PART V

FUTURE HEALTH COSTS AND THE CANADIAN ECONOMY

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Projected Output and Government Spending In Canada, 1961-1991

An assessment of the feasibility and methods of financing a health care programme in Canada requires an examination of the productive capabilities of the economy and the alternative ways open to the nation to make use of the volume of goods and services produced in the future. Hence we present in this chapter, in summary fashion, projections of Gross National Product and government expenditures. The increase in health expenditures that may take place in Canada over the next three decades, and the role of health expenditures in our expanding economy are discussed in Chapter 20. The increases projected as a consequence of the expansion of public health programmes will depend to some extent on the growth of national output over the next generation and the share of this output that may be allocated to the public sector. We therefore turn to a consideration of the likely range of national output between 1961 and 1991 and the proportion of this output that might be allocated to government spending.

MEANING OF ECONOMIC PROJECTIONS

An economic projection is not a forecast in the sense that we expect what is projected to actually happen. It is rather an extrapolation of the systematic long-term *trends* which have been observed in the economy in the past. But the structure of an economy is such that it produces more than long-term trends. It also produces *cycles* about the trends, and in addition is subject to many *random* influences which cause it to fluctuate irregularly. Most of the random influences are small, and arise from a myriad of irregular acts of non-systematic behaviour or disturbances in the economic system, which are added to the systematic behaviour of individuals, and of the aggregate system. Some, however, are large influences arising from some major international event, natural phenomenon, scientific discovery, or social

upheaval. These are classed as *episodes*. Their effects show up distinctly as large irregularities in economic time series.

An extrapolation of long-term trends does not allow for the inevitable cycles, random disturbances and major episodes which take place from time to time. Since many of these occurrences cannot be foreseen it would be difficult to allow for them. It may be possible to anticipate a cyclical pattern for a little while into the future, but even the extent and duration of such cycles are subject to whatever government policies are pursued to minimize their impact. Thus about the only kind of economic movement that one can hope to project for any considerable period into the future is the long-term trends, of the economy either along a straight line or along growth rate paths which vary over sub-periods. The result will be broad movements, not at all like the economic series of everyday life which have the cycles and the irregularities superimposed upon them.

But even the trends which we project may vary from the actual behaviour pattern of the economy, for these trends are affected by underlying behaviouristic forces and technological relationships of the economy; and these are likely to evolve in such a way as to alter the long-term trends of the economy.

There are other important factors that may affect Canada's growth prospects over the longer term such as our competitive position in world trade and the change in the level of demand abroad for Canada's major export products, as well as our terms of trade. Then there are the problems of adjustment which Canada faces as the structure of its economy changes.[1]

Another difficult choice that has to be made in preparing a longer term economic projection is the formulation of an assumption of the downward trend of the average number of hours worked by Canadians per week and per year. Such an assumption is usually based on past experience and trends. But, many forces, sociological as well as economic may alter our future choices between work and leisure. We have assumed that Canadians will move gradually and slowly in the direction of increased leisure.

A similar uncertainty is inherent in any assumption made with respect to the future course of technical progress. Who can foresee the great discoveries in science, the ingenious inventions, the changes in human spirit and morale which are yet to come? And, those that do come will set in train new trends in our technical progress and hence bring us increases of real output per man-hour and in real per capita income.[2] To allow for variation in the impact of some of these factors we have presented a range of estimates.

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[1] Brown, T. M., *Canadian Economic Growth*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapters 4, 5 and 7.

[2] *Ibid.*, Chapter 7.

Since the making of meaningful economic projections is beset by so many difficulties and uncertainties, it may be wondered what value there is in undertaking such an exercise. The usefulness lies in the fact that our economic projection, carefully prepared, may be reasonably accurate for the early part of the period projected, and hence can serve as a basis for action in guiding the economy toward social and economic goals for the short- and medium-term.

Every individual in his daily round of life must make decisions and act on the basis of the best assessment he can make of the future. This is necessary for his survival and progress. A whole society must do the same. There is little doubt as to the merits for society to use forecasts and projections. In fact, it uses them, consciously or unconsciously, every day of its existence, as a basis for its myriad of minor and major decisions. The real question is: *how explicitly and carefully* the forecasts and projections are to be made.

On the basis of this reasoning a carefully prepared projection can help society to make more effective decisions, on the average, for setting its immediate course toward its long-term goals. But then since there is a likelihood that trends may change, the projection must be kept under continuous review and revision, so that plans and decisions for the future can be revised at intervals.

Such a process of intelligent decision-making based on using forecasts, projections and a measure of economic planning can be likened to the navigation of a ship or aircraft to a distant destination. The goal is known in advance, and a course is calculated and set for it, based on conditions in the atmosphere and in the craft as best they can be ascertained at the time. But these conditions are under continuous review as the journey proceeds. Then as changes in this environment, or in the craft's structural characteristics are detected, the course is altered accordingly. This process is successively repeated until the destination is reached. A systematic procedure like this, based on calculations using the best data and theory, is far more likely to achieve success than the sole use of intuition and trial and error—in economic navigation, as in marine and air navigation.

MAKING OF ECONOMIC PROJECTIONS

The technical details which lie behind our estimates are to be found in a study we commissioned, dealing with economic and population projec-

tions for Canada, for the period 1961-1991.[1] Here we would like to give a brief outline of the factors that have determined our estimates of future Gross National Product. We commence with an independent projection of Canada's population from 1961 to 1991 which we have described in Chapter 4. This projection is based on trends of fertility, mortality and net immigration, and yields estimates of the male and female population, non-institutional, civilian and aged 14 and over. From these population groups we present estimates of the number that will wish to work. Using projected male and female labour force participation rates we arrive at Canada's labour force for the period 1961 to 1991 at quinquennial intervals. We then make certain assumptions about rates of unemployment and we project hours of work per year per employed person. As a result we arrive at projected total man-hours of labour for the country as a whole. The output of this growing supply of man-hours of labour will depend on how productive the Canadian labour force will be, on its skills, education, attitude, health and on the technology embodied in the capital stock with which labour can work, in short on what we have earlier referred to as the socio-technical determinants of economic growth. The average productivity of labour in the past has then been projected into the future so that with the projected labour supply and labour productivity an estimate can then be derived of potential national output. This potential is, of course, determined by the growth of demand and the provision of the appropriate amount of capital per worker. Since we have already assumed a certain level of unemployment and average labour productivity, we have in fact, projected a particular trend of demand; that which is associated with the particular level of unemployment projected. Once we have projected final output we can then, again on the basis of past trends, project the distribution of final output including the share of GNP allocated to expanding the stock of capital, and the share of GNP allocated to the health services sector.

LABOUR FORCE

Population growth is the source of the labour supply in the productive system and we have presented our estimates of population growth in Chapter 4.[2] The size of the labour force depends on the degree of participation in the productive process and this in turn is influenced by long-term trends of sociological and technological forces, as well as by the economic

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[1] Brown, T. M., *Canadian Economic Growth*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, see particularly Chapters 7, 8 and 10, and Appendix E.

[2] See Footnote 3, p. 117.

influences of real wage rates, types and extent of unemployment, standards of living and wealth. Certain broad trends in the historical participation rates stand out and it is upon these trends that we have based our future projection of the labour force.

The general participation rate of the total labour force (including the military) to total population climbed steadily from 37.9 per cent in 1926 to 42.3 per cent in 1945. Since then it has declined somewhat to 36.5 per cent in 1961. The bulk of these changes can probably be attributed to a decline in the proportion of the dependent population composed of the young and the aged in the earlier period followed by a reversal of this trend in the period after 1945. Looking at the over-all participation rate of the civilian labour force, compared with the civilian non-institutional population age 14 and over, we find that since the war there has been a steady decline in the participation rate for men from 85.2 to 80.0 per cent of the male labour force while for women the participation rate has been increasing steadily since 1950 reaching 28.8 per cent in 1961.[1]

The decline in male membership largely has been the result of a notable decline in the participation of the 14-19 age group and of the age group 65 and over. Both of these are the consequence of an increasingly affluent society which makes possible extended education to meet the requirements of a more complex society, and permits early retirement through the growth of pension plans. The increasing participation of women can be related to a change in social attitudes about women working, the result mainly of two world wars. It is also related to the reduction by modern machinery of some of the heavy work of production, coupled with the increased need for office and administrative functions in our more complex productive system. At the same time home-making is lightened by equipment of an increasingly automatic nature. The need for more education causes the participation rates of the age group, 14-19, to decline. In all other groups the rates are increasing. The increase is modest in the ages 20-24, high in the 25-34, almost explosive in the groups 35-64, and modest in the 65 and over group.

Both the trend to increased participation of women in the labour force and a decreased participation rate for men can be expected to continue for some time into the future at the rate which has been characteristic of recent years. The growing demand for longer schooling and more professional training will keep more people out of the labour force at least until age 20 as will the provision of more schools, technical colleges and universities. The continued growth of incomes and pensions will also permit a larger number of the population to retire at least at age 65. The return of married women to the labour force can be expected to continue and the

[1] See Table 19-1.

TABLE 19-1 CANADIAN ECONOMIC GROWTH, 1926-1991

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Year	Total Population	Civilian Non-Instit. Population Age 14 and Over		Participation Rates of Civil. Non-Instit. Population Age 14 and Over		The Labour Force Civilian			Rate of Unempl. Rel. to Civil. Lab. Force	Unemployment	Total Employment Civilian	Average Hours of Work	
		Men	Women	Men	Women	Men	Women	Total				Per Year	Per Week
Symbol	N	N_{14m}	N_{14f}	pr_m	pr_f	N_{im}	N_{if}	N_i	N_u^o	N_u	N_e	h	h_w
Units	June 1 t	June 1 t	June 1 t	ann. av. %	ann. av. %	ann. av. t	ann. av. t	ann. av. t	ann. av. %	ann. av. t	ann. av. t	1 hour	1 hour
1926	9,451	—	—	—	—	—	—	—	—	—	—	2,867	54.98
1931	10,376	—	—	—	—	—	—	—	—	—	—	2,653	50.88
1936	10,950	—	—	—	—	—	—	—	—	—	—	2,641	50.51
1941	11,507	—	—	—	—	—	—	—	—	—	—	2,734	52.43
1946	12,292	4,399	4,379	85.2	24.7	3,746	1,082	4,828	3.4	166	4,671	2,447	46.93
1951	14,009	4,857	4,874	83.9	23.5	4,076	1,147	5,223	2.7	143	5,089	2,289	43.90
1956	16,081	5,397	5,408	82.2	24.9	4,436	1,346	5,782	3.4	197	5,596	2,249	43.01
1961	18,238	5,980	6,030	80.0	28.8	4,782	1,736	6,518	7.2	469	6,060	2,164	41.50
1966	20,296	6,702	6,832	77.5	32.5	5,194	2,220	7,415	4.0	297	7,118	2,092	40.12
1971	22,590	7,502	7,694	77.0	33.6	5,777	2,585	8,362	4.0	334	8,028	2,023	38.80
1976	25,234	8,349	8,602	76.5	34.7	6,387	2,985	9,372	4.0	375	8,997	1,956	37.41
1981	28,247	9,249	9,546	76.0	35.8	7,022	3,418	10,440	4.0	418	10,022	1,891	36.27
1986	31,546	10,248	10,617	75.5	36.9	7,737	3,918	11,655	4.0	466	11,188	1,829	35.08
1991	35,107	11,457	11,860	75.0	38.0	8,593	4,507	13,100	4.0	524	12,576	1,768	33.91

TABLE 19-1 CANADIAN ECONOMIC GROWTH, 1926-1991 (*Continued*)

	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
Year	Total Man-Hours of Labour-Civilian	Real Output per Man-Hour	Gross Domestic Product-Civilian	Defence-Value Added-Ratio to GDP_c	Defence-Value Added	Gross Domestic Product	Interest and Dividends Paid Abroad -Ratio	Interest and Dividends Paid Abroad	Interest and Dividends Rec'd from Abroad -Ratio	Interest and Dividends Received from Abroad	Gross National Product	Compound Annual Growth Rates
Symbol	N_eh	pL	GDP_c	GM_1/GDP_c	GM_1	GDP	π_{d1}/GDP_c	π_{d1}	π_{1d}/GDP_c	π_{1d}	GNP	°GNP
Unit	m.m-h	1 57$	m 57$	r	m 57$	m 57$	r	m 57$	r	m 57$	m 57$	% p.a.
1926	9,951	1.0416	10,365	.001544	16	10,381	.03801	394	.005403	56	10,043	↑
1931	9,492	1.1257	10,685	.001685	18	10,703	.07319	782	.01011	108	10,029	
1936	9,780	1.1398	11,147	.001794	20	11,167	.06423	716	.01534	171	10,622	
1941	11,666	1.3871	16,182	.05080	822	17,004	.03547	574	.007107	115	16,545	
1946	11,430	1.7519	20,024	.02667	534	20,558	.02247	450	.005194	104	20,212	3.591
1951	11,649	2.1166	24,656	.01030	254	24,910	.02000	493	.005070	125	24,542	
1956	12,585	2.4971	31,426	.01451	456	31,882	.01651	519	.004614	145	31,508	
1961	13,114	2.6396	34,616	.01384	479	35,095	.02175	753	.005402	187	34,529	↓
1966	14,891	3.0231	45,017	.01362	613	45,630	.02085	939	.005000	225	44,916	5.4
1971	16,241	3.4622	56,230	.01339	753	56,983	.01995	1,122	.005000	281	56,142	4.6
1976	17,598	3.9652	69,780	.01317	919	70,699	.01904	1,329	.005000	349	69,719	4.4
1981	18,952	4.5412	86,065	.01295	1,115	87,180	.01814	1,561	.005000	430	86,049	4.3
1986	20,463	5.2010	106,428	.01272	1,354	107,782	.01724	1,835	.005000	532	106,479	4.4
1991	22,234	5.9566	132,439	.01250	1,655	134,094	.01634	2,164	.005000	662	132,592	4.5

TABLE 19-1 CANADIAN ECONOMIC GROWTH, 1926-1991 (*Continued*)

Year	(26) National Consumption as Prop. of GNE	(27) National Consumption	(28) Public Cons., Civilian, as Prop. of Nat. Cons.	(29) Public or Gov't. Consumption	(30) Private Consumption	(31) Defence Expend. as Proportion of GNE	(32) Defence Expenditure	(33) National Saving	(34) National Saving Ratio	(35) Per Cent of Total Consumer Spending: Non-durable Goods	(36) Per Cent of Total Consumer Spending: Durable Goods	(37) Per Cent of Total Consumer Spending: Services
Symbol	C^{no}	C^{n}	$C_g/C_n \times 100$	C_g	C	G^{o}_{M}	G_M	S^{n}	S^{no}	C^{o}_{nd}	C^{o}_{d}	C^{o}_{s}
Units	%	m 57$	%	m 57$	m 57$	%	m 57$	m 57$	%	%	%	%
1926	75.1	7,545	10.2	773	6,772	0.3	34	2,463	24.5	49.39	8.49	42.12
1931	89.7	8,994	11.8	1,059	7,935	0.4	41	995	9.9	56.77	7.74	35.49
1936	85.5	9,085	10.2	930	8,155	0.5	56	1,480	13.9	57.22	8.03	34.75
1941	68.1	11,275	10.4	1,176	10,099	12.6	2,090	3,179	19.2	57.62	7.85	34.53
1946	74.6	15,074	7.5	1,128	13,946	6.8	1,383	3,755	18.6	59.82	7.05	33.13
1951	70.7	17,360	9.9	1,723	15,637	5.3	1,303	5,880	24.0	58.06	10.98	30.95
1956	70.2	22,129	12.0	2,651	19,478	6.0	1,890	7,489	23.8	51.53	12.99	35.48
1961	76.3	26,345	13.2	3,486	22,859	4.2	1,452	6,732	19.5	51.29	11.71	37.00
1966	75.0	33,687	13.92	4,689	28,998	4.0	1,797	9,432	21.0	50.25	12.08	37.67
1971	75.0	42,106	14.63	6,160	35,946	4.0	2,246	11,790	21.0	49.20	12.47	38.33
1976	75.0	52,289	15.35	8,026	44,263	4.0	2,789	14,641	21.0	48.15	12.85	39.00
1981	75.0	64,537	16.07	10,371	54,166	4.0	3,442	18,070	21.0	47.10	13.23	39.67
1986	75.0	79,859	16.78	13,400	66,459	4.0	4,259	22,361	21.0	46.05	13.61	40.34
1991	75.0	99,444	17.50	17,403	82,041	4.0	5,304	27,844	21.0	45.00	14.00	41.00

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TABLE 19-1 CANADIAN ECONOMIC GROWTH, 1926-1991 (*Concluded*)

Year	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)	(46)
	Private Consumption Components			National Consumption Per Capita		Total Gov't Spending as Proportion of GNE	Total Gov't Spending	Gov't Investment	Total Private Sector Savings
	Non-durable Goods	Durable Goods	Services	Absolute Value	Growth Rates				
Symbol	C_{nd}	C_d	C_s	c^n	$^oc^n$	G^o	G	GI_g	S^n-GI_g
Units	m 57$	m 57$	m 57$	1–57$	% p.a.	%	m 57$	m 57$	m 57$
1926	3,345	575	2,852	798.3		10.3	1,034	227	2,236
1931	4,505	614	2,816	866.8		15.1	1,513	414	581
1936	4,666	655	2,834	829.7		11.8	1,254	268	1,212
1941	5,819	793	3,487	979.8		20.0	3,302	36	3,143
1946	8,343	983	4,620	1,226.3	1.7	14.8	2,991	480	3,275
1951	9,080	1,718	4,840	1,239.2		15.1	3,713	687	5,193
1956	10,037	2,530	6,911	1,376.1		18.0	5,664	1,123	6,366
1961	11,724	2,676	8,459	1,444.5		19.1	6,608	1,670	5,062
1966	14,571	3,503	10,924	1,659.8	2.8	20.1	9,028	2,542	6,890
1971	17,685	4,482	13,778	1,863.9	2.3	21.1	11,846	3,440	8,350
1976	21,313	5,688	17,263	2,072.2	2.1	22.1	15,408	4,593	10,048
1981	25,512	7,166	21,488	2,284.7	2.0	23.1	19,877	6,064	12,006
1986	30,604	9,045	26,810	2,531.5	2.1	24.1	25,661	8,002	14,359
1991	36,918	11,486	33,637	2,832.6	2.3	25.1	33,281	10,574	17,270

SOURCE: Brown, T. M., *Canadian Economic Growth*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer 1964, Chapter 7.

increased opportunities for women in the expanding service industries will permit a growing number of women to enter the labour force. The rapid changes in labour force participation that have characterized the past decade is not expected to continue to the same extent and we have therefore allowed for some slowing down in both these trends in the future. The downward trend in male participation was projected forward so that it declines from 80 per cent in 1961 to 75 per cent in 1991; while the upward trend for females was projected so that it grows from 28.8 per cent in 1961 to 38 per cent in 1991. The net result of these counteracting trends was that over-all participation is projected as rising moderately, from 54.3 per cent in 1961 to 55.3 per cent in 1991. As a consequence with the Canadian population rising from 18.2 million in 1961 to 35.1 million in 1991, the civilian labour force is expected to grow from 6.5 million to 13.1 million.

FROM LABOUR FORCE TO PRODUCTION

The labour force or labour supply is only a potential input into production. The actual input depends upon the rate of unemployment, the hours of work per week and per year, the degree of skill and education brought to the task, and finally the intensity of effort. There are thus many dimensions to labour input. We must attempt to see the trend they produce.

Unemployment

The rate of unemployment was approximately 2.5 to 3 per cent of the civilian labour force in the late 1920's, rose to 20 per cent or more in the depressed nineteen thirties, was 12 per cent as late as 1940, about 2 per cent later in the war, and ranged from 2.5 to 4 per cent in the post-war up to 1953. With the recessions of 1954 and 1957 the rate moved to over 4 per cent and from 1958 onward has been 6 and 7 per cent.[1] The evidence presented both in our study on Canadian Economic Growth, and of the Special Committee of the Senate on Manpower and Employment, indicate that Canada has had a serious unemployment problem for some years.[2] With the elimination of the backlog of demand for consumer goods and the ces-

[1] The percentage refers to the average ratio for the year of the numbers of persons in the labour force.

[2] "Over the past decade there has been an upward drift in the general level of unemployment. This tendency has been especially pronounced since the end of the 'boom' in 1956-57. During 1960 the average rate of unemployment was about 7%, a rate which is of major concern both from the standpoint of lost human opportunities and lost production." *Final Report of the Special Committee of the Senate on Manpower and Employment,* Ottawa: Queen's Printer, 1961, p. 2.

sation of the resource investment boom of 1955-57, the increased competitiveness of foreign producers and the fact that more recent innovations of automation, electronics, computers, atomic energy, and space research stimulate employment at the outset, but eventually are labour saving, (their labour-saving effect seems ultimately to more than offset their capital-using effects on final over-all employment) led to an increase in unemployment that is reported to be higher than that of any industrialized nation.[1] Indeed, technological change in all its forms may have enabled the private commodity producing sector of the economy to achieve a high rate of productivity increase particularly in manufacturing industries. Hence increasing manufacturing output has not been accompanied by corresponding increases in employment. It has been mainly the rising rates of production of government and other services sectors, along with the capital investment that this has required, which has prevented the level of unemployment from rising to levels even higher than those actually recorded. We have referred to this point in our discussion in Chapter 11.

What we are suggesting is that much more than a structural problem is creating the current high levels of unemployment in North America. Investment itself, despite the growth of government capital expenditures, and the availability of potential savings, has been at a relatively low level since 1957 and the adjustment to structural changes has become more difficult in the circumstances of a slow rate of economic growth.

It is beyond our Terms of Reference to delve into the causes of a continuing high level of unemployment or to make recommendations how it might be reduced. But a rapid increase to a relatively high level of demand, including a high level of demand for health services, would provide the largest immediate supply of goods and services for consumption and investment and with it a higher level of employment and a reduction in the volume of unemployment. It is with a sense of sincere conviction that we state that an expanding health industry has made, and can continue to make, an important contribution both directly and indirectly to the economic growth of Canada and rising levels of employment and income. What rate of economic growth should be aimed at and what could be realized, as well as what path should be taken to reach it, is a challenge which Canada faces. Despite the growth of the Canadian labour force and the spread of automation, with the appropriate private and public policies the Canadian economy could move along a growth path with minor fluctuations varying between an average rate of unemployment of four and five per cent per year.

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[1] *Measuring Employment and Unemployment*, U.S. President's Committee to Appraise Employment and Unemployment Statistics, Washington: U.S. Government Printing Office, 1962, p. 220.

Our projections indicate that the long-term level of unemployment of four per cent could be attained by 1966,[1] and that while unexpected fluctuations around this trend rate will occur between 1966 and 1991—as a consequence of the business cycle—this average trend could be maintained. As an alternative, to take account of the imperfection of economic policy and the economic system, estimates are presented of the employed labour force on the basis of an average rate of unemployment of five per cent per year.

We recognize that a range of 4 to 5 per cent rate of unemployment may be considered by some observers as too high, by some as too low. We believe in being realistic, admitting the difficulties which a predominantly private enterprise country is facing in achieving a high level of employment while at the same time relying on the good sense of the Canadian people, and its democratic institutions, to pursue economic policies which will keep the waste of human resources associated with unemployment to a minimum reconcilable with a free society. As a consequence our projection is based on an assumed rate of unemployment somewhat higher than the 3 per cent projected by the Royal Commission on Canada's Economic Prospects[2] or the one per cent aimed at by a country like Sweden. Our range of 4 to 5 per cent is about the same or moderately higher than the interim target of 4 per cent suggested by the administration in the United States.[3] To the extent that policies are developed that reduce the level of unemployment below 4 to 5 per cent so will Canada be able to achieve a higher standard of living than that projected in our Report. Unemployed men and unused capital resources produce nothing but they must be maintained. Lower unemployment means a more rapid rate of economic growth and the possibility of more consumption and investment, both private and public, which otherwise would be lost forever. We wish to reiterate: One of the important consequences from such an increased output is the possibility of providing expanded health services with their numerous benefits in human and economic terms.

Hours of Labour

Hours of work, both in agriculture and industry, have steadily declined as Canadian society has become more productive and wealthier and Canadians have chosen to take part of their productive gains in more leisure instead of more goods and services. The long-term rate in the average

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[1] This compares with a rate of between 5 and 6 per cent in 1962 and 1963.

[2] Royal Commission on Canada's Economic Prospects, *Final Report*, Ottawa: Queen's Printer, 1957, p. 325.

[3] *Economic Report of the President*, transmitted to the Congress, January 1963. Together with The Annual Report of the Council of Economic Advisors, Washington: United States Government Printing Office, 1963, p. 42. The Report stresses the desirability of aiming over the longer term at a ratio of the number of unemployed to labour force below 4 per cent.

annual number of hours worked by each Canadian worker has declined at an annual average of 0.8 per cent since 1926 while the hours worked per week fell from 55 hours in the period 1926-31 to 41.5 hours in 1961. The rate of decline in the work week has been somewhat lower in the post-war period, 0.67 per cent a year on the average and it is this trend which has been projected to 1991.[1] In this projection, average hours worked per year decline from 2,164 in 1961 to 1,768 in 1991, and hours worked per week fall from 41.5 to about 34.

Combining the employment and hours worked projections we get an increase of the labour in the production process from 13,114 million man-hours in 1961, to 22,234 million in 1991, with a growth rate of 1.75 per cent a year.[2]

Productivity

When the physical volume of output of an economy is divided by the quantity of a factor of production used in production the result is called the average productivity of that factor of production. If the factor of production were labour, then the total output divided by the total man-hours of labour would yield the average productivity of labour. This does not mean that all productivity is to be attributed to the factor selected. In fact, improvements in this productivity ratio may be due to increases in the quantity of other factors of production, to qualitative improvements in other factors or to socio-technical improvements in general. On the other hand, some or all of the gains in productivity may be due to the factor in question.

The detailed analysis of this growth in productivity is to be found in our study dealing with economic projections.[3] Suffice to say here that the long-term growth of the average productivity of labour between 1926 and 1961 was such as to raise the real output per man-hour from $1.04 to $2.64. (Output is measured in constant (1957) dollars as shown in Table 19-1). This was the equivalent of a long-term growth in the average productivity of labour of 2.69 per cent a year of which part was the consequence of the accumulation of the stock of capital per man-hour of labour and part was the result of improvements in knowledge, skill and technology—the socio-technical improvement variable—over this period.[4]

Changes in average productivity are subject to cyclical swings tending to fall in recession periods and to rise in prosperous periods. Administrative and maintenance staff cannot be reduced as rapidly as output falls, while

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[1] See Table 19-1.
[2] See Table 19-1.
[3] Brown, T. M., *op. cit.*, Chapters 3 and 6.
[4] The supply of capital per man-hour grew at the trend rate of 1.33 per cent a year and the socio-economic variable at the trend rate of 1.7 per cent a year.

TABLE 19-2 ESTIMATED VALUE OF TOTAL AND PER CAPITA REAL GROSS NATIONAL PRODUCT (GNP) AND NATIONAL PER CAPITA CONSUMER EXPENDITURE,* ASSUMING DIFFERENT UNEMPLOYMENT AND AVERAGE LABOUR PRODUCTIVITY RATES, CANADA, SELECTED YEARS, 1961-1991

(constant (1957) dollars)

Year	Gross National Product†			Per Capita Consumer Expenditures†		Gross National Product‡			Per Capita Consumer Expenditures‡		Gross National Product[a]			Per Capita Consumer Expenditures[a]	
	Total	Per Capita	Growth Rate		Growth Rate	Total	Per Capita	Growth Rate		Growth Rate	Total	Per Capita	Growth Rate		Growth Rate
	$'000,000	$	%	$	%	$'000,000	$	%	$	%	$'000,000	$	%	$	%
1961[b]	34,529	1,893	—	1,444	—	34,529	1,893	—	1,444	—	34,529	1,893	—	1,444	—
1966	44,916	2,213	5.4	1,660	3.3	44,449	2,190	5.2	1,643	3.1	43,377	2,137	4.7	1,603	2.1
1971	56,142	2,485	4.6	1,864	2.3	55,553	2,459	4.5	1,844	2.2	52,909	2,342	4.0	1,756	1.7
1976	69,719	2,763	4.4	2,072	2.1	68,994	2,734	4.5	2,051	2.0	64,126	2,541	4.0	1,906	1.7
1981	86,049	3,046	4.3	2,285	2.0	85,154	3,015	4.2	2,261	2.0	77,239	2,734	4.0	2,051	1.5
1986	106,479	3,375	4.4	2,531	2.1	105,372	3,340	4.5	2,505	2.0	93,275	2,957	4.0	2,217	1.5
1991	132,592	3,777	4.5	2,833	2.3	131,213	3,738	4.5	2,803	2.2	113,348	3,229	4.0	2,421	1.7

*Includes private and public consumption.

