravel	7	12	41
52	52	Stone & silica sand for industrial use	7	12	42
53	53	Stone for construction	7	12	42
54	54	Services incidental to mining	8	13	43
55	55	Beef, fresh, chilled, frozen	9	14	44
56	56	Pork, fresh, chilled, frozen	9	14	44
57	57	Other meat, fresh, chilled, frozen	9	14	44
58	58	Edible offal, fresh, chilled, frozen	9	14	44
59	59	Cured meat	9	14	45
60	60	Prepared meat products	9	14	46
61	61	Animal fat & lard	9	14	47
62	62	Margarine & shortening	9	14	48
63	63	Sausage casings	9	14	49
64	64	Feeds from animal byproducts	9	14	50
65	65	Raw animal hides & skins	9	14	51
66	66	Animal byproducts for ind. use	9	14	52
67	67	Custom work, meat & food	9	14	53
68	68	Poultry, fresh, chilled, frozen	9	14	54
69	69	Fluid milk, processed	9	15	55
70	70	Fresh cream	9	15	56
71	71	Butter	9	15	57
72	72	Cheese	9	15	58
73	73	Evaporated & condensed dairy products	9	15	55
74	74	Ice cream	9	15	59
75	75	Powder dairy products	9	15	55
76	76	Other dairy products	9	15	55
77	77	Mayonnaise, salad dressing & mustard	9	15	60
78	78	Fish & seafood prod. fresh, chilled, frozen	9	16	61
79	79	Other fish & seafood products	9	16	61
80	80	Frozen fruit & juice	10	17	62
81	81	Other fruit juice	10	17	62
82	82	Other fruit products	10	17	62
83	83	Fruit & jam in airtight containers	10	17	63
84	84	Frozen potatoes	10	17	64
85	85	Other frozen vegetables	10	17	64
86	86	Other preserved vegetables	10	17	64
87	87	Vegetables & juice in airtight containers	10	17	65
88	88	Soups in airtight containers	10	17	66
89	89	Infant & junior foods, in airtight containers	10	17	67
90	90	Sauces, pickles, etc.	10	17	68
91	91	Vinegar	10	17	69
92	92	Mineral water, fruit drinks & ice	10	17	70
93	93	Pasta products, excl. dry pasta	10	17	70
94	94	Prepared meals	10	17	70
95	95	Feed supplements & premixes	10	18	71
96	96	Complete feeds	10	18	72
97	97	Feeds from grain byproducts	10	18	73
98	98	Feeds from vegetable byproducts	10	18	74
99	99	Pet feeds	10	18	75
100	100	Wheat flour	10	19	76

**Appendix II: Input-Output Commodities from 1986 Onwards at the Worksheet level (W) and their Aggregation at the Link (L), Medium (M) and Small (S) levels (Cont'd)**

Serial Number	W Level Code	Description: Part 1: Intermediate or Final Inputs	S	M	L
101	101	Starches	10	19	77
102	102	Breakfast cereal products	10	20	78
103	103	Biscuits	10	20	79
104	104	Bread & rolls	10	20	80
105	105	Other bakery products	10	20	81
106	106	Food snacks	10	20	81
107	107	Cocoa & chocolate	10	22	82
108	108	Nuts	10	22	83
109	109	Chocolate confectionery	10	22	84
110	110	Other confectionery	10	22	84
111	111	Sugar	10	21	85
112	112	Oil-cake feeds	10	18	86
113	113	Crude vegetable oils	10	22	87
114	114	Nitrogen function compounds	27	67	88
115	115	Other flours & processed grains	10	22	89
116	116	Maple sugar & syrup	10	22	90
117	117	Other syrup	10	22	90
118	118	Prepared cake & other mixes	10	22	91
119	119	Dehydrated soup mixes & bases	10	22	92
120	120	Roasted coffee	10	22	93
121	121	Tea	10	22	94
122	122	Potato chips & flakes	10	22	95
123	123	Spices	10	22	96
124	124	Peanut butter	10	22	96
125	125	Food & drink powders	10	22	96
126	126	Other food products	10	22	96
127	127	Infant & junior foods, excl. in airtight containers	10	22	96
128	128	Dry pasta	10	22	96
129	129	Soft drink concentrates	11	23	97
130	130	Carbonated soft drinks	11	23	98
131	131	Distilled alc. beverages, bought in stores	11	24	99
132	132	Distilled alc. beverages, consumed on lic. Premises	11	24	99
133	133	Beer, incl. coolers, bought in stores	11	24	100
134	134	Beer, incl. coolers, consumed on lic. Premises	11	24	100
135	135	Wine, incl. coolers, bought in stores	11	24	101
136	136	Wine. Incl. coolers, consumed on lic. Premises	11	24	101
137	137	Unmanufactured tobacco	12	25	102
138	138	Cigarettes	12	26	103
139	139	Other tobacco products	12	26	104
140	140	Waterproof footwear	13	28	105
141	141	Passenger car tires	13	27	106
142	142	Truck, bus & off-highway tires	13	27	107
143	143	Other tires & tubes	13	27	108
144	144	Tire repair material & retreaded tires	13	27	108
145	145	Conveyor & transmission belting	13	28	109
146	146	Self-adhesive tape	13	28	110
147	147	Other rubber products for industrial use	13	28	110
148	148	Hose & tubing, mainly rubber	13	28	111
149	149	Plastic film & sheet	13	29	112
150	150	Foamed & expanded plastics	13	29	112



**Appendix II: Input-Output Commodities from 1986 Onwards at the Worksheet level (W) and their Aggregation at the Link (L), Medium (M) and Small (S) levels (Cont'd)**

Serial Number	W Level Code	Description: Part 1: Intermediate or Final Inputs	S	M	L
151	151	Other plastic products, incl. Cups	13	29	112
152	152	Plastic building supplies	13	29	112
153	153	Other rubber end products	13	29	113
154	154	Plastic containers & closures	13	29	112
155	155	Plastic pipe & pipe fittings	13	29	113
156	156	Leather & other leather goods	13	30	114
157	157	Footwear, excl. waterproof	13	30	115
158	158	Leather gloves	13	30	116
159	159	Luggage, briefcases, etc.	13	30	117
160	160	Handbags, wallets, etc.	13	30	118
161	161	Cotton yarn	14	31	127
162	162	Cotton woven fabric	14	32	119
163	163	Tire cord fabric	14	32	120
164	164	Bedding	14	33	134
165	165	Wool & wool mix yarn & thread	14	31	127
166	166	Wool & wool mix woven fabric	14	32	126
167	167	Felt	14	33	121
168	168	Man-made staple fibres	14	31	122
169	169	Polyamide resins, incl. nylon	14	31	123
170	170	Filament yarn	14	31	124
171	171	Yarn of staple fibres	14	31	124
172	172	Tire yarn	14	31	125
173	173	Man-made fabric for clothing	14	32	126
174	174	Man-made fabric for industrial use	14	32	126
175	175	Pile fabric	14	32	126
176	176	Cotton thread	14	33	135
177	177	Man-made thread	14	33	135
178	178	Rope & twine	14	33	128
179	179	Narrow fabrics, incl. lace	14	32	129
180	180	Textile floor covering	14	33	130
181	181	Textile dyeing & finishing service	14	33	131
182	182	Awnings, tarpaulins, etc.	14	33	132
183	183	Tents, sleeping bags, sails, etc.	14	33	133
184	184	Other household textile products	14	33	134
185	185	Textile medical products	14	33	135
186	186	Other textile products	14	33	135
187	187	Hosiery	15	34	136
188	188	Knitted fabrics	14	32	137
189	189	Men's & boys' knitted clothing	15	34	136
190	190	Sweaters	15	34	136
191	191	Women's knitted clothing	15	34	136
192	192	Children's knitted clothing	15	34	136
193	193	Men's & boys' clothing	15	35	138
194	194	Women's underwear & sleepwear	15	35	138
195	195	Other women's clothing	15	35	138
196	196	Children's wear	15	35	138
197	197	Other clothing & accessories	15	35	138
198	198	Dressed furs	15	35	139
199	199	Fur apparel	15	35	140
200	200	Custom tailoring	15	35	141

**Appendix II: Input-Output Commodities from 1986 Onwards at the Worksheet level (W) and their Aggregation at the Link (L), Medium (M) and Small (S) levels (Cont'd)**

Serial Number	W Level Code	Description: Part 1: Intermediate or Final Inputs	S	M	L
201	201	Wood chips	16	38	142
202	202	Lumber	16	36	143
203	203	Treated wood	16	36	143
204	204	Wood waste	16	38	142
205	205	Custom wood work & millwork	16	38	144
206	206	Plywood & veneer	16	37	145
207	207	Wooden doors & windows	16	38	146
208	208	Kitchen cabinets	16	38	146
209	209	Other millwork	16	38	146
210	210	Wood structural products	16	38	146
211	211	Wood prefabricated buildings	16	38	147
212	212	Wood containers & pallets	16	38	148
213	213	Caskets & coffins	16	38	149
214	214	Shingles & shakes	16	38	150
215	215	Particle & wafer board	16	38	150
216	216	Other wood end products	16	38	150
217	217	Household furniture	17	39	151
218	218	Furniture parts	17	39	151
219	219	Office furniture	17	39	152
220	220	Commercial & institutional furniture	17	39	153
221	221	Mattresses & other furniture	17	39	153
222	222	Portable lighting fixtures	17	39	153
223	223	Wood pulp	18	40	154
224	224	Newsprint paper	18	41	155
225	225	Other paper, containing wood	18	41	156
226	226	Other paper, woodfree	18	41	156
227	227	Tissue & sanitary paper stock	18	41	157
228	228	Wrapping & sack paper, bag stock	18	41	158
229	229	Paperboard, incl. boxboard	18	41	159
230	230	Building board & paper	18	41	160
231	231	Asphalt building products	18	41	160
232	232	Toilet paper, paper towel, tissue, etc.	18	42	161
233	233	Paper waste & scrap	18	42	162
234	234	Vinyl floor & wall covering	18	42	163
235	235	Paper bags & sacks	18	42	164
236	236	Paper boxes, cartons & drums	18	42	164
237	237	Plastic bags	18	42	164
238	238	Corrugated paper & board	18	42	165
239	239	Wallpaper	18	42	165
240	240	Other coated paper & products	18	42	165
241	241	Aluminum foil	18	42	165
242	242	Paper diapers & sanitary napkins	18	42	161
243	243	Textile hygiene products	18	42	161
244	244	Paper containers for commercial use	18	42	164
245	245	Paper stationery	18	42	166
246	246	Other stationery supplies	18	42	166
247	247	Photographic paper	18	42	166
248	248	Other paper end products	18	42	167
249	249	Newspapers	19	43	168
250	250	Magazines & periodicals	19	43	168

**Appendix II: Input-Output Commodities from 1986 Onwards at the Worksheet level (W) and their Aggregation at the Link (L), Medium (M) and Small (S) levels (Cont'd)**

Serial Number	W Level Code	Description: Part 1: Intermediate or Final Inputs	S	M	L
251	251	Books	19	43	169
252	252	Greeting & post cards, maps, etc.	19	43	169
253	253	Banknotes, cheques & stamps, etc.	19	43	170
254	254	Printed business forms	19	43	171
255	255	Advertising flyers, catalogues, directories	19	43	171
256	256	Other printed matter	19	43	171
257	257	Advertising in print media	19	44	172
258	258	Specialized publishing service	19	43	173
259	259	Printing plates, type, etc.	19	43	174
260	260	Ferro-alloys	20	45	175
261	261	Iron & steel ingots, billets, etc.	20	45	176
262	262	Steel castings	20	45	177
263	263	Steel bars & rods, non-alloy, excl. reinforced	20	45	178
264	264	Reinforcing bars & rods	20	45	178
265	265	Alloy steel bars & rods	20	45	178
266	266	Flat iron & steel, not alloy, not coated	20	45	179
267	267	Flat iron & steel, alloy, coated	20	45	179
268	268	Iron & steel railway construction material	20	45	180
269	269	Tar & pitch	26	63	181
270	270	Carbon & graphite products	20	49	182
271	271	Oil & gas casing & drill pipe	20	45	183
272	272	Oil & gas line pipe	20	45	184
273	273	Other iron & steel pipes & tubes	20	45	185
274	274	Other cast iron products	20	45	186
275	275	Grinding balls & ingot moulds	20	45	186
276	276	Cast iron pipe & fittings	20	45	187
277	277	Other iron & steel pipe fittings	20	45	187
278	278	Nickel in primary forms	20	48	188
279	279	Copper in primary forms	20	47	189
280	280	Lead in primary forms	20	49	190
281	281	Zinc in primary forms	20	49	191
282	282	Aluminum & alloy ingots, billets, blocks & slabs	20	46	192
283	283	Aluminum & alloys, other primary forms	20	46	192
284	284	Precious metals in primary forms excl. gold	20	49	193
285	285	Other non-ferrous base metals	20	49	194
286	286	Other non-ferrous base & fabricated materials	20	49	194
287	287	Other inorganic bases & metallic oxides	20	49	195
288	288	Metal scrap, excl. iron & steel	20	49	196
289	289	Iron & steel scrap	20	49	196
290	290	Aluminum & aluminum alloy fabricated materials	20	46	197
291	291	Copper fabricated materials	20	47	198
292	292	Copper alloy fabricated materials	20	47	199
293	293	Lead & lead alloy fabricated materials	20	49	200
294	294	Nickel & nickel alloy fabricated materials	20	48	201
295	295	Zinc & zinc alloy fabricated materials	20	49	202
296	296	Soldering rods & wire	20	49	203
297	297	Fabricated steel plate	21	50	204
298	298	Metal tanks	21	50	205
299	299	Power boilers	21	50	206
300	300	Iron & steel structural materials	21	51	207



**Appendix II: Input-Output Commodities from 1986 Onwards at the Worksheet level (W) and their Aggregation at the Link (L), Medium (M) and Small (S) levels (Cont'd)**

Serial Number	W Level Code	Description: Part 1: Intermediate or Final Inputs	S	M	L
301	301	Prefabricated metal buildings	21	51	208
302	302	Prefabricated metal structures	21	51	208
303	303	Metal doors and windows	21	51	209
304	304	Other metal building products	21	51	209
305	305	Corrugated metal culvert pipe	21	52	210
306	306	Iron & steel stampings	21	52	211
307	307	Metal roofing, siding, ducts, etc.	21	52	212
308	308	Metal kitchen utensils	21	52	218
309	309	Other kitchen utensils	21	52	218
310	310	Other metal containers & closures	21	52	213
311	311	Food, beverage and other cans	21	52	213
312	312	Iron & steel wire & cable	21	52	214
313	313	Iron & steel wire fencing & screen	21	52	215
314	314	Chain, excl. motor vehicle & power transmission	21	52	216
315	315	Welding rods & wire electrodes	21	52	217
316	316	Wire products, incl. springs	21	52	218
317	317	Fastener hardware	21	52	219
318	318	Builders' hardware	21	52	219
319	319	Other hardware	21	52	219
320	320	Machine tools	21	52	220
321	321	Tool accessories	21	52	220
322	322	Hand & measuring tools	21	52	220
323	323	Scissors, razor blades, industrial cutlery, etc.	24	52	221
324	324	Household clothes washers & dryers	24	58	222
325	325	Household dishwashers	24	58	222
326	326	Mowers, snowblowers, sprinklers, etc.	21	58	222
327	327	Non-electric furnaces & heating equipment	21	52	223
328	328	Commercial cooking equipment	21	52	224
329	329	Custom metal working	21	52	225
330	330	Iron & steel forgings	21	52	226
331	331	Valves	21	52	227
332	332	Metal plumbing fixtures & fittings	21	52	228
333	333	Plastic plumbing fixtures & fittings	21	52	228
334	334	Gas & water meters	21	52	229
335	335	Fire fighting & traffic control equipment	21	52	230
336	336	Firearms & military hardware	21	52	231
337	337	Bulldozers, farm & garden tractors	22	53	232
338	338	Other agricultural machinery	22	53	233
339	339	Bearings	22	54	234
340	340	Mechanical power transmission equipment	22	54	234
341	341	Pumps, compressors, fans & blowers	22	54	235
342	342	Conveyors, elevators & hoisting machinery	22	54	236
343	343	Industrial trucks & material handling equipment	22	54	237
344	344	Fans & air circulation units, not industrial	22	54	238
345	345	Packaging & bottling machinery	22	54	239
346	346	Air purification equipment	22	54	239
347	347	Other general purpose machinery	22	54	239
348	348	Industrial furnaces, kilns & ovens	22	54	240
349	349	Construction & mining machinery	22	54	241
350	350	Logging, pulp & paper industry machinery	22	54	241

**Appendix II: Input-Output Commodities from 1986 Onwards at the Worksheet level (W) and their Aggregation at the Link (L), Medium (M) and Small (S) levels (Cont'd)**

Serial Number	W Level Code	Description: Part 1: Intermediate or Final Inputs	S	M	L
351	351	Metal working machinery	22	54	241
352	352	Other industry specific machinery	22	54	241
353	353	Service industry machinery	22	54	241
354	354	Power hand tools	22	54	242
355	355	Air conditioning equipment, wall & window	22	54	243
356	356	Air cond. & refrig. equip., commercial & transport	22	54	243
357	357	Scales & balances	22	54	244
358	358	Vending machines	22	54	245
359	359	Computers, video units, printers, etc.	22	54	246
360	360	Office equipment, excl. photocopy & facsimile	22	54	246
361	361	Aircraft	23	57	247
362	362	Aircraft engines	23	57	248
363	363	Aircraft parts & equipment	23	57	249
364	364	Aircraft service & repairs	23	57	250
365	365	Automobiles, incl. passenger vans	23	55	251
366	366	Trucks, road tractors & chassis	23	55	252
367	367	Buses & chassis	23	55	253
368	368	Off-highway trucks	23	55	254
369	369	Military motor vehicles	23	55	254
370	370	Motor homes, motorcycles & atvs	23	55	254
371	371	Mobile homes	23	55	255
372	372	Non-commercial trailers	23	55	256
373	373	Commercial trailers & semi-trailers	23	55	256
374	374	Truck & bus bodies & cargo containers	23	56	257
375	375	Motor vehicle engines & parts	23	56	258
376	376	Motor vehicle electric equipment	23	56	259
377	377	Motor vehicle stampings	23	56	260
378	378	Motor vehicle steering & suspension	23	56	260
379	379	Motor vehicle wheels & brakes	23	56	260
380	380	Motor vehicle plastic parts & trim	23	56	260
381	381	Motor vehicle fabric accessories	23	56	260
382	382	Other motor vehicle parts & accessories	23	56	260
383	383	Locomotive, railway & urban trans. rolling stock	23	57	261
384	384	Parts for loc., railway & urban trans. rolling stock	23	57	262
385	385	Ships, boats & parts, excl. pleasure	23	57	263
386	386	Ship repairs	23	57	264
387	387	Snowmobiles	23	57	265
388	388	Pleasure boats & sporting craft	23	57	266
389	389	Microwave ovens	24	58	267
390	390	Small household appliances	24	58	267
391	391	Electric furnace & other electric heating equip.	24	58	268
392	392	Household refrigerators & freezers	24	58	269
393	393	Hhold cooking equipment, excl. microwave ovens	24	58	270
394	394	Radio, stereo, cassette & CD players, & access.	24	58	271
395	395	TV, VCR, accessories, & unrecorded tape	24	58	271
396	396	Telephone & related equipment, incl. facsimile	24	59	272
397	397	Broadcasting & radio communications equipment	24	59	273
398	398	Radar & radio navigation equipment	24	59	274
399	399	Semi-conductors	24	59	275
400	400	Printed circuits	24	59	275

**Appendix II: Input-Output Commodities from 1986 Onwards at the Worksheet level (W) and their Aggregation at the Link (L), Medium (M) and Small (S) levels (Cont'd)**

Serial Number	W Level Code	Description: Part 1: Intermediate or Final Inputs	S	M	L
401	401	Integrated circuits	24	59	275
402	402	Other electronic equipment components	24	59	275
403	403	Electronic alarm & signal systems	24	59	276
404	404	Welding machinery & equipment	24	59	277
405	405	Power generation & marine prop., non-electric	24	59	278
406	406	Electrical generators & motors	24	59	278
407	407	Ballast	24	59	279
408	408	Transformers & converters	24	59	279
409	409	Industrial electric equipment, incl. safety	24	59	280
410	410	Batteries	24	59	281
411	411	Wire & cable, insulated, excl. aluminum	24	59	282
412	412	Aluminum wire & cable	24	59	283
413	413	Wiring materials & electrical meters	24	59	284
414	414	Electric light bulbs & tubes	24	59	285
415	415	Electric lighting fixtures, excl. portable	24	59	285
416	416	Vehicle lighting equipment	24	59	285
417	417	Cement	25	60	286
418	418	Lime	25	61	287
419	419	Concrete products	25	60	288
420	420	Ready-mix concrete	25	60	289
421	421	Bricks & other clay building products	25	61	290
422	422	Porcelain insulators	25	61	291
423	423	Ceramic household products	25	61	292
424	424	Refractory products	25	61	293
425	425	Natural stone products	25	61	294
426	426	Gypsum building products	25	61	295
427	427	Mineral wool building products	25	61	296
428	428	Asbestos products	25	61	297
429	429	Other non-metallic mineral basic products	25	61	298
430	430	Glass and other glass products	25	61	299
431	431	Safety glass	25	61	299
432	432	Optical fibre cables	25	61	299
433	433	Glass fibre batts, mats, etc.	25	61	299
434	434	Glass containers	25	61	300
435	435	Mirrors & glass household products	25	61	301
436	436	Abrasive products	25	61	302
437	437	Motor gasoline	26	62	303
438	438	Aviation fuel	26	62	304
439	439	Diesel oil	26	62	304
440	440	Light fuel oil	26	62	304
441	441	Heavy fuel oil	26	62	304
442	442	Lubricating oils & greases	26	63	305
443	443	Benzene, toluene & xylene	26	63	306
444	444	Liquid petroleum gases, incl. natural gas	26	63	307
445	445	Naphtha	26	63	308
446	446	Asphalt compound, hot bulk	26	63	309
447	447	Other asphalt products	26	63	309
448	448	Petrochemical feed stock	26	63	310
449	449	Animal & vegetable fertilizers, imputed	27	65	311
450	450	Animal & vegetable fertilizers, excl. imputed	27	65	311



**Appendix II: Input-Output Commodities from 1986 Onwards at the Worksheet level (W) and their Aggregation at the Link (L), Medium (M) and Small (S) levels (Cont'd)**

Serial Number	W Level Code	Description: Part 1: Intermediate or Final Inputs	S	M	L
451	451	Potash	27	65	311
452	452	Chemical fertilizers	27	65	311
453	453	Ethylene polymers	27	64	312
454	454	Vinyl polymers	27	64	312
455	455	Other polymers	27	64	312
456	456	Cellulosic plastic film & sheet	27	64	313
457	457	Monoethylene glycol	27	64	314
458	458	Pharmaceuticals	27	66	315
459	459	Paints & related products	27	67	316
460	460	Refined vegetable oils	27	67	317
461	461	Oral care products	27	67	318
462	462	Soaps	27	67	319
463	463	Detergents	27	67	319
464	464	Other cleaning products	27	67	319
465	465	Other industrial chemical preparations	27	67	320
466	466	Cosmetic products	27	67	321
467	467	Hair care products	27	67	321
468	468	Other personal care products	27	67	321
469	469	Bleach and fabric softeners	27	67	321
470	470	Chlorine	27	64	322
471	471	Oxygen	27	64	323
472	472	Phosphorous	27	64	324
473	473	Other chemical elements	27	64	325
474	474	Sulphuric acid	27	64	326
475	475	Other inorganic acids & oxygen compounds	27	64	327
476	476	Ammonia	27	64	328
477	477	Caustic soda	27	64	329
478	478	Sodium chlorate	27	64	330
479	479	Sodium phosphates	27	64	331
480	480	Sodium carbonate	27	64	332
481	481	Other metallic salts & peroxysalts	27	64	333
482	482	Deuterium oxide (heavy water)	27	64	334
483	483	Radioactive chemicals	27	64	334
484	484	Other inorganic chemicals	27	64	334
485	485	Ethylene	27	64	335
486	486	Butylenes	27	64	336
487	487	Butadiene	27	64	337
488	488	Styrene	27	64	338
489	489	Vinyl chloride	27	64	339
490	490	Other hydrocarbons & derivatives	27	64	340
491	491	Methyl alcohol	27	64	341
492	492	Other alcohols & derivatives	27	64	342
493	493	Ethers, alcohol peroxides, etc.	27	64	343
494	494	Other phenols, aldehydes & ketones	27	64	344
495	495	Organic acids & derivatives	27	64	345
496	496	Organo-inorganic compounds	27	64	346
497	497	Other organic chemicals	27	64	347
498	498	Titanium dioxide, excl. slag	27	64	348
499	499	Carbon	27	64	349
500	500	Pigments, lakes & dyes	27	64	350