†Based on an average level of unemployment of 4 per cent of the civilian labour force and average labour productivity of 2.75.

‡Based on an average level of unemployment of 5 per cent of the civilian labour force and average labour productivity of 2.75.

[a]Based on an average level of unemployment of 5 per cent of the civilian labour force and average labour productivity of 2.25.

[b]Revised data for 1961, based on Dominion Bureau of Statistics, *National Accounts Income and Expenditure, 1962*, indicate that total GNP in 1961 amounted to $35,023 million and per capita GNP amounted to $1,920.

SOURCE: Brown, T. M., *Canadian Economic Growth*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer 1964, Chapter 8.

direct labour can be so reduced. A further cause of decline may be that plants are achieving their highest level of productivity when used at or close to optimum capacity. Below this level they may be much less productive. A further cause of low productivity in recession periods is the impact on socio-technological improvement. We cannot expect education and research to progress at the same pace in depression as in prosperity. Nor can we expect innovations to be pursued as vigorously in depression as at other times for reasons of low demand and difficulties of finance. Nor can we expect workers to have high morale and a proper attitude toward work and productivity when there is wide-spread unemployment. There is a productivity bonus to society which may itself pay for the costs of economic policies aiming at a continuing rate of economic growth accompanied by a high level of employment and income. We cite as evidence the growth of productivity of labour in the post-war period. From 1946 to 1956, real output per man-hour rose from $1.75 to $2.50, as can be seen from Table 19-1, or the equivalent of a trend rate of growth of 3.6 per cent a year. In the recent period of economic slowdown, real output per man-hour rose only from $2.50 in 1956 to $2.64 in 1961, a trend rate of growth of 1.2 per cent a year.

For our projection of output, we have felt that if the level of unemployment can be held at 4 per cent, real output per man-hour, measured in constant (1957) dollars should rise to $5.96 by 1991, the equivalent of a trend rate of growth in average labour productivity of 2.75 per cent a year, approximately the equivalent rate recorded in the period 1926 to 1961.[1]

We have, however, made an alternative assumption of an unemployment rate of 5 per cent. Under these circumstances we project that the average productivity of labour will fall below the long-term trend, and that the level achieved, for the reasons outlined above may amount to only 2.25 per cent a year.[2]

PROJECTED GROWTH OF TOTAL REAL OUTPUT

Given our projected rate of growth of total man-hours of labour —assuming a 4 per cent unemployment rate—and given that the average productivity of labour is projected to grow at a rate of 2.75 per cent a year, Table 19-1 indicates that gross domestic civilian product is expected to increase from $34.6 billion in 1961 (measured in constant 1957 dollars) to $132.4 billion in 1991. We need not go into the detail here concerning the adjustments needed to convert gross domestic civilian product into Gross National Product since the interested reader can consult our study dealing

[1] *Ibid.*, Chapter 6.
[2] See Table 19-2.

with Canadian Economic Growth.[1] Suffice to say that the adjustments involve the addition of the output of the defence industry not already included in gross domestic civilian product to obtain Gross Domestic Product, and the addition of interest and dividends received from abroad and the subtraction of interest and dividends paid abroad in order to obtain Gross National Product.

On the basis of these adjusted projections it is estimated that GNP, measured in real terms, would increase nearly fourfold over the 30 years of projection rising from $34.5 billion in 1961 to $132.6 billion in 1991.[2] Total GNP may grow at the rate of 5.4 per cent a year in the first five-year period as the economy achieves a somewhat higher proportionate level of employment in 1966. Its subsequent rate of growth would be somewhat less, about 4.5 per cent a year compared with the average rate achieved in the period 1926-61 which includes the depressed thirties of 3.6 per cent and with the average rate of growth of GNP of 5 per cent achieved when Canada had a relatively high level of employment, as for example in the 1946 to 1956 period. Per person, this projected increase in output would result in an increase of almost 100 per cent over the thirty years as per capita GNP is projected to rise from $1,893 in 1961 to $3,777 in 1991, both measured in constant (1957) dollars.

The projection of Gross National Product based on a 5 per cent unemployment rate and a 2.25 per cent labour productivity has been carried out in two stages; first with unemployment at an average annual rate of 5 per cent and labour productivity of 2.75 per cent and then with a lesser rate of average labour productivity of 2.25 per cent. The results of these calculations are tabulated in Table 19-2. With the first set of assumptions we get a slightly slower growth path, with only minor reductions in the growth rate of output. In the period 1961-66, the annual average rate of growth projected is 5 per cent compared with 5.2 per cent in our earlier projection and is only slightly lower in later years. Total GNP in 1966 is only one per cent lower at $44.4 billion and in 1991 is still only a little over one per cent less at $131 billion.[3]

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[1] Brown, T. M., *op. cit.*

[2] See Tables 19-1 and 19-2. We have used throughout this Report the original estimates of Gross National Product for 1961 as published by the Dominion Bureau of Statistics. As we explained in footnote b to Table 19-2, the Dominion Bureau of Statistics has subsequently revised its estimate of Gross National Product for 1961 from a preliminary total of $34,529 million to $35,023 million in constant dollar terms. In current dollar terms the change was from $36,844 million to $37,421 million. For the purpose of the current dollar projections up to 1971, shown in Table 19-3, we have used the revised figures of Gross National Product for 1961 as a base (see Brown, T. M., *op. cit.*, Chapter 7, p. 11). It should also be noted that if this revision were incorporated into the projection of GNP shown in Table 19-1, the effect would be to raise the estimated GNP for 1991 by about $1,830 million or almost 1.5 per cent.

[3] Because this alternative projection differs but slightly from our first projection we have made no further use of it.

Using the second set of assumptions which are somewhat more compatible, since a lower rate of employment would tend to be associated with a slower growth rate in productivity, as shown in Table 19-2, we still get a substantial growth rate of Gross National Product though not at the level projected with lower employment and higher productivity. By 1966, the projected growth rate of GNP is 4.7 per cent and for the remainder of the period it is projected at 4 per cent. The result of this is that in 1966 GNP is about 3.5 per cent lower at $43.4 billion and in 1991 is over 14 per cent lower at $113 billion. Per capita GNP in 1991, given the most unfavourable projection would still amount to about $3,229, over 70 per cent greater than it had been in 1961.

CURRENT DOLLAR PROJECTIONS OF GROSS NATIONAL PRODUCT

The projection of economic quantities is best carried out in terms of physical volume, that is with quantities measured in the fixed prices or fixed price level of a base period. In exceptional cases where the prices of specific goods and services might be expected to rise rapidly it is useful to convert projections calculated in constant dollars of some base period [e.g., in constant (1957) dollars] to money costs in market prices. To do this it is necessary to project future movements of price levels which are composed of trends, cycles and irregular price movements. Given the vast difficulties associated with this exercise we have projected here only a trend in the implicit price index of Gross National Expenditure.

The long-term growth rate of the price level for GNE during the period 1926 to 1962 has been 2⅛ per cent a year. Much of this increase took place in the immediate post-war period, a consequence of the removal of price controls and the post-war scarcity of consumer goods, and in the more recent period 1954 to 1962, the annual average rate of increase has been 1.94 per cent a year. In the light of the limitations of the data available for projecting future price trends it has been assumed that the latter trend will persist until 1971 and the rate of 1.94 per cent was used in projecting GNP in current dollars between 1961 and 1971. The price level so projected was applied to the GNP values for Projection 1 and the variant which assumes a 5 per cent rate of unemployment and a growth rate in the average productivity of labour of 2.25 per cent. Table 19-3 gives these projections in current dollars and indicates that if these trends were realized the Gross National Product would be between $69 billion and $74 billion in 1971. On a per person basis the increase would be between 50 and 60 per cent as per capita income would increase from $2,052 in 1961 to between $3,076 and $3,264 in 1971.

TABLE 19-3 PROJECTED GNP IN CURRENT DOLLARS, CANADA, 1961, 1966 AND 1971

Year	Projection I*		Variant I†	
	Total	Per Capita	Total	Per Capita
	$'000,000	$	$'000,000	$
1961	37,421	2,052	37,421	2,052
1966	53,587	2,640	51,751	2,550
1971	73,734	3,264	69,487	3,076

*Assuming a 4 per cent rate of unemployment, average labour productivity of 2.75 and a compound growth rate of the price level of 1.94 per cent a year.

†Assuming a 5 per cent rate of unemployment, average labour productivity of 2.25 per cent and a compound growth rate of the price level of 1.94 per cent a year.

SOURCE: Brown, T. M., *Canadian Economic Growth*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter 7, Table 3.

ALLOCATION OF OUTPUT

In an economy operating at a high level, the broad social choices that are available to individuals and society as a whole are between leisure and output since the more leisure the less that total output will be. In a relatively affluent society it seems to be the case that the consumption of leisure becomes increasingly important compared to the consumption of goods and services. As a consequence, the average number of hours worked per year declines, an experience we can observe for Canada for a long period of time. We have projected this trend into the future, as explained earlier.

Society, and the individuals that make it up have another choice: how much of their income should be devoted to consumption and how much should be saved. If output is used up in consumption, then labour and capital will be employed to replace this output and unemployment would tend to be minimized. However, consumption today does not provide for a higher consumption in the future. This can only come about by some combination of capital accumulation and technical progress and, as a consequence, part of total output must not be consumed. It must take the form of additions to the supply of capital goods. In short, a community if it wishes to achieve a high and continuing rate of economic growth must save (forego consumption) in order to accumulate investment goods.

In this context it is necessary to recall that not all spending classified as consumption is in fact consumption spending. Because the basic data for our projections, the National Accounts, still treat the current costs of education and health as consumption expenditures, investment in human capital is classified as a consumption outlay not an investment outlay. Again what is classified as public consumption consists of government current expenditures, excluding defence expenditures, of the Federal, Provincial and municipal governments for police and fire protection, the judiciary, road maintenance, sewage and garbage disposal, government scientific research, economic analysis, communicable disease control, education and a host of other services. The proportion of such spending which is either an intermediate expenditure or an outlay with some expectation of economic return is unknown but is still substantial.

Even if a community foregoes consumption, it does not necessarily follow that available resources will be used to add to the capital stock. They may merely lie idle in the form of unemployed men, buildings and machines and the foregone consumption of the community, the savings of its members, are brought to nought if capital accumulation does not take place at the rate required. If investment goods, whether private or public, were produced in response to savings; that is if savings were constructively employed to acquire these capital goods; this would lead to more production and consumption in the future. The result is continuing economic growth.

The maintenance then of a high level of output, as well as employment, requires a continuing large volume of investment, both private and public, or, if this is not forthcoming, a high level of private and public consumption.

The solution of this dilemma thus involves the projection of a likely level of investment, along with a level of consumption that will lead to the employment of almost all available labour and capital and which will stimulate technological innovation and risk-taking enterprise. To choose a low level of consumption and a large volume of savings may mean a slow rate of increase of income accompanied by a high level of unemployment. The reason: sufficient investment is not forthcoming to match the volume of savings. On the other hand, if it were possible to ensure that all savings were transformed into investment goods, then a high level of savings might involve a lower level of consumption today in favour of a higher level of growth and future consumption. These are complex and difficult problems that involve solutions far beyond the frame of reference of this Commission. In order to support our estimate of GNP and to estimate the significance of publicly financed health expenditures it is necessary to make some assumptions about the possible future allocation of output.

Essentially what we have done is to project that total national consumption, including private consumption and government current expenditures, will account for 79 per cent of total output and that savings-investment, again including government investment expenditures, will account for 21 per cent.[1] Total consumption includes 75 per cent for civilian consumption and 4 per cent for defence spending. The allocation of 21 per cent of output to savings-investment implies that we have not projected the highest possible rate of economic growth associated with a high level of savings-investment since this latter category has risen as high as 25 per cent of total output in periods of intensive investment such as 1926-29 and 1955-56. Alternatively, even with a level of savings equal to 21 per cent of GNP, we are still projecting a rate of unemployment of labour of 4 per cent.

With 21 per cent of total output allocated to national savings-investment, Table 19-1 indicates that in constant dollar terms, savings are projected to rise from $6.7 billion in 1961 to $27.8 billion in 1991, an increase of over fourfold in this period. Defence expenditures are projected to account for 4 per cent of GNE and to rise from $1.45 billion in 1961 to $5.3 billion in 1991.[2] This implies that output in the defence sector will increase almost threefold. Total national consumption, both private and public as shown in Table 19-1 is projected to rise from $26.3 billion to $99.4 billion in 1991 or nearly fourfold, while per capita private and public consumption is projected to rise from $1,444 in 1961 to $2,833 in 1991 or to double over a period of thirty years. Such an increase would be the equivalent of an average annual percentage rate of improvement of 2.2 per cent a year compared to 1.7 per cent over the period 1926-1961. The private consumption component is projected to rise from $1,253 in 1961 to $2,337 in 1991 and the public consumption component to rise from $191 to $496. Despite the somewhat more rapid increase projected for public consumption over the thirty years, private consumption expenditures are still almost five times as great as public consumption in 1991. Part of private consumption expenditures in a sense will be financed by government since transfer payments are a part of disposable income available to finance private consumption.

Even with the projected higher rate of unemployment and lower rate of productivity the growth of output would still be substantial. Gross National Product is projected to increase to $113.3 million by 1991 and per capita consumption in real terms—a rough equivalent of the level of living—while

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[1] See Royal Commission on Canada's Economic Prospects, *op. cit.*, Table 17-1, p. 336, which estimated 77 per cent would go into national consumption including defence and 23 per cent for savings-investment.

[2] *Ibid.*, Table 17-1, p. 336, which projected defence expenditures as between 3.9 and 4.1 per cent of GNE in the period 1979-1981.

it no longer doubles, does increase by almost 70 per cent over the thirty years which is equivalent to an annual rate of increase of over 1.7 per cent a year.

Our opinion then is, given existing information, that to project a higher level of savings would not be consistent with a rate of unemployment between 4 and 5 per cent. A level of savings such as we have projected would provide a growing stock of capital consistent with the growth of the labour force and a trend rate of growth of average labour productivity of between 2.25 and 2.75 per cent. Sufficient capital and labour would be forthcoming to enable GNP to grow at a rate of 5.4 per cent a year in real terms in the period ending in 1966, providing the economy returns to a moderately higher average level of employment (96 per cent of the labour force). Subsequently it could grow at a rate of 4.5 per cent a year which is not too far removed from the historical average high employment and high savings growth rate of 5 per cent a year[1] and is considerably higher than the 3.6 per cent growth rate experienced over the whole period 1926-61.[2] Nor should it be forgotten that more investment output could be achieved if the unemployment rate could be reduced below 4 per cent while if unemployment increases to 5 per cent and the rate of productivity increase falls to 2.25 per cent, the trend rate of growth of income is even lower than that described above.

We do not wish it to be inferred that we have made a choice for Canadians between consumption and savings. What we have done is to assume that private and public economic activity will be high enough to reduce the level of unemployment to 4 or 5 per cent of the labour force and on this basis we have projected the trends which we believe to have been operating in the Canadian economy over a number of years and are currently continuing. Circumstances beyond the control of Canadians along with private and public policy decisions could materially affect these trends but only the events of the future will tell us whether this will in fact be the case.

ALTERNATIVE PROJECTIONS OF OUTPUT

In the study on Canadian Economic Growth prepared for us, two other estimates of future Gross National Product were included using different and somewhat more complex theoretical analyses.[3] The result of the

[1] This compares with an average of 4.9 in 1963.

[2] It will be noted from Table 19-1 that the proportion of Gross Domestic Product paid abroad is projected as declining from .022 per cent in 1961 to .016 per cent in 1991 indicating a diminished dependence on foreign capital in the latter year.

[3] Brown, T. M., *op. cit.*, Chapters 8 and 10.

first of these projections does not differ significantly from the projections used in this study. The standard of living almost doubles over the period 1961-91, and total output measured in constant (1957) dollars rises to $132.7 billion in 1991 compared to $132.4 billion in the projections presented in this chapter.

The other projection is based upon an econometric model of economic growth and attempts to estimate the main behaviour equations of the economy. That is, it is designed to explain and project the demand for goods and services as well as the supply. This particular projection[1] brings out the tendency of an economy with a high degree of technological progress to generate a substantial amount of unemployment even when the rate of growth of national output is rapid. The model also indicates that pronounced material gains can be made if suitable economic policies are pursued to enable the nation to reap the benefits of both a high level of technological progress and a high level of employment. These gains accrue not only to those who otherwise should suffer from unemployment but also to the nation as a whole. The standard of living increases rapidly for all Canadians, business profits grow at an encouraging rate, increasing economic benefits can be passed on to less developed countries through economic aid and technical assistance and government deficits can be eliminated and converted into surpluses. The public policies used to produce these results include changes in tax rates and the size of transfer payments along with variations in the level of public consumption and a number of other economic policies, but all directed essentially to stimulate demand.

The implications are clear. If the Canadian economy can achieve a high rate of economic growth on the basis of a reasonably high level of employment, under such prosperous conditions Canadians will be able to continue to increase their per capita consumption of goods and services, most wants can be more fully satisfied and some wants formerly considered luxuries may gradually come to be considered necessities. If, however, this rate of economic growth were not achieved, then additional public stimulants to demand would become necessary and both private and public consumption and investment likely would then need to be stimulated. In both cases it is possible for Canadians to increase their consumption in the future without ultimately reducing their standard of living. In the latter case, the choice seems to be between a higher rate of unemployment and more present or future consumption since the economic potential is there.

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[1] This approach is only a preliminary attempt to project total output using an econometric model technique. The economic analysis on which this model is based is subject to further development and the conclusions presented must, therefore, be accepted as tentative.

PUBLIC SECTOR IN THE CANADIAN ECONOMY

In our discussion of the distribution of output between consumption, and investment we made no distinction between the persons or institutions responsible for such expenditures though we did refer to the future role of government spending in maintaining a relatively high level of employment in a growing economy. We turn now to an examination of the role of government expenditures in the Canadian economy and to assess the changing trends in such expenditures since growth of health expenditures is closely associated with these trends.

Governments in Canada have always played an important part in economic and social development, both by direct and indirect means, public expenditures, transfer payments, subsidies, taxes, tariff and monetary policy. During the decades following Confederation came subsidized railway construction, protective tariff policies, and encouragement of immigration. World War I brought extension of government activities into secondary industries as well as in the traditional fields of military efforts. The automobile committed governments to large road-building programmes in the 1920's, while the depression and World War II necessitated much broader government action in the economic sphere than ever attempted before. In the post-war period Canadian governments have continued to produce goods and services for community consumption as well as to redistribute income. In addition, they have been expected to maintain a high level of employment, reasonable price stability and to encourage continuing economic growth. All of which have tended to increase the role of government in the economy. Thus tariff protection has been continued, subsidies have been provided for many industries, transfer payments have been increased and taxation has been used as a device for stimulating particular types of economic growth.

This expansion of direct and indirect government activity has been associated with what seems to be an increasing use of the institution of government to meet a variety of new and pressing needs. Problems and collective needs arise because men live in association and are interdependent in economic and social respects. Government is the only universal agency in the nation, and it is the only institution which can enforce its laws and regulations. Democratic government is an agency which enables us to transcend exclusively individual and selfish drives and to provide benefits for all, or at least a majority, of the nation's individuals. Many different arrangements have been developed to implement economic and social policies, the result of a complex process of discussion, negotiation, voting, decision-making, and budgeting. Throughout this procedure there is an emphasis

upon finding out what is the overriding national interest and to discover the means for achieving acceptable solutions in the interdependent society of today.

The process of industrialization and advancing technology, specialization and the division of labour, urbanization and the need for spatial organization of economic and social activities all have exerted an upward pressure on government expenditures in developing and developed countries. The higher the level of per capita income, the higher the percentage of the national income devoted to public service tends to be. Fundamentally, the development of government is part and parcel of the whole process of economic growth. In western countries, the expansion of government activities has been, and continues to be, far more a matter rooted in technological and economic than in ideological factors. It is largely force of necessity in an interdependent, industrialized, and specialized society which is responsible for the growth of the public sector rather than political evaluations.

To be specific, many private wants contribute to an increase in expenditures on public goods and services. An obvious case is the automobile; the more private expenditure on automobiles, the more public outlays are required for roads, traffic signals, and policemen. Again the increased awareness of the benefits to be derived from investment in human capital has led to an increased demand for educational and health services which historically have been provided by governments to a substantial extent. We have discussed in Chapter 12 the role of educational and health services in an increasingly complex and affluent society and there are many other examples of what Galbraith has called expenditures to maintain the "social balance".[1] Advancing technology also affects significantly the pattern of spending. Whether it takes place in the private sector, the government sector or the defence sector, it leads to demands for higher standards of equipment and services requiring highly skilled and therefore relatively costly personnel. Thus government expenditures rise as technology grows.

Finally, increasing specialization, economic interdependence, the growth of inter-generation transfers of income and the desire to achieve national minimum standards of service have increased government transfer payments such as old age pensions, hospital grants, unemployment assistance, and various other social security expenditures. The size of these payments is related to the general level of economic activity so that as the national income increases, transfer payments also grow. Indeed, the growth of public expenditures increasingly has become interrelated with economic growth since on the one hand, government programmes are needed to support

[1] Galbraith, J. K., *The Affluent Society*, Boston, Houghton Mifflin Company, 1958, Chapter 18.

economic growth; on the other, economic growth makes it possible to finance additional programmes without necessarily curtailing other desirable efforts. This does not mean that over the long term government may supplant private economic activity. On the contrary, the economic achievements of Canada over the last century demonstrate both the effectiveness and viability of our way of life. But what we are suggesting, and this we believe earnestly, is that sensible and far-sighted government action should be forthcoming if obstacles to growth are to be eliminated within the framework of Canadian tradition and our concepts of the rights and obligations of the individual.

The effect of a high rate of population growth, shifts in the age structure of the population, rapid urbanization and technological change, investment in human capital and changing social attitudes on the trend rate of growth of government spending is evident in Tables 19-4 and 19-5. In Table 19-4, government expenditures on goods and services in *real* terms, excluding transfer of money to individuals or non-government organizations, are shown to have risen from $1 billion in 1926 to $6.6 billion in 1961. As a percentage of GNE, such expenditures have risen from 10.3 per cent in 1926 to 19.1 per cent in 1961.[1] A substantial part of this increase has been the consequence of increased defence spending which still amounted to 4.2 per cent of GNE in 1961[2] and excluding such expenditures, government outlays for goods and services amounted to barely 15 per cent—a percentage not substantially higher than in 1931. The trend rates of growth of spending, including defence spending, rose in the post-war period to 5.4 per cent a year, compared with a rate of 3.7 per cent in the pre-war period. Excluding defence expenditures the trend rates of growth were 8 per cent in the post-war period compared to 1.5 per cent in the pre-war period.

The payments made by governments to individuals and families, or to business and non-profit corporations on their behalf (the transfer payments and subsidies), are shown in Table 19-5. From $540 million in 1926, measured in *real* terms, these payments have increased until by 1961 they amounted to $4.4 billion. As a percentage of GNE they have risen from 5.4 per cent in 1926 to 12.8 per cent in 1961, but until 1956 they accounted for a smaller proportion of GNE than they had done in 1936 and the growth in recent years has been due, to a substantial extent, to the growth of transfer payments to finance investment in human capital either in the form of payments under the hospital insurance programme or grants for higher education.

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[1] It should be noted that government business enterprise (e.g., public utilities and government railways) are included in the private sector along with private non-commercial institutions (e.g., universities and hospitals). Governments provide part of the funds used to finance such expenditures and these expenditures are classed as transfer payments and are discussed later.

[2] This proportion declined to below 4 per cent in 1963.

TABLE 19-4 GOVERNMENT SPENDING FOR GOODS AND SERVICES, BY CLASS OF EXPENDITURE, IN CONSTANT (1957) DOLLARS, CANADA, SELECTED YEARS, 1926-1961

Year	Government Consumption		Government Investment		Investment and Consumption Spending			Defence		Total		
	$'000,000	Percentage of GNE	$'000,000	Percentage of GNE	$'000,000	Percentage of GNE	Trend Rate of Growth % p.a.	$'000,000	Percentage of GNE	$'000,000	Percentage of GNE	Trend Rate of Growth % p.a.
1926	773	7.7	227	2.3	1,000	10.0	↑	34	0.3	1,034	10.3	↑
1931	1,059	10.6	414	4.1	1,473	14.7	1.5	41	0.4	1,514	15.1	3.7
1936	930	8.6	268	2.7	1,198	11.3	↓	56	0.5	1,254	11.8	↓
1941	1,176	7.2	36	0.2	1,212	7.4	↑	2,090	12.6	3,302	20.0	↑
1946	1,128	5.6	480	2.4	1,608	8.0	8.0	1,383	6.8	2,991	14.8	5.4
1951	1,723	7.0	687	2.8	2,410	9.8		1,303	5.3	3,713	15.1	
1956	2,651	8.4	1,123	3.6	3,774	12.0	↓	1,890	6.0	5,664	18.0	↓
1961*	3,486	10.1	1,670	4.8	5,156	14.9		1,452	4.2	6,608	19.1	

*Dominion Bureau of Statistics, *National Accounts, Income and Expenditure, 1962*, Ottawa: Queen's Printer, 1963, presents revised data for 1961. Total expenditure, including defence spending amounted to $6,544 million or 18.7 per cent of real GNE.

SOURCE: Based on Table 19-1.

TABLE 19-5 GOVERNMENT EXPENDITURES AND TRANSFER PAYMENTS IN CONSTANT (1957) DOLLARS, SELECTED YEARS, 1926-1961

Year	Government Consumption and Investment		Government Transfer Payments and Subsidies*		Total		Total Excluding Defence	
	$'000,000	Percentage of GNE	$'000,000	Percentage of GNE	$'000,000	Percentage of GNE	$'000,000	Percentage of GNE
1926	1,034	10.3	540	5.4	1,574	15.7	1,540	15.4
1931	1,514	15.1	805	8.0	2,319	23.1	2,278	22.7
1936	1,254	11.8	1,095	10.3	2,349	22.1	2,293	21.6
1941	3,302	20.0	1,025	6.2	4,327	26.2	2,237	13.6
1946	2,991	14.8	3,058	15.1	6,049	29.9	4,666	23.1
1951	3,713	15.1	1,880	7.7	5,593	22.8	4,290	17.5
1956	5,664	18.0	2,700	8.6	8,364	26.5	6,474	20.5
1961†	6,608	19.1	4,407	12.8	11,015	31.9	9,563	27.7

*Deflated by using the implicit price index for personal expenditures on consumer goods and services.

†Dominion Bureau of Statistics, *National Accounts, Income and Expenditure, 1962*, Ottawa: Queen's Printer, 1963, presents revised data for 1961. Transfer payments and subsidies amount to $4,550 million or 13 per cent of GNE.

SOURCE: Based on Table 19-1, and Dominion Bureau of Statistics, *National Accounts, Income and Expenditure, 1926-1962*, Ottawa: Queen's Printer.

Table 19-5 also indicates the total outlays (direct spending plus transfer payments) of all levels of government over this period. From $1.6 billion in 1926 government expenditures rose to $11 billion in 1961; that is from 15.7 per cent of GNE to 31.9 per cent. Excluding defence, the percentage spent by governments rose from 15.4 in 1926 to 27.7 per cent in 1961 and amounted to $9.6 billion in the latter year. On the other hand, until 1956, total government spending as a percentage of GNE had not reached the peak level of the 1930's and if defence spending were excluded, government spending in 1956 was still two per cent of GNE lower than it had been in 1931. If the trend rate of growth of total output had been higher in the latter part of the fifties government spending as a proportion of all spending might have been even less.