**Appendix II: Input-Output Commodities from 1986 Onwards at the Worksheet level (W) and their Aggregation at the Link (L), Medium (M) and Small (S) levels (Cont'd)**

Serial Number	W Level Code	Description: Part 1: Intermediate or Final Inputs	S	M	L
501	501	Synthetic rubber	27	64	351
502	502	Antifreezing preparations	27	67	352
503	503	Additives & automobile chemicals	27	67	353
504	504	Rubber & plastic compounding agents	27	64	354
505	505	Explosives & non-military ammunition	27	67	355
506	506	Military ammunition & ordnance	27	67	356
507	507	Crude vegetable materials & extracts	27	64	357
508	508	Insecticides & herbicides	27	67	358
509	509	Adhesives	27	67	359
510	510	Catalysts	27	67	360
511	511	Metal working industrial chemicals	27	67	361
512	512	Printing & other inks	27	67	362
513	513	Polish, cream & wax products	27	67	363
514	514	Other oils, fats & waxes	27	67	364
515	515	Aircraft & nautical navig. instruments, excl. radio	28	68	365
516	516	Lab & scientific instruments, & flight simulators	28	68	366
517	517	Measuring & controlling instruments	28	68	366
518	518	Medical & dental equipment & supplies	28	68	366
519	519	Ophthalmic goods	28	68	366
520	520	Personal medical goods	28	68	366
521	521	Industrial safety equipment	28	68	367
522	522	Watches, clocks, etc.	28	68	368
523	523	Optical & photo equipment	28	68	369
524	524	Photocopy & microfilm equipment	28	68	369
525	525	Photographic film & plate	28	68	369
526	526	Jewelry, silverware, flatware, etc.	28	69	370
527	527	Brooms, brushes, mops, etc.	28	69	371
528	528	Bicycles	28	69	372
529	529	Recreational equipment	28	69	373
530	530	Toys & games, incl. electronic	28	69	374
531	531	Impregnated & coated fabrics	28	69	375
532	532	Floor & wall covering, excl. vinyl	28	69	376
533	533	Advertising signs, displays, etc.	28	69	377
534	534	Shades & blinds	28	69	378
535	535	Custom work, refined petroleum and coal	28	69	379
536	536	Other custom work	28	69	379
537	537	Animal hair, fur dyeing, etc.	28	69	380
538	538	Other metal end products	28	69	381
539	539	Sewing needs	28	69	382
540	540	Recordings, musical instr., artists' supplies, etc.	28	69	383
541	541	Smokers' supplies	28	69	383
542	542	Art & decorative goods, misc. end products	28	69	384
543	543	Repair construction	31	72	385
544	544	Residential construction	29	70	386
545	545	Non-residential building construction	30	71	387
546	546	Road, highway & airport runway construction	30	71	388
547	547	Gas & oil facility construction	30	71	389
548	548	Electric power, dams & irrigation construction	30	71	390
549	549	Railway & telecommunications construction	30	71	391
550	550	Other engineering construction	30	71	392

**Appendix II: Input-Output Commodities from 1986 Onwards at the Worksheet level (W) and their Aggregation at the Link (L), Medium (M) and Small (S) levels (Cont'd)**

Serial Number	W Level Code	Description: Part 1: Intermediate or Final Inputs	S	M	L
551	551	Air transport, passenger	32	74	393
552	552	Air transport, freight	32	74	393
553	553	Air transport, specialty	32	74	393
554	554	Services incidental to air transport	32	74	393
555	555	School bus & other transportation	32	74	394
556	556	Ambulance services	32	74	394
557	557	Travel agents, tour wholesaler & operator serv.	32	74	395
558	558	Parking services	32	74	395
559	559	Other services incidental to transport	32	74	395
560	560	Water transport, passenger	32	74	396
561	561	Water transport, freight	32	74	396
562	562	Water transport, other	32	74	396
563	563	Services incidental to water transport	32	74	397
564	564	Rail transport, passenger	32	74	398
565	565	Rail transport, freight	32	74	398
566	566	Services incidental to rail transport	32	74	398
567	567	Truck transportation	32	74	399
568	568	Bus transport, interurban & rural, passenger	32	74	400
569	569	Bus transport, interurban & rural, parcel express	32	74	400
570	570	Urban transit	32	74	401
571	571	Taxicab transportation	32	74	402
572	572	Pipeline transportation	32	73	403
573	573	Highway and bridge maintenance	32	74	404
574	574	Grain storage	32	74	405
575	575	Other storage and warehousing	32	74	405
576	576	Radio & television broadcasting, incl cable	33	75	406
577	577	Telephone & other telecommunications	33	76	407
578	578	Postal services	33	77	408
579	579	Electric power	34	78	409
580	580	Gas distribution	34	79	410
581	581	Coke	26	63	411
582	582	Water supply	34	79	412
583	583	Other utilities	34	79	412
584	584	Wholesaling margins	35	80	413
585	585	Repair service for machinery & equipment	43	89	414
586	586	Rental of office equipment	43	89	415
587	587	Retailing margins	36	81	416
588	588	Retailing service	36	81	416
589	589	Central bank	38	83	417
590	590	Implicit charges, banks & oth. dep. acc. intermed.	38	83	417
591	591	Paid charges, banks & oth. dep. acc. intermed.	38	83	418
592	592	Implicit charges, credit unions & caisses pop.	38	83	418
593	593	Paid charges, credit unions & caisses pop.	38	83	418
594	594	Royalties & licence fees (excl. natural resource)	38	83	418
595	595	Stock & bond commissions	38	83	418
596	596	Implicit charge, sales finance & consumer loan	38	83	418
597	597	Mutual funds	38	83	418
598	598	Other financial intermediary services	38	83	418
599	599	Real estate commissions & management fees	38	83	418
600	600	Life insurance	38	83	419



**Appendix II: Input-Output Commodities from 1986 Onwards at the Worksheet level (W) and their Aggregation at the Link (L), Medium (M) and Small (S) levels (Cont'd)**

Serial Number	W Level Code	Description: Part 1: Intermediate or Final Inputs	S	M	L
601	601	Non-life insurance	38	83	419
602	602	Trusteed pension funds	38	83	419
603	603	Insurance commissions	38	83	419
604	604	Gross imputed rent	37	82	420
605	605	Gross paid residential rent	38	83	421
606	606	Imputed lodging	38	83	422
607	607	Lodging in universities	38	83	422
608	608	Other paid lodging, excl. universities	38	83	422
609	609	Non-residential rent	38	83	422
610	610	Private education services	40	85	423
611	611	Private hospital services	41	86	424
612	612	Private residential care facilities	41	86	425
613	613	Child care, outside the home	41	86	425
614	614	Other health & social services	41	86	425
615	615	Health practitioners & laboratory services	41	86	425
616	616	Motion picture, audio, & video prod. & distribution	43	87	426
617	617	Motion picture exhibition	43	87	426
618	618	Lottery and other gambling	43	87	427
619	619	Race track services	43	87	427
620	620	Other recreational services	43	87	427
621	621	Architect, engineering, & scientific services	39	84	428
622	622	Accounting & legal services	39	84	428
623	623	Advertising services	39	84	429
624	624	Laundry and dry cleaning	43	89	430
625	625	Accommodation services	42	88	431
626	626	Meals	43	89	432
627	627	Barber & beauty services	43	89	433
628	628	Funeral services	43	89	433
629	629	Child care, in the home	43	89	433
630	630	Private household service	43	89	433
631	631	Other personal services	43	89	433
632	632	Photographic services	43	89	434
633	633	Services to buildings & dwellings	39	84	435
634	634	Software products development	39	84	436
635	635	Computer lease & rental (hardware)	39	84	436
636	636	Professional & processing computer service	39	84	436
637	637	Other services to business & persons	39	84	437
638	638	Courier service	39	84	437
639	639	Rental of automobiles & trucks	43	89	438
640	640	Membership organization dues (excl. religious)	43	89	439
641	641	Rental, video & recreation equipment	89	89	440
642	642	Rental, other machinery & equipment incl. const.	45	89	440
643	643	Spare parts & maintenance supplies	45	91	441
644	644	Office supplies	45	91	442
645	645	Cafeteria supplies	45	91	443
646	646	Transportation margins	45	90	444
647	647	Laboratory equipment & supplies	46	91	445
648	648	Travelling and entertainment	46	92	446
649	649	Advertising & promotion	46	92	447
650	650	Religious organizations services	47	93	448

**Appendix II: Input-Output Commodities from 1986 Onwards at the Worksheet level (W) and their Aggregation at the Link (L), Medium (M) and Small (S) levels (Concluded)**

Serial Number	W Level Code	Description:	S	M	L
<b>Part 1: Intermediate or Final Inputs</b>					
651	651	Welfare organizations services	47	93	449
652	652	Non-profit sports & recreation services	47	93	450
653	653	Non-profit educational services	47	94	451
654	654	Other non-profit services	47	93	452
655	655	Government funding of hospital	48	95	453
656	656	Government funding of residential care	48	95	454
657	657	Government funding of universities	48	96	455
658	658	Government funding of other education	48	96	456
659	659	Defence services	48	97	457
660	660	Other municipal government services	48	98	458
661	661	Other provincial government services	48	99	459
662	662	Other federal government services	48	100	460
663	663				
664	664	Raw cotton	49	101	462
665	665	Natural rubber & gums	49	101	463
666	666	Raw sugar	49	101	464
667	667	Cocoa beans	49	101	465
668	668	Coffee, not roasted	49	101	466
669	669	Tropical fruit	49	101	467
670	670	Unallocated imports & exports	50	102	468
671	671	Sales of other government services	51	103	469
<b>Part 2: Primary Inputs</b>					
672	672	Indirect taxes on products	52	104	470
673	673	Subsidies on products	53	105	471
674	674	Subsidies on production	53	105	471
675	675	Indirect taxes on production	52	104	472
676	676	Wages and salaries	54	106	473
677	677	Supplementary labour income	55	107	474
678	678	Mixed income	56	108	475
679	679	Other operating surplus	57	109	476

**Appendix IIA: "Operational Working level" of Commodities in the Input Output Accounts from 1986 onwards. (Cont'd)**

<b>Working Level Codes(W)</b>	<b>Operational Working Level</b>	<b>Description</b>
1	0010	Cattle & calves
2	0030	Hogs
3	0040	Poultry
4	0059	Other live animals
5	0071	Wheat, unmilled, excl. imputed feed
6	0072	Wheat, unmilled, imputed feed
7	0081	Grain corn, excl. imputed feed
8	0082	Corn fodder, imputed feed
9	0083	Barley, excl. imputed feed
10	0084	Other grains, excl. imputed feed
11	0085	Other grains & fodder, imputed feed
12	0090	Fluid milk, unprocessed
13	0100	Eggs in the shell
14	0110	Honey & beeswax
15	0130	Fresh fruit, excl. tropical
16	0141	Potatoes, fresh or chilled
17	0142	Other vegetables, fresh or chilled
18	0151	Hay & straw, excl. imputed feed
19	0152	Hay & straw, imputed feed
20	0169	Seeds, excl. oil seeds
21	0170	Nursery stock, flowers, etc.
22	0181	Canola
23	0182	Soybeans & other oil seeds
24	0200	Raw tobacco
25	0219	Raw wool and mink skins
26	0231	Services incidental to agriculture
27	0232	Services incidental to forestry
28	0249	Logs
29	0259	Poles, piling, bolts, etc.
30	0260	Pulpwood
31	0270	Fuelwood & other crude wood
32	0280	Custom forestry
33	0290	Fish & seafood, fresh, chilled
34	0300	Hunting & trapping products
35	0320	Gold & alloys in primary forms
36	0330	Radioactive ores & concentrates
37	0340	Iron ores & concentrates
38	0350	Bauxite & alumina
39	0360	Other metal ores & concentrates
40	0370	Coal
41	0380	Crude mineral oils
42	0390	Natural gas, excl. liquefied
43	0410	Sulphur, crude & refined
44	0420	Asbestos, crude & milled
45	0430	Gypsum
46	0440	Salt
47	0450	Peat
48	0460	Clays
49	0470	Natural abrasives & industrial diamonds
50	0480	Other crude minerals
51	0490	Sand (excl. silica) & gravel
52	0501	Stone & silica sand for industrial use
53	0502	Stone for construction



**Appendix IIA: "Operational Working level" of Commodities in the Input Output Accounts from 1986 onwards. (Cont'd)**

<b>Working Level</b>	<b>Operational Working Level</b>	<b>Description</b>
Codes(W)		
54	0510	Services incidental to mining
55	0521	Beef, fresh, chilled, frozen
56	0522	Pork, fresh, chilled, frozen
57	0523	Other meat, fresh, chilled, frozen
58	0524	Edible offal, fresh, chilled, frozen
59	0540	Cured meat
60	0559	Prepared meat products
61	0570	Animal fat & lard
62	0580	Margarine & shortening
63	0590	Sausage casings
64	0619	Feeds from animal byproducts
65	0620	Raw animal hides & skins
66	0639	Animal byproducts for ind. use
67	0640	Custom work, meat & food
68	0650	Poultry, fresh, chilled, frozen
69	0679	Fluid milk, processed
70	0680	Fresh cream
71	0690	Butter
72	0700	Cheese
73	0719	Evaporated & condensed dairy products
74	0720	Ice cream
75	0731	Powder dairy products
76	0732	Other dairy products
77	0740	Mayonnaise, salad dressing & mustard
78	0751	Fish & seafood prod. fresh, chilled, frozen
79	0752	Other fish & seafood products
80	0761	Frozen fruit & juice
81	0762	Other fruit juice
82	0763	Other fruit products
83	0770	Fruit & jam in airtight containers
84	0781	Frozen potatoes
85	0782	Other frozen vegetables
86	0783	Other preserved vegetables
87	0790	Vegetables & juice in airtight containers
88	0800	Soups in airtight containers
89	0810	Infant & junior foods, in airtight containers
90	0820	Sauces, pickles, etc.
91	0830	Vinegar
92	0841	Mineral water, fruit drinks & ice
93	0842	Pasta products, excl. dry pasta
94	0843	Prepared meals
95	0850	Feed supplements & premixes
96	0860	Complete feeds
97	0879	Feeds from grain byproducts
98	0889	Feeds from vegetable byproducts
99	0890	Pet feeds
100	0900	Wheat flour
101	0919	Starches
102	0920	Breakfast cereal products
103	0930	Biscuits
104	0940	Bread & rolls
105	0951	Other bakery products

**Appendix IIA: "Operational Working level" of Commodities in the Input Output Accounts from 1986 onwards. (Cont'd)**

<b>Working Level</b> Codes (W)	<b>Operational Working Level</b>	<b>Description</b>
106	0952	Food snacks
107	0960	Cocoa & chocolate
108	0979	Nuts
109	0989	Chocolate confectionery
110	0999	Other confectionery
111	1010	Sugar
112	1030	Oil-cake feeds
113	1040	Crude vegetable oils
114	1059	Nitrogen function compounds
115	1069	Other flours & processed grains
116	1071	Maple sugar & syrup
117	1072	Other syrup
118	1080	Prepared cake & other mixes
119	1090	Dehydrated soup mixes & bases
120	1100	Roasted coffee
121	1110	Tea
122	1120	Potato chips & flakes
123	1131	Spices
124	1132	Peanut butter
125	1133	Food & drink powders
126	1134	Other food products
127	1135	Infant & junior foods, excl. in airtight containers
128	1136	Dry pasta
129	1140	Soft drink concentrates
130	1150	Carbonated soft drinks
131	1161	Distilled alc. beverages, bought in stores
132	1162	Distilled alc. beverages, consumed on lic. premise
133	1191	Beer, incl. coolers, bought in stores
134	1192	Beer, incl. coolers, consumed on lic. premises
135	1201	Wine, incl. coolers, bought in stores
136	1202	Wine, incl. coolers, consumed on lic. premises
137	1219	Unmanufactured tobacco
138	1220	Cigarettes
139	1239	Other tobacco products
140	1240	Waterproof footwear
141	1250	Passenger car tires
142	1260	Truck, bus & off-highway tires
143	1279	Other tires & tubes
144	1289	Tire repair material & retreaded tires
145	1300	Conveyor & transmission belting
146	1311	Self-adhesive tape
147	1312	Other rubber products for industrial use
148	1320	Hose & tubing, mainly rubber
149	1351	Plastic film & sheet
150	1352	Foamed & expanded plastics
151	1353	Other plastic products, including cups
152	1354	Plastic building supplies
153	1355	Other rubber end products
154	1360	Plastic containers & closures
155	1389	Plastic pipe & pipe fittings
156	1399	Leather & other leather goods
157	1400	Footwear, excl. waterproof

**Appendix IIA: "Operational Working level" of Commodities in the Input Output Accounts from 1986 onwards. (Cont'd)**

<b>Working Level</b>	<b>Operational Working Level</b>	<b>Description</b>
Codes(W)		
158	1410	Leather gloves
159	1430	Luggage, briefcases, etc.
160	1440	Handbags, wallets, etc.
161	1450	Cotton yarn
162	1470	Cotton woven fabric
163	1480	Tire cord fabric
164	1509	Bedding
165	1519	Wool & wool mix yarn & thread
166	1520	Wool & wool mix woven fabric
167	1539	Felt
168	1540	Man-made staple fibres
169	1550	Polyamide resins, including nylon
170	1561	Filament yarn
171	1562	Yarn of staple fibres
172	1570	Tire yarn
173	1581	Man-made fabric for clothing
174	1582	Man-made fabric for industrial use
175	1583	Pile fabric
176	1620	Cotton thread
177	1630	Man-made thread
178	1659	Rope & twine
179	1679	Narrow fabrics, including lace
180	1700	Textile floor covering
181	1710	Textile dyeing & finishing service
182	1729	Awnings, tarpaulins, etc.
183	1730	Tents, sleeping bags, sails, etc.
184	1789	Other household textile products
185	1791	Textile medical products
186	1792	Other textile products
187	1800	Hosiery
188	1829	Knitted fabrics
189	1831	Men's & boys' knitted clothing
190	1832	Sweaters
191	1833	Women's knitted clothing
192	1834	Children's knitted clothing
193	1841	Men's & boys' clothing
194	1842	Women's underwear & sleepwear
195	1843	Other women's clothing
196	1844	Children's wear
197	1859	Other clothing & accessories
198	1869	Dressed furs
199	1880	Fur apparel
200	1890	Custom tailoring
201	1900	Wood chips
202	1911	Lumber
203	1912	Treated wood
204	1930	Wood waste
205	1940	Custom wood work & millwork
206	1950	Plywood & veneer
207	1961	Wooden doors & windows
208	1962	Kitchen cabinets
209	1963	Other millwork
210	1979	Wood structural products



**Appendix IIA: "Operational Working level" of Commodities in the Input Output Accounts from 1986 onwards. (Cont'd)**

<b>Working Level</b>	<b>Operational Working Level</b>	<b>Description</b>
Codes(W)		
211	1980	Wood prefabricated buildings
212	1999	Wood containers & pallets
213	2000	Caskets & coffins
214	2011	Shingles & shakes
215	2012	Particle & wafer board
216	2013	Other wood end products
217	2041	Household furniture
218	2042	Furniture parts
219	2050	Office furniture
220	2069	Commercial & institutional furniture
221	2079	Mattresses & other furniture
222	2089	Portable lighting fixtures
223	2090	Wood pulp
224	2100	Newsprint paper
225	2119	Other paper, containing wood
226	2129	Other paper, woodfree
227	2139	Tissue & sanitary paper stock
228	2149	Wrapping & sack paper, bag stock
229	2159	Paperboard, including boxboard
230	2161	Building board & paper
231	2162	Asphalt building products
232	2179	Toilet paper, paper towel, tissue, etc.
233	2199	Paper waste & scrap
234	2200	Vinyl floor & wall covering
235	2211	Paper bags & sacks
236	2212	Paper boxes, cartons & drums
237	2213	Plastic bags
238	2221	Corrugated paper & board
239	2222	Wallpaper
240	2223	Other coated paper & products
241	2239	Aluminum foil
242	2241	Paper diapers & sanitary napkins
243	2242	Textile hygiene products
244	2259	Paper containers for commercial use
245	2261	Paper stationery
246	2262	Other stationery supplies
247	2263	Photographic paper
248	2270	Other paper end products
249	2281	Newspapers
250	2282	Magazines & periodicals
251	2291	Books
252	2292	Greeting & post cards, maps, etc.
253	2300	Banknotes, cheques & stamps, etc.
254	2311	Printed business forms
255	2312	Advertising flyers, catalogues, directories
256	2313	Other printed matter
257	2320	Advertising in print media
258	2330	Specialized publishing service
259	2340	Printing plates, type, etc.
260	2350	Ferro-alloys
261	2369	Iron & steel ingots, billets, etc.
262	2380	Steel castings
263	2391	Steel bars & rods, non-alloy, excl. reinforced
264	2392	Reinforcing bars & rods

**Appendix IIA: "Operational Working level" of Commodities in the Input Output Accounts from 1986 onwards. (Cont'd)**

<b>Working Level</b> Codes(W)	<b>Operational Working Level</b>	<b>Description</b>
265	2393	Alloy steel bars & rods
266	2419	Flat iron & steel, not alloy, not coated
267	2429	Flat iron & steel, alloy, coated
268	2440	Iron & steel railway construction material
269	2450	Tar & pitch
270	2460	Carbon & graphite products
271	2480	Oil & gas casing & drill pipe
272	2490	Oil & gas line pipe
273	2509	Other iron & steel pipes & tubes
274	2511	Other cast iron products
275	2512	Grinding balls & ingot moulds
276	2521	Cast iron pipe & fittings
277	2522	Other iron & steel pipe fittings
278	2530	Nickel in primary forms
279	2540	Copper in primary forms
280	2550	Lead in primary forms
281	2560	Zinc in primary forms
282	2571	Aluminum & alloy ingots, billets, blocks & slabs
283	2572	Aluminum & alloys, other primary forms
284	2590	Precious metals in primary forms excl. gold
285	2600	Other non-ferrous base metals
286	2609	Other non-ferrous base & fabricated materials
287	2629	Other inorganic bases & metallic oxides
288	2631	Metal scrap, excl. iron & steel
289	2632	Iron & steel scrap
290	2649	Aluminum & aluminum alloy fabricated materials
291	2650	Copper fabricated materials
292	2660	Copper alloy fabricated materials
293	2670	Lead & lead alloy fabricated materials
294	2680	Nickel & nickel alloy fabricated materials
295	2700	Zinc & zinc alloy fabricated materials
296	2710	Soldering rods & wire
297	2720	Fabricated steel plate
298	2730	Metal tanks
299	2749	Power boilers
300	2760	Iron & steel structural materials
301	2781	Prefabricated metal buildings
302	2782	Prefabricated metal structures
303	2791	Metal doors and windows
304	2792	Other metal building products
305	2810	Corrugated metal culvert pipe
306	2820	Iron & steel stampings
307	2839	Metal roofing, siding, ducts, etc.
308	2851	Metal kitchen utensils
309	2852	Other kitchen utensils
310	2861	Other metal containers & closures
311	2862	Food, beverage and other cans
312	2870	Iron & steel wire & cable
313	2880	Iron & steel wire fencing & screen
314	2890	Chain, excl. motor vehicle & power transmission
315	2900	Welding rods & wire electrodes
316	2919	Wire products, including springs
317	2929	Fastener hardware