The rapid growth of government expenditures that took place in Canada in the post-war period is, however, not out of line with the experience of many other developed countries. Thus about the year 1958, countries like the United Kingdom, Norway, Sweden, West Germany, France, Finland, New Zealand and Australia had levels of spending equal to or greater than that of Canada.[1] Some other developed countries, for example, Belgium, Italy and the Netherlands, fall somewhat below Canada. The level of government spending in many less developed countries is comparatively moderate but this reflects the low level of per capita output in these countries as much as anything else. International comparisons have to be made in a guarded fashion but it appears that Canadian governments do not spend a disproportionately large part of GNP judging by the experience of many other industrially advanced countries.

The growth of public expenditures has not been attributable solely to increased expenditures by any one level of government. All levels of governments have increased their spending as can be seen from Table 19-6. These government expenditures are measured in *current* dollars, and account for a slightly higher proportion of GNE than when measured in constant (1957) dollars; 32.1 compared with 31.9 per cent of GNE. But from 1949 to 1961, the Federal Government accounted ultimately for a smaller proportion of total expenditures (49.8 per cent); the provincial governments accounted for approximately the same percentage (24.5 per cent). While the municipal governments accounted for an increasing share (25.7 per cent). By 1961, the level of Federal Government spending was the equivalent of 16.0 per cent of GNP; provincial expenditures the equivalent of 7.9 per cent and municipal expenditures, the equivalent of 8.2 per cent. The more rapid rate of growth of provincial and municipal expenditures reflects the changing demand for collective goods and investment in human capital associated with

[1] United Nations, *Report on the World Social Situation,* Department of Economics and Social Affairs, New York: The Organization, 1961, Table 3, p. 71.

the automobile, urbanization and rising living, educational and health standards. Since these functions have traditionally been the responsibility of provincial and municipal governments, and as these governments can provide and administer these services more readily than the Federal Government in the vast area that is Canada, it is the spending of these governments that has been rising the most rapidly in the post-war period.

TABLE 19-6 TOTAL GOVERNMENT EXPENDITURES BY LEVELS OF GOVERNMENT, CANADA, 1949, 1955 and 1961*

Item	1949	1955	1961
I. In Millions of Dollars			
A. Federal†	1,987	4,311	5,993
B. Provincial‡	928	1,413	2,950
C. Municipal[a]	809	1,556	3,088
TOTAL EXPENDITURE	3,724	7,280	12,031
II. As per cent of total expenditure			
A. Federal	53.4	59.2	49.8
B. Provincial	24.9	19.4	24.5
C. Municipal	21.7	21.4	25.7
TOTAL EXPENDITURE	100.0	100.0	100.0
III. As per cent of gross national product			
A. Federal	12.1	15.8	16.0
B. Provincial	5.7	5.2	7.9
C. Municipal	4.9	5.7	8.2
TOTAL EXPENDITURE	22.8	26.8	32.1

*Excludes intergovernmental transfers.
†Excludes transfers to provinces and municipalities.
‡Excludes transfers to municipalities.
[a]Excludes transfers to provinces.

Source: Hanson, E. J., *Public Finance Aspects of Health Services*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Appendix A, Table A-4.

PROJECTED GOVERNMENT SPENDING

In our recommendations relating to the financing of health care services we have suggested that additional programmes be financed from public funds.[1] In order to relate the cost of these programmes to total govern-

[1] See Chapter 2, Recommendation 1.

ment spending in the future we have prepared an estimate of future government spending which we now present. The basis for these projections is to be found in two studies prepared for us and here we present a brief summary of the trends.[1]

Bearing in mind the limitations on any projection of spending, particularly government spending where the policies adopted by the next generation will influence future expenditures, we can still indicate what is likely to be the pattern of total government spending over the next decade and even over the next thirty years.

Projections relating to the growth of government spending in Canada have been made in the past and the assumption that has characterized these estimates has been that government spending would increase as national income rose but that as a proportion of national income, government spending would change but little.[2] To the present, these projections have not been realized and government expenditures have expanded more rapidly than income, although it may well be that things will have changed by the forecast date. In projecting future government spending we believe that it will continue to rise, and even rise more rapidly than income for some time in the future as both direct spending and transfer payments continue to grow.

The increased income that we project for the future will both permit and lead to an increased demand for more *direct* spending by governments as a consequence of the continued high level of demand for those goods and services that traditionally have been supplied by governments and for those which have been provided by governments in recent years. The projected growth of population in urban areas and expansion of such developments as research will generate an increased amount of spending for the employment of professional workers by government department and agencies; the construction and maintenance of more streets, roads and highways; the further expansion of elementary and secondary education, technical and vocational training; the continued development of municipal water and sewage disposal systems; increased government activities in the area of resource and industrial development, recreation areas, along with the expansion of publicly operated health facilities such as hospitals or public health clinics.

Recognizing that direct government expenditures will grow more rapidly than income, the question still remains how long will this trend continue?

Here we wish to point out that the trend projected is linked directly to our projection of total output and support the growth of demand needed

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[1] Brown, T. M., *op. cit.*, and Hanson, E. J., *Public Finance Aspects of Health Services*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964.

[2] Royal Commission on Canada's Economic Prospects, *op. cit.*, Table 17-1; and Caves, Richard E., Holton, R. H., *The Canadian Economy, Prospect and Retrospect*, Harvard University Press, Cambridge, Mass., 1959, Chapter 9.

to maintain a relatively high level of employment and income. On the other hand they are consistent with the historical division of responsibilities between individuals and governments and among different levels of government in our federally constituted nation. In this sense we have made our projections on the assumption that those functions now being performed by various levels of governments will generally continue to be performed by these governments in the future and those functions now performed by individuals, business or non-profit corporations will continue to be performed by them in the future. This means, for example, that education at the elementary level will continue to be the responsibility of local authorities while education at the university level will be the responsibility of non-profit corporations and therefore classed predominantly as a non-government direct expenditure. The provision of hospital care in federal hospitals or provincial mental hospitals will be the responsibility of governments but the provision of hospital care in most general hospitals will be the responsibility of non-profit private corporations and therefore would be a non-government expenditure. The provision of funds for the finance of private spending may, in some cases, be the responsibility of public authorities; as is the case for general hospital care and some higher education. These expenditures by government are not direct outlays but transfer payments and are so described below.

But having said this it is still necessary to estimate at what point the growth rate of direct government spending will level off in the future. We have projected that defence spending will grow at a somewhat slower rate than in the post-war period since we have projected a constant proportion of GNE, four per cent. In view of the developments that may occur in the area of international relations, this may turn out to be too high and the trend rate of growth of spending on defence decline even further. If this were to be so the provision of health, educational and other facilities would be facilitated but in this area the future is uncertain. As can be seen from Table 19-1 we have projected that both public investment and public consumption will increase. Public investment as a percentage of GNP, is projected to rise from 4.8 per cent in 1961 to 5.7 per cent in 1966, to 6.1 per cent in 1971 and to reach 8.0 per cent by 1991. Public consumption, that is outlays on the services of police, firemen, teachers and other government employees along with other current expenditures, is projected to rise from 10.1 per cent in 1961 to 10.4 per cent in 1966, 11.0 per cent in 1971 and 13.1 per cent in 1991. By 1971, as shown in Table 19-7, direct government spending of all kinds, excluding defence, is projected to rise from 14.9 per cent of GNP to 17.1, an increase of 2.2 percentage points over ten years. By 1991, if the trends projected were to be maintained the increase would be 6.2 percentage points (3.2 per cent for investment spending and 3.0 per cent for other direct spending) and total direct spending would account for 21.1 per cent of GNP.

TABLE 19-7 PROJECTED GOVERNMENT EXPENDITURES ON GOODS AND SERVICES, BY CLASS OF EXPENDITURE, SELECTED YEARS, CANADA, 1961-1991
CONSTANT (1957) DOLLARS

Year	Government Consumption and Investment			Defence Spending			All Expenditures		
	Total Expenditures	Per Capita Expenditures	Percentage of GNP	Total Expenditures	Per Capita Expenditures	Percentage of GNP	Total Expenditures	Per Capita Expenditures	Percentage of GNP
	$'000,000	$		$'000,000	$		$'000,000	$	
				High Projection of GNP*					
1961‡	5,156	283	14.9	1,452	80	4.2	6,608	362	19.1
1966	7,231	356	16.1	1,797	89	4.0	9,028	445	20.1
1971	9,600	425	17.1	2,246	99	4.0	11,846	524	21.1
1976	12,619	500	18.1	2,789	111	4.0	15,408	611	22.1
1981	16,435	582	19.1	3,442	122	4.0	19,877	704	23.1
1986	21,402	678	20.1	4,259	135	4.0	25,661	813	24.1
1991	27,977	797	21.1	5,304	151	4.0	33,281	948	25.1
				Low Projection of GNP†					
1961‡	5,156	283	14.9	1,452	80	4.2	6,608	362	19.1
1966	6,984	344	16.1	1,735	85	4.0	8,719	430	20.1
1971	9,047	400	17.1	2,116	94	4.0	11,263	499	21.1
1976	11,607	460	18.1	2,565	102	4.0	14,172	562	22.1
1981	14,753	522	19.1	3,090	109	4.0	17,843	632	23.1
1986	18,748	594	20.1	3,731	118	4.0	22,479	713	24.1
1991	23,916	681	21.1	4,534	129	4.0	28,450	810	25.1

*Projected on the basis of a 4 per cent rate of unemployment and an average labour productivity of 2.75.
†Projected on the basis of a 5 per cent rate of unemployment and an average labour productivity of 2.25.
‡Dominion Bureau of Statistics, *National Accounts, Income and Expenditure 1962*, Ottawa: Queen's Printer, 1963, present revised data for 1961. Total expenditures, including defence spending, amounted to $6,544 million or 18.7 per cent of real GNP.

SOURCE: Based on Table 19-1 and Hanson, E. J., *Public Finance Aspects of Health Services*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Table F-2.

Including defence spending, the projected increase in the period 1961-91 is from 19.1 per cent to 25.1 per cent.[1]

The projection of direct government spending in *real* terms appears in Table 19-7 where projected expenditures are related to a GNP that grows at a rate consistent with a level of unemployment of four per cent and the growth of average labour productivity of 2.75, as well as to a GNP that grows at a lower trend rate consistent with a level of unemployment of five per cent and a rate of growth of average labour productivity of 2.25 per cent a year. With a high projection of GNP, government expenditures in real terms are projected to increase from $6.6 billion in 1961 to $9 billion in 1966, $11.8 billion in 1971 and to reach $33.3 billion by 1991. Excluding defence spending, the amounts are $5.2 billion, $7.2 billion, $9.6 billion and $28 billion respectively. Using the lower projection of GNP, estimated government spending is projected to rise to $8.7 billion in 1966, $11.3 billion in 1971, and to $28.4 billion in 1991. Excluding defence spending, the figures are $7 billion, $9 billion and $23.9 billion.

Recognizing that this is not the equivalent of the amount of taxes raised by governments since governments also collect funds to finance transfer payments, per capita government expenditures are projected to rise from $362 per person in 1961 to $524 in 1971 and to $948 in 1991 in constant (1957) dollars; excluding defence spending the amount in 1961 would be $283, in 1971 it would be $425 and in 1991 it would be $797. With the lower projection of GNP, per capita expenditures, including defence, are projected to rise to $499 in 1971 and to $810 in 1991. Excluding defence the amounts would be $400 and $681.

Projecting current trends in government direct spending indicates that, excluding defence spending, these outlays will rise by $142 per person over the decade 1961-71. This is an increase of 50 per cent but it is not out of line with the trend rates of growth in the post-war period. During these years direct spending increased at an annual average rate of about 8 per cent compared with the rate of less than 6 per cent that is projected here. What will happen over the thirty years 1961-91 is much more uncertain. Although public investment must continue to increase to provide schools, roads, hospitals, airports and other social capital, it may well be that the expansion of private investment will be sufficiently high as to permit a slower rate of growth of public investment. Again a redefinition of public and private responsibilities might shift some spending from the public to the private sector although it must be emphasized that the expenditures will have to be made by one sector or the other if the rate of unemployment is to be kept down.

[1] See Table 19-7, footnote †. Revised data for 1962 indicate that real government expenditures as a percentage of GNP amounted to 18.7 per cent instead of 19.1 per cent as indicated above.

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The rate of growth of government spending could turn down more rapidly in the future than is apparent from current trends. In any case, despite the sizeable increase in per capita government expenditures, the projections still allow for a substantial increase in real terms in private expenditures per person.[1] Under the high projection of GNP real per capita private expenditures are projected to rise from $1,531 to $2,829 while with the lower projection the estimated amount is $2,418—three times the per capita expenditures, by governments. A high and rising real per capita income thus permits not only a sizeable expansion of government spending but also a rapid increase in private spending.

GOVERNMENT EXPENDITURES ON TRANSFER PAYMENTS AND SUBSIDIES

The projected trends in transfer payments are, like government expenditures on goods and services, based upon past trends taking into account such developments as the projected growth and age distribution of the population along with the additional outlays arising from our recommendations regarding new public health programmes.[2] Thus the size of transfer payments will depend on the cost of a children's dental care programme, expenditures for medical care and other programmes where individuals or non-profit organizations are paid for health services through some government or quasi-government agency; the number of people over 65 and eligible for old age assistance or old age pensions; the number of children receiving family allowances; the number of blind and disabled and the number of young people being educated in universities. In addition, the trend rate of growth in such payments will be influenced by the number of war veterans surviving; the number of unemployed in receipt of unemployment insurance or direct relief; the prosperity of the agricultural regions and other regional industries; the number of recipients of workmen's compensation and the size of government debt. Finally, the rate of growth will be influenced by the cost of providing hospital care in hospitals not operated by the federal or provincial governments; by the cost of providing university education; the policy of the community with respect to the level of benefits provided under the various income-maintenance programmes or old age security and the interest rate applicable to the public debt.

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[1] Private expenditures per person include private consumption spending and private investment spending.

[2] Projected health expenditures financed by governments thus appear in two categories of projected total government spending; government expenditures and transfer payments.

Clearly with so many factors to be taken into account, particularly policy decisions, the projection of outlays by governments for transfer payments and subsidies, can only be tentative in nature. The current trends when projected into the future can indicate the "most likely" course of events over the decade 1961-71 but may not be a reliable guide to the level of transfer payments in 1991. This is particularly so since the amount of transfer payments has been rising rapidly in recent years. There seems to be no doubt, in view of the importance Canadians now attach to investment in human capital, that transfer payments to finance the purchase of health and education will continue to grow as will the participation of governments in the provision of prepaid retirement insurance. The point at which the growth of transfer payments will level off is still uncertain but we have projected a reduced rate of growth after 1976.

On the basis of current trends in spending and population growth, projected government expenditures on transfer payments and subsidies are set out in Table 19-8. With a high projection of GNP, total expenditures

TABLE 19-8 PROJECTED GOVERNMENT EXPENDITURES ON TRANSFER PAYMENTS AND SUBSIDIES, SELECTED YEARS, CANADA, 1961-1991, CONSTANT (1957) DOLLARS

Year	High Projection of GNP*			Low Projection of GNP†		
	Total Expenditures	Per Capita Expenditures	Percentage of GNP	Total Expenditures	Per Capita Expenditures	Percentage of GNP
	$ '000,000	$		$ '000,000	$	
1961‡	4,407	242	12.8	4,407	242	12.8
1966	6,243	319	13.9	6,246	308	14.4
1971	8,421	373	15.0	8,201	363	15.5
1976	10,946	448	15.7	10,388	412	16.2
1981	13,768	503	16.0	12,744	451	16.5
1986	17,143	560	16.1	15,484	491	16.6
1991	21,745	638	16.4	19,155	546	16.9

*Based on an average rate of unemployment of four per cent and an average labour productivity of 2.75.

†Based on an average rate of unemployment of five per cent and an average labour productivity of 2.25. The higher level of transfer payments compared to GNP is a consequence of the higher unemployment insurance benefits associated with the higher level of unemployment.

‡ Dominion Bureau of Statistics, *National Accounts, Income and Expenditure, 1962*, Ottawa: Queen's Printer, 1963, present revised data for 1961. On the basis of these data it is estimated that transfer payments and subsidies amounted to $4,550 million or 13 per cent of GNP.

SOURCE: Hanson, E. J., *Public Finance Aspects of Health Services*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964. Appendix F, Tables F-1 and F-2.

measured in constant (1957) dollars are projected to rise from $4.4 billion in 1961 to $6.2 billion in 1966, $8.4 billion in 1971 and to $21.7 billion in 1991. With a low projection of GNP, expenditures are projected to reach $6.2 billion in 1966, $8.2 billion in 1971 and $19.1 billion in 1991. Per capita transfer payments and subsidies are projected to rise from $242 in 1961 to $373 in 1971, an increase of about 35 per cent over the decade. By 1991, the projected amount is $638. With a lower projection of GNP, the increase between 1961 and 1971 is $121 and by 1991, projected per capita spending is $546.

As a percentage of GNP, the main increase is projected to take place between 1961 and 1971 as this percentage rises from 12.8 per cent to 15 per cent.[1] By 1991, projected outlays account for 16.4 per cent of GNP. With a lower projection of GNP, expenditures are projected to account for 15.5 per cent of GNP by 1971 and to rise to 16.9 per cent by 1991.[2]

PROJECTED TOTAL GOVERNMENT EXPENDITURES

Total government spending in real terms—including defence spending and assuming a high projection of GNP—is estimated to rise from 31.9 per cent of GNP in 1961 to 34.0 per cent in 1966, 36.1 per cent in 1971 and to 41.5 per cent in 1991. In Table 19-9 total spending is projected to rise from $11 billion in 1961 to $15.3 billion in 1966, $20.3 billion in 1971 and $55 billion in 1991. In per person terms, the increase is from $604 to $764, $909 and $1,586 respectively. Assuming a lower projection of GNP, government expenditures are projected to rise to 34.5 per cent in 1966, 36.6 per cent in 1971 and 42 per cent in 1991. Total spending would rise to $15 billion in 1966, $19.5 billion in 1971 and $47.6 billion in 1991, while per capita spending would be $738 in 1966, $862 in 1971 and $1,356 in 1991.

The projected distribution of total government spending by level of government is illustrated in Table 19-10. In 1961 Federal Government expenditures were estimated to be the equivalent of 16.1 per cent of GNP; provincial and municipal government expenditures to be 15.8 per cent. The trends that we have projected imply a continued growth in those areas where expenditures are made by provincial and municipal government and little

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[1] See Table 19-8, footnote ‡. Revised data for 1961 indicate that real government expenditures on transfer payments and subsidies amounted to $4,550 million in that year or about 13 per cent of GNP.

[2] With higher rates of unemployment, unemployment insurance payments also rise and therefore transfer payments.

TABLE 19-9 PROJECTED TOTAL GOVERNMENT EXPENDITURES BY CATEGORY OF EXPENDITURES, SELECTED YEARS, CANADA, 1961-1991*, CONSTANT (1957) DOLLARS

Year	Including Defence Expenditures					
	High Projection of GNP			Low Projection of GNP		
	Total Expenditures	Per Capita Expenditures	Percentage of GNP	Total Expenditures	Per Capita Expenditures	Percentage of GNP
	$ '000,000	$		$ '000,000	$	
1961†.....	11,015	604	31.9	11,015	604	31.9
1966.....	15,271	764	34.0	14,965	738	34.5
1971.....	20,267	897	36.1	19,464	862	36.6
1976.....	26,354	1,059	37.8	24,560	974	38.3
1981.....	33,645	1,207	39.1	30,587	1,083	39.6
1986.....	42,804	1,373	40.2	37,963	1,204	40.7
1991.....	55,026	1,586	41.5	47,605	1,356	42.0
	Excluding Defence Expenditures					
1961†.....	9,563	524	27.7	9,563	524	27.7
1966.....	13,474	675	30.0	13,230	653	30.5
1971.....	18,021	798	32.1	17,348	763	32.6
1976.....	23,565	948	33.8	21,995	872	34.3
1981.....	30,203	1,185	35.1	27,497	974	35.6
1986.....	38,545	1,238	36.2	34,232	1,086	36.7
1991.....	49,722	1,435	37.5	43,071	1,227	38.0

*Includes expenditures on goods and services and transfer payments, and subsidies. Excludes transfers between levels of governments.

†Expenditures based on the revised data for 1961, as shown in Dominion Bureau of Statistics, *National Accounts, Income and Expenditure, 1962*, Ottawa: Queen's Printer, 1963.

SOURCE: Based on Tables 19-7 and 19-8.

change in the rate of growth of federal spending.[1] Thus assuming a high rate of growth of GNP, by 1971 the projected level of provincial and municipal government spending as a percentage of GNP amounts to 20.3 per cent, while the projected level of spending by the Federal Government is 15.8 per cent. The former increases by 4.5 percentage points, the latter declines by 0.3 percentage points. By 1991, the Federal Government is projected to account for only 16.6 per cent of government spending, while provincial and municipal governments together account for almost 25 per cent. A slower rate of economic growth would increase slightly projected spending at all

[1] This does not mean that the revenue requirements of different levels of government will not change since transfers of revenue take place between governments. See Chapter 21.

TABLE 19-10 PROJECTED DISTRIBUTION OF TOTAL GOVERNMENT EXPENDITURES, BY LEVEL OF GOVERNMENT, CANADA, SELECTED YEARS, 1961-1991*

(percentages of GNP)

Year	Federal Government†	Provincial and Municipal Governments	All Governments†	Federal Government‡	Provincial and Municipal Governments‡	All Governments‡
1961	16.1	15.8	31.9	16.1	15.8	31.9
1966	15.6	18.4	34.0	15.9	18.6	34.5
1971	15.8	20.3	36.1	16.1	20.5	36.6
1976	16.1	21.7	37.8	16.4	21.9	38.3
1981	16.2	22.9	39.1	16.5	23.1	39.6
1986	16.4	23.8	40.2	16.7	24.0	40.7
1991	16.6	24.9	41.5	16.9	25.1	42.0

*It should be noted that expenditures by level of government do not necessarily indicate that the particular level of government raised the revenues to finance such expenditures since transfers of revenue between level of governments take place.

†Based on a high projection of GNP.

‡Based on a low projection of GNP.

Source: Table 19-9 and Hanson, E. J., *Public Finance Aspects of Health Services*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964. Appendix F, Table F-2.

levels of government because of the increased amount of unemployment insurance and other welfare payments associated with a lower rate of growth of output.

CONCLUSION

We have examined the general trends in government spending and we have recognized that changes in the economic, political and social structure of Canada, as well as for most other nations, have been associated with, and continue to be associated with increasing government expenditures. These trends we believe will continue into the future. Quite apart from any other factors that might tend to increase the relative importance of government programmes, the projected growth of population in Canada suggests that the public sector will account for a somewhat larger share of GNP in the future. The rapid rate of growth of population in those areas that provide a high level of educational and health services also support this belief. Schools, roads, highways, hospitals have to be provided by some organizations. The increasing complexity of public programmes, the advanced technical and

scientific research associated with government activities all seem to indicate continued rising expenditure trends in this sector as will the tendency to substitute public health insurance programmes for private health insurance.[1]

It is sometimes said that the public sector is a burden upon the whole economy. It is undoubtedly true that given full employment of resources, the provision of public services utilizes factors of production which would otherwise be used to produce private goods. If there is unemployment, however, expansion of the public sector does not imply a reduction of output of private goods. Instead it will produce an increase in the total Gross National Product until "full employment" is reached. The resulting pattern of output then comes to consist of the same level of output of private goods but a higher level of collective goods and services than before. There are complications in that the new pattern of resource use induces changes in private consumption and investment, depending on the methods of financing used. But the basic proposition remains: if there are unused resources output will be increased if the government puts them to work, and thus there is no burden on the economy. Even in a situation where there are very little unused resources in the economy, that is where the level of unemployment might be reduced say to two per cent, public spending can continue to increase absolutely, since with the growth of total output, both private and public output can increase over time. Indeed, certain public services are required to permit a high level of over-all economic growth; an appropriate balance between private and public goods is a requirement of economic progress.

The expansion of government expenditures indicated here is a concomitant of the process of economic development and its attendant urbanization. Government in a predominantly agricultural or extractive type of economy need not be large; it can be simple and small. When people come to live under high-density conditions and in a highly specialized technologically advanced economy the degree of interdependence increases materially. The result is the requirement for a large and complex variety of government services. The high and rising incomes which such a society produces makes the provision of these services possible.

We do not say that governments should spend, or will necessarily spend, the proportion of GNP that we have projected. It may well be that public preferences will be such as to reduce both direct government spending and transfer payments below the level projected here for 1991. But no matter how it is done, increased expenditures on health, education, roads, public utilities, etc., will have to be made and to describe many of these government expenditures as welfare payments is to invite an argument over

[1] See Robertson, Ronald and Brydon, Marion H., "Government Expenditures—A Look at 1965"—*Canadian Tax Journal*, Vol. IX, No. 6, November-December, 1961, pp. 418, ff., where it is estimated that total government expenditures in 1965 could range between 32 per cent and 36 per cent of GNP.

semantics. What we do say is that increasing outlays by governments in the area of health services is not an isolated phenomenon, that it is part of a general tendency to expand public services and that it can favourably influence the course of the economy and improve the level of the individual's well-being.

We have outlined in this chapter the course of economic expansion we anticipate in Canada for the period 1961 to 1991. Over these 30 years, we expect the following increases:

1. Population, from 18.2 million to 35.1 million, up by 93 per cent.
2. Labour force, from 6.5 million to 13.1 million, up by 101 per cent.
3. Employment, from 6.1 million to 12.6 million, up by 108 per cent.
4. Gross National Product in real terms,[1] from $34.5 billion to a range between $113 billion[2] and $133 billion[3], or up between 228 per cent and 284 per cent.

Over the same period we expect the following reductions:

1. The average number of hours worked per week, from 41.5 to 33.91, down by 18 per cent.
2. The ratio of persons unemployed to labour force, from 7.2 per cent down to between 4 and 5 per cent.

We believe that the expansion of the Canadian economy which we envisage over the next 30 years is fully realizable with competent private and public management of our affairs and the determined pursuit of sensible and practical economic policies supported by all the major groups in our country.

We conclude that Canada's future economic growth is of such an order, even under conservative assumptions, that this country can implement the health care programme recommended in this Report as soon as appropriate personnel, financial and organizational arrangements have been worked out. The expenditures involved in an expanded health care programme over the next 30 years are set out in Chapter 20 and methods of financing in Chapter 21.

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[1] Valued in 1957 dollars.

[2] Based on the assumption of 5 per cent of the labour force unemployed and an annual average increase in productivity of 2.25 per cent.

[3] Based on the assumption of 4 per cent of the labour force unemployed and an annual average increase in productivity of 2.75 per cent.

20

Projected Health Expenditure, 1961-1991

In view of the projected long-term growth of the Canadian population and per capita incomes there can be no doubt that the total amount Canadians will spend on health will continue to increase in the future as it has done in the past. To obtain an indication of what Canadians might be spending on health care over the next three decades, we present in this chapter projections of health expenditures based on an extrapolation of the trends in health expenditures that have developed in the past and that have been outlined in Chapter 11, combined with a judgment about future trends.[1]

We have pointed out the limitations of such projections in Chapter 19. Here we wish to emphasize that our estimates of future spending, while they take into account the consequences of an expansion of public programmes, assume that there will be no sudden great changes in the demand for health services; that scientific advances in medicine, while continuing, will contribute to a gradual extension of the life span but not produce a drastic change and major catastrophies will not occur which would take lives by the millions. Such drastic changes would alter the basis for the projection presented here. Providing such events do not take place, the trend lines that we have projected into the future—and adjusted where we have felt the trend will slowly change—can provide a basis for an examination of policy that itself must be reviewed and revised periodically as the future unfolds itself.

We require two estimates of future health expenditures. The first is necessary to give us an indication of the health resources and health capital required to provide the health services which Canadians may demand over the period 1961-1991 assuming proposals for changes in the health care programmes such as we recommend are accepted; and what it would cost in real terms to provide these services. This estimate can then be

[1] It bears emphasis that these projections are an indication of what Canadians might be spending on health care and they do not represent an attempt to forecast what Canadians will be spending on health care. The latter would be a forecast and would require a considerable amount of additional data, not available at present, including information on the relationship between health expenditures and such socio-economic variables as family size, family income, age and occupation of family head, urban and rural residence, level of education and extent of health insurance coverage.