**Appendix IIA: "Operational Working level" of Commodities in the Input Output Accounts from 1986 onwards. (Cont'd)**

<b>Working Level</b>	<b>Operational Working Level</b>	<b>Description</b>
Codes(W)		
318	2939	Builders' hardware
319	2949	Other hardware
320	2961	Machine tools
321	2962	Tool accessories
322	2979	Hand & measuring tools
323	2980	Scissors, razor blades, industrial cutlery, etc.
324	2991	Household clothes washers & dryers
325	2992	Household dishwashers
326	2993	Mowers, snowblowers, sprinklers, etc.
327	3019	Non-electric furnaces & heating equipment
328	3049	Commercial cooking equipment
329	3050	Custom metal working
330	3060	Iron & steel forgings
331	3070	Valves
332	3081	Metal plumbing fixtures & fittings
333	3082	Plastic plumbing fixtures & fittings
334	3090	Gas & water meters
335	3100	Fire fighting & traffic control equipment
336	3120	Firearms & military hardware
337	3149	Bulldozers, farm & garden tractors
338	3150	Other agricultural machinery
339	3161	Bearings
340	3162	Mechanical power transmission equipment
341	3170	Pumps, compressors, fans & blowers
342	3180	Conveyors, elevators & hoisting machinery
343	3190	Industrial trucks & material handling equipment
344	3200	Fans & air circulation units, not industrial
345	3211	Packaging & bottling machinery
346	3212	Air purification equipment
347	3213	Other general purpose machinery
348	3220	Industrial furnaces, kilns & ovens
349	3231	Construction & mining machinery
350	3232	Logging, pulp & paper industry machinery
351	3233	Metal working machinery
352	3234	Other industry specific machinery
353	3235	Service industry machinery
354	3240	Power hand tools
355	3261	Air conditioning equipment, wall & window
356	3262	Air cond. & refrig. equip., commercial & transport
357	3270	Scales & balances
358	3280	Vending machines
359	3291	Computers, video units, printers, etc.
360	3292	Office equipment, excl. photocopy & facsimile
361	3300	Aircraft
362	3310	Aircraft engines
363	3320	Aircraft parts & equipment
364	3330	Aircraft service & repairs
365	3340	Automobiles, including passenger vans
366	3350	Trucks, road tractors & chassis
367	3360	Buses & chassis
368	3371	Off-highway trucks
369	3372	Military motor vehicles



**Appendix IIA: "Operational Working level" of Commodities in the Input Output Accounts from 1986 onwards. (Cont'd)**

<b>Working Level</b>	<b>Operational Working Level</b>	<b>Description</b>
Codes(W)		
370	3373	Motor homes, motorcycles & atvs
371	3380	Mobile homes
372	3391	Non-commercial trailers
373	3392	Commercial trailers & semi-trailers
374	3409	Truck & bus bodies & cargo containers
375	3410	Motor vehicle engines & parts
376	3420	Motor vehicle electric equipment
377	3431	Motor vehicle stampings
378	3432	Motor vehicle steering & suspension
379	3433	Motor vehicle wheels & brakes
380	3434	Motor vehicle plastic parts & trim
381	3435	Motor vehicle fabric accessories
382	3436	Other motor vehicle parts & accessories
383	3459	Locomotive, railway & urban trans. rolling stock
384	3470	Parts for loc., railway & urban trans. rolling stock
385	3489	Ships, boats & parts, excl. pleasure
386	3500	Ship repairs
387	3519	Snowmobiles
388	3520	Pleasure boats & sporting craft
389	3531	Microwave ovens
390	3532	Small household appliances
391	3549	Electric furnace & other electric heating equipment
392	3550	Household refrigerators & freezers
393	3560	Household cooking equipment, excl. microwave ovens
394	3571	Radio, stereo, cassette & CD players, & accessories
395	3572	TV, VCR, accessories, & unrecorded tape
396	3580	Telephone & related equipment, incl. facsimile
397	3599	Broadcasting & radio communications equipment
398	3600	Radar & radio navigation equipment
399	3619	Semi-conductors
400	3621	Printed circuits
401	3622	Integrated circuits
402	3623	Other electronic equipment components
403	3630	Electronic alarm & signal systems
404	3650	Welding machinery & equipment
405	3661	Power generation & marine prop., non-electric
406	3662	Electrical generators & motors
407	3671	Ballast
408	3672	Transformers & converters
409	3689	Industrial electric equipment, incl. safety
410	3690	Batteries
411	3700	Wire & cable, insulated, excl. aluminum
412	3710	Aluminum wire & cable
413	3729	Wiring materials & electrical meters
414	3739	Electric light bulbs & tubes
415	3741	Electric lighting fixtures, excl. portable
416	3742	Vehicle lighting equipment
417	3750	Cement
418	3760	Lime
419	3779	Concrete products
420	3790	Ready-mix concrete
421	3800	Bricks & other clay building products

**Appendix IIA: "Operational Working level" of Commodities the Input Output Accounts from 1986 onwards.**
**(Cont'd)**

<b>Working Level</b>	<b>Operational Working Level</b>	<b>Description</b>
<b>Codes(W)</b>		
422	3810	Porcelain insulators
423	3820	Ceramic household products
424	3830	Refractory products
425	3849	Natural stone products
426	3860	Gypsum building products
427	3870	Mineral wool building products
428	3880	Asbestos products
429	3890	Other non-metallic mineral basic products
430	3901	Glass and other glass products
431	3902	Safety glass
432	3903	Optical fibre cables
433	3904	Glass fibre batts, mats, etc.
434	3910	Glass containers
435	3920	Mirrors & glass household products
436	3930	Abrasive products
437	3950	Motor gasoline
438	3961	Aviation fuel
439	3962	Diesel oil
440	3963	Light fuel oil
441	3964	Heavy fuel oil
442	3970	Lubricating oils & greases
443	3980	Benzene, toluene & xylene
444	3990	Liquid petroleum gases, incl. natural gas
445	4000	Naphtha
446	4011	Asphalt compound, hot bulk
447	4012	Other asphalt products
448	4020	Petrochemical feed stock
449	4031	Animal & vegetable fertilizers, imputed
450	4032	Animal & vegetable fertilizers, excl. imputed
451	4033	Potash
452	4034	Chemical fertilizers
453	4041	Ethylene polymers
454	4042	Vinyl polymers
455	4043	Other polymers
456	4050	Cellulosic plastic film & sheet
457	4070	Monoethylene glycol
458	4080	Pharmaceuticals
459	4090	Paints & related products
460	4109	Refined vegetable oils
461	4120	Oral care products
462	4131	Soaps
463	4132	Detergents
464	4133	Other cleaning products
465	4149	Other industrial chemical preparations
466	4151	Cosmetic products
467	4152	Hair care products
468	4153	Other personal care products
469	4154	Bleach and fabric softeners
470	4160	Chlorine
471	4170	Oxygen
472	4180	Phosphorous
473	4190	Other chemical elements
474	4200	Sulphuric acid

**Appendix IIA: "Operational Working level" of Commodities in the Input Output Accounts from 1986 onwards. (Cont'd)**

<b>Working Level</b> Codes(W)	<b>Operational Working Level</b>	<b>Description</b>
475	4229	Other inorganic acids & oxygen compounds
476	4230	Ammonia
477	4240	Caustic soda
478	4260	Sodium chlorate
479	4280	Sodium phosphates
480	4290	Sodium carbonate
481	4329	Other metallic salts & peroxysalts
482	4331	Deuterium oxide (heavy water)
483	4332	Radioactive chemicals
484	4333	Other inorganic chemicals
485	4340	Ethylene
486	4350	Butylenes
487	4360	Butadiene
488	4380	Styrene
489	4400	Vinyl chloride
490	4449	Other hydrocarbons & derivatives
491	4450	Methyl alcohol
492	4499	Other alcohols & derivatives
493	4520	Ethers, alcohol peroxides, etc.
494	4539	Other phenols, aldehydes & ketones
495	4599	Organic acids & derivatives
496	4630	Organo-inorganic compounds
497	4640	Other organic chemicals
498	4650	Titanium dioxide, excl. slag
499	4660	Carbon
500	4679	Pigments, lakes & dyes
501	4700	Synthetic rubber
502	4710	Antifreezing preparations
503	4729	Additives & automobile chemicals
504	4740	Rubber & plastic compounding agents
505	4759	Explosives & non-military ammunition
506	4770	Military ammunition & ordnance
507	4790	Crude vegetable materials & extracts
508	4810	Insecticides & herbicides
509	4820	Adhesives
510	4860	Catalysts
511	4870	Metal working industrial chemicals
512	4880	Printing & other inks
513	4900	Polish, cream & wax products
514	4949	Other oils, fats & waxes
515	4970	Aircraft & nautical navig. instruments, excl. radio
516	4989	Lab & scientific instruments, & flight simulators
517	4999	Measuring & controlling instruments
518	5001	Medical & dental equipment & supplies
519	5002	Ophthalmic goods
520	5003	Personal medical goods
521	5010	Industrial safety equipment
522	5020	Watches, clocks, etc.
523	5031	Optical & photo equipment
524	5032	Photocopy & microfilm equipment
525	5033	Photographic film & plate
526	5049	Jewelry, silverware, flatware, etc.



**Appendix IIA: "Operational Working level" of Commodities in the Input Output Accounts from 1986 onwards. (Cont'd)**

<b>Working Level Codes(W)</b>	<b>Operational Working Level</b>	<b>Description</b>
527	5060	Brooms, brushes, mops, etc.
528	5079	Bicycles
529	5080	Recreational equipment
530	5099	Toys & games, incl. electronic
531	5100	Impregnated & coated fabrics
532	5110	Floor & wall covering, excl. vinyl
533	5120	Advertising signs, displays, etc.
534	5130	Shades & blinds
535	5151	Custom work, refined petroleum and coal
536	5159	Other custom work
537	5179	Animal hair, fur dyeing, etc.
538	5189	Other metal end products
539	5190	Sewing needs
540	5201	Recordings, musical instr., artists' supplies, etc.
541	5202	Smokers' supplies
542	5219	Art & decorative goods, misc. end products
543	5220	Repair construction
544	5230	Residential construction
545	5240	Non-residential building construction
546	5250	Road, highway & airport runway construction
547	5260	Gas & oil facility construction
548	5270	Electric power, dams & irrigation construction
549	5280	Railway & telecommunications construction
550	5290	Other engineering construction
551	5301	Air transport, passenger
552	5302	Air transport, freight
553	5303	Air transport, specialty
554	5304	Services incidental to air transport
555	5311	School bus & other transportation
556	5312	Ambulance services
557	5321	Travel agents, tour wholesaler & operator services
558	5322	Parking services
559	5323	Other services incidental to transport
560	5331	Water transport, passenger
561	5332	Water transport, freight
562	5333	Water transport, other
563	5340	Services incidental to water transport
564	5351	Rail transport, passenger
565	5352	Rail transport, freight
566	5353	Services incidental to rail transport
567	5360	Truck transportation
568	5371	Bus transport, interurban & rural, passenger
569	5372	Bus transport, interurban & rural, parcel express
570	5380	Urban transit
571	5390	Taxicab transportation
572	5400	Pipeline transportation
573	5410	Highway and bridge maintenance
574	5421	Grain storage
575	5422	Other storage and warehousing
576	5430	Radio & television broadcasting, incl. cable
577	5440	Telephone & other telecommunications
578	5450	Postal services
579	5460	Electric power

**Appendix IIA: "Operational Working level" of Commodities in the Input Output Accounts from 1986 onwards. (Cont'd)**

<b>Working Level</b>	<b>Operational Working Level</b>	<b>Description</b>
Codes(W)		
580	5470	Gas distribution
581	5480	Coke
582	5491	Water supply
583	5492	Other utilities
584	5500	Wholesaling margins
585	5510	Repair service for machinery & equipment
586	5520	Rental of office equipment
587	5531	Retailing margins
588	5532	Retailing service
589	5541	Central bank
590	5542	Implicit charges, banks & oth. dep. acc. intermed.
591	5551	Paid charges, banks & oth. dep. acc. intermed.
592	5552	Implicit charges, credit unions & caisses pop.
593	5553	Paid charges, credit unions & caisses pop.
594	5554	Royalties & licence fees (excl. natural resource)
595	5555	Stock & bond commissions
596	5556	Implicit charge, sales finance & consumer loan
597	5557	Mutual funds
598	5558	Other financial intermediary services
599	5559	Real estate commissions & management fees
600	5561	Life insurance
601	5562	Non-life insurance
602	5563	Trusted pension funds
603	5564	Insurance commissions
604	5570	Gross imputed rent
605	5580	Gross paid residential rent
606	5591	Imputed lodging
607	5592	Lodging in universities
608	5593	Other paid lodging, excl. universities
609	5594	Non-residential rent
610	5610	Private education services
611	5620	Private hospital services
612	5631	Private residential care facilities
613	5632	Child care, outside the home
614	5633	Other health & social services
615	5634	Health practitioners & laboratory services
616	5641	Motion picture, audio, & video prod. & distribution
617	5642	Motion picture exhibition
618	5651	Lottery and other gambling
619	5652	Race track services
620	5653	Other recreational services
621	5661	Architect, engineering, & scientific services
622	5662	Accounting & legal services
623	5670	Advertising services
624	5680	Laundry and dry cleaning
625	5690	Accommodation services
626	5700	Meals
627	5721	Barber & beauty services
628	5722	Funeral services
629	5723	Child care, in the home
630	5724	Private household service
631	5725	Other personal services

**Appendix IIA: "Operational Working level" of Commodities in the Input Output Accounts from 1986 onwards. (Concluded)**

<b>Working Level</b> Codes (W)	<b>Operational Working Level</b>	<b>Description</b>
632	5730	Photographic services
633	5740	Services to buildings & dwellings
634	5751	Software products development
635	5752	Computer lease & rental (hardware)
636	5753	Professional & processing computer service
637	5761	Other services to business & persons
638	5762	Courier service
639	5770	Rental of automobiles & trucks
640	5780	Membership organization dues (excl. religious)
641	5791	Rental, video & recreation equipment
642	5792	Rental, other machinery & equipment incl. const
643	5800	Spare parts & maintenance supplies
644	5810	Office supplies
645	5820	Cafeteria supplies
646	5830	Transportation margins
647	5840	Laboratory equipment & supplies
648	5850	Travelling and entertainment
649	5860	Advertising & promotion
650	58701	Religious organizations services
651	58702	Welfare organizations services
652	58703	Non-profit sports & recreation services
653	58704	Non-profit educational services
654	58705	Other non-profit services
655	58706	Government funding of hospital
656	58707	Government funding of residential care
657	58708	Government funding of universities
658	58709	Government funding of other education
659	58710	Defence services
660	58711	Other municipal government services
661	58712	Other provincial government services
662	58713	Other federal government services
663	58714	<b>BLANK</b>
664	5880	Raw cotton
665	5890	Natural rubber & gums
666	5900	Raw sugar
667	5910	Cocoa beans
668	5920	Coffee, not roasted
669	5930	Tropical fruit
670	5940	Unallocated imports & exports
671	5950	Sales of other government services
672	5960	Indirect taxes on products
673	5971	Subsidies on products
674	5972	Subsidies on production
675	5980	Indirect taxes on production
676	5990	Wages and salaries
677	6000	Supplementary labour income
678	6010	Mixed income
679	6020	Other operating surplus



**Appendix III: Final Demand Categories from 1981 Onwards at the Worksheet level (W) and their Aggregation at the Link (L), Medium (M) and Small (S) levels (Cont'd)**

Serial Number	W Level Code	Description	S	M	L
<b>Personal Sector:</b>					
<b>Personal Expenditure on Goods and Services</b>					
1	1	PE Food and non-alcoholic beverages	3	6	1
2	2	PE Alcoholic beverages bought in stores	3	9	2
3	3	PE Tobacco products	3	9	3
4	4	PE Men's and boy's clothing	2	4	4
5	5	PE Men's and boy's clothing repair & alterations	4	13	5
6	6	PE Women's and children's clothing	2	4	6
7	7	PE Women's clothing, repair & alterations	4	13	7
8	8	PE Footwear	2	4	8
9	9	PE Shoe repair	4	13	9
10	10	PE Gross imputed rent	4	10	10
11	11	PE Gross rent paid	4	10	11
12	12	PE Other shelter expenses	4	13	12
13	13	PE Electricity	3	8	13
14	14	PE Natural gas	3	8	14
15	15	PE Other fuels	3	8	15
16	16	PE Furniture and floor covering	1	2	16
17	17	PE Upholstery and furniture repair	4	13	17
18	18	PE Household appliances	1	2	18
19	19	PE Household equipment repairs	4	13	19
20	20	PE Semi-durable household furnishings	2	5	20
21	21	PE Non-durable household supplies	3	9	21
22	22	PE Domestic and child care services	4	13	22
23	23	PE Other household services	4	13	23
24	24	PE Medical care	4	13	24
25	25	PE Hospital care and the like	4	13	25
26	26	PE Accident and sickness insurance	4	13	26
27	27	PE Drugs and pharmaceutical products	3	9	27
28	28	PE New and used (net) motor vehicles	1	1	28
29	29	PE Motor vehicles parts and accessories	1	1	29
30	30	PE Motor vehicle repairs	4	13	30
31	31	PE Motor fuels and lubricants	3	7	31
32	32	PE Other motor vehicle related services	4	13	32
33	33	PE Purchased transportation	4	13	33
34	34	PE Communications	4	13	34
35	35	PE Recreation, sporting and camping equip.	1	3	35
36	36	PE Recreation equipment repair and rentals	4	13	36
37	37	PE Reading and entertainment supplies	2	5	37
38	38	PE Recreational services	4	13	38
39	39	PE Educational and cultural services	4	13	39
40	40	PE Jewelry and watches	1	3	40
41	41	PE Jewelry and watch repair	4	13	41
42	42	PE Leather goods & other personal effects	2	5	42
43	43	PE Toilet articles and cosmetics	3	9	43
44	44	PE Personal care	4	13	44
45	45	PE Restaurants and accomodation services	4	11	45
46	46	PE Financial, legal & other services	4	13	46
47	47	PE Operating expenditures of non-profit org.	4	13	47
48	48	PE Net expenditure abroad	4	12	48

**Appendix III: Final Demand Categories from 1981 Onwards at the Worksheet level (W)  
and their Aggregation at the Link (L), Medium (M) and Small (S) levels (Cont'd)**

Serial	W Level	Description Business Sector: Gross Fixed Capital Formation Machinery and Equipment	S	M	L
49	49	M&E Agriculture and related services industries	5	17	49
50	50	M&E Fishing and trapping industries	5	17	49
51	51	M&E Logging and forestry industries	5	17	50
52	52	M&E Mining industries	5	15	51
53	53	M&E Crude petroleum and natural gas industries	5	15	51
54	54	M&E Quarry and sand pit industries	5	15	51
55	55	M&E Service ind. incidental to mineral extraction	5	15	51
56	56	M&E Food industries	5	14	52
57	57	M&E Beverage industries	5	14	52
58	58	M&E Tobacco products industries	5	14	53
59	59	M&E Rubber products industries	5	14	54
60	60	M&E Plastic products industries	5	14	54
61	61	M&E Leather and allied products industries	5	14	55
62	62	M&E Primary textile and textile products ind.	5	14	56
63	63	M&E Clothing industries	5	14	57
64	64	M&E Wood industries	5	14	58
65	65	M&E Furniture and fixture industries	5	14	59
66	66	M&E Paper and allied products industries	5	14	60
67	67	M&E Printing, publishing and allied industries	5	14	61
68	68	M&E Primary metal industries	5	14	62
69	69	M&E Fabricated metal product industries	5	14	63
70	70	M&E Machinery industries (except elect. mach.)	5	14	64
71	71	M&E Transportation equipment industries	5	14	65
72	72	M&E Electrical and electronic products ind.	5	14	66
73	73	M&E Non-metallic mineral products industries	5	14	67
74	74	M&E Refined petroleum and coal products ind.	5	14	68
75	75	M&E Chemical and chemical products ind.	5	14	69
76	76	M&E Other manufacturing industries	5	14	70
77	77	M&E Construction industries	5	14	71
78	78	M&E Transportation industries	5	19	72
79	79	M&E Pipeline transport industries	5	19	72
80	80	M&E Storage and warehousing industries	5	19	72
81	81	M&E Communication industries	5	21	76
82	82	M&E Other utility industries	5	16	73
83	83	M&E Wholesale trade industries	5	18	74
84	84	M&E Retail trade industries	5	18	74
85	85	M&E Finance, insurance and real estate ind.	5	20	75
86	86	M&E Business service industries	5	21	77
87	87	M&E Health and social services industry	5	21	77
88	88	M&E Accommod., food and beverage service ind.	5	21	77
89	89	M&E Amusement and recreational service ind.	5	21	77
90	90	M&E Personal & household service industries	5	21	77
91	91	M&E Other service industries	5	21	77
92	92	M&E Used cars, equipment, and scrap	5	22	78
93	93	M&E Membership organization industries	5	21	77
94	94	M&E Educational service industries (excl univ.)	5	21	77
95	95	M&E Universities	6	23	79
96	96	M&E Hospitals	6	23	79
97	97	M&E Federal government service industries	6	23	79

**Appendix III: Final Demand Categories from 1981 Onwards at the Worksheet level (W) and their Aggregation at the Link (L), Medium (M) and Small (S) levels (Cont'd)**

Serial	W Level	Description	S	M	L
<b>Business Sector:</b>					
<b>Gross Fixed Capital Formation</b>					
<b>Machinery and Equipement</b>					
98	98	M&E Provincial and terr. govt. service industries	6	23	79
99	99	M&E Local government service industries	6	23	79
<b>Business Sector:</b>					
<b>Gross Fixed Capital Formation – Construction</b>					
100	100	CON Agriculture and related services industries	7	27	80
101	101	CON Fishing and trapping industries	7	27	80
102	102	CON Logging and forestry industries	7	27	81
103	103	CON Mining industries	7	25	82
104	104	CON Crude petroleum and natural gas industries	7	25	82
105	105	CON Quarry and sand pit industries	7	25	82
106	106	CON Service ind. incidental to mineral extraction	7	25	82
107	107	CON Food industries	7	24	83
108	108	CON Beverage industries	7	24	83
109	109	CON Tobacco products industries	7	24	84
110	110	CON Rubber products industries	7	24	85
111	111	CON Plastic products industries	7	24	85
112	112	CON Leather and allied products industries	7	24	86
113	113	CON Primary textile and textile products ind.	7	24	87
114	114	CON Clothing industries	7	24	88
115	115	CON Wood industries	7	24	89
116	116	CON Furniture and fixture industries	7	24	90
117	117	CON Paper and allied products industries	7	24	91
118	118	CON Printing, publishing and allied industries	7	24	92
119	119	CON Primary metal industries	7	24	93
120	120	CON Fabricated metal product industries	7	24	94
121	121	CON Machinery industries (except elect. mach.)	7	24	95
122	122	CON Transportation equipment industries	7	24	96
123	123	CON Electrical and electronic products ind.	7	24	97
124	124	CON Non-metallic mineral products industries	7	24	98
125	125	CON Refined petroleum and coal products ind.	7	24	99
126	126	CON Chemical and chemical products ind.	7	24	100
127	127	CON Other manufacturing industries	7	24	101
128	128	CON Construction industries	7	27	102
129	129	CON Transportation industries	7	29	103
130	130	CON Pipeline transport industries	7	29	103
131	131	CON Storage and warehousing industries	7	29	103
132	132	CON Communication industries	7	31	107
133	133	CON Other utility industries	7	26	104
134	134	CON Wholesale trade industries	7	28	105
135	135	CON Retail trade industries	7	28	105
136	136	CON Finance, insurance and real estate ind.	7	30	106
137	137	CON Business service industries	7	31	108
138	138	CON Health and social services industry	7	31	108
139	139	CON Accommod., food and beverage service ind.	7	31	108
140	140	CON Amusement and recreational service ind.	7	31	108
141	141	CON Personal & household service industries	7	31	108
142	142	CON Other service industries	7	31	108



**Appendix III: Final Demand Categories from 1981 Onwards at the Worksheet level (W) and their Aggregation at the Link (L), Medium (M) and Small (S) levels (Concluded)**

Serial	W Level	Description	S	M	L
<b>Business Sector:</b>					
<b>Gross Fixed Capital Formation – Construction</b>					
143	143	CON Transfer costs, non-residential construction	7	31	109
144	144	CON Membership organization industries	7	31	108
145	145	CON Private educational service industries	7	31	108
146	146	CON Housing	8	32	110
<b>Government Sector:</b>					
<b>Gross Fixed Capital Formation – Construction</b>					
147	147	CON Universities	9	33	111
148	148	CON Hospitals	9	33	111
149	149	CON Federal government service industries	9	33	111
150	150	CON Provincial and terr. govt. service industries	9	33	111
151	151	CON Local government service industries	9	33	111
<b>Business Sector:</b>					
<b>Value of Physical Change in Inventories</b>					
152	152	INV Finished goods & goods in process	10	34	112
153	153	INV Raw materials & goods purchased for resale	10	34	113
<b>Government Sector:</b>					
<b>Government Expenditure on Goods and Services</b>					
154	154	GCE Hospital & residential care facilities exp.	11	35	114
155	155	GCE Education exp.	11	35	115
156	156	GCE Defence exp.	11	35	116
157	157	GCE Other municipal govt. expenditures.	11	35	117
158	158	GCE Other prov. & terr. govt. expenditures	11	35	118
159	159	GCE Other federal. govt. expenditures	11	35	119
<b>Non-Resident Sector: Exports of Goods and Services</b>					
160	160	Domestic exports	12	36	120
161	161	Re-exports	12	36	121
<b>Non-Resident Sector: Imports of Goods and Services</b>					
162	162	Imports	13	37	12



## Appendix IV Make (Output) Matrix (Aggregation - S) 1992 (Current Dollars in Millions) (Cont'd)

	Agriculture Trapping	Fishing Food	Log Forest	Mining	Mfg. Ind.	Construc-tion	Transport
	1	2	3	4	5	6	7
1 Grains	4640	—	—	—	1	—	—
2 Other Agricultural Products	18912	—	903	—	60	—	—
3 Forestry Products	210	—	7260	—	114	—	—
4 Fish, Seafood and Trapping Products	—	1745	—	—	1	—	—
5 Metal Ores & Concentrates	—	—	—	8153	2139	—	—
6 Mineral Fuels	—	—	—	19749	3	—	—
7 Non-Metallic Minerals	—	—	—	1974	136	89	—
8 Services Incidental to Mining	—	—	—	3368	—	—	—
9 Meat, Fish and Dairy Products	268	21	—	—	20779	—	—
10 Fruit, Vegetables & Other Food Products, Feeds	87	—	—	—	18101	—	—
11 Soft Drinks & Alcoholic Beverages	—	—	—	—	6243	—	—
12 Tobacco & Tobacco Products	—	—	—	—	1997	—	—
13 Leather, Rubber & Plastic Products	—	—	—	—	7620	—	—
14 Textile Products	—	—	—	—	5282	—	—
15 Hosiery, Clothing & Accessories	—	—	—	—	5927	—	—
16 Lumber & Wood Products	—	—	124	—	14747	—	—
17 Furniture & Fixtures	—	—	—	—	4134	—	—
18 Wood Pulp, Paper & Paper Products	—	—	—	—	22214	—	—
19 Printing & Publishing	—	—	—	—	12367	—	—
20 Primary Metal Products	—	—	—	8	20571	—	—
21 Other Metal Products	—	—	—	—	14373	—	—
22 Machinery and Equipment	—	—	1	199	11389	—	—
23 Motor Vehicle, Other Transport Equipment & Par	—	—	—	—	53053	—	626
24 Electrical, Electronic and Communication Product	—	—	—	—	16770	—	—
25 Non-Metallic Mineral Products	—	—	—	5	5906	—	—
26 Petroleum and Coal Products	—	—	—	1380	16777	—	3
27 Chemicals, Pharmaceuticals & Chemical Products	373	—	—	1034	21606	—	—
28 Other Manufactured Products	—	—	—	—	7041	—	—
29 Residential Construction	—	—	—	—	—	31039	—
30 Non Residential Construction	—	—	—	—	—	42489	—
31 Repair Construction	—	—	—	—	—	15233	—
32 Transportation & Storage	—	—	—	—	—	—	42350
33 Communications Services	—	—	—	—	—	—	—
34 Other Utilities	—	—	—	5	43	—	—
35 Wholesaling Margins	—	—	10	27	8058	—	16
36 Retailing Margins	—	—	—	—	—	—	125
37 Gross Imputed Rent	—	—	—	—	—	—	—
38 Other Finance, Insurance & Real Estate Service	66	—	3	14	142	195	169
39 Business & Computer Services	—	—	—	3	367	241	49
40 Private Education Services	—	—	—	—	—	—	—
41 Health & Social Services	—	—	—	—	—	—	—
42 Accommodation Services & Meals	—	—	42	2	69	—	74
43 Other Services	—	4	3	77	1796	196	121
44 Transportation Margins	—	—	—	—	—	—	—
45 Operating, Office, Cafeteria & Laboratory Supplies	—	—	—	—	—	—	—
46 Travel & Entertainment, Advertising & Promotion	—	—	—	—	—	—	—
47 Non-Profit Institutions Serving Households	—	—	—	—	—	—	—
48 Government Sector Services	—	—	—	—	—	—	—
49 Non-Competing Imports	—	—	—	—	—	—	—
50 Unallocated Imports & Exports	—	—	—	—	—	—	—
51 Sales of Other Government Services	—	—	—	—	—	—	—
Sub-Total	24556	1770	8346	35997	298924	89482	43529
52 Indirect Taxes	—	—	—	—	—	—	—
53 Subsidies	—	—	—	—	—	—	—
54 Wages & Salaries	—	—	—	—	—	—	—
55 Supplementary Labour Income	—	—	—	—	—	—	—
56 Mixed Income	—	—	—	—	—	—	—
57 Other Operating Surplus	—	—	—	—	—	—	—
TOTAL	24556	1770	8346	35997	298924	89482	43529



Appendix IV Make (Output) Matrix (Aggregation – S) 1992 (Current Dollars in Millions) (Cont'd)

	Communi- cation	Whole Trade	Retail Trade	Fin., Real Est.	Bus. Serv.	Education	Health
	8	9	10	11	12	13	14
Grains	—	—	—	—	—	—	—
Other Agricultural Products	—	—	—	—	—	—	—
Forestry Products	20	9	—	—	—	—	—
Fish, Seafood and Trapping Products	—	—	—	—	—	—	—
Metal Ores & Concentrates	—	—	—	—	—	—	—
Mineral Fuels	—	0	—	—	—	—	—
Non-Metallic Minerals	—	6	—	—	—	—	—
Services Incidental to Mining	—	—	—	—	—	—	—
Meat, Fish and Dairy Products	—	6	—	—	—	—	—
Fruit, Vegetables & Other Food Products, Feeds	—	158	436	—	—	—	—
Soft Drinks & Alcoholic Beverages	—	0	—	—	—	—	—
Tobacco & Tobacco Products	—	—	—	—	—	—	—
Leather, Rubber & Plastic Products	—	108	—	—	—	—	—
Textile Products	—	7	9	—	—	—	—
Hosiery, Clothing & Accessories	—	31	2	—	—	—	—
Lumber & Wood Products	—	57	162	—	—	—	—
Furniture & Fixtures	—	3	—	—	—	—	—
Wood Pulp, Paper & Paper Products	—	41	—	—	—	—	—
Printing & Publishing	—	3	—	—	—	—	—
Primary Metal Products	—	13	—	—	—	—	—
Other Metal Products	—	42	—	—	—	—	—
Machinery and Equipment	—	86	—	—	—	—	—
Motor Vehicle, Other Transport Equipment & Par	—	32	—	—	—	—	—
Electrical, Electronic and Communication Product	535	89	—	—	—	—	—
Non-Metallic Mineral Products	—	9	—	—	—	—	—
Petroleum and Coal Products	2	0	—	—	—	—	—
Chemicals, Pharmaceuticals & Chemical Products	—	102	—	—	—	—	—
Other Manufactured Products	—	77	—	—	—	—	—
Residential Construction	—	—	—	—	—	—	—
Non Residential Construction	—	—	—	—	—	—	—
Repair Construction	—	—	—	—	—	—	—
Transportation & Storage	—	—	31	7	—	—	195
Communications Services	23686	—	—	—	—	—	—
Other Utilities	27677	—	—	—	—	—	—
Wholesaling Margins	—	42049	—	—	183	—	—
Retailing Margins	326	—	46144	—	123	—	—
Gross Imputed Rent	—	—	—	59950	—	—	—
Other Finance, Insurance & Real Estate Service	108	199	175	101200	53	—	—
Business & Computer Services	2480	1144	4	136	39919	—	—
Private Education Services	—	—	—	—	—	742	—
Health & Social Services	—	—	—	—	—	—	21662
Accommodation Services & Meals	69	—	356	11	—	—	—
Other Services	494	3388	8448	1222	320	—	—
Transportation Margins	—	—	—	—	—	—	—
Operating, Office, Cafeteria & Laboratory Supplie	—	—	—	—	—	—	—
Travel & Entertainment, Advertising & Promotio	—	—	—	—	—	—	—
Non-Profit Institutions Serving Households	—	—	—	—	—	—	—
Government Sector Services	—	—	—	—	—	—	—
Non-Competing Imports	—	—	—	—	—	—	—
Unallocated Imports & Exports	—	—	—	—	—	—	—
Sales of Other Government Services	—	—	—	—	—	—	—
Sub-Total	55397	47659	55767	162527	40599	742	21858
Indirect Taxes	—	—	—	—	—	—	—
Subsidies	—	—	—	—	—	—	—
Wages & Salaries	—	—	—	—	—	—	—
Supplementary Labour Income	—	—	—	—	—	—	—
Mixed Income	—	—	—	—	—	—	—
Other Operating Surplus	—	—	—	—	—	—	—
TOTAL	55397	47659	55767	162527	40599	742	21858

Appendix IV Make (Output) Matrix (Aggregation – S) 1992 (Current Dollars in Millions) (Concluded)

	Accomm. Food	Other Serv.	Supplies	Travel, Prom.	Trans. Marg.	Non- Profit	Gov't. Sect.	Total
	15	16	17	18	19	20	21	22
1 Grains	—	—	—	—	—	—	—	4641
2 Other Agricultural Products	—	—	—	—	—	—	21	19896
3 Forestry Products	—	—	—	—	—	—	18	7631
4 Fish, Seafood and Trapping Products	—	—	—	—	—	—	2	1748
5 Metal Ores & Concentrates	—	—	—	—	—	—	—	10291
6 Mineral Fuels	—	—	—	—	—	—	9	19761
7 Non-Metallic Minerals	—	—	—	—	—	—	6	2210
8 Services Incidental to Mining	—	—	—	—	—	—	—	3368
9 Meat, Fish and Dairy Products	—	—	—	—	—	—	1	21074
10 Fruit, Vegetables & Other Food Products, Feeds	—	—	—	—	—	—	—	18783
11 Soft Drinks & Alcoholic Beverages	5380	260	—	—	—	94	0	11977
12 Tobacco & Tobacco Products	—	—	—	—	—	—	—	1997
13 Leather, Rubber & Plastic Products	—	—	—	—	—	—	—	7727
14 Textile Products	—	—	—	—	—	—	—	5298
15 Hosiery, Clothing & Accessories	—	—	—	—	—	—	5	5965
16 Lumber & Wood Products	—	—	—	—	—	—	—	15091
17 Furniture & Fixtures	—	—	—	—	—	—	—	4137
18 Wood Pulp, Paper & Paper Products	—	—	—	—	—	—	70	22325
19 Printing & Publishing	—	—	—	—	—	—	198	12568
20 Primary Metal Products	—	—	—	—	—	—	1	20592
21 Other Metal Products	—	—	—	—	—	—	0	13516
22 Machinery and Equipment	—	—	—	—	—	—	3	11678
23 Motor Vehicle, Other Transport Equipment & Par	—	—	—	—	—	—	1	53712
24 Electrical, Electronic and Communication Product	—	—	—	—	—	—	—	17394
25 Non-Metallic Mineral Products	—	—	—	—	—	—	—	5920
26 Petroleum and Coal Products	—	—	—	—	—	—	37	18196
27 Chemicals, Pharmaceuticals & Chemical Products	—	—	—	—	—	24	38	23178
28 Other Manufactured Products	—	850	—	—	—	—	29	7996
29 Residential Construction	—	—	—	—	—	—	—	31039
30 Non Residential Construction	—	—	—	—	—	—	—	42489
31 Repair Construction	—	—	—	—	—	—	—	15233
32 Transportation & Storage	—	2539	—	—	—	—	954	46077
33 Communications Services	—	—	—	—	—	—	391	24078
34 Other Utilities	—	—	—	—	—	—	3517	31241
35 Wholesaling Margins	—	333	—	—	—	—	20	50697
36 Retailing Margins	138	700	—	—	—	—	17	47573
37 Gross Imputed Rent	—	—	—	—	—	—	—	59950
38 Other Finance, Insurance & Real Estate Service	973	278	—	—	—	—	2863	106437
39 Business & Computer Services	—	1344	—	—	—	—	1422	47109
40 Private Education Services	—	—	—	—	—	—	3967	4709
41 Health & Social Services	—	—	—	—	—	1647	3376	26685
42 Accommodation Services & Meals	23420	566	—	—	—	127	557	25293
43 Other Services	409	25781	—	—	—	1811	1165	45236
44 Transportation Margins	—	—	—	—	16490	—	—	16490
45 Operating, Office, Cafeteria & Laboratory Supplie	—	—	30981	—	—	—	—	30981
46 Travel & Entertainment, Advertising & Promotio	—	—	—	24609	—	—	—	24609
47 Non-Profit Institutions Serving Households	—	—	—	—	—	8668	—	8668
48 Government Sector Services	—	—	—	—	—	—	169263	169263
49 Non-Competing Imports	—	—	—	—	—	—	—	—
50 Unallocated Imports & Exports	—	—	—	—	—	—	—	—
51 Sales of Other Government Services	—	—	—	—	—	—	3738	3738
Sub-Total	30320	32651	30981	24609	16490	12372	191686	1226262
52 Indirect Taxes	—	—	—	—	—	—	—	—
53 Subsidies	—	—	—	—	—	—	—	—
54 Wages & Salaries	—	—	—	—	—	—	—	—
55 Supplementary Labour Income	—	—	—	—	—	—	—	—
56 Mixed Income	—	—	—	—	—	—	—	—
57 Other Operating Surplus	—	—	—	—	—	—	—	—
TOTAL	30320	32650	30981	24609	16490	12372	191686	1226262

Appendix V Use (Input) Matrix (Aggregation - S) 1992 (Current Dollars in Millions) (Cont'd)

	Agriculture Trapping	Fishing Food	Log Forest	Mining	Mfg. Ind.	Construc- tion	Transport
	1	2	3	4	5	6	7
1 Grains	1272	—	—	—	1098	—	—
2 Other Agricultural Products	3893	—	572	—	9794	461	7
3 Forestry Products	2	—	1193	—	6220	34	—
4 Fish, Seafood and Trapping Products	—	49	—	—	1124	—	—
5 Metal Ores & Concentrates	—	—	—	132	6344	—	—
6 Mineral Fuels	43	0	1	44	12642	5	60
7 Non-Metallic Minerals	30	4	—	111	927	722	20
8 Services Incidental to Mining	—	—	—	1534	—	1858	—
9 Meat, Fish and Dairy Products	10	—	—	—	3891	—	—
10 Fruit, Vegetables & Other Food Products, Feeds	2044	81	—	—	3415	—	3
11 Soft Drinks & Alcoholic Beverages	—	—	—	—	523	—	—
12 Tobacco & Tobacco Products	—	—	—	—	268	—	—
13 Leather, Rubber & Plastic Products	41	—	—	6	3804	1557	223
14 Textile Products	40	40	19	6	4745	695	26
15 Hosiery, Clothing & Accessories	—	—	—	—	465	—	—
16 Lumber & Wood Products	14	15	—	3	3811	4671	8
17 Furniture & Fixtures	—	—	—	—	261	44	—
18 Wood Pulp, Paper & Paper Products	16	—	—	34	8479	608	28
19 Printing & Publishing	—	—	—	1	1156	—	43
20 Primary Metal Products	—	3	—	314	14665	1656	51
21 Other Metal Products	106	4	81	38	5519	6808	35
22 Machinery and Equipment	289	18	57	911	4145	707	28
23 Motor Vehicle, Other Transport Equipment & Par	6	73	38	138	24938	—	1621
24 Electrical, Electronic and Communication Product	—	30	—	36	7794	2442	93
25 Non-Metallic Mineral Products	18	1	1	73	2342	3905	26
26 Petroleum and Coal Products	680	69	170	417	3444	1041	2787
27 Chemicals, Pharmaceuticals & Chemical Products	1985	4	15	441	13184	962	42
28 Other Manufactured Products	—	17	—	—	2190	698	32
29 Residential Construction	—	—	—	—	—	—	—
30 Non Residential Construction	—	—	—	—	—	—	—
31 Repair Construction	461	35	54	439	1066	67	1440
32 Transportation & Storage	169	26	401	221	1749	272	5607
33 Communications Services	142	2	11	110	1309	209	553
34 Other Utilities	517	5	9	1157	6202	102	510
35 Wholesaling Margins	845	67	114	714	7597	4752	1052
36 Retailing Margins	96	8	4	13	36	282	62
37 Gross Imputed Rent	—	—	—	—	—	—	—
38 Other Finance, Insurance & Real Estate Service	1632	46	199	1063	6723	2178	1691
39 Business & Computer Services	136	6	95	1034	4537	7286	647
40 Private Education Services	—	—	—	—	—	—	—
41 Health & Social Services	—	—	—	—	—	—	—
42 Accommodation Services & Meals	—	1	—	—	—	—	500
43 Other Services	386	40	275	865	3906	1392	1705
44 Transportation Margins	219	11	10	162	4623	1142	120
45 Operating, Office, Cafeteria & Laboratory Supplie	953	53	1207	1828	7163	949	818
46 Travel & Entertainment, Advertising & Promotio	63	—	35	376	5816	444	655
47 Non-Profit Institutions Serving Households	—	—	—	—	—	—	—
48 Government Sector Services	—	—	—	—	—	—	—
49 Non-Competing Imports	—	—	—	—	680	—	—
50 Unallocated Imports & Exports	—	—	—	—	—	—	—
51 Sales of Other Government Services	49	13	2	14	7	286	223
Sub-Total	16155	719	4559	12232	198601	48232	20714
52 Indirect Taxes	2225	70	298	760	5019	4212	2785
53 Subsidies	-4055	-38	-38	-49	-869	-74	-3297
54 Wages & Salaries	2542	194	1967	6241	58980	25454	13447
55 Supplementary Labour Income	103	22	285	1073	9434	2876	2153
56 Mixed Income	1909	474	381	119	240	3620	1501
57 Other Operating Surplus	5678	330	894	15621	27520	5162	6226
TOTAL	24556	1770	8346	35997	298924	89482	43529



Appendix V Use (Input) Matrix (Aggregation - S) 1992 (Current Dollars in Millions) (Cont'd)

	Communi- cation	Whole Trade	Retail Trade	Fin., Real Est.	Bus. Serv.	Education	Health
	8	9	10	11	12	13	14
1 Grains	—	27	—	—	—	—	—
2 Other Agricultural Products	—	5	—	—	—	—	—
3 Forestry Products	—	14	—	—	—	—	—
4 Fish, Seafood and Trapping Products	—	—	—	—	—	—	—
5 Metal Ores & Concentrates	405	1	—	—	—	—	9
6 Mineral Fuels	1153	14	69	121	9	3	6
7 Non-Metallic Minerals	—	1	0	—	—	—	—
8 Services Incidental to Mining	—	—	—	—	—	—	—
9 Meat, Fish and Dairy Products	—	3	29	—	—	—	—
10 Fruit, Vegetables & Other Food Products, Feeds	—	49	115	—	—	—	—
11 Soft Drinks & Alcoholic Beverages	—	—	—	—	—	—	—
12 Tobacco & Tobacco Products	—	—	—	—	—	—	—
13 Leather, Rubber & Plastic Products	3	188	146	—	—	—	4
14 Textile Products	3	21	28	—	3	—	44
15 Hosiery, Clothing & Accessories	—	—	115	—	—	—	—
16 Lumber & Wood Products	3	66	22	—	—	—	—
17 Furniture & Fixtures	2	—	—	9	—	—	—
18 Wood Pulp, Paper & Paper Products	19	306	591	—	41	—	4
19 Printing & Publishing	517	—	2	296	56	0	—
20 Primary Metal Products	—	34	—	—	—	—	—
21 Other Metal Products	2	156	15	—	—	—	—
22 Machinery and Equipment	1	24	—	—	—	0	—
23 Motor Vehicle, Other Transport Equipment & Par	1	2	—	—	—	—	—
24 Electrical, Electronic and Communication Product	656	20	—	—	—	—	—
25 Non-Metallic Mineral Products	—	10	5	—	—	—	3
26 Petroleum and Coal Products	532	659	420	551	61	6	105
27 Chemicals, Pharmaceuticals & Chemical Products	3	70	32	—	8	—	55
28 Other Manufactured Products	10	18	38	—	29	—	464
29 Residential Construction	—	—	—	—	—	—	—
30 Non Residential Construction	—	—	—	—	—	—	—
31 Repair Construction	1658	131	228	4704	35	25	9
32 Transportation & Storage	423	668	341	152	37	4	7
33 Communications Services	973	1355	1166	2748	1190	17	554
34 Other Utilities	210	508	1659	2186	156	30	269
35 Wholesaling Margins	225	693	248	387	40	5	162
36 Retailing Margins	52	68	45	37	13	0	42
37 Gross Imputed Rent	—	—	—	—	—	—	—
38 Other Finance, Insurance & Real Estate Service	1552	4110	6416	16451	2460	121	1021
39 Business & Computer Services	1451	2288	2990	7519	4212	35	485
40 Private Education Services	—	—	—	—	—	2	—
41 Health & Social Services	—	—	—	64	—	1	—
42 Accommodation Services & Meals	—	—	—	—	—	—	—
43 Other Services	959	351	387	1542	1313	36	441
44 Transportation Margins	172	61	52	29	5	0	11
45 Operating, Office, Cafeteria & Laboratory Supplie	855	621	648	3576	1467	46	743
46 Travel & Entertainment, Advertising & Promotio	669	2598	2383	4332	1441	68	332
47 Non-Profit Institutions Serving Households	—	—	—	—	—	—	—
48 Government Sector Services	—	—	—	—	—	—	—
49 Non-Competing Imports	—	—	11	—	—	—	—
50 Unallocated Imports & Exports	—	—	—	—	—	—	—
51 Sales of Other Government Services	617	19	7	81	21	—	2
Sub-Total	13125	15157	18208	44785	12596	399	4770
52 Indirect Taxes	2985	1735	2423	23628	913	37	517
53 Subsidies	-467	-118	-99	-1723	-528	-5	-576
54 Wages & Salaries	13629	21796	26094	26923	18110	107	6326
55 Supplementary Labour Income	2133	2382	2654	2359	1694	15	477
56 Mixed Income	121	443	2693	13678	4333	187	8794
57 Other Operating Surplus	23871	6264	3794	52877	3481	3	1550
<b>TOTAL</b>	<b>55397</b>	<b>47659</b>	<b>55767</b>	<b>162527</b>	<b>40599</b>	<b>742</b>	<b>21858</b>

Appendix V Use (Input) Matrix (Aggregation - S) 1992 (Current Dollar in Millions) (Cont'd)