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related to the productive capability of the Canadian economy and we arrive at the proportion of Gross National Expenditure devoted to health services. We require this ratio, or a range of such ratios, to examine the relative importance and the economic implications of growing health services in an expanding Canadian economy.

The second estimate required is an indication of what it actually would cost Canadians in current dollar terms to pay for health services over the decade 1961-1971. Here we want to make the distinction between what it would cost Canadians to pay for health services assuming proposals for changes in the health care programme such as we recommend are accepted and assuming that these changes are not made. This will give us an indication of the difference in cost between a programme of comprehensive health services and health expenditures that will be made by Canadians in any event on the basis of institutional arrangements as they now exist.

We present, therefore, two projections of health expenditures. The first relates to the period 1961-1991 and estimates the level of output of health services and health capital, health expenditures measured in *constant* (1957) dollars, for a number of years within this period. The second projection relates to the period 1961-1971 and estimates the amount of money that actually may be spent, health expenditures in *current* dollars, in the years 1966 and 1971.

PROJECTION OF OUTPUT OF HEALTH SERVICES AND HEALTH CAPITAL, 1961-1991

In projecting the possible output of health services and health capital, the method adopted has been to apply the population projection described in Chapter 4 to an estimate of per capita expenditures in constant (1957) dollars over the period 1961 to 1991.

Since the population of Canada is expected to rise from 18.2 million in 1961 to 35.1 million in 1991, the level of total real spending, assuming no change in the price level of health services and health capital, will depend on the projected growth of per capita real spending and it is to this that we now turn our attention.

Per Capita Spending on Health Services in Constant (1957) Dollars

The trend rate of growth of projected per capita real spending will depend on what is considered to be a health expenditure. Here, as in Chapter 11, we have included expenditures on all personal health services, prescribed drugs, general and public health services, and the construction

of hospitals, medical, dental and nursing schools along with other public health capital. Included also are grants-in-aid of health education and health research but expenditures on non-prescribed drugs and pharmaceuticals are excluded.

We have examined the historical trend rate of growth of per capita real spending on most of these items in Chapter 11 and it is on these trend rates that our projections are based. For the items health education, health research and medical and dental schools, the historical data were insufficient to calculate a trend rate of growth in spending. To some extent these expenditures have been included in projected public health expenditures, while the total outlay in 1961 not included is unlikely to have exceeded $20 million. We have assumed therefore that our projected expenditures for personal health services, public health and health capital are sufficiently large to include the projected growth of expenditures on health research and education along with the construction of medical and dental schools implicit in our recommendations.[1]

In examining the past rate of growth of per capita real spending we have pointed out that there are marked differences in the trend rates when we compare the period 1926-1961 with the post-war period 1945-1961. As can be seen from Tables 11-18 and 11-19, the average annual increase in per capita real spending for the period 1926-1961 was 2.2 per cent a year while for the post-war period it amounted to 3.9 per cent.[2] Which of these trend rates will be characteristic of the future it is not easy to say. But our examination of the historical evidence leads us to believe that the trend rate of the future will lie somewhere between these two extremes and our "most likely" projection of the trend rate of growth for the period 1961-1991 is 3.0 per cent. We have, however, estimated what total health expenditures would be assuming a high and low projection of per capita real spending and the results appear in Table 20-1.

While the Canadian consumer of health services has something in common with the consumer of a generation ago, in recent years many factors have combined to produce a rapid increase in the level of per capita spending. These factors have been described in detail in Chapter 11, particularly the impact of rising real disposable income that permitted increased spending on health without reducing spending on other goods and services, and the scientific and technical revolution in the health industry along with the growth of public and private hospital and medical insurance

[1] See footnote 1, Chapter 11, p. 455. The projected expenditures in constant (1957) dollars for 1971, as a proportion of GNE are within 0.1 percentage points of projected expenditures in current dollars, including research and education. This is almost the same relationship that existed in 1961.

[2] For the period 1926-1961, expenditures include only personal health services. For the period 1945-1961 they include expenditures on prescribed drugs, government health services and hospital capital.

TABLE 20-1 ESTIMATED EXPENDITURES ON HEALTH SERVICES AND HEALTH CAPITAL ASSUMING DIFFERENT TREND RATES OF GROWTH OF SPENDING, CANADA, SELECTED YEARS, 1957–1991*
Constant (1957) Dollars

Year	Population	Low Projection**		High Projection†		"Most Likely" Projection††	
		Expenditures		Expenditures		Expenditures	
		Per Capita	Total	Per Capita	Total	Per Capita	Total
	'000	$	$'000,000	$	$'000,000	$	$'000,000
1957[a]	16,610	81.40	1,352.1	81.40	1,352.1	81.40	1,352.1
1961[a]	18,238	99.40	1,812.9	99.40	1,812.9	99.40	1,812.9
1966[b]	20,296	110.80	2,248.8	120.10	2,437.5	120.90	2,453.8
1971[b]	22,590	123.70	2,794.4	145.30	3,282.3	150.05	3,389.6
1976[b]	25,234	138.00	3,482.3	175.70	4,433.6	178.88	4,513.9
1981[b]	28,247	154.00	4,350.0	212.50	6,002.5	202.00	5,705.9
1986[b]	31,546	169.70	5,353.4	256.90	8,104.2	223.00	7,034.8
1991[b]	35,107	187.25	6,573.8	310.70	10,907.7	240.05	8,427.4

*Includes expenditures on personal health services, prescribed drugs, general and public health services, construction of hospitals, medical, dental and nursing schools, and other public health capital and health research.

**Based on the trend rate of growth of estimated real per capita consumption, 1926–1961; 2.2 per cent a year.

†Based on the trend rate of growth of estimated real per capita consumption in the years 1945–1961; 3.9 per cent.

††Based on a "judgment" of the most likely trend rate of growth of real per capita consumption over the years 1961–1991 assuming the expansion of public programmes. The equivalent of a projected trend rate of growth of 3.1 per cent.

[a]Excludes expenditures on construction of medical and dental schools and some health research and education. For the effect of these exclusions on projected expenditures see p. 791 and p. 795.

[b]Projected.

SOURCE: Madden, J. J., *Economics of Health*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964.

programmes that led consumers to spend a larger share of their growing real income on health services, rather than some other commodity. The existence of a large number of people in the community who did not, in the past, obtain the quantity and variety of health services that they felt they needed has meant that as incomes have risen need was translated into demand. Thus in the period before 1945 real per capita consumption of personal health services rose at a trend rate of less than one per cent a year compared to 3.9 per cent in the post-war period. Moreover, we have seen that it has been possible to expand the supply of health services to meet the growing needs of Canadians and to permit Canadians to achieve not only the level of consumption that they appear to have attained before the great depression, but greatly to surpass it; and this despite a doubling of the population.

In the light of these facts to use the long-term trend of the period 1926-1961, including as it does the period of depression and the dislocation of a major war, as a basis for projections would tend to underestimate the future trend rate of growth of health expenditures.

An alternative projection, based upon the post-war trend in expenditures runs the opposite risk of significantly over-estimating the trend rate of growth of future spending. Again, as we have examined the post-war trend in spending, we have concluded that part of the rapid increase has been the consequence of the re-establishment of a pattern of spending that existed before 1929: what we have described as a "catching-up" process that has operated in the area of services generally, and health services in particular. In such circumstances a high current level of spending may merely represent a temporary deviation from the long-term trend, not an indication that the long-term trend has permanently moved to a much higher level.

Our judgment in this matter has been influenced by what has happened in the post-war period. The evidence suggests that the trend rate of growth of health spending might have slowed by the late nineteen fifties, on the completion of the "catching-up" process, if it had not been for the impetus to demand generated at that time by the rapid development of public and private hospital and medical care insurance programmes, the substantial increase in the provision of mental hospital care along with the more general growth of social security payments. As these programmes came into operation, Canadians with low incomes found it possible to obtain the additional health services they needed. Many other Canadians were able to obtain the health services they desired in the knowledge that the risks of a very high outlay could be minimized through health insurance. The development of subsidized health care programmes, either directly as in the case of hospital care, or indirectly through a variety of other measures, has also influenced the rate of growth of consumption. Such programmes have shifted

up the trend rate of growth of spending in the short run. They have led to the concentration of the long-term growth of consumption into a comparatively short period of time. Without these programmes health expenditures would have increased at a slower rate taking a longer period to rise since in part the increase depended upon the long-term growth of real personal income.

We do not, however, envisage that this high rate of growth of per capita real spending will persist indefinitely into the future. Without technical innovations and major scientific discoveries that create demand for new and hitherto unknown health services, there is a limit to the amount of health services that Canadians are likely to consume even if there were no financial barriers to obtain all health care required. A growth rate of 5.1 per cent a year, that characterized the period 1957-1961, and which influenced substantially the post-war trend, is unlikely to persist for very long periods since it would generate per capita expenditures on health which would be out of line with the long-term growth of per capita income and output, as well as the desires of consumers to obtain other goods and services and to spend their leisure time in other places than physicians' offices or hospital wards. As we emphasized earlier Engel's law applies to health services as much as it does to basic foods.[1]

In view of our recommendations relating to the expansion of public programmes for health care, and in the light of the more detailed projections presented later in this chapter for the period 1961-1971, we have projected the trend rate of growth of per capita real expenditures on health services, and health capital will remain at a high level for the next decade but the rate of growth will gradually decline until by 1991 the average annual increase will amount to 1.5 per cent a year. Table 20-2 indicates the rates of growth projected for each quinquennium.

Although the public programmes we recommend would not become operative on any substantial scale before the second half of the decade, the rate of growth of per capita real expenditures is projected to remain at a relatively high level in this period since the demand for hospital care will continue to grow in those provinces that have only recently entered the Hospital Insurance Programme. With the elimination of some of the back-log of hospital care, consequent on the national implementation of the Hospital Insurance Programme and the spread of medical and other categories of private health insurance to many of the groups that can be most readily insured, it is believed, however, that the trend rate of the growth in the period 1961-1966 will be somewhat lower than in 1957-1961, and is projected at 4 per cent. The introduction of public medical, dental and other programmes, such as the expansion of health research and grants-in-aid of education and the construction of new medical and dental schools as recommended by the Commission,

[1] See Chapter 11.

TABLE 20-2 ESTIMATED PER CAPITA EXPENDITURES ON HEALTH SERVICES AND HEALTH CAPITAL AND PERCENTAGES OF PER CAPITA GNE(GNP), ASSUMING DIFFERENT TREND RATES OF GROWTH OF GNE, CANADA, SELECTED YEARS, 1957-1991

Constant (1957) Dollars

Year	Per Capita GNE		Per Capita Spending on Health Care "Most Likely" Projection	Per cent of Per Capita GNE Spent on Health Services	
	Projected Growth of GNE	Projected Low Growth of GNE		Projected Growth of GNE	Projected Low Growth of GNE
	$	$	$		
1957	1,921	1,921	81.40	4.24	4.24
1961*	1,920	1,920	99.40	5.18	5.18
1966	2,213	2,137	120.90	5.46	5.66
1971	2,485	2,342	150.05	6.04	6.41
1976	2,763	2,541	178.88	6.47	7.04
1981	3,046	2,734	202.00	6.63	7.39
1986	3,375	2,957	223.00	6.61	7.54
1991	3,777	3,229	240.05	6.35	7.43

*Revised per capita GNP, see footnote b, Table 19-2.

SOURCE: Based on Tables 19-2 and 20-1.

would raise the trend rate of growth once again and a 4.5 per cent rate of increase is projected for the period 1966 to 1971.

Limitations on the supply of professional personnel likely would prevent the complete elimination of the back-log of demand for all health services before 1971 and, as a consequence, the rate of growth for the quinquennium 1971-1976 is projected still to remain at the relatively high level of 3.5 per cent. For the remaining quinquennia it is projected that the trend rate of growth will be 2.5, 2.0 and 1.5 per cent respectively.

The results of these projections are set out in Table 20-1, which presents the per capita expenditures on health services and health capital in constant (1957) dollars; that is in *real* terms. The "most likely" projection implies that within a period of 30 years, each Canadian, on the average, excluding price change, will be spending about $240 compared with about $99 in 1961 or an increase of 2.4 times by 1991. This compares with a doubling of real expenditures in the 17-year period 1945-1961. This projection includes expenditures on health capital and also, as indicated earlier, allows for the expansion of health research and education in these years, but in general it can be said that the average Canadian will be able to obtain 2.4 times as much hospital care, medical care, dental services, prescription drugs, government and other health services as he did in 1961, though the

TABLE 20-3 ESTIMATED CONTRIBUTIONS TO THE GROWTH RATE OF REAL EXPENDITURES ON HEALTH SERVICES AND HEALTH CAPITAL, CANADA, SELECTED PERIODS, 1926-1991*

(percentages)

Period	Rate of Population Change	Rate of Change of Real Per Capita Spending	Growth Rate of Total Real Expenditures
1957–1961**	2.4	5.1	7.5
1961–1966†	2.2	4.0	6.3
1966–1971†	2.2	4.5	6.8
1971–1976†	2.2	3.5	5.8
1976–1981†	2.2	2.5	4.8
1981–1986†	2.2	2.0	4.2
1986–1991†	2.2	1.5	3.7
1926–1961††	1.9	2.3	3.7
1945–1961[a]	2.6	3.9	6.6
1957–1991†	2.2	3.3	5.6
1961–1991	2.2	3.0	5.3

*Projection for 1961–1991 is "most likely" projection of expenditures on health services and capital indicated in Table 20-1 assuming an expansion of public programmes.

**Excludes some expenditures on health research and education along with construction of medical schools and dental schools.

†Projected.

††Includes only expenditures on personal health services. See Table 11-18.

[a]See Table 11-19.

SOURCE: Based on Tables 11-18, 11-19, and 20-1.

composition of his consumption may be different and no doubt will include hospital, medical, and dental services for many illnesses not now generally susceptible to treatment, as well as health services which scientific advances have not yet brought into being. The very magnitude of this increase indicates that to choose the high projection of health spending, that would generate an increase to $310 by 1991, as the most likely path of the future, would be to over-estimate the demand for health care. Indeed, in view of the high level of consumption of hospital services at the present time, and the availability of dental and medical care to many groups and in many areas, it may be that the trend rate of growth of real per capita expenditures may grow even less rapidly after 1971 thus slowing down even further the rate at which real health expenditures are projected to grow.

The low projection of per capita spending which extrapolates the trend rate of growth of per capita spending during the period 1926-1961, would generate a level of spending in 1991 of $187 per capita, a rate of

increase which would lead to expenditures barely doubling over the 30-year period. In view of the back-log of current demand, to project such an increase might be to under-estimate future demand.

The differing trend rates of growth can be seen most clearly from Figure 20-A. Here the "mostly likely" projection rises more rapidly than either the low or the high projection up to the mid-seventies. After that date the rate of growth of spending slows down, the trend rate of growth is bent downward, so that while per capita real expenditures continue to grow, they grow somewhat less rapidly than in the high projection, though they still remain higher than with the low projection.

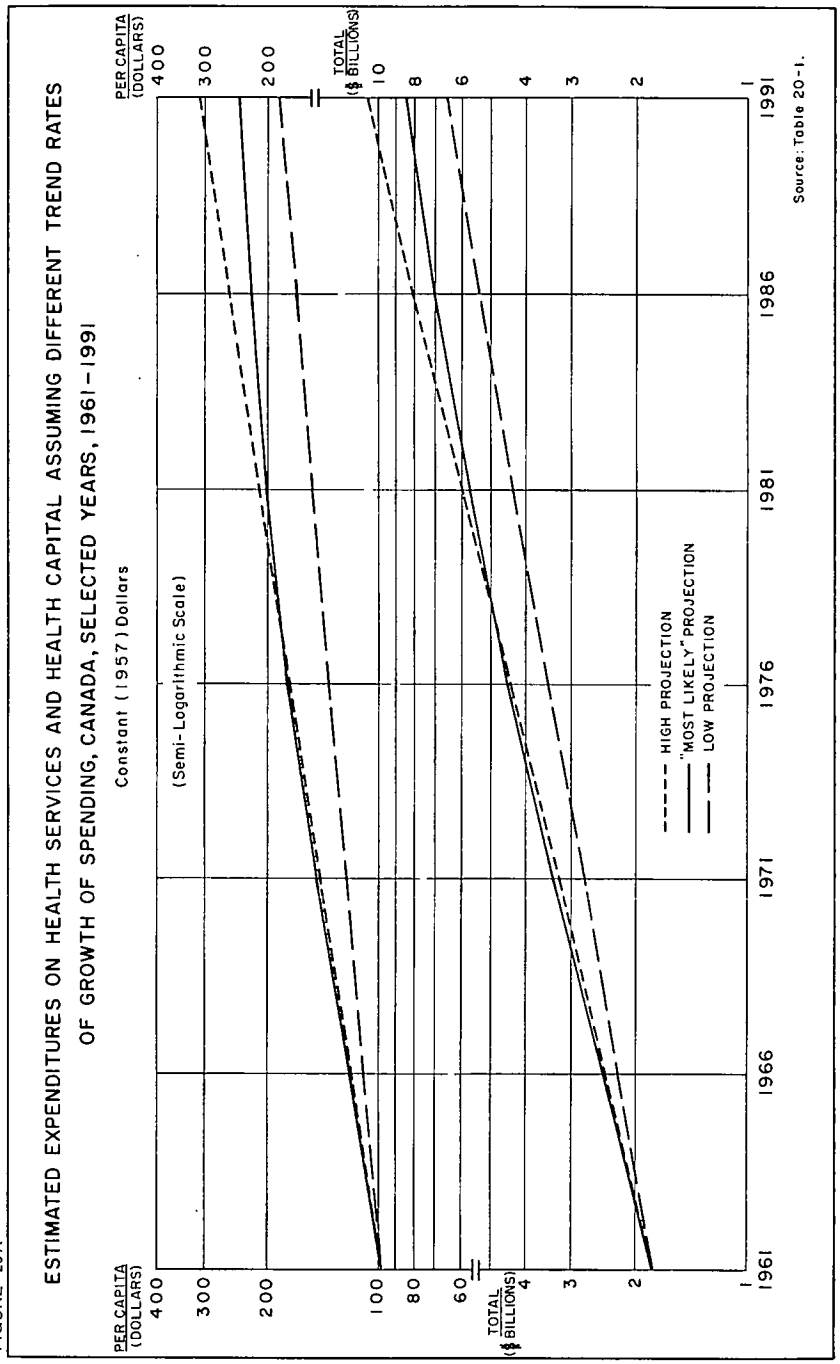
Total Real Spending on Health Services and Health Capital, in Constant (1957) Dollars

Having presented our projections of the population and the estimates of real per capita expenditures the projected total expenditures on health services and health capital is arrived at by multiplying the projected population for any one year by the projected real per capita spending for that year. Table 20-1 presents the estimates of total real spending for the years between 1961 and 1991 based on three different projections. By 1966, the "most likely" projection indicates that real expenditures will amount to $2,454 million compared with $2,438 million under the high projection and $2,249 million under the low projection. In 1971, estimated expenditures under the "most likely" projection amount to $3,390 million compared with $3,282 million under the high projection and $2,794 million under the low projection. By 1991, expenditures under the "most likely" projection are estimated to be $8,427 million compared to $10,908 million under the high projection and $6,574 million under the low projection.

Health Expenditures as a Percentage of GNE

The implication of the "most likely" projection of real per capita consumption in terms of the proportion of total output or expenditures allocated to health services and capital is presented in Table 20-2. The estimates are related to the two projections of Gross National Expenditure (Gross National Product) developed in Chapter 19, a projection based upon an assumption of four per cent unemployment rate and a trend rate of growth of average labour productivity of 2.75 per cent and a lower projection based upon a five per cent level of unemployment and a projected trend rate of growth of average labour productivity of 2.25 per cent a year. Assuming that GNE grows at the higher trend rate and health expenditures at the rate

FIGURE-20A


ESTIMATED EXPENDITURES ON HEALTH SERVICES AND HEALTH CAPITAL ASSUMING DIFFERENT TREND RATES OF GROWTH OF SPENDING, CANADA, SELECTED YEARS, 1961-1991
Constant (1957) Dollars
(Semi-Logarithmic Scale)
PER CAPITA (DOLLARS)
TOTAL ($ BILLIONS)
HIGH PROJECTION
"MOST LIKELY" PROJECTION
LOW PROJECTION
1961
1966
1971
1976
1981
1986
1991
Source: Table 20-1.

set out in the "most likely" projection, the percentage of GNE allocated to health is projected to rise from 5.2 per cent in 1961 to 6.3 per cent in 1991. In the interim periods the percentage projected for 1966 is 5.5 and for 1971, 6 per cent; a peak of 6.6 per cent is projected for 1981 but thereafter, as real income grows more rapidly than real health expenditures, the proportion devoted to health slowly declines.

Since health expenditures have been projected separately, with a lower projection of GNE, the proportion allocated to health naturally is higher, reaching a peak of 7.5 per cent in 1986 and slowly declining after this date. In all likelihood if GNE did grow at a slower rate, the trend rate of spending on health services also would be lower and our belief is that health expenditures would not rise above seven per cent even under this assumption, though the level of per capita consumption would be lower.

The financial implications of these projections, based as they are on the implementation of the programmes that we have recommended, can be summarized as follows:

Year	Per Capita Expenditures	Total Expenditures	Percentage of GNE
	constant (1957) dollars	millions of constant (1957) dollars	
1961	99.40	1,813	5.2–5.2
1971	150.05	3,390	6.0–6.4
1991	240.05	8,427	6.3–7.4

In terms of total expenditures, the projection indicates that by 1971, total outlays in constant (1957) dollars will have increased by 87 per cent from $1,813 to $3,390 million, while over the thirty-year period 1961-1991 they are projected to rise fivefold to $8,427 million. In per capita terms, the increase between 1961 and 1971 is somewhat less, about 50 per cent; while between 1961 and 1991 the increase is considerably less, only 2.5 times. In terms of the proportion of GNE spent on health, the projected increase between 1961 and 1971, based on the higher rate of growth of GNE, is the equivalent of a percentage increase of about 17 per cent, while between 1961 and 1991 it is the equivalent of a percentage increase of the order of 25 per cent. Based on the lower rate of growth of GNE, the increased proportion of GNE allocated to health would be greater but with a slower rate of growth of income it is likely that the proportion allocated to health would also grow less rapidly.

CURRENT DOLLAR PROJECTIONS OF SPENDING ON HEALTH SERVICES AND HEALTH CAPITAL, 1966 AND 1971

A projection of the level of spending in current dollars is subject to the possibility of error because of the need to allow for variations in the prices of such services. We have still thought it desirable to develop a projection of health spending in current dollars for the years 1966 and 1971 to obtain an indication of the order of magnitude of Canadian spending on health services in terms of prices likely to prevail at that time. In so doing, our approach has been to project first the current dollar expenditures on various health services and health capital, assuming that there is no change from the level and content of public programmes as they existed in 1962 for the provision of health services and secondly assuming the expansion of public programmes for the provision of health services such as we recommend.

In general, for the major categories of spending such as physicians' services, dentists' services and hospital care our projections are related to the projected *supply* of health personnel and hospital capital but for other categories of spending it has been possible only to project past trends in spending, modifying such trends in the light of our judgment of the developing situation. In the case of spending on health research, education and medical, dental and certain other health capital, as we have indicated above, our projection has been based essentially on our judgment of the future situation since historical trends provide little guide as to what the future may bring.

Given the data available we have not presented a range of alternative levels of spending and in that sense our projections are what we believe to be the "most likely" level of spending. We do not, however, state that the growth of spending which we have projected for individual health services in specific years will, in each and every case, be achieved. It may well be that medical expenditures will fall somewhat above our projected figures while hospital expenditures could move in the opposite direction. In this case, our projected total expenditures could be close to that actually achieved but the composition of spending could be somewhat different. In short, expenditures could diverge somewhat from the projected figures for individual items but it is unlikely that the total level of spending would diverge substantially from the projected figures if current trends continue.[1]

[1] Any such divergence is likely to result in a lower level of spending. See the discussion of the projected costs of hospital care p. 838.

Projected Total Health Expenditures

The projected total expenditures on health services, capital and other health items are presented in Table 20-4. It will be noted that no estimate has been presented for expenditures on health research and grants-in-aid of education assuming existing public programmes. Again this deficiency arises from the limited data available to project any trend and from the significant policy changes that have been made in this area in recent years. In view of the amounts involved such omissions do not seriously limit the comparability of projected expenditures with and without expanded public health programmes. But it is necessary always to keep in mind that the financial implications of our recommendations tend to overstate the additional costs of health care if these latter costs include research and grants-in-aid of education. A similar situation arises with our projection of health capital. Since the data available for projecting expenditures on medical and dental school construction are limited, our projections assume that construction in these two areas, except for capital outlays for a Children's Dental Programme, would be the same whether we assume existing public programmes or an expansion of public programmes. This assumption probably overstates the projected level of expenditures with existing public programmes so that its effect is to cancel out any under-estimate arising from the exclusion of research and education expenditures mentioned above.

On the basis of established public programmes, but excluding health research and grants-in-aid of education, expenditures on health care are projected to rise from $2,007 million in 1961 to $2,873 million in 1966 and to $4,015 million in 1971, all measured in current dollars. Assuming the expansion of public programmes as outlined later in this chapter, expenditures are projected to rise to nearly $2,994 million in 1966 and to $4,407 million in 1971, involving in the latter year an increase of about $392 million as a consequence of expanded public programmes. If research and grants-in-aid of education are included in these amounts, total expenditures are projected to rise to $3,051 million in 1966 and $4,481 million in 1971, and the increase in spending as a consequence of expanded public programmes in 1971 amounts to $466 million.

The trend rate of growth implicit in these projections is somewhat lower than has been experienced in the post-war period, but still above the long-run trend of 1926-1961. In the post-war period, as we have indicated in Table 11-19, the trend rate of growth declined from 16.3 per cent a year in the quinquennium 1945-1949, to 10.3 per cent a year in the quinquennium 1957-1961. If no expansion of public programmes takes place, as shown in Table 20-5, we have projected expenditures to grow at a somewhat slower rate; 7.4 per cent a year for the period 1961-1966, and 6.9 per cent for the period 1966-1971. Assuming an expansion of public

TABLE 20-4 ESTIMATED EXPENDITURES ON HEALTH SERVICES AND HEALTH CAPITAL, ASSUMING EXISTING PUBLIC PROGRAMMES AND WITH EXPANDED PUBLIC PROGRAMMES AND PERCENTAGE OF GNE, CANADA, SELECTED YEARS, 1961–1971

(current dollars)

Year	Operating Costs of Health Services*				Expenditures on Public Health**		Capital Expenditures†		Total Costs of Health Services and Capital			
	Total	Per Capita	Percentage of GNE: Projected Growth of GNE	Percentage of GNE: Projected Low Growth of GNE	Total	Per Capita	Total	Per Capita	Total	Percentage of GNE: Per Capita	Percentage of GNE: Projected Growth of GNE	Percentage of GNE: Projected Low Growth of GNE
	$'000,000	$			$'000,000	$	$'000,000	$	$'000,000	$		
					Assuming Existing Public Programmes							
1961	1,723.9	94.50	4.6	4.6	105.0	5.76	177.8††	9.75	2,006.7	110.01	5.4	5.4
1963[a]	2,010.1	105.91	—	—	120.0	6.32	213.0	11.22	2,343.1	123.45	—	—
1966[b]	2,561.7	126.18	4.8	5.0	150.0	7.39	161.4	7.95	2,873.1	141.52	5.4	5.6
1971[b]	3,617.1	160.11	4.9	5.2	190.0	8.41	207.8	9.20	4,014.9	177.72	5.5	5.8
					Assuming Expansion of Existing Public Programmes							
1966[b]	2,676.1	131.82	5.0	5.2	150.0	7.39	167.8	8.27	2,993.9	147.48	5.6	5.8
1971[b]	4,006.9	177.39	5.4	5.8	190.0	8.41	210.3	9.31	4,407.2	195.11	6.0	6.3

Year	Expenditures on Research		Grants-In-Aid of Education		Grand Total			
					Total	Percentage of GNE		
	Total	Per Capita	Total	Per Capita		Per Capita	Projected Growth of GNE	Projected Low Growth of GNE
	$'000,000	$	$'000,000	$	$'000,000	$		
			Assuming Existing Public Programmes					
1961	12.0	0.66	—	—	—[a]	—	—	—
1963[a]	17.0	0.90	—	—	—	—	—	—
1966[b]	—	—	—	—	—	—	—	—
1971[b]	—	—	—	—	—	—	—	—
			Assuming Expansion of Existing Public Programmes					
1966[b]	32.0	1.58	24.7	1.22	3,050.6	150.28	5.7	5.9
1971[b]	48.0	2.12	26.0	1.15	4,481.3	198.38	6.1	6.4

*Includes expenditures on personal health services and prescribed drugs. Excludes expenditures on non-prescribed drugs.