	Accomm.	Other Serv.	Supplies	Travel, Prom.	Trans. Marg.	Non- Profit	Gov't. Sect.	Total
	15	16	17	18	19	20	21	22
1 Grains	—	—	—	—	—	—	—	2397
2 Other Agricultural Products	402	6	132	—	—	—	378	15650
3 Forestry Products	—	—	—	—	—	—	0	7462
4 Fish, Seafood and Trapping Products	28	—	6	—	—	—	—	1207
5 Metal Ores & Concentrates	—	—	—	—	—	—	—	6892
6 Mineral Fuels	32	19	—	—	—	24	159	14403
7 Non-Metallic Minerals	6	1	2	—	—	—	193	2017
8 Services Incidental to Mining	—	—	—	—	—	—	—	3392
9 Meat, Fish and Dairy Products	3340	—	957	—	—	—	4	8233
10 Fruit, Vegetables & Other Food Products, Feeds	1514	4	439	—	—	—	—	7664
11 Soft Drinks & Alcoholic Beverages	1059	47	57	873	—	22	—	2580
12 Tobacco & Tobacco Products	—	—	—	—	—	—	—	268
13 Leather, Rubber & Plastic Products	62	32	1891	4	—	—	—	7959
14 Textile Products	149	61	155	—	—	20	224	6277
15 Hosiery, Clothing & Accessories	18	—	352	—	—	—	129	1078
16 Lumber & Wood Products	—	76	56	—	—	—	—	8743
17 Furniture & Fixtures	9	—	—	—	—	5	—	331
18 Wood Pulp, Paper & Paper Products	224	79	1509	25	—	12	21	11995
19 Printing & Publishing	—	116	4717	4634	—	123	917	12578
20 Primary Metal Products	—	18	219	—	—	—	—	16960
21 Other Metal Products	2	22	1780	—	—	—	175	14743
22 Machinery and Equipment	1	—	3411	—	—	0	83	9676
23 Motor Vehicle, Other Transport Equipment & Par	—	—	1125	71	—	—	1605	29616
24 Electrical, Electronic and Communication Product	—	2	2938	10	—	1	336	14357
25 Non-Metallic Mineral Products	53	1	111	—	—	—	—	6547
26 Petroleum and Coal Products	97	362	56	460	—	41	629	12586
27 Chemicals, Pharmaceuticals & Chemical Products	15	373	1781	3	—	5	3023	21998
28 Other Manufactured Products	16	364	1074	424	—	41	1002	6417
29 Residential Construction	—	—	—	—	—	—	—	—
30 Non Residential Construction	—	—	—	—	—	—	—	—
31 Repair Construction	151	164	—	—	—	163	4404	15233
32 Transportation & Storage	118	185	—	5290	16490	117	2370	34646
33 Communications Services	244	613	—	2476	—	323	2123	16116
34 Other Utilities	575	459	—	—	—	570	3415	18538
35 Wholesaling Margins	726	303	4852	328	—	89	1395	24592
36 Retailing Margins	352	453	1114	278	—	45	789	3790
37 Gross Imputed Rent	—	—	—	—	—	—	—	—
38 Other Finance, Insurance & Real Estate Service	1849	2224	—	—	—	866	3986	54587
39 Business & Computer Services	398	1182	—	3651	—	344	7385	45681
40 Private Education Services	—	—	—	—	—	1	1725	1729
41 Health & Social Services	—	—	—	—	—	0	14870	14934
42 Accommodation Services & Meals	11	—	—	5045	—	—	208	5764
43 Other Services	424	2115	677	996	—	478	3510	21796
44 Transportation Margins	161	41	522	42	—	6	150	7538
45 Operating, Office, Cafeteria & Laboratory Supplie	259	1460	—	—	—	802	7535	30981
46 Travel & Entertainment, Advertising & Promotio	545	1495	—	—	—	330	2957	24538
47 Non-Profit Institutions Serving Households	—	—	—	—	—	—	—	—
48 Government Sector Services	—	—	—	—	—	—	—	—
49 Non-Competing Imports	69	—	19	—	—	—	—	780
50 Unallocated Imports & Exports	—	—	1031	—	—	—	—	1031
51 Sales of Other Government Services	1	1	—	—	—	—	1578	2920
Sub-Total	12908	12278	30981	24609	16490	4426	67275	579218
52 Indirect Taxes	1583	1452	—	—	—	341	4106	55088
53 Subsidies	-54	-333	—	—	—	—	—	-12324
54 Wages & Salaries	11164	11741	—	—	—	6813	91542	343069
55 Supplementary Labour Income	886	827	—	—	—	486	14859	44720
56 Mixed Income	1046	1591	—	—	—	—	—	41128
57 Other Operating Surplus	2788	5094	—	—	—	305	13904	175363
TOTAL	30320	32650	30981	24609	16490	12372	191686	1226262

## Appendix VI Final Demand Matrix (aggregation - S) 1992 (Current Dollar in Millions) (Cont'd)

	urable	Semi Durable	Non Durable	Services	Non-Gov't.	Government	Non-Gov't.
	1PE	2PE	3PE	4PE	5M&E	6M&E	7CON
1 Grains	—	—	—	—	—	—	—
2 Other Agricultural Products	—	65	3285	564	—	—	—
3 Forestry Products	—	—	422	—	—	—	—
4 Fish, Seafood and Trapping Products	—	—	330	—	—	—	—
5 Metal Ores & Concentrates	—	—	—	—	—	—	—
6 Mineral Fuels	—	—	655	—	—	—	—
7 Non-Metallic Minerals	—	11	55	—	—	—	—
8 Services Incidental to Mining	—	—	—	—	—	—	—
9 Meat, Fish and Dairy Products	—	—	11359	95	—	—	—
10 Fruit, Vegetables & Other Food Products, Feeds	—	—	12772	100	—	—	—
11 Soft Drinks & Alcoholic Beverages	—	—	4448	5181	—	—	—
12 Tobacco & Tobacco Products	—	—	2002	54	—	—	—
13 Leather, Rubber & Plastic Products	371	2087	116	75	28	31	—
14 Textile Products	354	1105	27	—	44	23	—
15 Hosiery, Clothing & Accessories	—	7839	—	331	—	—	—
16 Lumber & Wood Products	121	143	4	—	6	1	—
17 Furniture & Fixtures	2170	118	—	243	1507	473	—
18 Wood Pulp, Paper & Paper Products	—	262	1688	—	—	—	—
19 Printing & Publishing	—	2440	—	—	—	—	—
20 Primary Metal Products	—	—	—	—	529	—	—
21 Other Metal Products	33	670	71	3	1247	93	—
22 Machinery and Equipment	819	255	—	74	11970	1232	—
23 Motor Vehicle, Other Transport Equipment & Parts	1477	—	—	409	8398	442	—
24 Electrical, Electronic and Communication Products	5054	462	—	502	6594	592	—
25 Non-Metallic Mineral Products	—	652	—	—	22	1	—
26 Petroleum and Coal Products	—	—	5431	32	—	—	—
27 Chemicals, Pharmaceuticals & Chemical Products	59	174	4881	120	305	—	—
28 Other Manufactured Products	2384	2505	644	638	595	716	—
29 Residential Construction	—	—	—	—	—	—	—
30 Non Residential Construction	—	—	—	—	—	—	28847
31 Repair Construction	—	—	—	—	—	—	—
32 Transportation & Storage	—	—	688	9123	—	—	—
33 Communications Services	—	—	—	8111	—	—	—
34 Other Utilities	—	—	10300	1757	—	—	—
35 Wholesaling Margins	4036	2559	7293	—	5603	641	—
36 Retailing Margins	1182	12185	18978	5	675	33	—
37 Gross Imputed Rent	—	—	—	59950	—	—	—
38 Other Finance, Insurance & Real Estate Service	—	—	—	47745	—	—	581
39 Business & Computer Services	157	—	—	1580	—	—	—
40 Private Education Services	—	—	—	2928	—	—	—
41 Health & Social Services	—	—	—	11869	—	—	—
42 Accommodation Services & Meals	—	—	—	21984	—	—	—
43 Other Services	8	—	—	24094	—	—	—
44 Transportation Margins	424	350	1352	—	403	48	—
45 Operating, Office, Cafeteria & Laboratory Supplies	—	—	—	—	—	—	—
46 Travel & Entertainment, Advertising & Promotion	—	—	—	71	—	—	—
47 Non-Profit Institutions Serving Households	—	—	—	8668	—	—	—
48 Government Sector Services	—	—	—	—	—	—	—
49 Non-Competing Imports	—	—	504	—	—	—	—
50 Unallocated Imports & Exports	—	—	—	232	—	—	—
51 Sales of Other Government Services	—	—	—	749	—	—	—
Sub-Total	4268	33883	87304	207283	36866	4327	29428
52 Indirect Taxes	6181	4246	21003	10414	1785	183	227
53 Subsidies	—	—	—	—	—	—	—
54 Wages & Salaries	—	—	—	—	—	—	—
55 Supplementary Labour Income	—	—	—	—	—	—	—
56 Mixed Income	—	—	—	—	—	—	—
57 Other Operating Surplus	—	—	—	—	—	—	—
TOTAL	48809	38129	108306	217696	38651	4509	29655

## Appendix VI Final Demand Matrix (aggregation - S) 1992 (Current Dollars in Millions) (Cont'd)

Hou. Non-Gov't	Government	Inventory	Gov't Cur. Exp	Exports	Imports	Total
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	8CON	9CON	10 INV	11GCE	12X	13M	450	14
Grains	—	—	-870	—	3239	-124		2244
Other Agricultural Products	—	—	-19	—	2636	-2285		4247
Forestry Products	—	—	-206	—	183	-231		168
Fish, Seafood and Trapping Products	—	—	-33	—	353	-108		541
Metal Ores & Concentrates	—	—	-656	—	6481	-2425		3400
Mineral Fuels	—	—	-264	—	10248	-5282		5358
Non-Metallic Minerals	—	—	-122	—	859	-609		193
Services Incidental to Mining	—	—	—	—	17	-41		-24
Meat, Fish and Dairy Products	—	—	-287	—	4024	-2350		12841
Fruit, Vegetables & Other Food Products, Feeds	—	—	56	—	2421	-4230		11118
Soft Drinks & Alcoholic Beverages	—	—	112	—	1306	-1649		9398
Tobacco & Tobacco Products	—	—	19	—	514	-860		1730
Leather, Rubber & Plastic Products	—	—	84	—	2778	-5801		-232
Textile Products	—	—	-122	—	1339	-3750		-980
Hosiery, Clothing & Accessories	—	—	201	—	989	-4474		4887
Lumber & Wood Products	—	—	-548	—	7718	-1096		6348
Furniture & Fixtures	—	—	-242	—	1422	-1883		3807
Wood Pulp, Paper & Paper Products	—	—	-474	—	12101	-3247		10330
Printing & Publishing	—	—	-142	—	715	-3023		-10
Primary Metal Products	—	—	-1050	—	10883	-5672		3632
Other Metal Products	—	—	-527	—	2498	-5316		-1227
Machinery and Equipment	—	—	-505	—	9876	-21719		2002
Motor Vehicle, Other Transport Equipment & Parts	80	—	-1395	—	43022	-41607		24096
Electrical, Electronic and Communication Products	—	—	-14	—	8416	-18568		3037
Non-Metallic Mineral Products	—	—	-118	—	1054	-2237		-626
Petroleum and Coal Products	—	—	-590	—	3446	-2708		5610
Chemicals, Pharmaceuticals & Chemical Products	—	—	-530	—	7411	-11241		1180
Other Manufactured Products	—	—	159	—	4524	-10585		1579
Residential Construction	30563	477	—	—	—	—		31039
Non Residential Construction	—	13642	—	—	—	—		42489
Repair Construction	—	—	—	—	—	—		—
Transportation & Storage	—	—	—	—	6476	-4857		11431
Communications Services	—	—	—	—	1264	-1413		7962
Other Utilities	—	—	—	—	727	-81		12703
Wholesaling Margins	9	—	—	—	6333	-370		26104
Retailing Margins	15	—	—	—	—	—		43783
Gross Imputed Rent	—	—	—	—	—	—		59950
Other Finance, Insurance & Real Estate Service	5234	—	—	—	4752	-6462		51850
Business & Computer Services	882	—	—	—	4736	-5925		1429
Private Education Services	—	—	—	—	323	-271		2980
Health & Social Services	—	—	—	—	68	-186		11751
Accommodation Services & Meals	—	—	—	—	3724	-6179		19528
Other Services	—	—	—	—	2093	-2755		23440
Transportation Margins	2	—	—	—	6372	—		8952
Operating, Office, Cafeteria & Laboratory Supplies	—	—	—	—	—	—		—
Travel & Entertainment, Advertising & Promotion	—	—	—	—	—	—		71
Non-Profit Institutions Serving Households	—	—	—	—	—	—		8668
Government Sector Services	—	—	—	169263	—	—		169263
Non-Competing Imports	—	—	-16	—	23	-1291		-780
Unallocated Imports & Exports	—	—	4	—	2341	-3607		-1031
Sales of Other Government Services	—	—	—	—	69	—		818
Sub-Total	36785	14119	-8094	169263	189773	-196519		647043
Indirect Taxes	3118	208	—	—	10	4125		51499
Subsidies	—	—	—	—	—	—		—
Wages & Salaries	—	—	—	—	—	—		—
Supplementary Labour Income	—	—	—	—	—	—		—
Mixed Income	—	—	—	—	—	—		—
Other Operating Surplus	—	—	—	—	—	—		—
TOTAL	39903	14327	-8094	169263	189783	-192394		698543

Appendix VII Make (Output) Matrix (Aggregation - S) 1961 (Current Dollars in Millions) (Cont'd)

	Agriculture	Fishing Trapping	Log Forest	Mining	Mfg. Ind.	Construc- tion	Transport
	1	2	3	4	5	6	7
1 Grains	426	—	—	—	0	—	—
2 Other Agricultural Products	2346	—	26	—	1	—	—
3 Forestry Products	42	—	766	—	3	—	—
4 Fish, Seafood and Trapping Products	—	123	—	—	—	—	—
5 Metal Ores & Concentrates	—	—	—	1064	128	—	—
6 Mineral Fuels	—	—	—	646	—	—	—
7 Non-Metallic Minerals	—	—	—	287	10	6	—
8 Services Incidental to Mining	—	—	—	193	—	—	—
9 Meat, Fish and Dairy Products	44	—	—	—	2402	—	—
10 Fruit, Vegetables & Other Food Products, Feeds	11	—	—	—	2014	—	—
11 Soft Drinks & Alcoholic Beverages	—	—	—	—	615	—	—
12 Tobacco & Tobacco Products	—	—	—	—	331	—	—
13 Leather, Rubber & Plastic Products	—	—	—	—	684	—	—
14 Textile Products	—	—	—	—	839	—	—
15 Hosiery, Clothing & Accessories	—	—	—	—	1024	—	—
16 Lumber & Wood Products	—	—	1	—	1038	—	—
17 Furniture & Fixtures	—	—	—	—	342	—	—
18 Wood Pulp, Paper & Paper Products	—	—	—	—	2258	—	—
19 Printing & Publishing	—	—	—	—	846	—	—
20 Primary Metal Products	—	—	—	2	2322	—	—
21 Other Metal Products	—	—	—	—	1474	—	—
22 Machinery and Equipment	—	—	—	13	749	—	—
23 Motor Vehicle, Other Transport Equipment & Par	—	—	—	—	1820	—	12
24 Electrical, Electronic and Communication Product	—	—	—	—	1204	—	—
25 Non-Metallic Mineral Products	—	—	—	1	672	—	—
26 Petroleum and Coal Products	—	—	—	13	1250	—	3
27 Chemicals, Pharmaceuticals & Chemical Products	—	—	—	4	1461	—	—
28 Other Manufactured Products	—	—	—	—	518	—	—
29 Residential Construction	—	—	—	—	—	1851	—
30 Non Residential Construction	—	—	—	—	—	4238	—
31 Repair Construction	—	—	—	—	—	1259	—
32 Transportation & Storage	—	—	—	—	1	—	3450
33 Communications Services	—	—	—	—	—	—	—
34 Other Utilities	—	—	0	1	12	—	3
35 Wholesaling Margins	—	—	1	0	410	—	4
36 Retailing Margins	—	—	—	—	1	—	2
37 Gross Imputed Rent	—	—	—	—	—	—	—
38 Other Finance, Insurance & Real Estate Service	1	—	0	3	49	20	8
39 Business & Computer Services	—	—	—	—	57	13	4
40 Private Education Services	—	—	—	—	—	—	—
41 Health & Social Services	—	—	—	—	—	—	—
42 Accommodation Services & Meals	—	—	10	4	13	—	9
43 Other Services	—	0	—	3	108	28	34
44 Transportation Margins	—	—	—	—	—	—	—
45 Operating, Office, Cafeteria & Laboratory Supplie	—	—	—	—	—	—	—
46 Travel & Entertainment, Advertising & Promotio	—	—	—	—	—	—	—
47 Non-Profit Institutions Serving Households	—	—	—	—	—	—	—
48 Government Sector Services	—	—	—	—	—	—	—
49 Non-Competing Imports	—	—	—	—	—	—	—
50 Unallocated Imports & Exports	—	—	—	—	—	—	—
51 Sales of Other Government Services	—	—	—	—	—	—	—
Sub-Total	2869	124	804	2234	24655	7415	3529
52 Indirect Taxes	—	—	—	—	—	—	—
53 Subsidies	—	—	—	—	—	—	—
54 Wages & Salaries	—	—	—	—	—	—	—
55 Supplementary Labour Income	—	—	—	—	—	—	—
56 Mixed Income	—	—	—	—	—	—	—
57 Other Operating Surplus	—	—	—	—	—	—	—
TOTAL	2869	124	804	2234	24655	7415	3529

Appendix VII Make (Output) Matrix (Aggregation - S) 1961 (Current Dollars in Millions) (Cont'd)

	Communi- cation	Whole Trade	Retail Trade	Fin., Real Est.	Bus. Serv.	Education	Health
	8	9	10	11	12	13	14
1 Grains	—	—	—	—	—	—	—
2 Other Agricultural Products	—	—	—	—	—	—	—
3 Forestry Products	0	—	—	—	—	—	—
4 Fish, Seafood and Trapping Products	—	—	—	—	—	—	—
5 Metal Ores & Concentrates	—	—	—	—	—	—	—
6 Mineral Fuels	—	—	—	—	—	—	—
7 Non-Metallic Minerals	—	—	—	—	—	—	—
8 Services incidental to Mining	—	—	—	—	—	—	—
9 Meat, Fish and Dairy Products	—	6	4	—	—	—	—
10 Fruit, Vegetables & Other Food Products, Feeds	—	6	33	—	—	—	—
11 Soft Drinks & Alcoholic Beverages	—	—	—	—	—	—	—
12 Tobacco & Tobacco Products	—	—	—	—	—	—	—
13 Leather, Rubber & Plastic Products	—	3	—	—	—	—	—
14 Textile Products	—	4	2	—	—	—	—
15 Hosiery, Clothing & Accessories	—	1	0	—	—	—	—
16 Lumber & Wood Products	—	2	8	—	—	—	—
17 Furniture & Fixtures	—	2	0	—	—	—	—
18 Wood Pulp, Paper & Paper Products	—	4	—	—	—	—	—
19 Printing & Publishing	—	1	—	—	—	—	—
20 Primary Metal Products	—	—	—	—	—	—	—
21 Other Metal Products	—	4	—	—	—	—	—
22 Machinery and Equipment	—	—	—	—	—	—	—
23 Motor Vehicle, Other Transport Equipment & Par	—	0	—	—	—	—	—
24 Electrical, Electronic and Communication Product	38	0	—	—	—	—	—
25 Non-Metallic Mineral Products	—	1	—	—	—	—	—
26 Petroleum and Coal Products	6	—	—	—	—	—	—
27 Chemicals, Pharmaceuticals & Chemical Products	—	0	—	—	—	—	—
28 Other Manufactured Products	—	10	—	—	—	—	—
29 Residential Construction	—	—	—	—	—	—	—
30 Non Residential Construction	—	—	—	—	—	—	—
31 Repair Construction	—	—	—	—	—	—	—
32 Transportation & Storage	—	—	8	—	—	—	—
33 Communications Services	1007	—	—	—	—	—	—
34 Other Utilities	1044	—	—	—	—	—	—
35 Wholesaling Margins	—	2332	0	—	—	—	—
36 Retailing Margins	7	—	3326	—	1	—	—
37 Gross Imputed Rent	—	—	—	2590	—	—	—
38 Other Finance, Insurance & Real Estate Service	3	15	30	4430	5	—	0
39 Business & Computer Services	29	—	—	—	750	—	—
40 Private Education Services	—	—	—	—	—	43	—
41 Health & Social Services	—	—	—	—	—	—	630
42 Accommodation Services & Meals	1	—	69	—	0	—	—
43 Other Services	16	147	600	22	—	—	—
44 Transportation Margins	—	—	—	—	—	—	—
45 Operating, Office, Cafeteria & Laboratory Supplie	—	—	—	—	—	—	—
46 Travel & Entertainment, Advertising & Promotio	—	—	—	—	—	—	—
47 Non-Profit Institutions Serving Households	—	—	—	—	—	—	—
48 Government Sector Services	—	—	—	—	—	—	—
49 Non-Competing Imports	—	—	—	—	—	—	—
50 Unallocated Imports & Exports	—	—	—	—	—	—	—
51 Sales of Other Government Services	—	—	—	—	—	—	—
Sub-Total	2151	2537	4080	7043	756	43	630
52 Indirect Taxes	—	—	—	—	—	—	—
53 Subsidies	—	—	—	—	—	—	—
54 Wages & Salaries	—	—	—	—	—	—	—
55 Supplementary Labour Income	—	—	—	—	—	—	—
56 Mixed Income	—	—	—	—	—	—	—
57 Other Operating Surplus	—	—	—	—	—	—	—
TOTAL	2151	2537	4080	5074	755	43	630



## Appendix VII Make (Output) Matrix (Aggregation - S) 1961 (Current Dollars in Millions) (Concluded)

	Accomm.	Other Serv.	Supplies	Travel, Prom.	Trans. Marg.	Non-Profit	Gov't. Sect.	Total
	15	16	17	18	19	20	21	22
1 Grains	—	—	—	—	—	—	0	427
2 Other Agricultural Products	—	—	—	—	—	—	3	2376
3 Forestry Products	—	—	—	—	—	—	0	812
4 Fish, Seafood and Trapping Products	—	—	—	—	—	—	0	123
5 Metal Ores & Concentrates	—	—	—	—	—	—	—	1192
6 Mineral Fuels	—	—	—	—	—	—	0	646
7 Non-Metallic Minerals	—	—	—	—	—	—	0	304
8 Services Incidental to Mining	—	—	—	—	—	—	—	193
9 Meat, Fish and Dairy Products	—	—	—	—	—	—	—	2456
10 Fruit, Vegetables & Other Food Products, Feeds	—	—	—	—	—	—	0	2064
11 Soft Drinks & Alcoholic Beverages	463	3	—	—	—	67	—	1147
12 Tobacco & Tobacco Products	—	—	—	—	—	—	—	331
13 Leather, Rubber & Plastic Products	—	—	—	—	—	—	—	687
14 Textile Products	—	—	—	—	—	—	—	844
15 Hosiery, Clothing & Accessories	—	—	—	—	—	—	0	1025
16 Lumber & Wood Products	—	—	—	—	—	—	0	1048
17 Furniture & Fixtures	—	—	—	—	—	—	—	344
18 Wood Pulp, Paper & Paper Products	—	—	—	—	—	—	2	2264
19 Printing & Publishing	—	—	—	—	—	—	5	851
20 Primary Metal Products	—	—	—	—	—	—	—	2323
21 Other Metal Products	—	—	—	—	—	—	0	1479
22 Machinery and Equipment	—	—	—	—	—	—	—	762
23 Motor Vehicle, Other Transport Equipment & Par	—	—	—	—	—	—	—	1833
24 Electrical, Electronic and Communication Product	—	—	—	—	—	—	—	1242
25 Non-Metallic Mineral Products	—	—	—	—	—	—	—	674
26 Petroleum and Coal Products	—	—	—	—	—	—	0	1272
27 Chemicals, Pharmaceuticals & Chemical Products	—	—	—	—	—	—	1	1466
28 Other Manufactured Products	—	—	—	—	—	—	1	529
29 Residential Construction	—	—	—	—	—	—	—	1851
30 Non Residential Construction	—	—	—	—	—	—	—	4238
31 Repair Construction	—	—	—	—	—	—	—	1259
32 Transportation & Storage	—	—	—	—	—	—	20	3479
33 Communications Services	—	—	—	—	—	—	30	1037
34 Other Utilities	—	—	—	—	—	—	157	1216
35 Wholesaling Margins	—	3	—	—	—	—	—	2750
36 Retailing Margins	24	10	—	—	—	—	—	3370
37 Gross Imputed Rent	—	—	—	—	—	—	—	2590
38 Other Finance, Insurance & Real Estate Service	28	13	—	—	—	—	50	4655
39 Business & Computer Services	—	40	—	—	—	—	26	918
40 Private Education Services	—	—	—	—	—	—	94	137
41 Health & Social Services	—	37	—	—	—	—	156	823
42 Accommodation Services & Meals	1273	4	—	—	—	11	19	1412
43 Other Services	8	1392	—	—	—	76	18	2453
44 Transportation Margins	—	—	—	—	1781	—	—	1781
45 Operating, Office, Cafeteria & Laboratory Supplie	—	—	2221	—	—	—	—	2221
46 Travel & Entertainment, Advertising & Promotio	—	—	—	1309	—	—	—	1309
47 Non-Profit Institutions Serving Households	—	—	—	—	—	265	—	265
48 Government Sector Services	—	—	—	—	—	—	6624	6624
49 Non-Competing Imports	—	—	—	—	—	—	—	—
50 Unallocated Imports & Exports	—	—	—	—	—	—	—	—
51 Sales of Other Government Services	—	—	—	—	—	—	136	136
Sub-Total	1795	1503	2221	1309	1781	419	7343	75239
52 Indirect Taxes	—	—	—	—	—	—	—	—
53 Subsidies	—	—	—	—	—	—	—	—
54 Wages & Salaries	—	—	—	—	—	—	—	—
55 Supplementary Labour Income	—	—	—	—	—	—	—	—
56 Mixed Income	—	—	—	—	—	—	—	—
57 Other Operating Surplus	—	—	—	—	—	—	—	—
TOTAL	1795	1503	2221	1309	1781	419	7343	75239

Appendix VIII Use (Input) Matrix (Aggregation - S) 1961 (Current Dollars in Millions) (Cont'd)

	Agriculture	Fishing Trapping	Log Forest	Mining	Mfg. Ind.	Construc- tion	Transport
	1	2	3	4	5	6	7
1 Grains	12	—	—	—	230	—	—
2 Other Agricultural Products	107	—	27	—	1505	16	1
3 Forestry Products	0	—	56	—	642	5	—
4 Fish, Seafood and Trapping Products	—	3	—	—	90	—	—
5 Metal Ores & Concentrates	—	—	—	1	726	—	—
6 Mineral Fuels	2	—	0	4	817	1	9
7 Non-Metallic Minerals	7	0	—	7	100	61	2
8 Services Incidental to Mining	—	—	—	29	—	164	—
9 Meat, Fish and Dairy Products	2	—	—	—	318	—	—
10 Fruit, Vegetables & Other Food Products, Feeds	267	—	6	—	437	—	0
11 Soft Drinks & Alcoholic Beverages	—	—	—	—	35	—	—
12 Tobacco & Tobacco Products	—	—	—	—	74	—	—
13 Leather, Rubber & Plastic Products	8	—	—	—	223	77	24
14 Textile Products	12	4	2	2	820	58	5
15 Hosiery, Clothing & Accessories	—	—	—	—	58	—	—
16 Lumber & Wood Products	4	1	0	1	259	391	—
17 Furniture & Fixtures	—	—	—	—	14	13	—
18 Wood Pulp, Paper & Paper Products	5	—	—	7	795	76	2
19 Printing & Publishing	—	—	—	—	78	—	2
20 Primary Metal Products	—	—	—	14	1198	414	6
21 Other Metal Products	18	0	5	2	626	798	3
22 Machinery and Equipment	51	2	4	41	134	109	1
23 Motor Vehicle, Other Transport Equipment & Par	1	6	2	11	643	9	82
24 Electrical, Electronic and Communication Product	—	3	—	2	311	308	6
25 Non-Metallic Mineral Products	2	0	0	3	226	445	1
26 Petroleum and Coal Products	146	5	13	23	204	101	156
27 Chemicals, Pharmaceuticals & Chemical Products	88	0	1	37	772	122	4
28 Other Manufactured Products	—	1	—	—	122	73	2
29 Residential Construction	—	—	—	—	—	—	—
30 Non Residential Construction	—	—	—	—	—	—	—
31 Repair Construction	35	1	18	26	124	4	167
32 Transportation & Storage	10	2	41	20	236	36	269
33 Communications Services	11	0	2	6	118	8	40
34 Other Utilities	30	—	2	44	259	4	21
35 Wholesaling Margins	85	2	6	24	547	364	49
36 Retailing Margins	24	1	1	2	13	50	22
37 Gross Imputed Rent	—	—	—	—	—	—	—
38 Other Finance, Insurance & Real Estate Service	107	2	11	61	332	93	79
39 Business & Computer Services	4	0	4	21	169	180	16
40 Private Education Services	—	—	—	—	—	—	—
41 Health & Social Services	—	—	—	—	—	—	—
42 Accommodation Services & Meals	—	—	—	—	—	—	15
43 Other Services	31	1	21	23	328	69	70
44 Transportation Margins	32	1	2	15	621	171	17
45 Operating, Office, Cafeteria & Laboratory Supplie	113	2	109	98	538	124	107
46 Travel & Entertainment, Advertising & Promotio	0	—	5	16	598	29	33
47 Non-Profit Institutions Serving Households	—	—	—	—	—	—	—
48 Government Sector Services	—	—	—	—	—	—	—
49 Non-Competing Imports	—	—	—	—	194	—	—
50 Unallocated Imports & Exports	—	—	—	—	—	—	—
51 Sales of Other Government Services	2	—	1	1	2	17	16
Sub-Total	1213	37	337	538	15533	4388	1221
52 Indirect Taxes	120	2	27	42	336	218	174
53 Subsidies	-29	0	—	-28	-8	—	-181
54 Wages & Salaries	245	10	286	427	5765	2137	1310
55 Supplementary Labour Income	1	0	20	36	347	95	84
56 Mixed Income	860	48	31	6	90	261	87
57 Other Operating Surplus	459	28	104	1212	2592	316	833
TOTAL	2869	124	804	2234	24655	7415	3529

## Appendix VIII Use (Input) Matrix (Aggregation - S) 1961 (Current Dollars in Millions) (Cont'd)

	Communi- cation	Whole Trade	Retail Trade	Fin., Real Est.	Bus. Serv.	Education	Health
	8	9	10	11	12	13	14
1 Grains	—	0	—	—	—	—	—
2 Other Agricultural Products	—	0	0	—	—	—	—
3 Forestry Products	—	—	—	—	—	—	—
4 Fish, Seafood and Trapping Products	—	—	—	—	—	—	—
5 Metal Ores & Concentrates	—	—	—	—	—	—	0
6 Mineral Fuels	17	1	1	1	0	0	—
7 Non-Metallic Minerals	—	—	—	—	—	—	—
8 Services Incidental to Mining	—	—	—	—	—	—	—
9 Meat, Fish and Dairy Products	—	3	6	—	—	—	—
10 Fruit, Vegetables & Other Food Products, Feeds	—	2	8	—	—	—	—
11 Soft Drinks & Alcoholic Beverages	—	—	—	—	—	—	—
12 Tobacco & Tobacco Products	—	—	—	—	—	—	—
13 Leather, Rubber & Plastic Products	0	4	6	—	—	—	0
14 Textile Products	1	9	5	—	0	—	3
15 Hosiery, Clothing & Accessories	—	—	18	—	—	—	—
16 Lumber & Wood Products	—	5	5	—	0	—	—
17 Furniture & Fixtures	—	—	0	0	—	—	—
18 Wood Pulp, Paper & Paper Products	—	31	66	—	1	—	—
19 Printing & Publishing	9	7	4	8	1	—	—
20 Primary Metal Products	—	2	—	—	—	—	—
21 Other Metal Products	—	20	52	—	—	—	—
22 Machinery and Equipment	—	—	—	—	—	—	—
23 Motor Vehicle, Other Transport Equipment & Par	—	—	—	—	—	—	—
24 Electrical, Electronic and Communication Product	26	0	—	—	—	—	—
25 Non-Metallic Mineral Products	—	1	1	—	—	—	0
26 Petroleum and Coal Products	11	46	34	15	2	0	4
27 Chemicals, Pharmaceuticals & Chemical Products	—	2	4	—	0	—	6
28 Other Manufactured Products	0	1	5	—	1	—	15
29 Residential Construction	—	—	—	—	—	—	—
30 Non Residential Construction	—	—	—	—	—	—	—
31 Repair Construction	95	5	29	334	—	2	—
32 Transportation & Storage	62	84	29	2	1	0	0
33 Communications Services	23	56	71	77	16	1	30
34 Other Utilities	17	16	74	48	2	2	2
35 Wholesaling Margins	5	39	18	11	1	0	4
36 Retailing Margins	5	5	8	4	1	0	5
37 Gross Imputed Rent	—	—	—	—	—	—	—
38 Other Finance, Insurance & Real Estate Service	27	156	392	552	30	9	30
39 Business & Computer Services	12	31	51	102	37	2	11
40 Private Education Services	—	—	—	—	—	0	—
41 Health & Social Services	—	—	—	1	—	—	—
42 Accommodation Services & Meals	—	—	—	—	—	—	—
43 Other Services	21	23	28	46	18	2	17
44 Transportation Margins	2	6	8	2	0	0	1
45 Operating, Office, Cafeteria & Laboratory Supplie	41	112	128	161	27	3	44
46 Travel & Entertainment, Advertising & Promotio	12	109	156	129	26	4	7
47 Non-Profit Institutions Serving Households	—	—	—	—	—	—	—
48 Government Sector Services	—	—	—	—	—	—	—
49 Non-Competing Imports	—	—	5	—	—	—	—
50 Unallocated Imports & Exports	—	—	—	—	—	—	—
51 Sales of Other Government Services	4	2	3	6	0	—	—
Sub-Total	391	778	1214	1499	163	25	180
52 Indirect Taxes	63	94	138	1081	10	2	11
53 Subsidies	-4	-78	—	-17	-25	—	—
54 Wages & Salaries	655	1090	1673	966	286	11	71
55 Supplementary Labour Income	51	36	44	31	9	0	1
56 Mixed Income	7	157	501	1331	240	9	346
57 Other Operating Surplus	989	461	510	2151	73	-3	21
TOTAL	2151	2537	4080	8542	755	43	630



## Appendix VIII Use (Input) Matrix (Aggregation - S) 1961 (Current Dollars in Millions) (Concluded)

	Accomm.	Other Serv.	Supplies	Travel, Prom.	Trans. Marg.	Non- Profit	Gov't. Sect.	Total
	15	16	17	18	19	20	21	22
1 Grains	—	—	—	—	—	—	—	242
2 Other Agricultural Products	29	1	10	—	—	—	4	1699
3 Forestry Products	—	—	—	—	—	—	—	703
4 Fish, Seafood and Trapping Products	1	—	0	—	—	—	—	94
5 Metal Ores & Concentrates	—	—	—	—	—	—	—	727
6 Mineral Fuels	1	0	—	—	—	0	5	859
7 Non-Metallic Minerals	1	—	0	—	—	—	9	186
8 Services Incidental to Mining	—	—	—	—	—	—	—	193
9 Meat, Fish and Dairy Products	285	—	83	—	—	—	—	697
10 Fruit, Vegetables & Other Food Products, Feeds	97	2	30	—	—	—	—	849
11 Soft Drinks & Alcoholic Beverages	81	1	4	33	—	21	—	175
12 Tobacco & Tobacco Products	—	—	—	—	—	—	—	74
13 Leather, Rubber & Plastic Products	1	4	113	1	—	—	0	461
14 Textile Products	16	8	25	—	—	1	9	977
15 Hosiery, Clothing & Accessories	1	—	26	—	—	—	9	112
16 Lumber & Wood Products	—	11	8	—	—	—	—	685
17 Furniture & Fixtures	1	—	—	—	—	—	—	28
18 Wood Pulp, Paper & Paper Products	14	3	119	1	—	—	—	1118
19 Printing & Publishing	—	1	215	392	—	4	19	740
20 Primary Metal Products	—	0	16	—	—	—	10	1660
21 Other Metal Products	0	3	187	—	—	—	14	1728
22 Machinery and Equipment	—	—	459	—	—	—	4	804
23 Motor Vehicle, Other Transport Equipment & Par	—	—	71	8	—	—	275	1106
24 Electrical, Electronic and Communication Product	—	0	100	2	—	—	57	814
25 Non-Metallic Mineral Products	3	—	15	—	—	—	—	696
26 Petroleum and Coal Products	6	9	3	28	—	1	61	868
27 Chemicals, Pharmaceuticals & Chemical Products	1	36	137	1	—	—	60	1270
28 Other Manufactured Products	1	10	76	30	—	2	32	371
29 Residential Construction	—	—	—	—	—	—	—	—
30 Non Residential Construction	—	—	—	—	—	—	—	—
31 Repair Construction	11	4	—	—	—	11	394	1259
32 Transportation & Storage	5	4	—	219	1781	4	82	2886
33 Communications Services	10	11	—	93	—	6	69	648
34 Other Utilities	13	13	—	—	—	12	126	681
35 Wholesaling Margins	33	11	307	19	—	2	42	1570
36 Retailing Margins	23	6	78	17	—	6	15	287
37 Gross Imputed Rent	—	—	—	—	—	—	—	—
38 Other Finance, Insurance & Real Estate Service	57	71	—	—	—	18	113	2139
39 Business & Computer Services	12	10	—	123	—	7	88	876
40 Private Education Services	—	—	—	—	—	0	15	15
41 Health & Social Services	—	—	—	—	—	—	78	79
42 Accommodation Services & Meals	1	—	—	208	—	—	1	225
43 Other Services	28	69	2	57	—	7	144	1004
44 Transportation Margins	17	4	69	5	—	0	12	986
45 Operating, Office, Cafeteria & Laboratory Supplie	28	130	—	—	—	20	437	2221
46 Travel & Entertainment, Advertising & Promotio	31	40	—	—	—	10	103	1306
47 Non-Profit Institutions Serving Households	—	—	—	—	—	—	—	—
48 Government Sector Services	—	—	—	—	—	—	—	—
49 Non-Competing Imports	5	—	2	—	—	—	—	205
50 Unallocated Imports & Exports	—	—	70	72	—	—	—	142
51 Sales of Other Government Services	—	1	—	—	—	—	49	102
Sub-Total	811	461	2221	1309	1781	131	2333	36563
52 Indirect Taxes	132	41	—	—	—	26	104	2621
53 Subsidies	0	—	—	—	—	—	—	-370
54 Wages & Salaries	468	632	—	—	—	232	3884	20147
55 Supplementary Labour Income	11	12	—	—	—	8	251	1037
56 Mixed Income	189	221	—	—	—	—	—	4381
57 Other Operating Surplus	185	136	—	—	—	23	771	10860
TOTAL	1795	1503	2221	1309	1781	419	7343	75239

## Appendix IX Final Demand Matrix (Aggregation - S) 1961 (Current Dollars in Millions) (Cont'd)

	Durabl e 1PE	Semi Durable 2PE	Non Durable 3PE	Services 4PE	Non-Gov't. 5M&E	Government 6M&E	Non-Gov't. 7CON
1 Grains	—	—	—	—	—	—	—
2 Other Agricultural Products	—	9	623	12	—	—	—
3 Forestry Products	—	—	35	—	—	—	—
4 Fish, Seafood and Trapping Products	—	—	9	—	—	—	—
5 Metal Ores & Concentrates	—	—	—	—	—	—	—
6 Mineral Fuels	—	—	56	—	—	—	—
7 Non-Metallic Minerals	—	1	4	—	—	—	—
8 Services Incidental to Mining	—	—	—	—	—	—	—
9 Meat, Fish and Dairy Products	—	—	1603	—	—	—	—
10 Fruit, Vegetables & Other Food Products, Feeds	—	—	1299	—	—	—	—
11 Soft Drinks & Alcoholic Beverages	—	—	459	463	—	—	—
12 Tobacco & Tobacco Products	—	—	227	—	—	—	—
13 Leather, Rubber & Plastic Products	63	281	5	—	3	1	—
14 Textile Products	20	177	16	—	3	0	—
15 Hosiery, Clothing & Accessories	—	967	—	—	—	—	—
16 Lumber & Wood Products	10	7	0	—	4	0	—
17 Furniture & Fixtures	239	10	—	—	58	23	—
18 Wood Pulp, Paper & Paper Products	—	16	85	—	—	—	—
19 Printing & Publishing	—	232	—	—	1	—	—
20 Primary Metal Products	—	—	—	—	44	—	—
21 Other Metal Products	1	50	8	—	59	5	—
22 Machinery and Equipment	14	16	—	—	793	31	—
23 Motor Vehicle, Other Transport Equipment & Parts	908	—	—	—	395	61	—
24 Electrical, Electronic and Communication Products	374	38	—	—	378	17	—
25 Non-Metallic Mineral Products	—	52	—	—	8	0	—
26 Petroleum and Coal Products	—	—	534	—	—	—	—
27 Chemicals, Pharmaceuticals & Chemical Products	7	13	316	—	—	—	—
28 Other Manufactured Products	183	123	20	—	55	38	—
29 Residential Construction	—	—	—	—	—	—	—
30 Non Residential Construction	—	—	—	—	—	—	2581
31 Repair Construction	—	—	—	—	—	—	—
32 Transportation & Storage	—	—	32	480	—	—	—
33 Communications Services	—	—	—	373	—	—	—
34 Other Utilities	—	—	432	89	—	—	—
35 Wholesaling Margins	160	150	497	—	228	18	—
36 Retailing Margins	658	952	1423	2	43	5	—
37 Gross Imputed Rent	—	—	—	2590	—	—	—
38 Other Finance, Insurance & Real Estate Service	—	—	—	2218	—	—	37
39 Business & Computer Services	—	—	—	66	—	—	—
40 Private Education Services	—	—	—	119	—	—	—
41 Health & Social Services	—	—	—	746	—	—	—
42 Accommodation Services & Meals	—	—	—	1187	—	—	—
43 Other Services	1	—	—	1463	—	—	—
44 Transportation Margins	38	50	235	—	33	4	—
45 Operating, Office, Cafeteria & Laboratory Supplies	—	—	—	—	—	—	—
46 Travel & Entertainment, Advertising & Promotion	—	—	—	4	—	—	—
47 Non-Profit Institutions Serving Households	—	—	—	265	—	—	—
48 Government Sector Services	—	—	—	—	—	—	—
49 Non-Competing Imports	—	—	79	—	—	—	—
50 Unallocated Imports & Exports	—	—	—	126	—	—	—
51 Sales of Other Government Services	—	—	—	34	—	—	—
Sub-Total	2677	3143	7995	10235	2018	201	2618
52 Indirect Taxes	324	265	1170	144	126	17	—
53 Subsidies	—	—	—	—	—	—	—
54 Wages & Salaries	—	—	—	—	—	—	—
55 Supplementary Labour Income	—	—	—	—	—	—	—
56 Mixed Income	—	—	—	—	—	—	—
57 Other Operating Surplus	—	—	—	—	—	—	—
<b>TOTAL</b>	<b>3001</b>	<b>3409</b>	<b>9165</b>	<b>10379</b>	<b>2144</b>	<b>218</b>	<b>2618</b>

Appendix IX Final Demand Matrix (Aggregation - S) 1961 (Current Dollars in Millions) (Concluded)

	Hou. Non Gov't	Government	Inventory	Gov't Cur. Exp	Exports	Imports	Total
	8CON	9CON	10 INV	11GCE	12X	13M	14
1 Grains	—	—	-348	—	567	-34	186
2 Other Agricultural Products	—	—	46	—	187	-200	677
3 Forestry Products	—	—	45	—	44	-15	109
4 Fish, Seafood and Trapping Products	—	—	2	—	35	-17	29
5 Metal Ores & Concentrates	—	—	67	—	526	-129	465
6 Mineral Fuels	—	—	-12	—	244	-500	-212
7 Non-Metallic Minerals	—	—	10	—	160	-58	117
8 Services Incidental to Mining	—	—	—	—	—	—	—
9 Meat, Fish and Dairy Products	—	—	70	—	199	-112	1760
10 Fruit, Vegetables & Other Food Products, Feeds	—	—	75	—	125	-283	1215
11 Soft Drinks & Alcoholic Beverages	—	—	20	—	94	-62	973
12 Tobacco & Tobacco Products	—	—	10	—	30	-9	257
13 Leather, Rubber & Plastic Products	—	—	-17	—	31	-142	226
14 Textile Products	—	—	-10	—	48	-387	-133
15 Hosiery, Clothing & Accessories	—	—	28	—	11	-91	914
16 Lumber & Wood Products	—	—	2	—	406	-67	363
17 Furniture & Fixtures	—	—	19	—	3	-34	316
18 Wood Pulp, Paper & Paper Products	—	—	43	—	1100	-98	1146
19 Printing & Publishing	—	—	9	—	9	-140	111
20 Primary Metal Products	—	—	-36	—	996	-253	664
21 Other Metal Products	—	—	-43	—	45	-375	-250
22 Machinery and Equipment	—	—	-123	—	191	-963	-42
23 Motor Vehicle, Other Transport Equipment & Parts	11	—	88	—	206	-942	727
24 Electrical, Electronic and Communication Products	—	—	-7	—	78	-450	429
25 Non-Metallic Mineral Products	—	—	22	—	41	-146	-23
26 Petroleum and Coal Products	—	—	-10	—	13	-134	404
27 Chemicals, Pharmaceuticals & Chemical Products	—	—	43	—	212	-395	196
28 Other Manufactured Products	—	—	28	—	57	-345	159
29 Residential Construction	1839	12	—	—	—	—	1851
30 Non Residential Construction	—	1657	—	—	—	—	4238
31 Repair Construction	—	—	—	—	—	—	—
32 Transportation & Storage	—	—	—	—	213	-131	594
33 Communications Services	—	—	—	—	21	-5	389
34 Other Utilities	—	—	—	—	16	-1	535
35 Wholesaling Margins	2	—	—	—	135	-9	1180
36 Retailing Margins	1	—	—	—	—	—	3083
37 Gross Imputed Rent	—	—	—	—	—	—	2590
38 Other Finance, Insurance & Real Estate Service	304	—	—	—	63	-106	2516
39 Business & Computer Services	53	—	—	—	52	-129	42
40 Private Education Services	—	—	—	—	7	-3	122
41 Health & Social Services	—	—	—	—	1	-2	745
42 Accommodation Services & Meals	—	—	—	—	—	—	1187
43 Other Services	—	—	—	—	11	-26	1449
44 Transportation Margins	0	—	—	—	435	—	795
45 Operating, Office, Cafeteria & Laboratory Supplies	—	—	—	—	—	—	—
46 Travel & Entertainment, Advertising & Promotion	—	—	—	—	—	—	4
47 Non-Profit Institutions Serving Households	—	—	—	—	—	—	265
48 Government Sector Services	—	—	—	6624	—	—	6624
49 Non-Competing Imports	—	—	2	—	1	-287	-205
50 Unallocated Imports & Exports	—	—	—	—	685	-952	-142
51 Sales of Other Government Services	—	—	—	—	—	—	34
Sub-Total	2210	1669	22	6624	7296	-8033	38675
52 Indirect Taxes	1	—	—	—	15	515	2578
53 Subsidies	—	—	—	—	—	—	—
54 Wages & Salaries	—	—	—	—	—	—	—
55 Supplementary Labour Income	—	—	—	—	—	—	—
56 Mixed Income	—	—	—	—	—	—	—
57 Other Operating Surplus	—	—	—	—	—	—	—
TOTAL	2211	1669	22	6624	7310	-7518	41253



Appendix X Industry Gross Output and Total GDP per Dollar of Commodity Output (Aggregation - S) 1992 (Cont'd)