**Includes general and public health expenditures and some grants-in-aid of research and education of health personnel.

†Includes expenditures on hospitals, medical, dental and nursing schools and other public health capital. The difference between the estimate of spending assuming existing programmes and assuming expanded public programmes arises from the inclusion in the latter of the capital costs associated with a children's dental programme.

††Includes only expenditures on hospital capital.

[a] Including expenditures on research, total spending on health services and other health items would amount to $2,019 million or $111 per capita; see Table 11-7.

[b] Estimated.

[c] Projected.

SOURCE: Tables 11-7, 11-26, 20-21, 20-26 and 20-27; and Madden, J. J., *Economics of Health*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964.

programmes we project that the trend rate of growth in the period 1961-1966 will be 8.3 per cent and in 1966-1971, 8.0 per cent.

TABLE 20-5 ESTIMATED GROWTH RATE OF EXPENDITURES ON HEALTH SERVICES AND HEALTH CAPITAL IN CURRENT DOLLARS, WITH AND WITHOUT EXPANDED PUBLIC PROGRAMMES, CANADA, SELECTED PERIODS, 1957-1971

(percentages)

Period	Assuming Existing Public Programmes	Assuming Expanded Public Programmes			
	Growth Rate of Total Spending	Rate of Population Change	Rate of Change of Real Per Capita Spending	Rate of Change of Prices	Growth Rate of Total Spending
1957–1961	10.3	2.4	5.1	2.5	10.3
1961–1966	7.4	2.2	4.0	1.9	8.3
1966–1971	6.9	2.2	4.5	1.1	8.0

Source: Based on Tables 20-3 and 20-4.

Trends in the Prices of Health Services and Capital

We have examined already the trend rate of growth of output of health services and capital *assuming an expanded public programme.* Table 20-5 also indicates the projected trend rate of growth in the average level of prices of health services and capital that is implicit in our projections of expenditures in current dollars again assuming an expanded public programme. The projected rate of growth of total spending for the period 1961-1966 is 8.3 per cent of which 1.9 per cent is attributable to the trend rate of increase in prices, compared with 6.3 per cent attributable to the growth in population and real per capita expenditures. In the period 1966-1971 the projected trend rate of increase in price is somewhat lower, 1.1 per cent a year with 6.8 per cent attributable to increased total real spending.

Such a projection of price trends is in accord with the trend in prices of health services that we have described in Chapter 11. Between 1945-1949 and 1957-1961, the trend rate of growth declined from 7.4 per cent to 2.6 per cent and there seems no reason to assume, in view of the projected supply of health personnel and health capital, along with technical and organizational changes, that this process will not continue over the

next decade. What is more uncertain is that the trend rate of a rise in prices will increase at an average of only 1.1 per cent in the period 1966-1971. In Chapter 11 we described, at some length, the forces of supply and demand that have influenced prices in the past. With an expanded public programme, where financial barriers to the use of health services may be significantly removed, the demand for health care will increase while the relatively long period of time needed to produce professional personnel may make it difficult to meet this demand at once. In such circumstances, and if there were no agreement on a professional fee schedule, prices could rise more rapidly than the rate projected here and perhaps continue to increase at a rate of two to three per cent to the end of the decade; although this would be a high rate in view of the expansion of the supply of personnel projected in the late sixties.

Yet even if our projection ultimately under-estimates the upward trend in prices this does not mean that we have under-estimated, to any significant degree, the upward trend in total health expenditures in current dollars. If prices rise rapidly because the supply of health services fails to expand at a sufficiently high rate, the consequence will be that many people would be unable to obtain the health services they desire since the personnel do not exist to supply them. In such an event the projected trend rate of growth of real per capita expenditures described earlier in this chapter would not be achieved until the nineteen seventies, and the trend rate of growth of expenditures in current dollars down to 1971 would remain relatively unchanged since a higher trend rate of growth of price increase would be offset by a lower trend rate of growth of real per capita consumption.

As we have already emphasized we do not believe that the supply of health resources, existing and anticipated, is insufficient to prevent the implementation of the programmes we have recommended over the period 1966-1971. On the other hand, we are aware that the prices of many health services will necessarily rise—both because skilled and professional personnel will improve their qualifications and because some scarcities cannot be eliminated in a relatively short period of time. What we wish to stress here is: *Canada is capable of implementing an expanded health care programme without major inflationary pressures either in the health sector or in the economy as a whole.*

Projected Per Capita Spending

Our projections of total spending allow for a substantial increase in current dollar per capita outlays over the decade. Assuming no expansion of public programmes, it is estimated that per capita expenditures on health services and health capital, excluding expenditures on research and grants-in-aid of education, as indicated in Table 20-4 will rise from $110 in 1961

to $142 in 1966 and to $178 in 1971. With an expanded public programme, it is estimated that per capita expenditures on health services and capital over this period will rise to $147 in 1966 and to $195 in 1971. If expenditures on research and grants-in-aid of education are included in this latter estimate, there is a small increase in total per capita spending to $150 in 1966 and $198 in 1971.

Health Expenditures as a Percentage of GNE

The projection of a trend rate of growth of spending that is declining relatively slowly does not necessarily mean that total spending is increasing less rapidly than other categories of spending. Assuming no expansion of public programmes, the proportion of total output allocated to health does not rise significantly since demand is unlikely to rise much more rapidly than the growth of income. The projected trend of spending however is still high enough to result in the proportion of Gross National Expenditure spent on health services and capital rising slightly. As can be seen from Table 20-4, assuming that Gross National Expenditure grows at the higher rate projected in Chapter 19, expenditures on health services and health capital will increase from 5.4 per cent of Gross National Expenditure in 1961 to 5.5 per cent in 1971, while with a lower rate of growth of Gross National Expenditure, the percentage projected for 1971 is 5.8 per cent.

Assuming an expansion of public programmes, involving a reduction of the barriers to consumption, health expenditures excluding expenditures on research and grants-in-aid of education are projected to rise only to 5.6 per cent of GNE in 1966 and to 6 per cent of GNE in 1971—assuming the higher rate of growth of GNE. With a lower rate of growth of GNE the percentages projected for 1966 and 1971 are 5.8 and 6.3 respectively. The consequences of the expansion of these public programmes then is to increase the percentage of GNE allocated to health services and capital in 1971 by between 0.6 and 0.9 per cent compared with 1961.[1]

When research expenditures and grants-in-aid of education are included with health spending, Table 20-4 indicates that, assuming an expansion of public programmes, the percentage of GNE allocated to health in 1966 would rise from 5.6 per cent to 5.7 per cent and in 1971 from 6.0 to 6.1 per cent.

The major financial implications of these projections are:

1. Assuming no change in public programmes, and excluding expenditures for health research and grants-in-aid of education, between 1961 and 1966 per capita expenditures are projected to rise from $110 to

[1] If all health research and grants-in-aid of education had been included in the 1961 estimate, the additional percentage of GNE spent on health would not likely have exceeded 03 per cent.

$142, total expenditures to rise from $2,007 million to $2,873 million, and the percentage of GNE allocated to health care to remain unchanged at 5.4 per cent.

Between 1966 and 1971 per capita expenditures are projected to rise to $178, total expenditures to rise to $4,015 million and the percentage of GNE allocated to health care to increase to 5.5 per cent.

If GNE were to grow at a slower rate, in 1966 projected health expenditures would account for 5.6 per cent of GNE and for 5.8 per cent in 1971.

2. Assuming the implementation of the programmes recommended here, and excluding health research and grants-in-aid of education, between 1961 and 1966 per capita expenditures are projected to rise from $110 to $147, total expenditures to rise from $2,007 million to $2,994 million and the percentage of GNE allocated to health care to rise from 5.4 per cent to 5.6 per cent. Between 1966 and 1971 per capita expenditures are projected to rise to $195, total expenditures to rise to $4,407 million and the percentage of GNE allocated to health care to increase to 6.0 per cent.

   If GNE were to grow at a slower rate, in 1966 projected health expenditures would account for 5.8 per cent of GNE and for 6.3 per cent in 1971.

   If health research and grants-in-aid of health education are included with projected health expenditures, on the basis of the higher rate of growth of GNE, health care expenditures by 1971 would account for 6.1 per cent of GNE, total expenditures would amount to $4,481 million and per capita spending amount to $198.

Three points of major significance emerge from these projections. Without any expansion of public programmes, the per capita cost of health services and health capital will rise substantially up to 1971, but will increase but little as a percentage of GNE. The expansion of public programmes, on the other hand, does not lead to sizeable increases in the per capita expenditures. Excluding expenditures on health research and grants-in-aid of education, by 1966, assuming that the programmes were being implemented in that year for the first time, the increase would be only $6 per person. In 1971, when we anticipate that the programme would be in full operation, the difference in per capita expenditures would be of the order of $17. The addition of expenditures on health research and grants-in-aid of education would not increase these sums by more than $3 per person in either 1966 or 1971. Finally, if a reasonable rate of growth of GNE is achieved in the Canadian economy, the implementation of our recommendations would not lead to a substantial increase in the proportion of GNE allocated to health

care, as the difference between existing public programmes and expanded public programmes by 1971 is of the order of one-half of one per cent of GNE.

PROJECTED COST OF INDIVIDUAL HEALTH SERVICES AND OTHER HEALTH ITEMS IN CURRENT DOLLARS, 1966 AND 1971

Projected Expenditures on Physicians' Services

PROJECTED EXPENDITURES ASSUMING EXISTING PUBLIC CARE PROGRAMMES

Estimated expenditures on physicians' services have been calculated by projecting the number of physicians providing personal health services and the average gross income of such physicians. The number of physicians that we expect to be practising in Canada in the years 1966 and 1971 has been estimated in Chapter 13. Since we are concerned to estimate the cost of personal health services, it is necessary, therefore, to eliminate from the total number of physicians, that proportion who are engaged in salaried practice in hospitals, interns, and physicians employed in education, research and administration in business, government, industry or the university, since outlays for the services of these professional persons are included in some other health expenditure. For example, the expenditures on salaried physicians employed in hospitals are included with hospital expenditures. An examination of the distribution of physicians by type of employment in 1961 suggests that about 73.5 per cent were employed in providing personal services. We have assumed that this proportion will not change significantly over the decade. On this basis it is projected that the number of physicians providing personal health services will rise from 15,640 in 1961 to 19,576 in 1971.[1]

The projected average gross earnings of physicians providing personal health services is based upon the trend rate of growth of average gross incomes over the period 1957-1961. In 1957, the average gross income of physicians providing personal health services is estimated to have been $20,700 and to have risen to $24,500 by 1961.[2] The trend rate of growth of gross income in this period amounted to 4.2 per cent a year and in 1960-

[1] See Table 20-6.

[2] Data supplied by Department of National Health and Welfare, *Research and Statistics Division,* May 1963. These estimates have been based on published and unpublished data supplied by Taxation Division, Department of National Revenue, from *sample aggregations* of income tax returns. This figure includes some earnings received in the form of wages and salaries by physicians who provide personal health services but it excludes income from property or other sources.

TABLE 20-6 ESTIMATED COST OF PHYSICIANS' SERVICES, CANADA, SELECTED YEARS, 1961–1971

Year	Population	Estimated Number of Physicians	Percentage Providing Personal Health Services*	Number Providing Personal Health Services	Population Per Physician Providing Personal Health Services	Estimated Average Gross Income of Physicians**	Estimated Cost of Medical Services	Per Capita Cost of Medical Services
	'000,000					$	$'000,000	$
	Assuming Existing Public Medical Care Programmes							
1961	18.24	21,290	73.5	15,640	1,163	24,500	383.2	21.01
1963†	18.98	22,237	73.5	16,344	1,161	26,180	427.9	22.54
1966††	20.30	23,708	73.5	17,425	1,165	29,025	505.7	24.91
1971††	22.59	26,634	73.5	19,576	1,154	33,155	649.0	28.72
	Assuming Federal Participation in a Comprehensive Medical Care Programme in 1966							
1966††	—	—	—	—	—	30,150	525.3	25.88
1971††	—	—	—	—	—	40,720	797.1	35.29

* Excludes salaried physicians in hospitals, interns, physicians employed in business, government, education, research and administration, whose costs are included with other categories of health expenditures. Includes some salaried physicians providing health services in clinics, etc.
** Includes income from sale of prescribed drugs and in some cases includes income from salaries and wages.
† Estimated.
†† Projected.

SOURCE: Madden, J.J., *Economics of Health*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964.

1961 to 3.8 per cent. In view of this trend, the average gross income of physicians, assuming no expansion of public programmes, is projected to rise somewhat less rapidly in the future.

The trend rate of growth for the period 1961-1966 is projected at 3.4 per cent; for the period 1966-1971 at 2.8 per cent and for the whole decade 3 per cent. By 1966, the average gross fee income of physicians is projected to be $29,025 and by 1971 to rise to $33,155. This increased income is the result of three factors: increased prices for services rendered, a greater volume of services rendered, more complex and more skilled care provided. This last factor is in turn affected by the continuing trend to specialization which will yield rising incomes to medical practitioners but it is difficult to isolate that proportion of increased income which is due to this development.

From the point of view of the cost of health services it is the gross income of physicians that concerns us. To complete the picture, we require information on net income, i.e., after deducting expenses to practise medicine. On the basis of taxation data it is estimated that expenses as a percentage of *gross fee income* in 1957 amounted to 38.7 while in 1961 the percentage was 36.2.[1] Assuming that these proportions change as little in the future as they did in the recent past we project that expenditures will represent 35 per cent of the gross income in 1966 and 1971. Hence the average net fee income of physicians would be about $18,850 in 1966 and $21,550 in 1971.

It should be noted that these figures do not include the income of physicians from property or other non-practice income. This makes it difficult to make comparisons with the projected rate of growth of average per capita income which include all labour and property incomes. Another factor limiting this comparison is that average per capita income is influenced by the age-sex structure of the population since average per capita income is derived by dividing total income by total population. Although the trend rate of growth of physicians' net professional income, *assuming no further development of public medical care programmes from those existing in 1962,* is a little less than that projected for average per capita income, this may be offset by the facts mentioned above. In any case a rough adjustment for family size would indicate that the effect of this lower rate of growth is not substantial since average family income, as a percentage of physicians' net fee income, would rise only from about 39 per cent to 42 per cent.

On the basis of these estimates as shown in Table 20-6, we project expenditures on medical care to rise from $383 million in 1961, assuming no expansion of public programmes, to $506 million in 1966 and to $649

[1] *Ibid.*

million in 1971. In per capita terms the increases would be from $21.01 to $24.91 and $28.72 respectively. This projected trend rate of growth of total and per capita spending on physicians' services is, as can be seen from Table 20-7, somewhat less than for the decade 1951-1961. If no comprehensive public medical programme is introduced, the trend rate of growth of total spending is projected at 5.4 per cent for the decade 1961-1971 compared with 9.6 per cent for the previous decade, while per capita spending is projected to grow at a trend rate of 3.2 per cent compared with 6.7 per cent in the period 1951-1961. Yet an average annual increase of 3.2 per cent a year sustained over a decade is still a relatively high rate of growth and this point should be borne in mind when comparisons are made with the high rate of growth of the preceding period.

The reasons for this slackening in the growth rate of spending are to be found primarily on the demand side. During the decade of the fifties, the rise in personal incomes and the spread of private insurance programmes, along with the substitution of public for private hospital insurance made it possible for many individuals to spend increasing amounts for medical care. Without the expansion of public medical care programmes the demand for physician services over the next decade is unlikely to be as buoyant since the demand for medical care would depend largely on two factors: (1) the growth of real incomes and the extension of insurance coverage to those groups who, because of occupation, of location or socio-economic status find it difficult to obtain private insurance coverage and (2) on the willingness of the Canadian public to devote a larger proportion of their rising earnings to health services. On the supply side, with the implementation of the special measures we recommend, there will be an increase in the supply of physicians over the decade 1961-1971 amounting to 4,000 and this should be sufficient to meet the expanded demand we envisage without a significant rise in the price of medical services other than that arising from changes in the quality of output.

PROJECTED EXPENDITURES ASSUMING A COMPREHENSIVE MEDICAL CARE PROGRAMME

Since our projection of the supply of physicians has been derived independently of the introduction of a comprehensive medical care programme, it is evident that the increased demand generated under such a programme would have to be met from the increased supply, productivity or longer work-week of Canadian physicians. During the nineteen fifties, with the heavy flow of physicians trained abroad, more were available to provide care for the growing population. Thus when population grew at a trend rate of 2.7 per cent, the supply of physicians grew at a trend rate of 4 per cent.

TABLE 20-7 AVERAGE ANNUAL PERCENTAGE CHANGE IN POPULATION, PHYSICIANS, EXPENDITURES ON MEDICAL CARE, SELECTED PERIODS, 1951–1971

(percentages)

Period	Population Growth	Estimated Number of Physicians Providing Personal Health Services	Physicians' Average Gross Income		Total Expenditure on Medical Care		Per Capita Expenditures on Medical Care	
			Assuming Existing Programmes*	Assuming a Comprehensive Programme	Assuming Existing Programmes	Assuming a Comprehensive Programme	Assuming Existing Programmes	Assuming a Comprehensive Programme
1951–56	2.8	4.0	—	—	9.4	—	6.5	—
1957–61	2.4	3.5	4.3	—	9.2	—	6.7	—
1951–61	2.7	4.0	—	—	9.6	—	6.7	—
1961–66	2.2	2.2	3.4	—	5.7	6.5	3.4	4.2
1966–71	2.2	2.4	2.8	6.2	5.1	8.6	2.8	6.4
1961–71	2.2	2.3	3.0	5.2	5.4	7.5	3.2	5.3

*Data on gross income not available before 1957. Trend rate of growth of net income in this period estimated to be 5.3 per cent.

SOURCE: Department of National Health and Welfare, *Research and Statistics Division*; and Madden, J. J., *Economics of Health*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964; and Table 20-4.

With the expected decline in the rate of immigration in the nineteen sixties it is unlikely that foreign graduates would contribute as much as formerly to the supply of physicians and the latter will have to depend, to a greater extent, on the graduates of Canadian medical schools. This number is largely determined by the number already in the universities since the pre-medical class of 1963 will graduate in 1970. However, with the increased number of applicants for medical education and the expansion of teaching facilities, the supply of Canadian trained physicians, as we have pointed out in Chapter 13, will begin to expand at the end of the nineteen sixties and it is expected that the physician-population ratio will continue to improve through the nineteen seventies.

The increased demand resulting from the introduction of a comprehensive medical care programme could then be met, in part, by the projected increase in supply. There will also be some increase in the productivity of individual physicians during the next decade. In the past the concentration of patient care in hospitals permitted physicians to care for more patients each day as did the increased use of auxiliary staff in doctors' offices so that productivity of physicians rose significantly along with more intensive effort by physicians. Given the hours already worked by physicians it is unlikely that any significant increase in the work-week could be achieved without some effect on the quality of service. Physicians can be expected to continue to increase their productivity during the nineteen sixties but the gains, assuming present pattern of practice of medicine continues, are likely not to be as great as they have been in the late nineteen forties and nineteen fifties. The development of out-patient hospital care, the consolidation of patient care in hospital and the use of ancillary personnel and equipment in office practice will continue but, probably at a slower rate than in the past, unless new incentives are provided to practice in new ways which increase productivity without reducing quality. One example would be a significant increase in the practice of medicine in the form of group clinics such as we recommended in Chapter 2.[1]

Taking into account these various trends we conclude that the volume of services provided by physicians will rise with the development of a comprehensive public programme and that expenditures on physicians' services will rise accordingly. Another factor that would tend to increase physicians' gross income is that physicians could be paid for services they now provide free or at less than their provincial fee schedule.

Assuming the introduction of a comprehensive medical care programme by 1966, we have then projected that the gross incomes of physicians will rise somewhat more rapidly and amount to $30,150 in that year and to

[1] See Chapter 2, Recommendations 34 and 35.

$40,720 by 1971.[1] Such an increase is the equivalent of a trend rate of growth of incomes of 5.2 per cent a year; about one per cent higher than in the period 1957-61. The trend rate of growth of incomes is projected to slow down again towards the end of the decade and to amount to 5 per cent in 1971.

Assuming no change from the public medical care programme existing in 1962, we have projected gross income of practising physicians to amount to $29,025 in 1966 and $33,155 in 1971. With a comprehensive medical care programme, we estimate gross income of medical practitioners to reach $30,150 in 1966 and $40,720 in 1971. The difference is $1,125 in 1966 and $7,565 in 1971.[2] Compared with 1961, levels of income of physicians assuming a national public programme would rise by 23 per cent between 1961 and 1966 and by 66 per cent between 1961 and 1971. Since we have projected that the ratio of expenses to gross fee income would average 35 per cent over the decade, net fee income is projected to amount to $19,595 in 1966 and $26,467 in 1971 an increase of 69 per cent compared with average per capita incomes which are projected to rise by between 50 and 60 per cent.[3]

One major change may come about as a result of the higher incomes earned by physicians. With higher net incomes earned in Canada, more physicians may be attracted from Europe or Canadian physicians may be induced to return to this country from the United States and fewer may leave for the United States.

Against this trend it was urged upon us that there may be an offsetting factor with some physicians leaving Canada because they do not wish to practise under a comprehensive medical care programme sponsored by public authorities.[4] But in a programme organized with the co-operation of the profession as we recommend, this need not happen. On balance, we expect that these factors may not affect significantly the level of total expenditures projected here.

The cost of medical care with a comprehensive public programme, as shown in Table 20-6, is projected to rise to $525 million in 1966 and to $797 million in 1971, in current dollar terms, an increase in the latter

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[1] Given the supply of physicians as projected above and the estimated cost of a medical programme in 1970 as calculated by Clarkson, G.C., *The Cost and Ability to Pay for Medical Services Insurance in Canada and Its Provinces,* Canadian Medical Association, Toronto, October 1962, p. 9, gross fee incomes of physicians would exceed $40,000 by 1970.

[2] In 1966, the programme is assumed to be getting under way, and by 1971, the programme is assumed to be in full and effective operation.

[3] See Table 19-3.

[4] For a statement setting forth the number and type of physicians leaving the Province of Saskatchewan following the implementation of the Saskatchewan Medicare Programme, see "Review of Medical Loss" by H. A. L. Portnuff, M.D., President of Saskatchewan Division of the Canadian Medical Association, *Newsletter,* Saskatoon, December 1963.

year of $148 million compared with the cost of medical care assuming no change in public programmes— a difference of 18 per cent. In per capita terms, the projected figure for 1971 is $35.29 compared with $28.72 without a programme, a difference of $6.57. The projected trend rate of growth of total and per capita spending for the decade 1961-1971 is 7.5 per cent and 5.3 per cent respectively—in both cases a slower trend rate of growth than in the period 1951-1961 but still higher than the projected trend rate of growth of income.

COST OF A COMPREHENSIVE MEDICAL CARE PROGRAMME IN 1961

In the course of our analysis of Canadian medical care insurance and prepayment plans in 1961, we examined the cost of a medical care prepayment plan for the Canadian population in that year assuming alternative degrees of comprehensiveness.[1]

In preparing this estimate, the experience of the Manitoba Medical Service has been used, along with certain other data from Saskatchewan medical prepayment plans. This experience was then applied to the remainder of Canada with allowance made for regional differences in family size and composition, as well as the proportion of older persons in the population. It is evident, however, that there are other factors that would influence the cost of a universal prepaid medical care plan, principally regional differences in the utilization of medical services and the prices of such services. Since it was not possible to adjust for these differences the estimates presented here must *not* be taken as representative of the cost of a national comprehensive medical care programme if such had been in existence in 1961.

Historically, there have been significant regional variations in the use of health services both in terms of volume and type of service. The data available indicates that before the introduction of the Hospital Insurance and Diagnostic Services Act or provincial hospital insurance programmes, the Western provinces used more hospital services than the Atlantic provinces[2] and the more limited data available for medical care utilization support this position.[3] In consequence, an estimate based on the experience of Western provinces will tend to *over-estimate* the *initial* cost of a national programme

[1] For a more detailed account of this estimate see Berry, C. H., *Voluntary Medical Insurance and Prepayment*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter 6. Estimates, for the most part, are based on data from Manitoba Medical Service. Some additional data from Medical Services Incorporated in Saskatoon and from the Saskatchewan Medical Care Insurance Commission have also been used.

[2] See Madden, J. J., *op. cit.*

[3] See Judek, S., *op. cit.*, Chapter 5.

since other provinces would have a lower rate of utilization. Again to the extent that there exists regional differences in the structure of prices, an estimate based on costs derived from the Western provinces can differ from the actual costs if such a programme were introduced.

In view of the limitations of the data, the estimate presented here should not be taken to represent the actual cost of a universal comprehensive medical care programme if such had existed in 1961. Alternatively, in view of our knowledge of the learning process associated with the introduction of a pre-paid medical care programme, the estimate is indicative of the level to which the cost of medical care services could rise assuming that the utilization experience of Manitoba Medical Services and the prices that ruled in Manitoba were to be achieved in all provinces. If each family in the Canadian population as a whole had obtained medical services, on the average equal to the services obtained by the corresponding families in the Manitoba Medical Service population, it is estimated that the per capita cost of medical care in 1961 would have amounted to between $31 and $32 compared with the estimated actual expenditure of $21.[1] Some further details of this estimate are presented in the following tabulation:

ESTIMATED PER CAPITA COST, SELECTED CLASSES OF MEDICAL EXPENSES, CANADA, 1961

Medical Expense Class	Per Capita Cost
	$
In-hospital services	11.93
All services other than surgery and maternity*	21.27
Home and office calls	10.91
Laboratory and X-ray services	5.42

* Well-baby care included in maternity.

SOURCE: Berry, C. H., *Voluntary Medical Insurance and Prepayment*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Table 6-7.

The estimated cost of a programme that included all services that might be performed in hospital, would have been $11.93, home and office calls $10.91 and all services other than surgery and maternity, $21.27. It is evident that a medical service programme that limited itself to in-hospital services or to surgical and maternity services only, would exclude a substantial proportion of the medical services that a comprehensive programme is designed to cover.

[1] See Berry, C. H., *op. cit.*, Table 6-5.

Projected Expenditures on Dentists' Services

Two estimates of expenditures on dentists' services have been developed; the first assuming continuation of existing programmes for the provision of dental services and the second assuming the introduction by 1968 of the Children's Dental Programme, outlined in Chapter 2.

PROJECTED EXPENDITURES ASSUMING EXISTING PUBLIC DENTAL PROGRAMMES

The estimated expenditures on the basis of existing programmes have been projected by using the trend rate of increase in the number of dentists providing personal health services and changes in the average gross income of these practitioners. The total number of dentists in Canada in 1961 and the estimated number in 1966 and 1971 are provided in Chapter 13. Not all of these dentists are engaged in providing personal health services. Hence the estimated cost of the services of dentists, when employed in hospitals, government and education must be excluded. In 1961, about 450 dentists were employed in hospitals, dental schools and government; about 7.7 per cent of the total. It has been estimated that this number will increase to 580 by 1970, principally through the employment of more dentists in dental schools, which is the equivalent of assuming that a substantially unchanged proportion of dentists (92.0 per cent) will be engaged in the provision of personal health services throughout the period. The projected number of dentists providing personal health services and the trend rate of growth of the supply of dentists are presented in Tables 20-8 and 20-11. With a relatively slow rate of growth of the supply of dentists in the period 1961-1966 the population-dentist ratio rises from 3,372 to 3,475. After 1966, with the expansion of the output of dental schools, the trend rate of growth of dentists is projected at 2.4 per cent, somewhat higher than the rate of population growth and, as a consequence, the dentist-population ratio is projected to fall to 3,434 by 1971. Over the period 1961-1971, the average annual rate of growth is projected at 2 per cent compared with 1.8 per cent for the period 1951-1961.

During the period 1951-1961, it is estimated that the average gross income of dentists providing personal dental services increased at an average annual rate of 7 per cent a year. This increase, as was pointed out in Chapter 11, partly was the consequence of the high productivity of dental practitioners achieved through the use of more specialist equipment and ancillary personnel along with new materials, and improved techniques that permitted dentists to treat more patients per unit of time. At the same time the rise in personal disposable income, along with the substitution of public hospital insurance for private hospital insurance, made it possible for families and individuals

TABLE 20-8 ESTIMATED COST OF DENTISTS' SERVICES ASSUMING EXISTING PUBLIC PROGRAMMES, CANADA, SELECTED YEARS, 1961–1971*

Year	Population	Estimated Number of Dentists	Percentage Providing Personal Health Services*	Number Providing Personal Health Services	Population Per Dentist Providing Pers. Health Services	Estimated Average Gross Income**	Cost of Dental Services	Per Capita Cost of Dental Services
	'000,000					$	$'000,000	$
1961	18.24	5,868	92.2	5,410	3,372	21,960	118.8	6.51
1963†	18.98	6,045	92.2	5,575	3,404	24,190	134.8	7.10
1966††	20.30	6,336	92.2	5,842	3,475	27,840	162.5	8.00
1971††	22.59	7,136	92.2	6,579	3,434	32,560	214.2	9.48

*Excludes salaried dentists in hospitals and dentists employed in government, business, education, research and administration.
**Includes income received in some cases from wages and salaries.
†Estimated.
††Projected.
SOURCE: Madden, J. J., *Economics of Health*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964.

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TABLE 20-9 ESTIMATED COST OF CHILDREN'S DENTAL CARE PROGRAMME, AGES 3–18, CANADA, 1968 AND 1971*

Year	Estimated Number of Dentists in Programme	Average Income of Dentists**	Cost of Dentists' Services	Estimated Number of Auxiliaries	Average Salary of Auxiliaries	Cost of Services of Dental Auxiliaries	Total Cost of Dentists' and Auxiliaries' Services	Other Costs†	Estimated Total Cost of Programme	
									Total	Per Capita
		$	$'000,000		$	$'000,000	$'000,000	$'000,000	$'000,000	$
1968	650	16,560	10.8	1,000	6,000	6.0	16.8	7.2	24.0	1.13
1971	1,000	18,705	18.7	3,800	6,500	24.7	43.4	18.7	62.1	2.75

*Based on the age groups, dental needs, utilization rates, supply of personnel outlined in Chapter 13. Assumes rising utilization rates of various age groups and 1,000 dental auxiliaries graduated each year in 1970, with 1,500 graduates thereafter.

**Estimated to be 55 per cent of gross incomes of dentists providing personal dental services assuming the introduction of a children's dental care programme; $34,010 in 1971.

†Assumed to be the equivalent of 30 per cent of the cost of the programme. Excludes interest and depreciation allowances on capital. Includes cost of both office and other technical personnel.

SOURCE: Data from Chapter 13; and Madden, J. J., *Economics of Health*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964.

TABLE 20-10 ESTIMATED COST OF DENTISTS' SERVICES WITH AND WITHOUT A CHILDREN'S DENTAL CARE PROGRAMME, CANADA, SELECTED YEARS, 1966-1971

Year	Cost of Care Provided Outside Programme		Cost of Care Provided Under Children's Programme		Total Cost of All Dental Services	
	Total Cost	Per Capita Cost	Total Cost	Per Capita Cost	Total Cost	Per Capita Cost
	$'000,000	$	$'000,000	$	$'000,000	$
			Assuming Existing Public Dental Programmes			
1966	162.5	8.00	—	—	162.5	8.00
1971	214.2	9.48	—	—	214.2	9.49
			Assuming Children's Dental Programme*			
1968	180.9	8.54	24.0	1.13	204.9	9.67
1971	209.2	9.26	62.1	2.75	271.3	12.01

*Based on the assumptions outlined in Chapter 13. Cost of care outside of the programme calculated by subtracting dentists in the programme from estimated supply of dentists rendering personal health services and using an estimated average gross income which amounts to $34,010 in 1971.

SOURCE: Based on Tables 20-8 and 20-9.

to spend more for dental care and thus provide increasing effective demand for the services of the relatively slow-growing supply of dental practitioners. The rate of increase in dentists' income was reduced towards the end of the nineteen fifties and this trend is likely to continue over the next decade if there is no further expansion of public programmes or prepaid dental programmes. Hence the first projection we submit is based upon the assumption of a more rapid increase in the supply of dentists towards the end of the sixties, a slowing down in the rate of growth of demand as those groups who have the income to finance dental services receive most of the dental care they require and finally, that the productivity of dentists is not likely to grow as rapidly over the next decade as it has in the past. Dentists' average gross incomes will continue to increase, however, since rising real per capita incomes will lead more families to purchase dental services. Further the adoption of improved practice techniques by more and more dentists will permit average productivity to rise even if there is little change in technology, and with some improvement in technology, productivity is likely to increase even more. Assuming no major technical break-through in the practice of dentistry it is likely that productivity gains will be somewhat less than those achieved in the post-war period. The average gross income is projected to grow from $21,960 in 1961 to $32,560 in 1971, an increase of about

50 per cent.[1] This is the equivalent of a trend rate of growth of 4 per cent a year compared with 7 per cent in the period 1951-1961. The projected trend rate of growth for the period 1961-1966 is 4.8 per cent and for the period 1966-1971 is 3.2 per cent.

Combining the projected supply of dentists and average gross income, the estimated expenditures in the years 1966 and 1971 are shown in Table 20-8. Total expenditures are projected to rise from $119 million in 1961 to $162 million in 1966 and to $214 million in 1971. Per capita expenditures are projected to rise from $6.51 to $8.00 and $9.48 respectively. The projected trend rate of growth of total spending is lower for the period 1961-66 compared with 1957-1961, 6.5 per cent compared with 8 per cent; while for per capita spending the projected trend rate of growth of spending is 4.2 per cent compared with 5.4 per cent. For the whole period the trend rate of growth of total spending is projected to decline to 6.1 per cent and per capita spending to 3.9 per cent (see Table 20-11).

We turn now to our second estimate of dental expenditures assuming a public programme such as we recommend.

PROJECTED EXPENDITURES ASSUMING AN EXPANDED PUBLIC DENTAL CARE PROGRAMME

Children's Programme—Since the supply of dentists has been projected separately, the additional costs arising out of the Children's Dental Programme outlined in Chapter 13, will depend on the rate of increase in dentists' gross incomes consequent on an increase in demand for their services and the costs of dental auxiliaries, ancillary personnel and operating costs of dental clinics that such a programme uses. In the face of a subsidized increase in demand dentists' incomes are likely to rise somewhat more rapidly than we suggested in our first estimate. We now project a trend rate of growth of 4.1 per cent for the quinquennium 1966-1971 compared with 3.2 per cent without a programme and for the decade the projected annual increase is 4.5 per cent, compared with 4.0 per cent. On these projections it is estimated that the average gross incomes of dentists providing personal health services would amount to about $30,110 in 1968 and to $34,010 in 1971.

The average gross income of dentists in 1971, assuming no Children's Dental Programme has been estimated at $32,560 and with a programme

[1] The estimated growth rate of gross income we have assumed is based upon the trend rate of growth of net income reported for taxation purposes. Information supplied by Department of National Health and Welfare, *Research and Statistics Division*, that the net earnings of dentists which have been rising as a percentage of gross income in 1961 would amount to 55 per cent of gross incomes in 1966 and 1971. Net incomes of dentists are estimated to rise from $10,980 in 1961 to $17,908 in 1971, an increase of 63 per cent over the decade.

at $34,010, a difference of $1,450 or 4.3 per cent. As the average gross income of dentists is estimated at $21,960 for 1961, this profession may expect an increase of 55 per cent in their gross incomes by 1971 assuming the introduction of a Children's Dental Programme. Since net incomes are projected to amount to 55 per cent of gross incomes by 1971,[1] the average net income of dentists after the introduction of the programme is estimated to be $18,705 in that year. Relative with 1961 this is the equivalent of an increase in net incomes of 70 per cent compared with a projected increase in the average incomes of Canadians of 50 to 60 per cent.[2] Such an increase should be an incentive to encourage entry into the practice of dentistry.

The average income of dentists providing services in the programme has been estimated to be the equivalent of the net earnings of dentists providing personal health services outside the programme and is projected to amount to $16,560 in 1968 and to $18,705 in 1971 (see Table 20-9).[3]

The average earnings of dental auxiliaries in the programme have been tentatively set at $6,000 in the year 1968 and $6,500 in 1971. This estimate may well turn out to be too high but is based upon the amount that we believe might be needed five years hence to attract personnel into this particular occupation. To the extent that such personnel can be obtained for lower salaries than those presented here, the cost of implementing a Children's Dental Programme would then be correspondingly less. The other costs of the programme, excluding interest and depreciation on capital made available from public funds, are estimated to be 30 per cent of the total cost of the programme and includes the cost of other ancillary personnel such as dental assistants, clerical personnel, materials and other operating costs.

Allowing for the difficulties faced in providing sufficient personnel to implement the programme fully by 1968 and since, as we pointed out in Chapter 13, there is a learning process involved which would limit use of the programme in its early stages, we have estimated the cost of a Children's Dental Programme given the assumption of a rising utilization rate and the graduation of 1,000 dental auxiliaries commencing in 1968. The cost of such a programme is set out in Table 20-9. In the first year of the programme, total costs are estimated to be $24 million and are projected to rise to $62 million by 1971. Per capita costs are estimated at $1.13 in 1968 and are projected to increase to $2.75 by 1971.

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[1] See footnote 1, p. 821.

[2] See the discussion on pp. 810, 811 for the limitations of this comparison.

[3] The projected average net income of dentists in 1971 is estimated to be about 70 per cent of the projected average net income of physicians providing personal health services in that year, the same as in 1961. The difference in income represents, in part, the return on a greater amount of investment in human capital in the average physician.

TABLE 20-11 AVERAGE ANNUAL PERCENTAGE CHANGE IN POPULATION, DENTISTS AND EXPENDITURES ON DENTAL CARE, CANADA, SELECTED PERIODS, 1951–1971

(percentages)

Years	Population Growth	Number of Dentists Providing Personal Health Services	Dentists' Average Gross Income*		Total Expenditures on Dental Care		Per Capita Expenditures on Dental Care	
			Assuming Existing Programmes	Assuming a Children's Dental Programme	Assuming Existing Programmes	Assuming a Children's Dental Programme**	Assuming Existing Programmes	Assuming a Children's Dental Programme
1951–1956	2.8	2.0	8.0	—	9.8	—	6.8	—
1957–1961	2.4	1.5	4.8	—	8.0	—	5.4	—
1951–1961	2.7	1.8	7.0	—	8.8	—	6.0	—
1961–1966	2.2	1.5	4.8	—	6.5	—	4.2	—
1966–1971	2.2	2.4	3.2	4.1	5.7	—	3.4	—
1961–1971	2.2	2.0	4.0	4.5	6.1	8.6	3.9	6.3

*Based on the trend rate of growth of net income of dentists including income from practice, investments and other non-professional income. Gross incomes not available.

**Based on Table 20-9.

SOURCE: Based on Tables 20-8, 20-9 and 20-10; and Madden, J. J., *Economics of Health*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964.

Programme for Recipients of Public Assistance—In addition to a Children's Dental Programme, we have recommended a programme that would provide recipients of public welfare, including recipients of old age assistance, with the dental care they need, including dentures. Part of the cost of such a programme is already included in our estimated cost of dental care since welfare recipients in some provinces already receive dental care. Many others, since they already have satisfactory dentures, would not require dental treatment. In view of the limited extent of the unmet need of this group it is unlikely that the additional annual cost of providing such care would amount to more than $10 million in 1971. In view of the limited information, this amount has not been included in the cost of a dental care programme as shown in Table 20-9 but its exclusion does not significantly affect either the cost of expanded public programmes or the cost of dental care.

Total Expenditures—The *total cost* of dental care, assuming the introduction of a Children's Dental Programme, is set out in Table 20-10. In 1968, total expenditures are estimated to be $204.9 million and per capita expenditures to be $9.67. By 1971 total expenditures are projected at $271 million and per capita expenditures at $12.01.

The effect of the introduction of a Children's Dental Programme on the trend rate of growth of spending is shown in Table 20-11. The trend rate of total spending for the decade is raised from 6.1 to 8.6 per cent a year and for per capita spending from 3.9 to 6.3 per cent a year. In terms of additional dollars spent, in 1971 the difference between the per capita cost of dental services with no expansion of public programmes and the cost of such services after the implementation of a Children's Dental Programme is $2.52. In terms of total costs, the difference is $57 million.

Projected Cost of Glasses for Children Aged 0-18 and Recipients of Public Assistance

Limited data available make it possible for us to present only a broad indication of the order of magnitude of expenditures in 1966 and 1971 on the cost of providing glasses to the two groups which we believe should be covered: children 18 years and under and welfare recipients. Because of the tentative nature of these estimates the projected level of spending should be revised on the basis of the experience gained from a programme after it has been in operation for a few years.

CHILDREN'S PROGRAMME

The cost of providing prescription glasses for children will depend on the initial demand for glasses consequent on the introduction of a public programme, the utilization rate of children born after its inception; the

replacement demand arising from the need to change prescriptions or replace lost and broken glasses; the cost of examinations, refractions, prescription lenses and frames.

We assume that 20 per cent of children in the age group 0-18 would require glasses in 1966 and this yields about 1.7 million children. This assumption is based on the results of various studies indicating a percentage of this order among children of school age.[1] It will be noted that this is an average of the experience of very young children, few of whom need glasses, and teen-aged children who would require glasses to a much greater degree than the very young. It is possible, however, that the actual demand for glasses could be considerably less than this on the introduction of a programme. In many cases, children already have prescription glasses, in other cases temporary shortages of physicians or optometrists may prevent children from obtaining glasses in the first year or so, while in other cases, parents will fail to ensure that an examination is made or is followed up by the filling of a prescription. The educational process associated with the introduction of a new programme, along with limited facilities in some regions, indicate that the demand for glasses in the first year could be considerably less than 1.7 million pairs. Allowing for these factors it has been assumed that only 50 per cent of the 1.7 million would actually obtain glasses in 1966, the equivalent of .83 million. The remainder of the group that need glasses is assumed to have obtained them over the period 1967 to 1970. In the last year it is estimated that the demand for glasses would amount to .20 million pairs.

Once over the initial period, with its large amount of unmet need, the demand for glasses would depend on the growth of the population aged 0-18, the age at which this group require glasses and the rate at which glasses are replaced for those already possessing them. Over the decade 1966 to 1976, the average number of children born each year is estimated to be between .5 and .6 million. If these children require no glasses until age 4, and then a proportion each year obtain glasses until at age 18, 20 per cent of the group have been supplied, then the number of glasses needed for new recipients in 1971 would be about 15,000 and by 1976 would have risen to about 50,000. Since our knowledge of the rate at which glasses need to be replaced because of loss, breakage and changes in prescriptions is limited, we have assumed that they are replaced, on the average, once every five years and for any group, replacement is spread evenly over the five-year period. The result is that by 1971, the replacement demand is estimated to amount to .35 million pairs and to rise to .60 million pairs by 1976.

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[1] *Canadian Association of Optometrists*, brief submitted to the Royal Commission on Health Services, Toronto 1962, Exhibit No. 19; Gray, D. G. "Who Wears Spectacles?", in *The Lancet*, Sept. 22, 1951, p. 537; and the results of a count of public school children having glasses, communicated by Dr. R. A. Kennedy, Medical Officer of Health, City of Ottawa.

TABLE 20-12 ESTIMATED COST OF PROVIDING GLASSES FOR CHILDREN AGE 0-18, CANADA, 1966 AND 1971

Year	Estimated Population Age Group 0–18	Number Obtaining Glasses			Estimated Cost of Glasses	Total Cost of Glasses
		Initial	Replacement	Total		
	'000,000	'000,000	'000,000		$	$'000,000
1966	8.30	.83	—	.83	30.00	27.9
1971	9.10	.15	.35	.50	33.90	16.9

SOURCE: Madden, J. J., *Economics of Health*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964.

Our projection then as shown in Table 20-12, is that the demand for glasses in the initial year will amount to .83 millions. After 1966, the demand will be somewhat lower and in 1971, new demand and replacement demand are estimated to amount to about .5 million glasses and that this will have risen to 1.1 million by 1976.

As the cost of medical services projected for 1966 and 1971 already includes the cost of all services provided by physicians, expenditures on children's glasses under this programme will depend on the cost of a refraction carried out by an optometrist and the cost of lenses and frames. On the basis of the historical trend rate of growth of prices of frames, lenses and refractions it has been estimated that the cost of such services would amount to about $30 per prescription in 1966 and to $33.90 in 1971. The total cost of providing glasses under the assumptions outlined here would amount to $27.9 million in 1966 and to $16.9 million in 1971, while the per capita cost would be $1.37 and $.75 respectively.

PROGRAMME FOR RECIPIENTS OF PUBLIC ASSISTANCE

The programme for the recipients of public assistance outlined in Chapter 2 would include glasses for recipients of Old Age Assistance, Allowances for Disabled Persons and recipients of Mother's Allowance excluding children. In March 1960, this group amounted to 198,599 persons or 1.86 per cent of the population over 18 years and it is projected that this percentage will remain constant down to 1971.[1] Table 20-13 indicates that such a projection would imply 223,000 recipients of public assistance in 1966 and 251,000 in 1971.

[1] See *Canada Year Book*, Dominion Bureau of Statistics, Ottawa: Queen's Printer, 1961, pp. 272-277.

TABLE 20-13 ESTIMATED COST OF PROVIDING GLASSES FOR RECIPIENTS OF PUBLIC ASSISTANCE, CANADA, 1966 AND 1971

Year	Estimated Population Minus Age Group 0–18	Estimated Number of Recipients of Public Assistance	Estimated Utilization Rate	Number Obtaining Glasses	Estimated Price of Glasses	Estimated Cost of Glasses
	'000,000				$	$'000,000
1966	12.00	223,000	15.0	33,450	30.00	1.00
1971	13.49	251,000	15.0	37,650	33.90	1.28

SOURCE: Madden, J. J., *Economics of Health*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964.

It is likely that a substantial number of these persons already possess glasses and that the demand will come from the small proportion who, each year, become aware of the need for glasses or who must replace them because of a change in prescription. We estimate that this group amounts to 15 per cent of the covered population each year and on this basis it is projected that the number of glasses supplied would be 33,450 in 1966 and 37,650 in 1971.[1] The cost of these glasses would be $1 million in 1966 and $1.3 million in 1971 as shown in Table 20-13.

The total cost of providing glasses for children and recipients of public assistance is projected to be $28.9 million in 1966 and $18.2 million in 1971, or, on a per capita basis, $1.42 and $0.81 respectively.

TABLE 20-14 ESTIMATED COST OF PROVIDING GLASSES FOR CHILDREN AND RECIPIENTS OF PUBLIC ASSISTANCE, CANADA, 1966 AND 1971

Year	Cost of Children's Programme	Public Assistance Recipients' Programme	Total Cost	Per Capita Cost
	$'000,000	$'000,000	$'000,000	$
1966	27.9	1.0	28.9	1.42
1971	16.9	1.3	18.2	0.81

SOURCE: Based on Tables 20-12 and 20-13.

[1] *Canadian Association of Optometrists, op. cit.*, pp. 25-27.

Projected Expenditures on Prescribed Drugs

PROJECTED EXPENDITURES ASSUMING EXISTING PUBLIC PROGRAMMES

The projected expenditures on prescribed drugs,[1] assuming no expansion of existing public programmes, has been based on the trend rate of growth of such spending over the past decade. The growth of total and per capita spending on prescribed drugs has been slowing down recently, [2] partly because prices have not risen as rapidly as they did in earlier periods and

TABLE 20-15 ESTIMATED EXPENDITURES ON PRESCRIBED DRUGS, CANADA, SELECTED YEARS, 1961-1971

Assuming Existing Public Programmes

Year	Total Expenditures	Per Capita Expenditures
	$ '000,000	$
1961	111.5	6.11
1963*	127.4	6.71
1966**	153.5	7.56
1971**	203.0	8.98

Assuming a Comprehensive Public Programme, 1966 and 1971

Year	Number of Prescriptions Per Capita	Total Prescriptions	Estimated Average Cost of Prescriptions	Total Cost		With Payments By Consumer of $1 Per Prescription	
				Total	Per Capita	Total	Per Capita
		'000,000	$	$ '000,000	$	$ '000,000	$
1966**	3.5	71.0	3.30	234.3	11.54	163.3	8.04
1971**	4.5	101.6	3.55	360.7	15.97	259.1	11.47

*Estimated.
**Projected.

SOURCE: Madden, J. J., *Economics of Health*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964.

[1] Defined to cover pharmaceuticals supplied by retail outlets on prescription of medical or dental practitioners. Prescription drugs provided in hospitals and institutions for the chronically ill are included in the cost of hospital care. Prescription drugs provided directly by physicians are included in the cost of medical services.

[2] See Tables 11-12 and 11-13.

partly because it appears that there has been some slowing down in the per capita consumption of prescription drugs.[1] There is no reason to believe that these trends will reverse themselves in the near future and the trend rate of growth of spending, assuming no change in public programmes, is projected at 4.4 per cent as the average for the years 1961-1966 and an average of 3.5 per cent a year in the period 1966-1971 (see Table 20-16). This compares with a trend rate of growth of 4.6 per cent in the period 1957-1961. In 1966 such a projection indicates that expenditures will amount to $153 million and by 1971 will amount to $203 million. Per capita spending has been projected to rise from $6.11 in 1961 to $7.56 in 1966 and $8.98 in 1971 (see Table 20-15).

TABLE 20-16 AVERAGE ANNUAL PERCENTAGE CHANGE IN EXPENDITURES ON PRESCRIBED DRUGS, CANADA, SELECTED YEARS, 1951-1971

Period	Percentage Change Expenditures on Prescription Drugs Assuming No Expansion of Existing Programmes		Percentage Change Expenditures on Prescription Drugs Assuming a Comprehensive Prescription Drug Programme	
	Total	Per Capita	Total	Per Capita
1951–1956	11.9	8.8	—	—
1957–1961	7.2	4.6	—	—
1951–1961	10.0	7.2	—	—
1961–1966	6.6	4.4	16.0	13.6
1966–1971	5.7	3.5	9.0	6.8
1961–1971	6.2	3.9	12.5	10.1

SOURCE: Based on Tables 11-1 and 20-13; and Madden, J. J., *Economics of Health*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964.

PROJECTED EXPENDITURES ASSUMING A COMPREHENSIVE PUBLIC PROGRAMME

On the assumption of the introduction of a public programme there is little doubt that the use of prescribed drugs will increase. What the new level of utilization would be is more difficult to assess. Except for the prepaid plan operating in Windsor, Ontario, under the auspices of Prescription Ser-

[1] For the tendency of consumption of prescribed drugs to rise less rapidly see Fuller, H. J., Canadian Retail Pharmacy in 1962, *Canadian Pharmaceutical Journal*, Toronto, Sept. 1963, Volume 96, Number 9, Special Supplement, p. 21. Between 1957 and 1962, prescriptions per capita, as measured by this survey, have remained relatively constant around 2.4 per person while the trend rate of growth of the average price of a prescription has also slowed down, particularly in 1961 and 1962.

vices, Inc., the only other data relate to provincial welfare programmes or the experience of the United Kingdom, New Zealand, United States and other countries.[1] The experience of the Windsor plan cannot be taken to be representative of the experience for Canada as a whole. The programme may have more than a proportionate share of members who need large amounts of drugs since it is to their advantage to enrol. It may also be influenced by the fact that this is an urban area with a particular prepaid medical plan and a different physician-population ratio from most other regions.

Welfare programmes offer an inadequate guide to the utilization experience of the Canadian population except to set limits beyond which the volume of prescriptions is unlikely to go. With prescribing practices of physicians and the desire of patients for prescription drugs being substantially influenced by the number of doctors, hospital beds, prepayment plans, methods of remunerating physicians, and the whole complex of forces affecting national or regional practice of medicine, the experience of foreign countries appears to have limited relevance for Canada.

The estimated cost of a programme was derived by assuming that the average number of prescriptions per capita would rise from the average of 2.4 as reported in the surveys conducted by Professor Fuller for the Canadian Pharmaceutical Association to 3.5 prescriptions per person upon the introduction of the plan in 1966 and to 4.5 prescriptions per person by 1971 (see Table 20-15). This latter figure is equivalent to the average prescribing experience of the Green Shield Plan (Prescription Services, Inc., of Windsor) which was 4.44 per person in 1959-1960, but is somewhat lower than the utilization rate of New Zealand and Great Britain.

The average price of prescriptions that will be characteristic of the years 1966 to 1971 again is difficult to predict on the basis of past trends. The index of drug prices as reported by the Dominion Bureau of Statistics has not risen in recent years while the prices reported in the Survey of the Canadian Pharmaceutical Association have risen, but at a declining rate. In this projection it has been assumed that the average price of prescriptions in 1962, as reported in the Canadian Pharmaceutical Survey is representative of most prescription prices and this amount ($3.16) is projected to rise slowly to $3.30 in 1966 and to $3.55 by 1971. The trend rate of growth of prices for the period 1958-1962 was approximately 2 per cent a year.[2] For the decade 1961-1971, the trend rate of growth is projected at 1.3 per cent.

On the basis of projected utilization rates and price trends Table 20-15 indicates that the cost of a comprehensive public programme in 1966 would

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[1] *Canadian Pharmaceutical Association, Inc.*, brief submitted to the Royal Commission on Health Services, Toronto, May 1962, pp. 167-170.

[2] For qualifications relating to the difficulties of measuring full price changes of prescription drugs and the necessity to improve the statistical information on this subject, see Chapter 17.

amount to $234 million and in 1971 to $361 million. On a per person basis, the estimated cost in 1966 is $11.54 and in 1971, $15.97. Given the increased availability of medical care upon the introduction of a comprehensive medical care programme, the ease with which the supply of prescription drugs could be expanded and given a programme such as we recommend[1] in which prescription drugs are available at a payment of $1 per prescription by the user there would be a considerable rise in spending on prescription drugs and the trend rate of growth of both total and per capita spending projected for the decade 1961-1971 is higher than that experienced in the decade 1951-1961. For the period 1951-1961, total expenditures rose at a trend rate of 10 per cent a year and per capita spending at a trend rate of 7.2 per cent. For the period 1961-1971, the trend rate of total spending is projected at 12.5 per cent and per capita spending at 10.1 per cent. The rate of growth of spending is projected to slacken off by the end of the decade and would rise less rapidly through the decade of the nineteen seventies.[2]

The additional expenditures arising from the introduction of a comprehensive public programme can be seen from Table 20-15. The additional total cost is projected to amount to $81 million in 1966 and to $158 million in 1971. The additional per capita cost in 1966 is projected at $4; in 1971 at $7.

Projected Expenditures on Hospital Care

Two estimates of the cost of hospital care have been developed; the first based on the continuation of existing trends and programmes, the second based upon our recommendation that mental and tuberculosis hospital care should be integrated as quickly as possible into the general hospital programme and brought within the scope of the Hospital Insurance Act.

PROJECTED EXPENDITURES ASSUMING EXISTING PUBLIC PROGRAMMES

In Chapter 14 we pointed out that the provision of physical facilities, specialist personnel, rehabilitation programmes, sources of funds and administrative knowledge all have played a part in making the general hospital the centre for diagnosis, treatment and rehabilitation for illness of all kinds. The consequence of these developments has been that patients are treated in multi-purpose general hospitals rather than in special hospitals and that the chronically ill are cared for in public hospitals rather than in proprietary nursing homes or municipal homes as in other countries.

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[1] See Chapter 2, Recommendations 58 and 59.

[2] We have assumed that a number of proposals which we have made in Chapter 2 such as the adoption of a National Formulary and the increased prescribing of drugs by their generic names would be in practice offsetting to some extent trends towards higher drug costs.