	Agriculture Trapping	Fishing Food	Log Forest	Mining	Mfg. Ind.	Construc- tion	Transport
	1	2	3	4	5	6	7
1 Grains	1.0750	0.0001	0.0012	0.0456	0.2422	0.0311	0.0417
2 Other Agricultural Products	1.2477	0.0003	0.0533	0.0321	0.2964	0.0324	0.0456
3 Forestry Products	0.0315	0.0001	1.2214	0.0194	0.1673	0.0135	0.0856
4 Fish, Seafood and Trapping Products	0.0115	1.0247	0.0044	0.0243	0.2243	0.0249	0.0358
5 Metal Ores & Concentrates	0.0010	0.0001	0.0006	0.8916	0.3281	0.0204	0.0336
6 Mineral Fuels	0.0008	0.0001	0.0005	1.0672	0.0675	0.0176	0.0137
7 Non-Metallic Minerals	0.0014	0.0001	0.0011	0.9608	0.2044	0.0568	0.0468
8 Services Incidental to Mining	0.0029	0.0002	0.0009	1.0221	0.1785	0.0077	0.0505
9 Meat, Fish and Dairy Products	0.6621	0.0486	0.0019	0.0197	1.4090	0.0244	0.0616
10 Fruit, Vegetables & Other Food Produ	0.1370	0.0006	0.0019	0.0144	1.2899	0.0116	0.0506
11 Soft Drinks & Alcoholic Beverages	0.0442	0.0010	0.0017	0.0093	0.8620	0.0109	0.0270
12 Tobacco & Tobacco Products	0.2232	0.0002	0.0032	0.0137	1.3162	0.0148	0.0283
13 Leather, Rubber & Plastic Products	0.0042	0.0001	0.0022	0.0153	1.2675	0.0081	0.0274
14 Textile Products	0.0014	0.0001	0.0016	0.0140	1.2875	0.0094	0.0242
15 Hosiery, Clothing & Accessories	0.0018	0.0002	0.0008	0.0054	1.3411	0.0067	0.0155
16 Lumber & Wood Products	0.0018	0.0001	0.4179	0.0147	1.1935	0.0115	0.0697
17 Furniture & Fixtures	0.0016	0.0002	0.0250	0.0116	1.3280	0.0081	0.0307
18 Wood Pulp, Paper & Paper Products	0.0022	0.0001	0.1251	0.0269	1.3759	0.0159	0.0782
19 Printing & Publishing	0.0015	0.0001	0.0191	0.0083	1.2945	0.0093	0.0353
20 Primary Metal Products	0.0010	0.0001	0.0010	0.2041	1.2817	0.0167	0.0510
21 Other Metal Products	0.0011	0.0001	0.0023	0.0361	1.3580	0.0099	0.0353
22 Machinery and Equipment	0.0014	0.0002	0.0023	0.0329	1.2017	0.0071	0.0249
23 Motor Vehicle, Other Transport Equip	0.0007	0.0001	0.0008	0.0115	1.2807	0.0065	0.0390
24 Electrical, Electronic and Communi	0.0010	0.0001	0.0009	0.0154	1.1867	0.0069	0.0202
25 Non-Metallic Mineral Products	0.0013	0.0001	0.0022	0.0862	1.2545	0.0156	0.0629
26 Petroleum and Coal Products	0.0008	0.0000	0.0006	0.5184	1.0381	0.0249	0.0431
27 Chemicals, Pharmaceuticals & Chemic	0.0356	0.0001	0.0015	0.1068	1.2354	0.0155	0.0447
28 Other Manufactured Products	0.0024	0.0001	0.0032	0.0208	1.1106	0.0091	0.0271
29 Residential Construction	0.0132	0.0002	0.0226	0.0163	0.4064	1.0070	0.0386
30 Non Residential Construction	0.0014	0.0001	0.0029	0.0686	0.2566	1.0079	0.0326
31 Repair Construction	0.0012	0.0001	0.0095	0.0251	0.2647	1.0066	0.0332
32 Transportation & Storage	0.0026	0.0001	0.0010	0.0331	0.1420	0.0410	1.0552
33 Communications Services	0.0007	0.0000	0.0011	0.0050	0.0759	0.0284	0.0207
34 Other Utilities	0.0009	0.0000	0.0009	0.0335	0.0556	0.0405	0.0145
35 Wholesaling Margins	0.0090	0.0017	0.0024	0.0129	0.2710	0.0098	0.0341
36 Retailing Margins	0.0027	0.0001	0.0009	0.0087	0.0779	0.0130	0.0220
37 Gross Imputed Rent	0.0001	0.0000	0.0004	0.0012	0.0131	0.0407	0.0020
38 Other Finance, Insurance & Real Estat	0.0023	0.0001	0.0011	0.0081	0.0709	0.0313	0.0209
39 Business & Computer Services	0.0013	0.0000	0.0009	0.0048	0.0665	0.0145	0.0203
40 Private Education Services	0.0013	0.0000	0.0008	0.0070	0.0617	0.0196	0.0312
41 Health & Social Services	0.0049	0.0001	0.0005	0.0048	0.0565	0.0072	0.0098
42 Accommodation Services & Meals	0.0835	0.0017	0.0032	0.0086	0.2760	0.0139	0.0262
43 Other Services	0.0038	0.0002	0.0012	0.0120	0.1389	0.0180	0.0245
44 Transportation Margins	—	—	—	—	—	—	—
45 Operating, Office, Cafeteria & Laborat	—	—	—	—	—	—	—
46 Travel & Entertainment, Advertising	—	—	—	—	—	—	—
47 Non-Profit Institutions Serving Hous	0.0073	0.0002	0.0010	0.0086	0.0872	0.0251	0.0243
48 Government Sector Services	0.0036	0.0001	0.0029	0.0068	0.0790	0.0278	0.0234
49 Non-Competing Imports	—	—	—	—	—	—	—
50 Unallocated Imports & Exports	—	—	—	—	—	—	—
51 Sales of Other Government Services	0.0029	0.0001	0.0042	0.0074	0.0761	0.0352	0.0207
52 Indirect Taxes	—	—	—	—	—	—	—
53 Subsidies	—	—	—	—	—	—	—
54 Wages & Salaries	—	—	—	—	—	—	—
55 Supplementary Labour Income	—	—	—	—	—	—	—
56 Mixed Income	—	—	—	—	—	—	—
57 Other Operating Surplus	—	—	—	—	—	—	—

Appendix X Industry Gross Output and Total GDP per Dollar of Commodity Output (Aggregation - S) 1992 (Cont'd)

	Communi- cation 8	Whole Trade 9	Retail Trade 10	Fin., Real Est. 11	Bus. Serv. 12	Education 13	Health 14
1	Grains	0.0506	0.0722	0.0242	0.1369	0.0256	0.0009
2	Other Agricultural Products	0.0563	0.0666	0.0240	0.1048	0.0256	0.0011
3	Forestry Products	0.0249	0.0606	0.0224	0.0596	0.0250	0.0005
4	Fish, Seafood and Trapping Products	0.0199	0.0515	0.0110	0.0494	0.0156	0.0012
5	Metal Ores & Concentrates	0.0667	0.0425	0.0106	0.0428	0.0253	0.0003
6	Mineral Fuels	0.0385	0.0311	0.0149	0.0460	0.0397	0.0003
7	Non-Metallic Minerals	0.0668	0.0598	0.0184	0.0545	0.0285	0.0005
8	Services Incidental to Mining	0.0508	0.0677	0.0355	0.0807	0.0350	0.0005
9	Meat, Fish and Dairy Products	0.0559	0.0596	0.0177	0.0753	0.0266	0.0007
10	Fruit, Vegetables & Other Food Produ	0.0477	0.0662	0.0374	0.0539	0.0310	0.0004
11	Soft Drinks & Alcoholic Beverages	0.0492	0.0345	0.0160	0.0614	0.0342	0.0004
12	Tobacco & Tobacco Products	0.0444	0.0346	0.0121	0.0631	0.0400	0.0004
13	Leather, Rubber & Plastic Products	0.0480	0.0623	0.0131	0.0450	0.0264	0.0003
14	Textile Products	0.0470	0.0527	0.0157	0.0432	0.0216	0.0003
15	Hosiery, Clothing & Accessories	0.0320	0.0587	0.0083	0.0466	0.0201	0.0002
16	Lumber & Wood Products	0.0453	0.0733	0.0421	0.0574	0.0249	0.0003
17	Furniture & Fixtures	0.0433	0.0829	0.0180	0.0524	0.0263	0.0003
18	Wood Pulp, Paper & Paper Products	0.1054	0.0648	0.0189	0.0538	0.0265	0.0005
19	Printing & Publishing	0.0550	0.0409	0.0100	0.0453	0.0231	0.0015
20	Primary Metal Products	0.0816	0.0509	0.0148	0.0415	0.0238	0.0004
21	Other Metal Products	0.0459	0.0568	0.0127	0.0424	0.0216	0.0003
22	Machinery and Equipment	0.0337	0.0548	0.0093	0.0383	0.0236	0.0002
23	Motor Vehicle, Other Transport Equip	0.0254	0.0295	0.0102	0.0280	0.0391	0.0002
24	Electrical, Electronic and Communicati	0.0640	0.0431	0.0086	0.0357	0.0253	0.0003
25	Non-Metallic Mineral Products	0.0734	0.0536	0.0265	0.0479	0.0260	0.0004
26	Petroleum and Coal Products	0.0398	0.0251	0.0131	0.0467	0.0343	0.0003
27	Chemicals, Pharmaceuticals & Chemic	0.0691	0.0488	0.0143	0.0478	0.0331	0.0006
28	Other Manufactured Products	0.0430	0.0543	0.0121	0.0497	0.0293	0.0008
29	Residential Construction	0.0273	0.0956	0.0120	0.0553	0.0489	0.0005
30	Non Residential Construction	0.0265	0.0519	0.0109	0.0540	0.1210	0.0006
31	Repair Construction	0.0240	0.0580	0.0172	0.0473	0.0373	0.0012
32	Transportation & Storage	0.0482	0.0424	0.0174	0.0746	0.0346	0.0061
33	Communications Services	1.0361	0.0143	0.0063	0.0412	0.0405	0.0019
34	Other Utilities	0.9067	0.0140	0.0067	0.0344	0.0206	0.0038
35	Wholesaling Margins	0.0580	0.8582	0.0094	0.0914	0.0555	0.0005
36	Retailing Margins	0.0872	0.0166	0.9772	0.1311	0.0620	0.0007
37	Gross Imputed Rent	0.0038	0.0031	0.0010	1.0469	0.0060	0.0001
38	Other Finance, Insurance & Real Estat	0.0750	0.0244	0.0115	1.1066	0.0813	0.0033
39	Business & Computer Services	0.1112	0.0445	0.0122	0.0797	0.9348	0.0016
40	Private Education Services	0.0405	0.0190	0.0087	0.0411	0.0275	0.0008
41	Health & Social Services	0.0483	0.0193	0.0091	0.0569	0.0290	0.8147
42	Accommodation Services & Meals	0.0510	0.0370	0.0347	0.0835	0.0296	0.0010
43	Other Services	0.0709	0.1012	0.2096	0.1173	0.0578	0.0016
44	Transportation Margins	—	—	—	—	—	—
45	Operating, Office, Cafeteria & Laborat	—	—	—	—	—	—
46	Travel & Entertainment, Advertising	—	—	—	—	—	—
47	Non-Profit Institutions Serving Hous	0.0695	0.0267	0.0133	0.0712	0.0289	0.0008
48	Government Sector Services	0.0401	0.0222	0.0125	0.0387	0.0423	0.0761
49	Non-Competing Imports	—	—	—	—	—	—
50	Unallocated Imports & Exports	—	—	—	—	—	—
51	Sales of Other Government Services	0.0508	0.0233	0.0161	0.0621	0.0640	0.1191
52	Indirect Taxes	—	—	—	—	—	—
53	Subsidies	—	—	—	—	—	—
54	Wages & Salaries	—	—	—	—	—	—
55	Supplementary Labour Income	—	—	—	—	—	—
56	Mixed Income	—	—	—	—	—	—
57	Other Operating Surplus	—	—	—	—	—	—



## Appendix X Industry Gross Output and Total GDP per Dollar of Commodity Output (Aggregation - S) 1992 (Concluded)

	Accomm.	Other	Supplies	Travel,	Trans.	Non-Profit	Gov't.	Total
	15	Serv.	20	Prom.	Marg.	23	Sect.	25
1 Grains	0.0042	0.0126	0.0018	0.0156	1.7815	0.9017	0.0105	0.9122
2 Other Agricultural Products	0.0042	0.0132	0.0029	0.0137	2.0203	0.8645	0.0097	0.8741
3 Forestry Products	0.0040	0.0215	0.0020	0.0084	1.7678	0.7808	0.0063	0.7871
4 Fish, Seafood and Trapping Products	0.0026	0.0138	0.0050	0.0134	1.5332	0.8168	0.0103	0.8271
5 Metal Ores & Concentrates	0.0043	0.0118	0.0005	0.0060	1.4861	0.7748	0.0040	0.7788
6 Mineral Fuels	0.0044	0.0100	0.0008	0.0066	1.3597	0.8816	0.0046	0.8862
7 Non-Metallic Minerals	0.0057	0.0251	0.0007	0.0116	1.5431	0.8150	0.0076	0.8227
8 Services Incidental to Mining	0.0113	0.0251	0.0018	0.0087	1.5797	0.7536	0.0064	0.7599
9 Meat, Fish and Dairy Products	0.0053	0.0145	0.0021	0.0108	2.4959	0.8138	0.0077	0.8215
10 Fruit, Vegetables & Other Food Produ	0.0058	0.0136	0.0007	0.0088	1.7714	0.7496	0.0059	0.7555
11 Soft Drinks & Alcoholic Beverages	0.4555	0.0399	0.0089	0.0107	1.6670	0.7979	0.0109	0.8088
12 Tobacco & Tobacco Products	0.0067	0.0144	0.0012	0.0086	1.8249	0.8418	0.0060	0.8478
13 Leather, Rubber & Plastic Products	0.0058	0.0121	0.0009	0.0073	1.5460	0.6704	0.0051	0.6755
14 Textile Products	0.0046	0.0115	0.0021	0.0065	1.5435	0.6271	0.0053	0.6324
15 Hosiery, Clothing & Accessories	0.0044	0.0078	0.0006	0.0058	1.5559	0.6744	0.0039	0.6783
16 Lumber & Wood Products	0.0042	0.0170	0.0011	0.0073	1.9823	0.7823	0.0052	0.7875
17 Furniture & Fixtures	0.0051	0.0108	0.0005	0.0070	1.6518	0.7319	0.0047	0.7365
18 Wood Pulp, Paper & Paper Products	0.0048	0.0159	0.0009	0.0125	1.9283	0.7153	0.0086	0.7239
19 Printing & Publishing	0.0061	0.0100	0.0008	0.0222	1.5828	0.8174	0.0138	0.8313
20 Primary Metal Products	0.0035	0.0108	0.0004	0.0073	1.7907	0.6479	0.0048	0.6527
21 Other Metal Products	0.0049	0.0098	0.0003	0.0061	1.6438	0.6921	0.0040	0.6962
22 Machinery and Equipment	0.0056	0.0088	0.0003	0.0052	1.4504	0.5701	0.0034	0.5736
23 Motor Vehicle, Other Transport Equip	0.0037	0.0084	0.0003	0.0048	1.4891	0.4751	0.0032	0.4783
24 Electrical, Electronic and Communicati	0.0059	0.0089	0.0003	0.0053	1.4285	0.5824	0.0035	0.5859
25 Non-Metallic Mineral Products	0.0059	0.0168	0.0004	0.0080	1.6816	0.7543	0.0052	0.7596
26 Petroleum and Coal Products	0.0037	0.0089	0.0006	0.0080	1.8063	0.5984	0.0052	0.6036
27 Chemicals, Pharmaceuticals & Chemic	0.0065	0.0152	0.0023	0.0117	1.6890	0.6983	0.0087	0.7070
28 Other Manufactured Products	0.0068	0.1468	0.0005	0.0119	1.5285	0.6654	0.0074	0.6728
29 Residential Construction	0.0039	0.0094	0.0010	0.0078	1.7662	0.7213	0.0052	0.7266
30 Non Residential Construction	0.0046	0.0189	0.0007	0.0092	1.6685	0.7416	0.0059	0.7476
31 Repair Construction	0.0032	0.0143	0.0004	0.0131	1.5564	0.7798	0.0076	0.7874
32 Transportation & Storage	0.0141	0.0927	0.0007	0.0387	1.6447	0.8391	0.0249	0.8640
33 Communications Services	0.0048	0.0316	0.0007	0.0346	1.3436	0.8592	0.0211	0.8803
34 Other Utilities	0.0021	0.0090	0.0003	0.1340	1.2776	0.7905	0.0866	0.8771
35 Wholesaling Margins	0.0116	0.0214	0.0008	0.0125	1.4601	0.8332	0.0084	0.8416
36 Retailing Margins	0.0095	0.0301	0.0009	0.0156	1.4564	0.8701	0.0103	0.8804
37 Gross Imputed Rent	0.0006	0.0022	0.0002	0.0012	1.1227	0.7948	0.0008	0.7956
38 Other Finance, Insurance & Real Estat	0.0215	0.0232	0.0028	0.0432	1.5274	0.7767	0.0278	0.8045
39 Business & Computer Services	0.0104	0.0540	0.0040	0.0430	1.4038	0.8705	0.0300	0.9005
40 Private Education Services	0.0084	0.0201	0.0016	0.8579	1.3056	0.2294	0.6703	0.8997
41 Health & Social Services	0.0054	0.0158	0.0633	0.1373	1.2828	0.7875	0.1343	0.9218
42 Accommodation Services & Meals	0.9315	0.0426	0.0062	0.0343	1.6645	0.8035	0.0261	0.8295
43 Other Services	0.0178	0.6077	0.0422	0.0406	1.4654	0.8077	0.0490	0.8567
44 Transportation Margins	—	—	—	—	—	—	—	—
45 Operating, Office, Cafeteria & Laborat	—	—	—	—	—	—	—	—
46 Travel & Entertainment, Advertising	—	—	—	—	—	—	—	—
47 Non-Profit Institutions Serving Hous	0.0069	0.0385	1.0006	0.0206	1.4307	0.2297	0.6576	0.8873
48 Government Sector Services	0.0069	0.0192	0.0009	1.0346	1.4387	0.2410	0.6470	0.8880
49 Non-Competing Imports	—	—	—	—	—	—	—	—
50 Unallocated Imports & Exports	—	—	—	—	—	—	—	—
51 Sales of Other Government Services	0.0091	0.0253	0.0010	1.0537	1.5734	0.3168	0.5627	0.8795
52 Indirect Taxes	—	—	—	—	—	—	—	—
53 Subsidies	—	—	—	—	—	—	—	—
54 Wages & Salaries	—	—	—	—	—	—	—	—
55 Supplementary Labour Income	—	—	—	—	—	—	—	—
56 Mixed Income	—	—	—	—	—	—	—	—
57 Other Operating Surplus	—	—	—	—	—	—	—	—



**Appendix XI Industry Gross Output and Total GDP per Dollar of Industry Output (Cont'd)**  
**(Aggregation - S) 1992**

	Agriculture Trapping	Fishing Food	Log Forest	Mining	Mfg. Ind.	Construc- tion	Transpor
	1	2	3	4	5	6	7
1 Agricultural and related services industries	1.2673	0.0003	0.0011	0.0354	0.2895	0.0332	0.0444
2 Fishing and trapping industries	0.0108	1.0264	0.0044	0.0243	0.2235	0.0249	0.0358
3 Logging and forestry industries	0.0021	0.0001	1.2614	0.0184	0.1501	0.0124	0.0839
4 Mining, quarrying and oil well industries	0.0011	0.0001	0.0006	1.0592	0.0912	0.0173	0.0234
5 Manufacturing industries	0.0586	0.0038	0.0327	0.0619	1.2977	0.0122	0.0421
6 Construction industries	0.0055	0.0001	0.0109	0.0426	0.3085	1.0074	0.0346
7 Transportation and storage industries	0.0026	0.0001	0.0010	0.0354	0.1470	0.0432	1.1448
8 Communication and other utility industries	0.0007	0.0000	0.0008	0.0212	0.0639	0.0338	0.0192
9 Wholesale trade industries	0.0019	0.0001	0.0014	0.0105	0.0776	0.0098	0.0335
10 Retail trade industries	0.0025	0.0001	0.0009	0.0084	0.0771	0.0126	0.0192
11 Finance, insurance and real estate industries	0.0009	0.0000	0.0008	0.0054	0.0477	0.0336	0.0129
12 Business service industries	0.0011	0.0000	0.0007	0.0039	0.0540	0.0077	0.0154
13 Educational service industries	0.0033	0.0001	0.0015	0.0140	0.1108	0.0486	0.0316
14 Health and social service industries	0.0034	0.0001	0.0004	0.0046	0.0482	0.0054	0.0088
15 Accommodation and food services industries	0.0860	0.0017	0.0010	0.0083	0.2799	0.0133	0.0226
16 Other service industries	0.0038	0.0001	0.0011	0.0097	0.1018	0.0129	0.0217
17 Operating, office, cafeteria and laboratory suppl	—	—	—	—	—	—	—
18 Travel & entertainment, advertising & promotio	—	—	—	—	—	—	—
19 Transportation margins	—	—	—	—	—	—	—
20 Non-profit institutions serving households	0.0093	0.0002	0.0010	0.0084	0.0935	0.0221	0.0233
21 Government sector	0.0037	0.0001	0.0028	0.0068	0.0781	0.0281	0.0231

**Appendix XI Industry Gross Output and Total GDP per Dollar of Industry Output (Cont'd)**  
**(Aggregation - S) 1992**

	Communi- cation 8	Whole Trade 9	Retail Trade 10	Fin., Real Est. 11	Bus. Serv. 12	Education 13	Health 14
1 Agricultural and related services industries	0.0566	0.0680	0.0239	0.1133	0.0255	0.0000	0.0009
2 Fishing and trapping industries	0.0198	0.0515	0.0110	0.0494	0.0156	0.0000	0.0012
3 Logging and forestry industries	0.0211	0.0596	0.0226	0.0570	0.0253	0.0000	0.0004
4 Mining, quarrying and oil well industries	0.0484	0.0392	0.0162	0.0493	0.0350	0.0000	0.0003
5 Manufacturing industries	0.0505	0.0463	0.0141	0.0446	0.0292	0.0000	0.0003
6 Construction industries	0.0265	0.0680	0.0125	0.0534	0.0809	0.0000	0.0007
7 Transportation and storage industries	0.0445	0.0433	0.0168	0.0704	0.0313	0.0000	0.0011
8 Communication and other utility industries	1.0346	0.0139	0.0065	0.0379	0.0313	0.0000	0.0016
9 Wholesale trade industries	0.0612	1.0261	0.0088	0.1013	0.0554	0.0000	0.0006
10 Retail trade industries	0.0815	0.0163	1.0070	0.1327	0.0600	0.0000	0.0007
11 Finance, insurance and real estate industries	0.0488	0.0152	0.0064	1.1190	0.0544	0.0000	0.0009
12 Business service industries	0.0573	0.0194	0.0116	0.0746	1.0909	0.0000	0.0005
13 Educational service industries	0.0924	0.0328	0.0219	0.1837	0.0710	1.0005	0.0020
14 Health and social service industries	0.0464	0.0178	0.0087	0.0569	0.0277	0.0000	1.0004
15 Accommodation and food services industries	0.0483	0.0373	0.0211	0.0831	0.0289	0.0000	0.0005
16 Other service industries	0.0574	0.0292	0.0301	0.0887	0.0520	0.0000	0.0006
17 Operating, office, cafeteria and laboratory suppl	—	—	—	—	—	—	—
18 Travel & entertainment, advertising & promotio	—	—	—	—	—	—	—
19 Transportation margins	—	—	—	—	—	—	—
20 Non-profit institutions serving households	0.0799	0.0278	0.0140	0.0867	0.0380	0.0000	0.0008
21 Government sector	0.0409	0.0221	0.0124	0.0385	0.0420	0.0014	0.0724

**Appendix XI Industry Gross Output and Total GDP per Dollar of Industry Output (Concluded)**  
**(Aggregation - S) 1992**

	Accomm. her Serv. Food 15	Non-Prof. Inst. 16	Gov't 20	Gov't 21	Ross Output Sect. 22	Bus. GDP Sect. 23	Non-Bus GDP Sect. 24	Total GDP 25
1 and related services industries	0.0042	0.0126	0.0026	0.0135	1.9924	0.8756	0.0096	0.8852
2 trapping industries	0.0026	0.0138	0.0050	0.0125	1.5324	0.8173	0.0098	0.8270
31 forestry industries	0.0040	0.0224	0.0023	0.0056	1.7487	0.7785	0.0047	0.7831
4 rrying and oil well industries	0.0051	0.0130	0.0008	0.0065	1.4067	0.8546	0.0045	0.8591
5ing industries	0.0048	0.0114	0.0007	0.0070	1.7179	0.6540	0.0048	0.6587
61 industries	0.0041	0.0149	0.0008	0.0093	1.6807	0.7417	0.0060	0.7476
7 on and storage industries	0.0150	0.0401	0.0006	0.0177	1.6549	0.8520	0.0110	0.8630
8 tion and other utility industries	0.0034	0.0191	0.0005	0.0174	1.3059	0.8682	0.0101	0.8783
9rade industries	0.0128	0.0140	0.0008	0.0130	1.4289	0.8714	0.0087	0.8801
10 industries	0.0065	0.0145	0.0009	0.0153	1.4562	0.8707	0.0102	0.8809
11 urance and real estate industries	0.0082	0.0135	0.0019	0.0103	1.3798	0.7917	0.0075	0.7993
12 vice industries	0.0104	0.0261	0.0045	0.0117	1.3900	0.8976	0.0099	0.9074
13 service industries	0.0192	0.0465	0.0036	0.0339	1.7172	0.7952	0.0240	0.8191
14:ocial service industries	0.0051	0.0149	0.0018	0.0087	1.2592	0.9238	0.0065	0.9303
15 ition and food services industries	1.0053	0.0200	0.0010	0.0118	1.6702	0.8182	0.0080	0.8262
16 e industries	0.0094	1.0575	0.0030	0.0144	1.4934	0.8414	0.0108	0.8521
17 office, cafeteria and laboratory suppl	—	—	—	—	—	—	—	—
18 ertainment, advertising & promotio	—	—	—	—	—	—	—	—
19 on margins	—	—	—	—	—	—	—	—
20 nstitutions serving households	0.0077	0.0364	1.0006	0.0234	1.4732	0.2506	0.6301	0.8807
21 t sector	0.0069	0.0193	0.0009	1.0347	1.4342	0.2375	0.6511	0.8887