In view of these trends we have not projected the volume of hospital care in short-term active treatment hospitals, chronic and convalescent hospitals, children's hospitals, etc. Rather we have projected the days of care that will be provided in tuberculosis hospitals, mental hospitals and all other hospitals taken together and our projections appear in Tables 20-17 and 20-18.[1]

The projected cost of hospital care in *general and allied special* hospitals is set out in Table 20-17 and has been derived by multiplying the projected days of hospital care by the projected average per diem cost of such care. In 1961, according to these projections the total cost of hospital care amounted to $763 million or $41.81 per person. In 1966, it is projected that such hospital care will cost $1,254 million, $61.76 per person; and in 1971, $1,893 million or $83.78 per person.

It is evident from the amount of these expenditures that the cost of hospital care is projected to be the most significant item of health spending in the future as it has been in the past. With total spending projected to rise two and one-half times and per capita spending to double within the decade 1961-1971, the growth of spending clearly has been projected at a high level. Compared with the recent past, however, the trend rate of growth of total spending projected is somewhat lower since in the period 1953-1961, the annual average increase in total expenditures amounted to 10.5 per cent while the average annual rate of increase projected for the period 1961-1971 is 9.5 per cent. This projected growth rate is determined, as we have indicated, by the volume of hospital care and the cost of a day of hospital care and it is to these items that we now turn our attention in order to account for the projected development.

The volume of hospital care provided in general and allied special hospitals in 1961 amounted to 38.65 million days and is projected to rise to 48.84 million days by 1971. This is a sizeable increase but its contribution to the growth rate of total spending is 2.4 per cent a year, only a little more than the projected growth of population for this period. Each Canadian, on the average, will receive slightly more days of hospital care each year but the increase in spending arising from the provision of more days of hospital care is essentially the consequence of population growth and assuming no change in the pattern of illness, medical care and all the other factors that influence hospital utilization, is unlikely to change drastically. Clearly, the major factor contributing to the growth of total spending on hospital care is the projected rate of growth of per diem costs of hospital care—7 per cent for the decade 1961-1971.

[1] For a description of this projection see Chapter 14.

When we turn to the historical trend of the per diem cost of hospital care, we possess data that go back to the year 1913.[1] For example, between 1913 and 1926 the cost of maintaining one patient for one day rose from $1.68 to $3.27, a trend rate of growth of 5.3 per cent a year. If this trend rate had been projected to 1961 it would have been a fairly reasonable projection since over these 47 years the average cost of a day of hospital care has risen at a rate of about 5.3 per cent a year. On the

TABLE 20-17 ESTIMATED COST OF HOSPITAL CARE IN GENERAL AND ALLIED SPECIAL HOSPITALS, CANADA, SELECTED YEARS, 1961-1971*

Year	Adult and Children Days	New-born Children Days	Total Days of Care	Average Cost Per Day	Total Cost of Hospital Care	
					Total	Per Capita
	millions	millions	millions	$	$ '000,000	$
1961	35.72	2.93	38.65	19.73	762.6	41.81
1963**	37.20	3.11	40.31	23.00	927.1	48.85
1966†	39.99	3.29	43.28	28.97	1,253.8	61.76
1971†	45.07	3.77	48.84	38.75	1,892.6	83.78

* Assuming existing public programmes and continued transfer of patients from tuberculosis and mental institutions to active treatment hospitals at rate occurring in the period 1957-1961. Per diem costs in 1961 are based on all hospital days including private and federal hospitals.

** Estimated.

† Projected.

SOURCE: Based on Table 14-2; and Madden, J. J., *Economics of Health*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964.

TABLE 20-18 ESTIMATED COST OF HOSPITAL CARE IN TUBERCULOSIS AND MENTAL HOSPITALS, CANADA, SELECTED YEARS, 1961-1971*

Year	Mental Hospitals and Institutions for Mentally Retarded				Tuberculosis Hospital Care			
	Days of Care	Cost Per Day	Total Cost	Per Capita Cost	Days of Care	Cost Per Day	Total Cost	Per Capita Cost
	'000,000	$	$'000,000	$	'000,000	$	$'000,000	$
1961	24.74	5.37	132.8	7.28	2.32	12.20	28.3	1.55
1963	25.72	6.15	158.2	8.34	2.18	14.10	30.7	1.62
1966	27.20	7.85	213.5	10.52	1.83	17.87	32.7	1.61
1971	29.71	11.53	342.6	15.17	1.24	23.95	29.7	1.31

*Assuming no change in existing public programmes for hospital care.

SOURCE: Based on Table 14-2; and Madden, J. J., *Economics of Health*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964.

[1] Dominion Bureau of Statistics, *Prices and Price Indexes, 1913-1927*, pp. 120-121.

TABLE 20-19 ESTIMATED COST OF HOSPITAL CARE IN ALL HOSPITALS, CANADA, SELECTED YEARS, 1961-1971

Year	Cost of Hospital Care in General and Allied Special Hospitals		Mental Hospital Care		Tuberculosis Hospital Care		All Hospital Care	
	Total	Per Capita	Total	Per Capita	Total	Per Capita	Total	Per Capita
	$'000,000	$	$'000,000	$	$'000,000	$	$'000,000	$
1961	762.6	41.81	132.8	7.28	28.3	1.55	923.8	50.64
1963	927.1	48.85	158.2	8.34	30.7	1.62	1,116.0	58.81
1966	1,253.8	61.76	213.5	10.52	32.7	1.61	1,500.0	73.89
1971	1,892.6	83.78	342.6	15.17	29.7	1.31	2.264.9	100.26

SOURCE: Based on Tables 20-17 and 20-18.

other hand, during the period 1929-1935, per diem costs changed but little, while from 1936 to 1961 they grew at a trend rate of 7.5 per cent a year and between 1945 and 1961 at a trend rate of 10 per cent a year. What we have projected then is not the higher rate of the post-war period, not the lower rate of growth since 1913, but a rate, 7 per cent, that is close to that experienced in the twenty-five years since 1935. The average per diem costs of adult, children and new-born days of care provided in general and other special hospitals has been projected to increase from $19.73 in 1961 to $28.97 in 1966 and $38.75 in 1971.

Although we have projected that per diem costs will grow more slowly than in the recent past we are aware that our projection leads to a doubling of cost in a decade. We wish, therefore, to examine other evidence to support this projection and particularly to indicate the possible margin of error.

The cost of one day of hospital care is dependent on a wide variety of factors but these can be reduced to a few major categories: the cost of educating health personnel, the cost of medical and operational research, the quantity and quality of health services along with room and board provided for in-patients or out-patients and the wages and salaries paid to the hospital staff who supply such services.

Leaving for the moment the question of future costs of education and research, which have traditionally accounted for a small proportion of total hospital costs, per diem costs of hospital care will depend on the quantity and quality of services and the wages and salaries of employees. Thus if the average patient obtains more health services, or more personal services of any sort, in a given day; then given the nature of hospital care which makes it difficult to substitute capital for labour, there will be an

increase in labour costs per day and a general increase in per diem costs. Alternatively, if the quality of a given volume of services provided for patients increases, then the qualifications of the personnel providing such services will almost certainly have increased, and in turn this will enable them to command a higher salary commensurate with their greater amount of training and experience and again per diem costs will rise. As we indicated in Chapter 11, these trends have been operating in the past and, as a consequence, wages and salaries now account for close to 70 per cent of average per diem costs and have been pushing up per diem rates at a relatively high rate since the end of World War II.

In our projection of per capita GNP in *current* dollars we have suggested that between 1961 and 1971, the trend rate of growth of per capita income would amount to about 5 per cent a year.[1] Now even if there were no increase in the productivity of skilled hospital workers and the quality of output remained constant there would be some increase in the salaries of hospital employees in order to maintain a labour force. Where other sectors of the economy are experiencing an increase in demand and productivity increases, and paying higher incomes, then an industry which wishes to maintain a labour supply will be forced to increase salaries and wages if it is to survive. Nor is it only higher wages that are significant. As other industries reduce the length of the work-week and provide longer holidays, so industries that must operate 24 hours a day, seven days a week, will have to pay more to induce people to forego the convenience of working in industries that do not maintain such terms of employment. Because of the immobility of many workers already in an industry and the possibility of attracting personnel from other low-wage areas, an industry may survive for a time with wages substantially below those of other sectors of the economy—but likely at the price of operating with an inefficient labour force, with very low productivity. In the long run, older workers will retire, workers from other areas will no longer be forthcoming as they remain at home or migrate to other regions and the end result is an industry that cannot compete or do the job required by the community. It will then either disappear or, if a public responsibility, will have to engage in a costly crash programme to produce the skilled labour force needed and to pay them accordingly.

In view of the importance attached to hospital care by all Canadians it is evident that such a state of affairs should not be allowed to develop. We are assuming that wages and salaries in hospitals, and with them per diem costs, will rise over the decade 1961-71. The question remains, however, rise by how much? Will they rise by less, more or at the same rate as per

[1] Assuming 4 per cent unemployment and an annual average increase in productivity of 2.75 per cent.

capita incomes? Here it is necessary to refer to the quality and variety of services provided in hospitals since these will influence the educational and technical qualifications of personnel and thus their cost.

A number of factors lead us to believe that the rate of increase will be at least equal to and possibly exceed the trend rate of growth of per capita income. The first is the shift of population, and with it hospital care, to larger centres of population and to bigger hospitals. Since wages and salaries are higher in urban areas, this would cause labour costs to rise more rapidly which would be further intensified by the propensity of large hospitals to employ more highly qualified staff. Second, the changes in medical technology seem to carry with them, the need for more highly skilled personnel to operate equipment, to assist in operations, to supervise the complex teams providing nursing and other types of care. Third is the growing tendency to add new functions to hospitals such as psychiatric social work, medical social work, hospital based home care programmes, medical economics, computer analysis of records, etc., all of which again require highly qualified personnel. Finally, the highly individualistic nature of hospital care where few patients present the same symptoms, and where the sick appear to desire people and not gadgets, operate against the wide-spread substitution of machines for human beings in these complex situations. Some substitution of capital for labour has taken place, and will continue to do so, as will the substitution of less skilled for more skilled employees through specialization of function, both of which tend to prevent per diem labour costs from rising. Intensive treatment units have been developed—but the cost saving aspects of this development are, as yet, uncertain. Computors are developed which automatically record temperatures and bedside signals call nurses from their stations, but neither have indicated that technology has progressed sufficiently to bring about a major change in the trend over the near term.

One final point may be made here. It has been suggested that by segregating patients in short-stay and long-stay hospitals, the per diem cost of hospital care could be reduced. Since the room and board of a patient is relatively constant wherever he is housed, the cost reduction must come about through the reduced amount of expensive service provided in a short-term hospital. Such savings may be illusory, however, unless accompanied by a policy which prevents hospital beds from filling up with "unnecessary" active treatment patients when chronic and convalescent patients are removed. Indeed the treatment of chronic and convalescent patients in active treatment hospitals has kept the per diem cost of hospital care down rather than raised it. In 1961, the average per diem cost of short-term hospital care in the United States was $36.83 compared with an average cost of $19.73 in Canada. Part of this difference was the result of the manner in which the two figures were calculated and the general higher level of incomes in the United States, but a substantial part of the difference was the result of the American custom of

caring for many chronic patients in proprietary nursing homes where the lower average per diem costs cannot affect the cost of care in short-term hospitals.[1] Because long-stay patients in Canadian hospitals generally receive much less diagnostic services, and are often cared for by student nurses and nursing aides under the direction of registered nurses the cost of care is relatively low and pulls down the average for all patients. If such patients were removed, the per diem costs of those remaining would rise and if beds filled up with more intensive treatment patients the number of patients with high per diem costs would also increase.

In view of the opportunities for advanced education and the alternative occupations available for Canadians with the skills and ability required in hospitals subject to rapid scientific and technological change, along with the improvement in salaries and working conditions in other Canadian industries and in those countries from which Canada has traditionally either drawn hospital staff or to which it has lost them, it does not seem unreasonable to project that salaries and wages of hospital staff will rise at a trend rate of 4 to 5 per cent a year over the decade.

Per diem costs will rise, not only because salaries of staff rise, but because in-patients and out-patients, on the average, will continue to receive more care in a given day. Part of this increase will be covered by improved productivity of existing staff and which is reflected in the projected increase in salary, but part will still have to be provided by new staff with new skills and this trend will become increasingly strong if hospitals become the institution responsible for organizing community health care.

In addition to these factors which will raise the per diem costs of hospital care, the trend to educate more health personnel in hospitals and to develop medical research in university oriented hospitals will raise costs even further in the future. Our recommendations relating to the payment of university medical personnel working in hospitals will transfer costs from education to hospital care. The establishment of a two-year education programme for nurses will, in the short run, raise the cost of education as well as the cost of patient care; as will the development and expansion of in-hospital training for technologists, medical librarians and other personnel. Increased payments to interns and residents will also be reflected in higher hospital costs. Over the long run, the increased supply of personnel and the benefits of medical research should prevent salaries from rising too rapidly and permit more care to be provided by a given number of personnel. In the short run, the most likely result is to increase quality of care resulting in increased per diem costs.

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[1] The Canadian figure is based on all patient-days and includes chronic and convalescent hospitals. The American figure is based on adult-days and children-days only and includes only short-stay hospitals.

Taking into account the prospective increases in the price of food, new drugs, and other supplies used in hospitals, though these are likely to rise much less than labour costs, a projected increase of 7 per cent a year is well within the bounds of probability.[1] Projections of the cost of hospital care in the United States all tend to support this. Thus in 1961, a Columbia University study relating to the cost of hospital care in active treatment hospitals in New York projected that within 5 years the cost of semi-private care in short-term hospitals in that city would rise to $68 a day.[2] Another projection for New York City hospitals suggests that the per diem costs of voluntary hospitals would rise by annual average rate of about 7 per cent in the period 1960-1965 and by 5 to 8 per cent in municipal hospitals and this from a level which had long surpassed average per diem costs in Canada.[3]

In choosing 7 per cent we believe that this is the *upper limit* to the increase in cost and that there is an excellent chance that costs may rise at a lower rate, particularly in the second half of the decade as organizational and other innovations improve the efficiency of hospital operation. Thus if per diem costs rise at a rate of 6 per cent instead of 7 per cent, the cost of a day of hospital care in 1971 would be $35.50 instead of $38.75—a reduction in cost of $159 million. If in the less likely event the rate of increase were to be kept down to 5 per cent, the reduction in cost would be $329 million, more than sufficient to finance the additional costs of a medical care and a Children's Dental Programme.

We have, in our recommendations, suggested that funds be made available for research into the operation of the hospital industry in order to ensure that the benefits of efficient operation are realized. It would, however, be unrealistic to assume that expenditures can be prevented from rising without serious damage to the high quality of Canadian hospital care with all that this implies for other health services. Registered nurses may be earning $5,750 a year in 1971 but this will not be a high salary compared to the general level of incomes at that time.[4] In the past, since hospital care was no more than custodial care, it could operate with staff who were paid among

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[1] Given the trend as projected above, regard should be given to the efforts made by some provincial administrations trying to keep cost increases of the existing level of services to a rate of 3 per cent per annum.

[2] See State of New York, *Report of the Joint Legislative Committee on Health Insurance Plans,* 1961, p. 76.

[3] See Klarman, H. E., *Analysis of Increase in the Cost of Hospital Care.* Unpublished paper presented to the Conference on the Economics of Health and Medical Care, The University of Michigan, May 1962.

[4] If a registered nurse was paid a salary of $290 a month in 1961 and received an annual increase of 5 per cent a year, in 1971 she would be earning $5,675 a year in salary. With additional earnings in the form of "fringe benefits" such as pensions, hospitalization, and medical insurance her income could well exceed $5,750. In fact, we have suggested that in order to attract a sufficient number of dental auxiliaries they may require a salary of $6,500 per annum by 1971. Registered nurses may have to be offered similar salaries if the two professions are to be equally attractive to young women considering a career in the health services field.

the lowest incomes of any in the country. In the future the price will have to be paid for high quality care. In an open economy like Canada's, failure to pay the price required to obtain the skilled personnel needed will not necessarily result in the continuing underpayment of any group of workers for the benefit of the community as a whole. Rather it may bring about a transfer of workers to other more productive industries or increased emigration to other countries particularly the United States where salaries may be more in keeping with the investment in human capital.

The volume of care provided in tuberculosis hospitals, mental hospitals and institutions for the mentally retarded has been projected in Chapter 14 and is shown in Table 20-18. The trend rate of growth of days of care in mental institutions has been projected at 2 per cent a year, the same as the growth of population, while for care provided in tuberculosis institutions the projection is one of a substantial decline. Increased expenditures on this type of hospital care will depend, therefore, on the projected rate of growth of per diem costs. These, in the post-war period, have increased at about the same rate as the cost of care in general hospitals but given the nature of care, have remained at a lower level. Our projection is that the cost of care in tuberculosis hospitals will rise at the same trend rate of growth as per diem costs in active treatment hospitals; from $12.20 in 1961 to $23.95 in 1971. Our projection for mental institutions is that per diem costs will rise somewhat more rapidly as the quality and volume of care in mental institutions are improved. At a trend rate of growth of 8 per cent, per diem costs are projected to rise from $5.37 in 1961 to $11.53 in 1971. The projected cost of hospital care assuming no change in the trend of hospital care for the mentally ill is set out in Table 20-19. In 1966 it is estimated that the total cost will amount to $1,500 million; of which tuberculosis hospital care will cost $33 million, mental hospital care $213 million, and care in general and allied special hospitals $1,254 million. By 1971 it is projected that tuberculosis hospital care will cost $30 million; mental hospital care, $343 million, and general and allied special hospital care $1,893 million for a total outlay of $2,265 million. In these projections the per capita cost is projected to double in the decade from $50.64 in 1961 to $100.26 in 1971.

PROJECTED EXPENDITURES ASSUMING MORE RAPID INTEGRATION OF MENTAL HOSPITAL CARE INTO ACTIVE TREATMENT HOSPITALS

The transformation of mental hospital care from long-term custodial care to shorter-term active treatment hospitals is projected to lead to an absolute decline in the volume of hospital care—a reduction of 600,000 days of care from that projected without this programme. Such a reduction cannot be achieved without cost and the cost is the more expensive

diagnostic, treatment and rehabilitation services provided in public general hospitals. We have therefore projected the cost of psychiatric care in general hospitals to rise at the same rate as other types of care while other hospital care, provided for those remaining in mental hospitals and for mentally retarded children in residential institutions and rehabilitation centres, is projected to increase at the same rate as the cost of mental hospital care in our previous projection—8 per cent. Table 20-20 gives the projected cost of hospital care for the mentally ill; $204 million in 1966 and $351 million in 1971. The total cost does not differ significantly from our previous projections but it is evident that the type of care provided has substantial economic and social benefits as individuals are returned to the community. Further benefits could be expected as the population of mental institutions declined even further in the next decade.

The total cost of hospital care in this programme is indicated in Table 20-21. From $924 million in 1961, expenditures are projected to increase to $1,490 million in 1966 and to $2,274 million in 1971. Again per capita costs are projected to double from $50.64 in 1961 to $100.64 in 1971. The trend rate of growth of total spending in the decade is shown in Table 20-22. During the decade 1951-1961 this was 11 per cent a year, rising to 11.8 per cent a year in the quinquennium 1956-1961. The trend rate of growth is projected to decline slowly over the next decade to 10.1 per cent in 1966 and to 8.8 per cent in 1971. For the whole decade the trend rate of growth projected is 9.4 per cent. These rates of growth are high but, to a large extent they carry with them extended life and reduced disability and pain. Opportunities for economy exist and should be grasped wherever possible, but if we are to benefit from scientific progress, we must be prepared to pay for such advances.

Projected Expenditures on Other Health Services

Expenditures on other health services include outlays for optometrists' services, prescription glasses, services of chiropractors, osteopaths and podiatrists,[1] home nursing care and prosthetic appliances. The limited nature of the data available necessitate projecting expenditures for this whole complex of services on the basis of post-war trends. In the period 1945-1961 it is estimated that the average annual percentage increase in such expenditures amounted to 10 per cent. It is not likely, however, that a similar rate of growth will be achieved over the decade 1961-1971. Assuming no change in the scope of public and private prepayment plans, many of these services will not be covered by premiums and demand therefore will be limited. Technological change also should limit the increase in the price of glasses.

[1] We deal with chiropractors, osteopaths and podiatrists in Volume II.

TABLE 20-20 ESTIMATED COST OF HOSPITAL CARE FOR THE MENTALLY ILL, ASSUMING THE EXPANSION OF PUBLIC PROGRAMMES, CANADA, 1966 AND 1971

Year	Care Provided in Mental Hospitals, Residential Schools and Rehabilitation Units for the Mentally Retarded and Additional Psychiatric Care in Public General Hospitals										
	Psychiatric Care in Public General Hospitals*			Mental Hospital Care			Residential and Rehabilitation Units**			All Mental Hospital Care	
	Days of Care	Cost Per Day	Total Cost	Days of Care	Cost Per Day	Total Cost	Days of Care	Cost per Day	Total Cost	Total	Per Capita
	'000,000	$	$'000,000	'000,000	$	$'000,000	'000,000	$	$'000,000	$'000,000	$
1966	.95	28.97	27.5	16.43	7.85	129.0	6.00	7.85	47.1	203.6	10.03
1971	2.90	38.75	112.4	12.32	11.53	142.0	8.40	11.53	96.9	351.3	15.55

*Excludes psychiatric care provided in public general hospitals without an expanded public programme. This amounted to 400,000 days in 1961 and is included with public general hospital care.

**Includes infirmaries for children with an I.Q. of 1–50 and residential schools for the education of children preparatory for their return to the community.

SOURCE: Madden, J. J., *Economics of Health*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964; and Table 14-3.

Finally without a major change in the practice of medicine and the use of hospitals, the growth of home nursing services is unlikely to be substantial for some years to come. We have projected that the growth rate of spending on these health services will grow at a trend rate of 8 per cent a year in the quinquennium 1961-1966, and a rate of 5 per cent a year for the whole decade. Table 20-23 indicates the projected amounts. Assuming existing programmes, it is estimated that expenditures on "other" health services will amount to $145 million in 1966 and $170 million in 1971, or $7.14 and $7.53 per capita.

TABLE 20-21 ESTIMATED COST OF HOSPITAL CARE ASSUMING DEVELOPMENT OF A PROGRAMME FOR THE TREATMENT OF THE MENTALLY ILL IN PSYCHIATRIC HOSPITALS AND INSTITUTES FOR THE MENTALLY RETARDED, CANADA, SELECTED YEARS, 1961-1971

Year	Cost of General Hospital Care	Cost of Tuberculosis Hospital Care	Cost of Hospital Care for Mentally Ill	Total Hospital Care	
				Total	Per Capita
	$'000,000	$'000,000	$'000,000	$'000,000	$
1961	762.6	28.3	132.8	923.7	50.64
1963	927.1	30.7	158.2	1,116.0	58.81
1966	1,253.8	32.7	203.6	1,490.1	73.40
1971	1,892.6	29.7	351.3	2,273.6	100.64

SOURCE: Based on Tables 20-19 and 20-20.

TABLE 20-22 AVERAGE ANNUAL PERCENTAGE CHANGE IN EXPENDITURE ON HOSPITAL SERVICES, CANADA, SELECTED PERIODS, 1951-1971

Period	Percentage Change in Total Spending	
	Assuming No Change in Programme	Assuming Expansion of a Programme for the Mentally Ill
1951–1956	10.2	—
1956–1961	11.8	—
1951–1961	11.0	—
1961–1966	10.2	10.1
1966–1971	8.5	8.8
1961–1971	9.4	9.4

SOURCE: Based on Tables 11-1, 20-19 and 20-21.

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TABLE 20-23 ESTIMATED EXPENDITURES ON PERSONAL HEALTH SERVICES ASSUMING EXISTING PROGRAMMES AND WITH EXPANDED PUBLIC PROGRAMMES, CANADA, SELECTED YEARS, 1961–1971

Year	Expenditures on Physicians' Services		Expenditures on Dentists' Services*		Expenditures on other Health Services**		Expenditures on Prescribed Glasses		Expenditures on Admin. Costs of Health Insurance†		Expenditures on Prescribed Drugs		Sub-Totals Health Services		Expenditures on Hospital Services		Total Operating Costs of Hospital and Other Health Services	
	Total	Per Capita	Total	Per Capita	Total	Per Capita	Total	Per Capita	Total	Per Capita	Total	Per Capita	Total	Per Capita	Total	Per Capita	Total	Per Capita
	$'000,000	$	$'000,000	$	$'000,000	$	$'000,000	$	$'000,000	$	$'000,000	$	$'000,000	$	$'000,000	$	$'000,000	$
								Assuming Existing Programmes										
1961	383.2	21.01	118.8	6.51	115.0	6.30	—	—	71.6	3.93	111.5	6.11	800.1	43.86	923.8	50.64	1,723.9	94.50
1963	427.9	22.54	134.8	7.10	125.0	6.59	—	—	79.0	4.16	127.4	6.71	894.1	47.10	1,116.0	58.81	2,010.1	105.91
1966	505.7	24.91	162.5	8.00	145.0	7.14	—	—	95.0	4.68	153.5	7.56	1,061.7	52.29	1,500.0	73.89	2,561.7	126.18
1971	649.0	28.72	214.2	9.48	170.0	7.53	—	—	116.0	5.14	203.0	8.98	1,352.2	59.85	2,264.9	100.26	3,617.1	160.11
								Assuming Expanded Public Programmes										
1966	525.3	25.88	162.5	8.00	140.0	6.90	28.9	1.42	95.0	4.68	234.3	11.54	1,186.0	58.42	1,490.1	73.40	2,676.1	131.82
1971	797.1	35.29	271.3	12.01	170.0	7.53	18.2	0.81	116.0	5.14	360.7	15.97	1,733.3	76.75	2,273.6	100.64	4,006.9	177.39

*Assuming introduction of a children's dental care programme in 1968.

**Includes estimated expenditures on prescribed glasses for total population assuming existing programmes. Excludes expenditures on prescribed glasses for children and recipients of public assistance upon introduction of a public programme. Includes expanded home nursing programme and prosthetic devices programme after 1965.

†Assumes that expansion of administrative costs of public health insurance and operational research expenditures will be offset by decline in expenditures for the administration costs of private health, accident and sickness insurance.

SOURCE: Tables 11-1, 20-6, 20-8, 20-10, 20-14, 20-15, 20-19, and 20-21; and Madden, J. J., *Economics of Health*, a study prepared for the Royal Commission on Health Services Ottawa: Queen's Printer, 1964.

Our recommendations relating to other health services have been the introduction of a programme providing prescription glasses for children and recipients of public assistance, the provision of prosthetic devices and the development of a programme of home nursing care. The first of these has been outlined earlier in this chapter and the estimated cost of the programme has been shown in Table 20-23. The cost of an expanded home nursing programme and prosthetic devices has not been calculated separately but is included in expenditures on other health services assuming expanded public programmes. It will be noted in Table 20-23 that these figures are approximately the same as projected expenditures without a programme; $140 million and $170 million compared with $145 and $170 million respectively. This is equivalent to assuming that the *additional* costs of home nursing care and prosthetic devices on the introduction of the programme would be offset by the reduction of spending on prescribed drugs which otherwise would be included in this figure. It is evident that this is not a substantial increase in spending but the development of a home nursing programme will result in the reduction of some hospital care so that funds now included in the hospital care projection would be available to finance an expanded home care programme. The additional cost of prosthetic appliances would be relatively small.

Administrative Costs of Health Insurance

During the post-war period the rapid increase in the extent of private prepayment plans for health services and the introduction of the national Hospital Insurance Programme in 1957 led to a substantial growth in administrative costs, although these remained a relatively small proportion of total health spending. Without an expansion of public programmes and with the more wide-spread use of data-processing equipment, the growth of such spending is projected at a lower rate for the decade 1961-1971; 5 per cent a year on the average. An expansion of individual health contracts might increase this rate of growth by 1 or 2 per cent since the selling costs associated with such contracts are high, but this would not change substantially total outlays in this area.

With the introduction of a comprehensive public programme for medical care, children's dental and other programmes recommended in this Report, there will, no doubt, be some shift in the outlays for administrative costs between the private and the public sector. Since this will depend on the nature of programme in each province we have assumed that there will be no change in the relative cost of administration, any reduction in costs being offset by increased expenditures for operational research aiming at making the most efficient use of available health resources.