## Appendix XII GDP and leakages per dollar of Industry Output (aggregation -S) 1992

	Bus.GDP Direct	Bus.GDP Indir.	GDP Direct	GDP indirect	Net of Subsidies	Imports	Leakages	Total
	1	2	3	4	5	6	7	8
1 Agricultural and related services industries	0.4167	0.4589	—	0.0096	-0.0765	0.1716	0.0197	1.0000
2 Fishing and trapping industries	0.5764	0.2409	—	0.0098	0.0283	0.1335	0.0111	1.0000
3 Logging and forestry industries	0.4226	0.3558	—	0.0047	0.0552	0.1543	0.0074	1.0000
4 Mining, quarrying and oil well industries	0.6404	0.2142	—	0.0045	0.0337	0.1020	0.0051	1.0000
5 Manufacturing industries	0.3217	0.3322	—	0.0048	0.0288	0.2955	0.0170	1.0000
6 Construction industries	0.4147	0.3269	—	0.0060	0.0637	0.1673	0.0214	1.0000
7 Transportation and storage industries	0.5359	0.3161	—	0.0110	0.0091	0.1216	0.0063	1.0000
8 Communication and other utility industries	0.7176	0.1506	—	0.0101	0.0556	0.0630	0.0031	1.0000
9 Wholesale trade industries	0.6480	0.2233	—	0.0087	0.0539	0.0634	0.0026	1.0000
10 Retail trade industries	0.6318	0.2389	—	0.0102	0.0645	0.0525	0.0021	1.0000
11 Finance, insurance and real estate industries	0.5897	0.2021	—	0.0075	0.1513	0.0474	0.0020	1.0000
12 Business service industries	0.6802	0.2173	—	0.0099	0.0266	0.0642	0.0018	1.0000
13 Educational service industries	0.4199	0.3753	—	0.0240	0.0838	0.0922	0.0048	1.0000
14 Health and social service industries	0.7845	0.1394	—	0.0065	0.0102	0.0574	0.0021	1.0000
15 Accommodation and food services industries	0.5239	0.2943	—	0.0080	0.0650	0.1020	0.0068	1.0000
16 Other service industries	0.5897	0.2517	—	0.0108	0.0556	0.0889	0.0034	1.0000
17 Operating, office, cafeteria and laboratory supplies	—	—	—	—	—	—	—	—
18 Travel & entertainment, advertising & promotion	—	—	—	—	—	—	—	—
19 Transportation margins	—	—	—	—	—	—	—	—
20 Non-profit institutions serving households	—	0.2506	0.6147	0.0154	0.0493	0.0668	0.0031	1.0000
21 Government sector	—	0.2375	0.6276	0.0235	0.0348	0.0725	0.0040	1.0000



# VII

## CHALLENGES

### 1. PURPOSE

The purpose of this separate chapter on challenges of current production is to give a balanced view of the present Input-Output Accounts by highlighting some of the problems that exist as of today in the production of the database. The idea is to involve the users also in the thinking process that goes on continuously in the inner circles of this important area of economic analysis. As we all know, in the new millennium, the creation of knowledge-based economy is a fundamental requirement for sustained economic progress, and countries strive to achieve the goals in that direction. As already stated in the introductory chapter, the provision



of details in various chapters is not only for informative purpose, but also for facilitating the training of the beginners in this important study of the Canadian economy. That does bring up a point on the style of presentation. That point is, if we just say that 'everything is rosy and all pieces of information used in the Input-Output Accounts fit in nicely like a ready-made jig-saw puzzle', we will be misleading the public indeed. Such a style of presentation is not the intention of this publication. Rather, the style is modeled in a way to filter the thinking on the basis of scientific and unbiased evaluation. If only the Input-Output Accounts have to maintain their important role in providing basic information for analysts, the Accounts have to be introspective with a critical examination rather than simply being 'operational'. That kind of self-evaluation is needed on an on-going basis and the millennium overtone of creating a knowledge-based economy should not be ignored. In essence, then, the Accounts have to look in-word and see how best they could be improved to help the analysts as much as possible. This chapter does just that and it brings out some illustrations of the problem areas which can be given priority for research and development work in the current production.

For example, in the second chapter, we have seen numerous uses and applications of the data presented in these Accounts. We have also seen some limitations of those data, so that users can obtain a balanced view about the existing framework.

This chapter goes a little bit further than Chapter II in the sense that some criticism is given to highlight the hidden problems that analysts might or might not

encounter in the usage of Input-Output data for their purposes. The introspectiveness or simply 'looking inside' is what is new and unique in this chapter. Several areas need research and development in order to make the data more user-friendly and transparent for analytical purposes. These are the challenges to the statistical system that are discussed here.

If, however, the self-evaluation and auto-criticism are not done, reliance has to be placed on outsiders' comments which may not be forthcoming for those areas which are an integral part of the statistical system and which are not visible on the surface. The fact that some adverse comments on the present structure are not forthcoming from users does not automatically mean that there are no problems. They might have accepted the present structure the way it is and may not point out their concerns to the statistical agency. Hence, this auto-evaluation fills in the need and makes the data more analytical - oriented for the goals of achieving valid economic analysis based on factual information.

## 2. SOME EXISTING DATA PROBLEMS

### i) Mixed Income

One of the items in primary inputs is "Mixed income". As the title implies, the 'mixed income' category of the primary inputs is 'mixed-up' in the sense that the income of two factors of production, namely, labour and capital of the unincorporated businesses are combined into one category. This is definitely a problem which has existed ever since the Accounts were set up during the 1960s.

Apart from that problem, there is another 'mixing-up' problem, because it mixes up the 'net income of unincorporated business' such as the self-employed persons and the 'accrued net income of farm operators from farm production'. The data for these two categories are separately published in the Income and Expenditure Accounts. But the Input-Output Accounts mixes them up and shows in one combined category. This is not a very useful situation for analysis despite the fact that the Input Output Accounts have the numbers by each industry which is not available in the Income and Expenditure Accounts. The present practice of showing one 'mixed income' category for both farmers and self-employed begs the following questions.

- a) While the Income and Expenditure Accounts have been successful in obtaining basic data for the two components separately, why are the Input-Output Accounts not following the same practice?
- b) What is standing in the way of using the data of the two components by creating new additional primary input commodities, if necessary?
- c) The analysts would certainly be interested in knowing the commodity content of the two components separately. If so, why, then, necessary steps are not taken to split the 'mixed income' into its constituent components at least on a par with the Income and Expenditure Accounts for similarities in the comparison at the aggregate levels?

These are very intriguing questions for which there are no ready made answers.

This area calls for some research and developmental work.



## ii) 'Operating Surplus' of Final Demand Categories

Another item is the 'Other operating surplus' in the existing primary inputs. At the present time, the 'Other operating surplus' of Final Demand categories such as the government sector and non-profit institutions, contains only 'depreciation' of capital assets and there is no 'surplus' element such as 'profits'. Because we have no separate primary input commodity called 'depreciation' in the present structure of the Input Output Accounts, and because 'depreciation' is right now included in the 'operating surplus' category, we have no choice except to show the 'depreciation' of government assets as 'operating surplus'. Yet, time and again, users question this item because "operating surplus" which gives the notion of the profit element does not exist for government and non-profit institutions as these institutions are not operating for profit. Our repeated answer to the users' question on this item is that the 'Other operating surplus' is another mixed item in the present Input-Output Accounts. Unless and until, the 'operating surplus' category is disaggregated into its constituent categories such as profits, inventory valuation, interest and depreciation, there is no solution to the problem in question. If this is the case, why then are the Input-Output Accounts not taking any steps to resolve the problem?

## iii) Operating Surplus of Corporations and Unincorporated Business

The present 'operating surplus' category is mixed-up in another sense also for the following reason which is attributable to inconsistent definitions of "Mixed income" and "Operating surplus" categories.

While it excludes the 'surplus' or net income of farmers and unincorporated businesses which is shown in a separate item called 'Mixed income', it includes their depreciation along with the depreciation of the government as well as the business sectors.

The two items, namely, (a) 'mixed income' of unincorporated business and farmers, and (b) 'operating surplus' of corporations are at present inconsistent in the sense that the item for corporations includes 'profits, interest received, inventory valuation and depreciation' while for the unincorporated business and farmers, it does not include depreciation.

These inconsistent definitions for these two categories which are meant to measure surplus on a consistent basis beg the following questions.

- a) Are the data not available for developing consistent series either inclusive or exclusive of depreciation for both incorporated and unincorporated businesses and farmers?
- b) The 'Operating Surplus' category could be improved by showing the analytically useful details in separate items.
- c) The Income and Expenditure Accounts show a disaggregation of the operating surplus into profits, interest items, etc. At least, the same disaggregation is possible for the Input-Output Accounts also.

These and other issues need research and developmental work to consider possible improvements. They cannot be ignored completely.

#### iv) Net Expenditures Abroad

In the Personal Expenditure category of the Final Demand matrix, there is an item called 'Net Expenditures Abroad'. This item is composed of two components: (a) Expenditures of Canadian residents' abroad; and (b) Expenditures of non-residents in Canada. In the Balance of Payments as well as SNA, they are different categories, but not the same to justify the presentation or measurement in one category. While the first one i.e. (a) is a negative item representing 'imports of Canada', the second one i.e. (b) is a positive item representing 'exports of Canada'. Both (i.e. positive and negative) are combined into one item in the personal expenditure by offsetting the first item from the second item as explained in this section.

#### a) Expenditures of Canadian residents abroad.

These expenditures of Canadian residents' abroad consist of tourists' expenditures overseas. They are positive numbers as far as the personal expenditure is concerned. They are also in the 'imports' category. The imports category which is a negative item for the GDP measurement offsets the positive figures for the 'expenditures of Canadian residents abroad' included in the personal expenditures category. Consequently, the impact on the GDP is zero due to the offset, that is, the positive item in the personal expenditures abroad, which is (a), is offset by the



negative entry in imports which is (b). Thus, the foreigners' production in this regard is not counted in the GDP. However, in the personal expenditure category, the expenditures of non-residents in Canada also enters into all the relevant categories such as food, clothing, hotel accommodation, etc. which the non-residents buy from resident businesses in Canada. But the articulation of this item in the Accounts, which is discussed next, creates some confusion in the treatment.

b) Expenditures of non-residents in Canada.

As already mentioned, this item is shown as a negative item in the 'Net Expenditures Abroad' as it is already reflected in individual categories such as food, clothing, hotel accommodation, etc. which is consumed by non-residents in Canada (e.g. tourists). These expenditures are also included in exports as they should be. Consequently, there is a double counting which should be eliminated and it is done by reflecting them again as a negative item, in the 'Net Expenditures Abroad' of the persons. The positive figures in exports are retained and thus, there is no double counting in this regard, because the data are counted only once in exports. If the data included in individual personal expenditure items are not excluded by the above negative entry (b) in the personal expenditure (i.e., in the 'Net Expenditure Abroad' item), there would be a double counting in the GDP. Hence, the negative entry is needed and justified on this ground.

However, experience tells us that some confusion arises in the minds of the users on the 'Net Expenditures Abroad' because of the two kinds of different

transactions that are included in this item. This confusion can be eliminated by using the following procedure:

Reflect the negative entries in all the related personal expenditure items instead of in one item only for 'Net Expenditure Abroad'. Then, this item will remain simply as "Expenditure Abroad" in the Personal Expenditure category of Final Demand without a downward adjustment by item (b) mentioned earlier. It will read as 'Expenditure Abroad', and will reflect only the expenditures of Canadian residents in other countries. This item will also be included in imports and the Expenditure of Canadians abroad will be cancelled out by the negative entry of imports. However, the individual items which now contain the 'non-residents' expenditures' within Canada will be adjusted downward to reflect only the 'residents' expenditures'.

This suggestion entails development of the required statistics for outlays of foreigners in order to exclude them from the individual items of personal expenditure. The procedure suggested here in the articulation of the data would eliminate lots of confusion which exists at the present time in understanding the item. The resulting data would help the proper allocation of the tax margin also without any worksheet adjustments which are done at the present time.

v) Elimination of Fictive Industries and Fictive Commodities

Research is needed to eliminate the fictive industries and commodities as they are artificial and do not exist in the real world. Perhaps, rather than giving an impression that statistics would fit into the jig-saw puzzle the way they should be, we should consider to create an entity for 'statistical error' to show it where it is needed, so that consistency in this respect also would be achieved between the Income and Expenditure Accounts and the Input-Output Accounts.

vi) Inventories

In the final demand categories, we have two categories:

W 112 Inventories of finished goods and goods in process.

W 113 Inventories of raw materials and goods purchased for resale.

In fact, these two categories should be renamed as:

W 112 Value of Physical Change in Inventories (VPC) for finished goods and goods in process.

W 113 Value of Physical Change in Inventories (VPC) for Raw materials and goods purchased for resale.

The renaming suggested above will eliminate ambiguities created by the existing names. Besides the renaming, there is also the need to capture the data for withdrawals (negative) from inventories and additions (positive) to inventories to increase the analytical usefulness of the items. At the present time, it is only the



net that gets reflected in the data. If the decomposed data are available, they should be shown in the Accounts as such. In fact, it will be very useful for analysis if “Goods purchased for resale” are separated from W113 mentioned earlier and shown as such. It should also be recognized in this connection that the data on ‘Value of Physical change in Inventories’ are not reported in the surveys. However, for the Input Output Accounts, estimates are made based on related data while balancing the commodities. In most cases, this item is a balancing item. Therefore, further research is needed in this area for ways and means of developing more solid estimates in future.

#### viii) Illegal Activities, Unpaid Voluntary Work, Housewives’ Work at Home and the Like

At the present time, the production on account of illegal activities such as prostitution, drug trafficking is not measured. Consequently, the output of goods and services of these activities is not counted although goods and services produced by those activities are consumed in the economy. Also, there could be some legal transactions of the exchange economy not picked up or reported in the surveys. This is a part of underground economy. This whole area needs a thorough review and research to estimate the magnitude of the missing output in the context of commodities, industries, and final demand categories of the Input Output Accounts.

If, however, the problem of not measuring the output in such activities is ignored, there is the danger of over-estimating either the savings in the economy or the expenditures of other items. This is a SNA problem and it should be dealt with in a comprehensive research study.

### 3. General Weakness of GDP measure

For the last several years, there has been a general criticism on the usefulness of GDP particularly regarding the 'progress' in the economy. Of course, 'progress' has to be defined as 'something good to the society'. If that is the narrow definition of progress, then GDP which is meant to measure the unduplicated value of marketable goods and services produced in the economy, cannot throw any light on the 'progress'. The data have to be reclassified into two classes such as 'progress' and 'deterioration' in order to be able to analyze the 'progress' in the economy. Until that kind of classification and sorting of data are done, the GDP measure has to be accepted on its own merits as a proxy of economic development in the absence of any other suitable alternative.

For example, disasters in the economy increase the value of GDP because of the additional goods and services used up in the activities for cleaning and reconstruction, in addition to expenditures on health and social costs associated with the disasters. The effects of disasters usually create some 'negatives' in the economy which should be properly defined and also measured to offset the increase in the GDP resulting from those effects. This situation is true because

pollution, crime, sickness, diseases, other destructive activities such as wars increase the GDP despite their 'negative' results. In order to meet with the criticism, all such activities resulting in negatives should be classified into a separate group so that one could subtract their values from the increase in the GDP to measure the real progress. This is a general challenge for the SNA as a whole which needs considerable attention in the future research and development programs.

#### 4. GDP of International Organizations

The international organizations are situated in different countries, but they are defined to operate in extra-territorial land even though they are physically located in the geographical territories of the countries concerned. Consequently, their output is not measured by the countries in which they are physically located. Then, a question arises in the minds of the users as to where the output of the international organizations is measured. The simple answer to this question is that the output of international organizations is not measured anywhere. Then, the follow-up questions are: (a) Is there no GDP for international organizations? (b) Do they not produce any goods and services? To answer these two fundamental questions, we need to take simple models and work it through showing how the transactions can get articulated if they produce GDP accounts.

Let us take the International Civil Aviation (ICAO) in Montreal. Suppose, this organization employs staff and pays \$100 as salaries. By definition, the employees



will be residents of Canada if they are permanently employed in the Montreal office for a year or more. However, since the employer, ICAO, is a non-resident organization operating outside the economic territory of Canada, the ICAO will be importing the services from their own employees who, for National Accounts purposes, are exporting their services as residents of Canada. So, in the expenditure-based GDP Accounts, the ICAO will be spending \$100 as 'government expenditure on goods and services' and importing the services worth the same amount. Since the imports are in the negative entry, the government expenditure is cancelled out and totally offset by the imports. Then, the GDP if ICAO is zero in this simple example.

Let us extend this example by taking another factor. Suppose the ICAO employs some temporary experts also from other countries and pays them \$50 as salaries. How does this transaction reflect in the ICAO's GDP Accounts?

The salaries paid to permanent staff were \$100 and temporary experts \$50. The permanent employees are residents of Canada as they stay in Canada for a year or more. The temporary experts from other countries stay in Canada for less than a year and as such, they are 'non-residents' of Canada working in an extra-territorial organization which is outside the 'economic domestic territory of Canada'. The GDP of Canada does not include the \$50 paid to the temporary experts of ICAO as they are 'non-residents' working outside the economic territory of Canada. It only includes \$100 paid to the permanent employees as exports. The country or

countries from which the temporary experts are employed will include the \$50 as their exports and reflect the transaction in their GDP Accounts.

The above examples do not include depreciation of capital assets such as buildings, and machinery and equipment owned by ICAO. If we take the depreciation of the buildings and machinery and equipment of the ICAO into account, the amount of capital consumption allowances will be added on to the government current expenditure on goods and services and it will remain as the only amount representing the GDP. In other words, the estimate for the 'capital consumption allowances' will be the only item in the Income-based GDP. As it will also be included in the government current expenditure of the Expenditure-based GDP, it will remain as the only item left in the Expenditure-based GDP, because other expenditures will be cancelled out by imports.

As the international organizations own several buildings, and machinery and equipment, the depreciation for these assets will be substantial and it will be the total GDP of international organizations. As the GDP Accounts for the international organizations are not produced at the present time, their GDP numbers will be missing in any studies of world GDP. Also, their imports data will be missing in any studies on world exports and imports. It would be worth eliminating these gaps in the world statistical database for GDP, exports, and imports. That can be done only by reflecting their GDP in the world output of goods and services and their disposition in a realistic manner. This means the

production of the GDP Accounts for international organizations commencing say, from the year 2000 as a landmark for future economic analysis of the world.

There is also another question that needs attention for future possible changes. That is the question of treating expenditures for education and research and development. Should they be treated as capital investment or current operating expenditures?

As the returns to education, and also for research and development normally accrue to the owners over a period of years, a strong case can be made to justify their treatment as capital expenditures. If this treatment is followed in the future due to the importance given to these activities in the business sector, the profits would be correspondingly increased as deductions for current expenditures will no longer be made. The GDP goes up, other things being equal, since those types of expenditures will not be deducted as current operating expenditures, but switched to capital expenditures.

It is therefore essential to foresee the need for such a treatment and develop separate data for expenditures on education and research as well as development by giving separate commodity identifications. It is recognized, however, that the Accounts reflect a paradigm at the time they are designed and they evolve continuously depending on the changing needs in the society.



Also, education and training expenditures along with research and development outlays fall in the category of “human capital”. If they are transferred from the present treatment of current operating expenditures to ‘capital expenditures’, separate data would be needed in order to implement the changed treatment at a future date. Foresight has always been the key to the survival of any system and the statistical system is not an exception to this general rule. As such, we need it now more than in the past because changes are emerging faster than before. The Input-Output Accounts, if they have to maintain their usefulness, have to be able to reflect the realities faster without showing rigidities for changes in the existing structure.

Also we have to think creatively about how the structure of the Accounts could be improved or adapted for special purposes keeping in mind the evolutionary changes that might emerge in the near future. This is also another challenge which should be kept in mind in the general policy formulation of statistical agencies. For example, the issue of measuring ‘human capital’ for the economy is coming up to the forefront again and again for productivity studies. Considerable work has already been done by several agencies on this issue. Perhaps, it is time to look into the various available studies and see whether a database for the human capital could be developed for the Canadian economy to pinpoint ‘brain drain’ and other related phenomena of our new millennium.

## 5. International Comparability

New emerging trade blocks such as North American Free Trade Agreement (NAFTA) require that our Input Output Accounts are comparable in the classification of categories of industries and commodities. When the industrial classification for North American (NAICS) is implemented, the industries would be comparable. However, there could be some presentation differences in publications of the three countries (Mexico, US and Canada) that are involved in the NAFTA. Perhaps, some research and developmental work is needed in this area also to ensure that the comparability of Input Output Accounts of those countries is accomplished without any difficulty.

## 6. Conclusion

These challenges are just illustrations of the present problems. There may be others which will come to the surface when the new products are detected in the economy due to innovation, technological, and socio-cultural changes in the world.

The above items call for resource allocation and research in order to meet the needs of the analysts in the next decade, because there is very little use in creating an analytical structure and not filling it up with appropriate data. Also, it is not enough to create more surveys and collect detailed information. The collected detailed information has to be put to use by diffusing it in the analytical measures of different kinds, so that the users can have access to it for their analysis.

The challenge in this regard is to make the Accounts as flexible as possible to reflect new source data, new ideas and needs, new trends, and new innovations which give rise to new industries and new goods and services. Also, it is not enough to incorporate significant changes only at the time of the historical revision which takes place periodically every 10 or 15 years. The flexibility has to be demonstrated by making appropriate changes when significant changes take place in the economy. If the significant changes are not reflected in the Accounts, the economic analysis of the country would be adversely affected and the Input-Output Accounts would lose their crucial role of providing realistic information to the users.

Finally, it should be remembered at all times that the field of Economic Accounts is in a dynamic and evolutionary state as can be seen from the experience of the last half-a-century. For example, the first U.N. System of National Accounts was published in 1953.<sup>23</sup> There were two successive revisions – one in 1968<sup>24</sup> and another in 1993<sup>25</sup> - since the first 1953 SNA.

We may recall that the first U.N. SNA of 1953 recommended the compilation of Gross National Product (GNP) as the main measure. The subsequent revisions, however, recommended Gross Domestic Product (GDP) as the analytical main

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<sup>23</sup> United Nations, *A System of National Accounts and Supporting Table*, 1953, New York.

<sup>24</sup> United Nations, *A System of National Accounts*, 1968, New York.

<sup>25</sup> *System of National Accounts*, 1993, New York.



measure. Some countries might want to see the 'national product' of their nations instead of 'domestic product' which includes the part accruing to both the citizens of those countries as well as foreigners. The amounts accruing to foreign investments may be growing in some countries due to globalization and more foreign investments. Perhaps, the increased foreign investments of multi-national corporations might create a need for some countries to switch back to the concept of Gross National Product as the main measure as it will exclude the factor incomes accruing to foreigners. In such a case, the countries might opt for retention of both measures, namely, the Gross National Product as well as the Gross Domestic Product, for economic analysis. These and other needs that might arise in the future have to be accommodated in the Economic Accounts by foreseeing the future requirements and analytical necessities.

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