The estimated cost of administration is set out in Table 20-23. Total costs are projected to rise to $95 million in 1966 and to $116 million in 1971, or to $4.68 and $5.14 respectively. In view of the total projected expenditures of $2.7 billion and $4.0 billion in 1966 and 1971 (assuming expanded public programmes), the projected administrative costs are less than 4 per cent of total spending, an estimate that does not appear to be on the high side.

Projected Expenditures on All Personal Health Services

The expenditures on personal health services projected for the decade 1961-1971 is shown in Table 20-23. Assuming no change in current public programmes total spending on such services is projected to increase from $1,724 million in 1961 to $2,562 million in 1966 and $3,617 million in 1971, while per capita expenditures are projected to rise from $94.50 to $126.18 and $160.11 respectively.

If the programmes we recommend can get under way by 1966, the projected level of spending in that year is $2,676 million and in 1971 $4,007 million. Per capita spending would amount to $131.82 in 1966 and to $177.39 in 1971. The additional cost of expanded health programmes for personal health care would be $5.74 per capita in 1966 and $17.28 in 1971, an increase of about 5 per cent in 1966 and 11 per cent in 1971.

As we pointed out earlier this projection is based on an estimated increase in the per diem costs of hospital care of 7 per cent a year. If this projection were to prove too high, as well it may if changes in new methods of caring for the sick are introduced, then to a significant extent the additional costs of public medical, dental and other programmes would be offset by lower hospital costs. For example, if per diem costs of hospital care rose by 6 per cent instead of 7 per cent a year over the period 1961-1971, total per capita spending on personal health services would fall by about $5.50 in 1966 and about $7.00 in 1971. In the first instance this would amount to almost the whole of the additional per capita cost arising from the introduction of new programmes; in the second case it would amount to 40 per cent.

The changing pattern of consumer expenditures on health services that we described in Chapter 11 is taken into account in making our projection into the future. Table 20-24 indicates the manner in which consumers are expected to allocate their spending with hospital services accounting for the largest share of each dollar followed by physicians' services, dentists' services, prescribed drugs, other health services and the administrative costs of health insurance. Assuming no change in current public programmes it is projected that the proportion spent on hospital care will rise to 58.6 per cent in 1966 and 62.6 in 1971 while the percentage spent on all other personal health services, inclusive of prescribed drugs, is projected to decline.

In view of the limitations, in the short run, on expanding the supply of physicians and dentists, and the trend to substitute hospital care for the relatively scarce physician that we have already noted, it is not surprising that hospital expenditures are projected to grow more rapidly. Further, the fact that hospital care is the sole health service now available to all Canadians without any serious financial deterrent implies that the demand for such care will remain at a high level relative to other services that are not part of a public programme.

The situation is somewhat different if the programmes we have recommended in Chapter 2 come into operation by 1966. As shown in Table 20-24, assuming expanded public programmes, hospital care continues to account for a larger share of the consumer dollar spent on personal health services, 56.8 per cent in 1971, (62.6 per cent).[1] Physicians' services would account for 19.9 per cent (17.9 per cent) and dentists' services 6.7 per cent (5.9 per cent). Expenditures on other health services including prescribed glasses, etc., would represent 4.7 per cent (4.7 per cent) and administrative costs of health insurance would amount to 2.9 per cent (3.2 per cent). With the introduction of a public programme for prescribed drugs, expenditures on this item would rise notably, accounting for 9 per cent of total spending in 1971 (5.6 per cent).

Health Expenditures by Public Authorities

Projected expenditures on public health, as shown in Table 20-4, include expenditures for a wide variety of services by all levels of government. Included are the administration of health departments, environmental sanitation, the control of radiation hazards, accident prevention, the control of communicable diseases, public health nursing, health education, school dental services, control of alcoholism, care finding for chronic disabilities, the training of personnel, health and statistical research and many other functions.

Our projection, assuming no change in the level and content of public programmes is that this class of spending will rise at a trend rate of growth of about 6 per cent in the decade 1961-1971, increasing at a rate of 7.5 per cent in the first half of the decade and about 5 per cent in the second half. This is somewhat less than the growth rate of the post-war period which averaged 11.2 per cent but is not significantly less than the growth rate of the quinquennium 1957-1961 which amounted to 7.4 per cent. This projection results in total spending rising from $105 million in 1961 to $150 million in 1966 and $190 million in 1971. Per capita expenditures rise from $5.76 to $8.41.

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[1] Figures in brackets relate to the proportion in 1971 assuming no expanded public programme.

TABLE 20-24 PERCENTAGE DISTRIBUTION OF ESTIMATED EXPENDITURES ON PERSONAL HEALTH SERVICES, BY TYPE OF EXPENDITURE, CANADA, SELECTED YEARS, 1961–1971

Year	Physicians' Services	Dentists' Services	Other Health Services	Prescribed Glasses, etc.*	Administrative Costs	Prescribed Drugs	Hospital Services	Total Expenditures
			Assuming Existing Programmes					
1961	22.2	6.9	6.7	—	4.2	6.5	53.6	100.0
1963	21.3	6.7	6.2	—	3.9	6.3	55.5	100.0
1966	19.7	6.3	5.7	—	3.7	6.0	58.6	100.0
1971	17.9	5.9	4.7	—	3.2	5.6	62.6	100.0
			Assuming Expanded Public Programmes					
1966	19.6	6.1	5.2	1.1	3.5	8.8	55.7	100.0
1971	19.9	6.7	4.2	0.5	2.9	9.0	56.8	100.0

*Includes expenditures on prescribed glasses, home nursing care and prosthetic devices.

SOURCE: Based on Table 20-23.

On the assumption that the programmes we have recommended are in operation by 1966 some of the expenditures, now included as part of public health expenditures, would be included in other categories of health spending. Thus research and health education grants would be included in these particular categories while school dental and eye care services would be included in the cost of these particular programmes. On the other hand, there will be still a growth of spending in such areas as environmental sanitation, air and water pollution and many other areas. In these circumstances we have felt, on the basis of the evidence available, that it was not possible to re-allocate public health expenditures and we have assumed that public health expenditures will be the same without or with a change in public programmes. This has the effect likely of over-estimating to some extent the cost of health services in the latter case.

Projected Expenditures on Health Capital

EXPENDITURES ON HOSPITAL FACILITIES

Projected expenditures on hospital facilities have been based on the projected supply of hospital beds as described in Chapter 14. In 1966, it is estimated that in order to meet the needs of a growing population, to provide psychiatric care in general hospitals and to replace obsolescent facilities, 6,625 beds and 570 bassinets must be constructed in general hospitals along with 1,000 beds in institutions for the mentally retarded. In 1971, the numbers to be built are 6,870, 800 and 1,500 respectively.

Expenditures on General Hospital Facilities—Having in this manner estimated the total number of beds to be built, expenditures on hospital capital will depend on the projected cost of providing these hospital beds. It must be recognized in this context that a hospital bed is more than just the provision of space for a patient. Indeed a hospital bed is a surrogate for a whole complex of facilities ranging from space in a public ward to a residence for interns or nurses; from an out-patient department to an operating room; from a pathology laboratory to a university medical research department. In these circumstances the average cost of a hospital bed will depend on the facilities associated with the bed. In a hospital for long-stay patients the average cost per bed will be substantially lower than in a hospital which is part of a university teaching hospital with a full complement of research and educational facilities. The influence of these requirements are indicated in the range of average cost of a hospital bed which varied from $9,000 to $25,000 in 1961.[1]

[1] See Department of National Health and Welfare, *Canada's Health and Welfare*, Ottawa: Queen's Printer, March 1961.

In view of this wide variation of costs, the projected average cost of a general hospital bed over the decade 1961-1971 can only be presented in the form of a reasonable approximation. There will be increases in cost associated with a rise in the general level of prices but the most significant factor contributing to the increase in costs of a hospital bed will be the greater average size of hospital. The larger the hospital, the greater the volume of ancillary services provided and education and research undertaken. Offsetting these increases to some extent could be the increased productivity of the hospital construction industry. The latter, however, will depend on the continued ability of the industry in adapting mass production techniques to the construction of facilities which often must be custom-built. In view of these developments, in Table 20-25, we have projected that the average cost of building a hospital bed will rise from $18,000 in 1962-1963 to $20,000 in 1966 and to $24,000 in 1971, an annual average increase of 3.7 per cent over the eight-year period.[1] The cost of a bassinet is projected to rise to $6,600 and to $8,000 in 1966 and 1971 respectively.[2] Multiplying the projected average cost by projected bed requirements it is estimated that by 1966 the cost of new facilities in general hospitals would amount to $132.5 million and in 1971 to $164.9 million.[3]

Expenditures on Facilities for the Mentally Retarded—Since new buildings for the care of the mentally ill have been included in the projected cost of general hospital facilities, the remaining facilities to be built are residential schools and training institutions for the mentally retarded. Since such institutions will not require the facilities available in general hospitals, the cost per bed has been projected at $7,500 in 1966 and $10,000 in 1971 for a total expenditure of $7.5 million and $15 million respectively.

Total Expenditures on Hospital Facilities—As shown in Table 20-25, the total cost of construction for hospital facilities is projected at $143.8 million in 1966 and $186.3 million in 1971; the equivalent of $8.27 and $9.31 per capita. These sums are not greater than the per capita outlays of the decade 1953-1963,[4] but this is to be expected since in that period, hospital facilities were built in order to meet the needs of a rapidly expanding Hospital Insurance Programme.

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[1] The estimated cost of 1963 has been calculated by constructing a weighted average of hospital construction costs as reported in *Hospital Administration in Canada*, January 1962 to June 1963.

[2] See Department of National Health and Welfare, *Canada's Health and Welfare, op. cit.* For purposes of determining the share of the Federal Government in the costs of new constructions, bassinets are valued at one-third of the cost of a hospital bed.

[3] See Table 20-25.

[4] See Table 11-5.

TABLE 20-25 ESTIMATED EXPENDITURES ON HOSPITAL FACILITIES, CANADA, 1966 AND 1971

Year	Beds and Cribs in General Hospitals			Bassinets			Beds in Residential and Training Institutions for the Mentally Retarded			All Expenditures	
	Number of Beds to Be Built	Average Cost Per Bed	Total Expenditures	Number of Bassinets to Be Built	Average Cost per Bassinet	Total Expenditures	Number of Beds to Be Built	Average Cost Per Bed	Total Expenditures	Total	Per Capita
		$	$ '000,000		$	$ '000,000		$	$ '000,000	$ '000,000	$
1966*	6,625	20,000	132.5	570	6,600	3.8	1,000	7,500	7.5	143.8	8.27
1971*	6,870	24,000	164.9	800	8,000	6.4	1,500	10,000	15.0	186.3	9.31

*Projected.

SOURCE: Based on Table 14-6; and Madden, J. J., *Economics of Health*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964.

EXPENDITURES ON ALL CAPITAL FACILITIES

In addition to expenditures on hospital construction, the development of health services projected for the decades 1961-1971 implies that there must be an expansion of educational facilities for health personnel, clinics and mobile equipment for the children's dental service, as well as the construction of office and laboratory space for private physicians. We have made an estimate of expenditures on medical schools, dental schools, university nursing schools and facilities for the expansion of dental services and these are presented in Table 20-26.

On the basis of the expansion of medical schools, dental schools, and schools of nursing recommended in Chapter 13, the cost of such facilities in 1966 is projected to amount to $17 million and to $21.5 million in 1971. The estimated cost of establishing facilities for the training of dental auxiliaries is $7 million in 1966 as the programme gets under way and $2.5 million for expansion in 1971. The total expenditures on capital facilities is estimated to amount to $168 million in 1966 and $210 million in 1971, or to $8.27 and $9.31 per capita.[1]

TABLE 20-26 ESTIMATED CAPITAL EXPENDITURES BY TYPE OF CONSTRUCTION, CANADA, 1966 AND 1971

Year	Hospital Construction	Medical Schools	Dental Schools	Nursing Schools	Capital Outlay for Expansion of Dental Services	Total Expenditures	
						Total	Per Capita
	$'000,000	$'000,000	$'000,000	$'000,000	$'000,000	$'000,000	$
		Assuming Expansion of Public Programmes					
1966*	143.8	10.0	5.0	2.0	7.0	167.8	8.27
1971*	186.3	10.0	8.0	3.5	2.5	210.3	9.31

* Projected.

SOURCE: Based on Table 20-25; and Madden, J. J., *Economics of Health*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964.

Expenditures on Grants-in-Aid of Education

Chapter 2 indicates the recommendations made to ensure that sufficient personnel will be available to provide the level of service we believe to be adequate in the decade ending 1971. The expenditures arising from these recommendations are set forth in Table 20-27 and amount to $24.7 million in 1966 and to $26 million in 1971, or $1.22 and $1.15 per capita.

[1] See Table 20-26.

TABLE 20-27 ESTIMATED GRANTS-IN-AID TO EDUCATION, CANADA, 1966 AND 1971*

Year	Undergraduate Medical Education			Undergraduate Dental Education			Undergraduate Nursing Education		Dental Auxiliary Training Programme†† Total Cost	Other Personnel[a] Total Cost	Post-Graduate Education[b] Total Cost	Federal Grants to Univ. for the Education of Health Personnel[c]	All Expenditures	
	Number of Students	Grant per Student	Total Cost	Number of Students	Grant per Student	Total Cost	Hospital Schools of Nursing** Total Cost	Nursing Education in Universities† Total Cost					Total	Per Capita
		$	$ '000,000		$	$ '000,000	$ '000,000	$ '000,000	$ '000,000	$ '000,000	$ '000,000	$ '000,000	$ '000,000	$
						Assuming Expanded Public Programme								
1966[d]	2,000	2,000	4.0	500	2,000	1.0	—	1.0	5.0	.5	3.0	10.2	24.7	1.22
1971[d]	2,000	2,000	4.0	600	2,000	1.2	—	1.0	5.0	.5	3.0	11.3	26.0	1.15

*Includes *only* estimated additional costs arising from the recommendations of the Commission. Does not include grants for education already made and included as National Health Grants in Expenditures on Public Health or other grants-in-aid of education made by the provinces, municipalities or individuals. This latter amount is not available.

**Included in estimated cost of hospital care, Table 20-21.

†Estimated amount for bursaries.

††Includes operating costs of schools for dental auxiliaries and maintenance bursaries.

[a]Estimated bursaries for other health personnel.

[b]Excludes expenditures on postgraduate education included in research expenditures. Amount available for medical, dental, and nursing postgraduate education.

[c]Grants to universities with medical, dental, nursing and other schools educating health personnel to assist in the costs of operation associated with the expansion of educational facilities. Grant is 50 cents per capita in each province.

[d]Projected.

SOURCE: Data from Chapter 13; and Madden, J. J., *Economics of Health*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964

The cost of bursaries for nursing education provided in hospitals is included in the cost of hospital care. The cost of undergraduate education for physicians, dentists and nurses is based on the number of students projected to be receiving their education in the years when bursaries are made available and the size of grant made. For these categories of professional personnel it is estimated that expenditures on bursaries would amount to $6 million in 1966 and to $6.2 million in 1971. Projected bursaries for the education of other health personnel amount to $0.5 million in both years. In addition, since universities will have to face additional costs arising from the expansion of educational facilities, we have recommended earlier that a grant of 50 cents per capita be made by the Federal Government to each of the provinces to assist in this operation. The cost of this grant is estimated to be $10.2 million in 1966 and $11.3 million in 1971. The capital costs of schools for training dental auxiliaries for the children's dental care programme have been included in projected capital costs outlined above. The operating costs of such establishments have been projected at $5 million a year down to 1971. Finally the costs of post-graduate education, other than that associated with research expenditures, has been projected at $3 million a year in this period. This includes the expenditures on medical, dental and nursing post-graduate education.

SUMMARY OF PROJECTED TOTAL HEALTH SPENDING

We have examined past trends in health spending and we have projected future trends in spending. In so doing, where it has been desirable to develop alternative projections, we have not generally accepted the lower estimate of future spending. Indeed, where there was a probability that a lower growth of spending might be realized, as in the case of expenditures on hospital care, we have used the higher rate of growth in our projections.[1] Yet even on the basis of these projections, health expenditures, while growing rapidly, are projected to account for a relatively small proportion of future total output or spending.

For the decade 1961-1971, assuming no change in the scope of public programmes for the provision of health services from that existing in 1961, and assuming that Gross National Expenditure in *current* dollars grows at a trend rate consistent with a level of unemployment of 4 per

[1] Much of the ill-repute into which projections on health spending have fallen has been the consequence of the under-estimate of the cost of the British National Health Service. Benefiting from the experiences of other countries and in view of the knowledge of health spending available today, and more particularly in the light of the amount already being spent on health, we consider the estimates presented here to be realistic.

cent and average labour productivity that grows at 2.75 per cent a year, our conclusion is that the spending on health services and health capital will account for the same proportion of GNE in 1966 as in 1961 (5.4 per cent) and will increase by one-tenth of a percentage point by 1971. If expenditures on health education and health research were included, the percentage of GNE allocated to health would rise only from 5.5 to 5.7 per cent over the decade. Even with a lower projection of GNE, the proportion spent on health rises only from 5.4 to 5.8 per cent and with research and health education still would not exceed 6 per cent. To the extent that hospital expenditures grow at a slower rate than that projected here it is well within the bounds of possibility that the percentage spent on health would be no greater in 1971 than it was in 1961. Nor does the implementation of the programmes we have recommended lead to any substantial increase in the proportion of GNE allocated to health. With a reasonable growth of GNE, in 1966 the *additional* proportion of GNE allocated to health is two-tenths of one per cent and by 1971 amounts to one-half of one per cent. With a slower rate of growth of GNE, the increased proportion allocated to health over the decade is still less than one per cent.

We have emphasized the difficulties that arise in isolating the contributions of real expenditures and price increase to the growth rate of total spending on health services and capital. Taking this into account, for the period 1961-1971, our projections indicate that real health spending as a percentage of GNE will rise by only 0.8 per cent to 6 per cent over the decade, if the level of output grows at a reasonably high rate. This, despite the implementation of the programmes that we have recommended. With a slower rate of growth of GNP, the increase is somewhat greater, rising by 1.2 percentage points to 6.4 per cent of GNP. On the other hand, a more rapid rate of growth of GNP, consequent on a level of unemployment below 4 per cent and a higher level of productivity increase could reduce the percentage of output absorbed by health services to less than 6 per cent.

The further into the future projections are pushed, the less certain we are how close they will be to the actual growth path. We have, however, tried to estimate what the level of *real* expenditures would be over the period 1961-1991, and we have concluded that if total output grows at a reasonably high rate, the proportion of GNE spent on health services and capital is unlikely to exceed 6.6 per cent. At that percentage, which would hold in 1981, each Canadian on the average obtains the equivalent of *double* the amount of health care that was received in 1961. Although in 1961 there were many Canadians receiving less health services than they would have liked to obtain, or should have obtained, the average level of utilization of hospital, medical and other services was fairly high. In projecting, a doubling of real per capita outlays we have allowed not only for an increase in the

quality of service but projected a high level of average utilization as well. In the event that the rate of growth of utilization of health services were to slow down more rapidly than we have predicted, as it might in the nineteen seventies, the proportion of GNE spent on health may not rise above 6 per cent of real GNP and still permit per capita utilization to double by 1991. It is true that, with a slower rate of growth of GNP or GNE, projected *real* expenditures on health could amount to 7.5 per cent by 1986 and only begin to decline below that level by 1991. Here we believe that a lower growth rate of total output would, almost certainly, be associated with a lower growth rate of utilization of health services. In an economy in which output is not expanding rapidly, the choice between having more of one thing and less of something else is made much more explicit. In such circumstances, health expenditures would likely account for a smaller proportion of GNE and perhaps would not exceed 7 per cent. Even this amount would permit spending in real terms to double over the years 1961 to 1991.

Despite the large sums that we expect to see spent on health over the next decade, the proportion of GNE allocated to health spending of all kinds including research and education is unlikely to exceed 6.5 per cent whether measured in current or constant dollars. Over the 30 years to 1991, the proportion is unlikely to exceed 7 per cent and the probability is that it will be closer to 6.5 per cent of real GNE than to 7 per cent.[1]

Finally, we must emphasize that all these projections are extrapolations of existing trends. They do not take account, for example, of the effect on expenditures of different methods of providing health care, of the effect of the introduction of fluoridation or a home care programme, or of a different method of education of health personnel. In each of these areas, there is little doubt that improvements can be made which would reduce the cost, and thus the proportion of GNE devoted to health services. The realization of these gains must wait on more research and investigation.

Our conclusions are that, in view of the growth of per capita Canadian incomes, the allocation of 6.5 or even 7 per cent of such income to health services is unlikely to have deleterious effects on our economy. The single most pervasive fact of the last twenty-five years has been the great rise in the real income per capita of Canadians and it has been this increase in real income that has enabled them to spend increasing amounts on health care, while as a proportion of GNE, health spending has remained below 5.5 per cent. We see no valid reason why real per capita income should not continue to rise in the future and thus permit Canadians to increase their spending on health services. Nor does an increase of 1 per cent in the pro-

[1] See Somers, Herman M., and Somers, Anne R., *Doctors, Patients and Health Insurance*, The Brookings Institution, Washington, D.C., May 1961, p. 521, where it is suggested that by 1970, about 7 per cent of the National Income of the United States will be devoted to health.

portion of GNE allocated to health services over the decade 1961-1971 necessarily indicate that other sectors of the economy will be denied the resources they need or that substantial inflationary pressures will be generated.

We pointed out earlier in our Report[1] that the health industry has played a significant role in contributing to the rate of economic growth, both because it provided a demand for labour and capital and because health expenditures are, in a large part, an investment in human capital. Further, there is not likely to be any chronic shortage of domestic savings or of labour over the next decade that would prevent the maintenance of a high rate of growth of income. Again the health industry is expected to provide a growing volume of employment for the available labour force while at the same time expenditures on health continue to play their part in adding to the volume of investment embodied in the labour force. Although we recognize that the general price level will increase because among many other reasons, of increased prices in the health industry; the recommendations that we have made are such as to provide sufficient funds to finance the rate of growth of output we envisage but not of the magnitude to generate waste. At the same time we have recommended that measures be taken to improve the organization of health services and to expand the supply of professional personnel that will help prices from rising in this particular industry as much as they otherwise might have risen.

There are many economic issues of great importance that Canada faces today, but by far the most significant is the maintenance of a high rate of economic growth. In the achievement of this objective, two factors are of crucial importance: the reduction of unemployment to a level below that of the recent past and a high level of investment in physical and human capital. Expenditures on health services, unlike many other expenditures, to a substantial extent, meet these criteria. Health services are part of the service industry to which many look to provide the growth of employment in the future.[2] Hospital construction is part of the physical investment we require while the use of health services can make a contribution to the investment embodied in human beings. While not all health expenditures are in this last category, a sufficient amount is, including research and educational expenditures, to enable us to suggest that the level of expenditures envisaged here is likely to have a favourable effect on economic growth over the foreseeable future.

Despite the importance of physical capital in producing output, failure to pursue vigorous health—and educational—policies and programmes leads to smaller increases in output in the long run. It is also associated with higher

[1] See Chapter 19.

[2] See *Report of the Special Committee of the Senate on Manpower and Employment*, Ottawa: Queen's Printer, 1961, p. 4.

public expenditures in the short run as unproductive citizens have to be supported rather than producing a net contribution for society. If resources that could be used to produce health services are idle because they are unemployed the waste is all the more evident.

It is in this context that the projected cost of our recommendations should be viewed. With no change in the scope of health programmes, expenditures on health care will rise as an increasingly rich society ensures that it is able to enjoy the opportunities available and the fruits of its efforts. Without a medical or dental care programme, per capita outlays in current dollars are projected to rise, by $67 between 1961 and 1971 (provided hospital services are maintained at a high level of quality). The additional cost of our recommendations, $7 per capita in 1966 and $17 in 1971, are of such a magnitude that they are unlikely to reduce the volume of savings to a level sufficient to retard capital accumulation or to generate inflation of any sizeable amount.

Over the next decade, even with the expansion of health services envisaged in this Report, the proportion of output or expenditures allocated to the health sector is not substantially larger than what is now being spent and is unlikely to place a heavy burden on the human and physical resources of our country. Even over the longer term, the next thirty years, we believe on the basis of present evidence that health care will not present an unsupportable burden for this country.

We should like to affirm what we have emphasized in Chapter 12, the economic benefits of health services. We have spoken there of the opportunity society where good health is the key to the benefits available in our increasingly wealthy country. These opportunities depend on the acquisition of education and skills as well as health but if these are available to the individual Canadian, whether or not he has the income to purchase them, then he can make his contribution to the growth of output and income which will benefit not only himself, but through his taxes, others in the community. Canadians, with sufficiently high incomes have pointed the way by spending an increasing share of this income on health services.

Our recommendations are such that we wish to speed up the day when all have access to health services that will enable them to make their contribution to Canada's welfare. Low incomes and poor health have been too closely associated for us to ignore the adverse effects on income distribution of chronic illness and disability. Expenditures on good health may well be as efficient a device for equalizing the distribution of income as any subsidy can possibly be. Nor is the cost of the best possible health care overwhelming, and Canada has the resources—let there be no mistake as to that—and the competence to implement a comprehensive Health Services Programme for all her people.

The difference between a comprehensive health care programme such as we recommend in Chapter 2 would involve, by 1971, an additional sum of $466 million as compared with the $4,015 million Canadians are likely to spend in any event in that year, or a further 11 per cent.[1] *We sincerely believe that such an additional expenditure which would enable us to make more effective use of the health resources of the country to the benefit of all Canadians would be the most worthwhile investment in the productivity and well-being of the Canadian people that responsible citizens of this country could insist upon.*

[1] In current dollars, see Table 20-4.

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Financing of Health Services

In the preceding chapters we have examined the general trends in health expenditures and government expenditures that have operated in the past and we have projected these trends into the future. In so doing we have recognized that changes in the political, social and economic structure of Canada, as well as for most other nations in the world, have been associated with increased public expenditures, and increased public expenditures for health in particular. We have noted explicitly some of the factors associated with this development and we have emphasized the relationships between government outlays on health services and the maintenance of a high level of demand, both private and public in recent years, as well as with the ability of the Canadian people and the economy to provide the resources needed for the expansion of our health services. We have taken into account the growth of the Canadian population and productivity, that is the expansion of the Canadian economy in general, in recommending the development of new programmes and the improvement of existing ones, presented in Chapter 2.

Yet though there can be no doubt that the expansion of a health services programme on the scale we have indicated will not constitute an undue burden on the economy, and indeed will perform the function of increased investment, what we have not done so far is to examine the sources of funds for this development and to assess the implications of financing an expanding health programme largely through public funds.

The studies that have been prepared for us indicate that a substantial expansion of the public sector of the Canadian economy appears to be complementary with a rise in affluence. By the same token the revenue available to governments should also increase to match and to finance the increasing level of public services, including health services. It is not, however, within the scope of our resources and terms of reference to examine the economic effects of government financing in detail. This would call for an extensive inquiry and analysis that is already being carried out by other Royal Commissions in the area of taxation and economic policy.

We are also aware that in Canada's federal structure, the responsibility of the provision of most health services lies in the provincial domain and that provincial governments may choose to finance their share of the cost of health programmes in a variety of ways.

To complete the task entrusted to us we now turn to an examination of the financing of health services. In what follows we have drawn on a special study prepared for us in this area.[1]

BALANCE BETWEEN PRIVATE AND PUBLIC EXPENDITURES

It is sometimes said that expenditures made in the public sector are a burden upon the whole economy. It is undoubtedly true that given full employment of resources, the provision of public services utilizes factors of production which would otherwise be used to produce private goods. If there is unemployment, however, expansion of the public sector does not imply a reduction of output of private goods but induces an increase in the total Gross National Product until a high level of employment is reached. The resulting pattern of output then comes to consist of the same level of output of private goods, but a higher level of public goods and services than before. The latter in turn may contribute to an increase in private output. There are complications in that the new pattern of resource use induces changes in private consumption and investment, depending on the methods of financing used, but the basic simplicity of the proposition remains. If there are unused resources, output will be increased if the government puts them to work, and there is no burden on the economy.

If there is a high level of employment and the government increases expenditures, there are many varying effects, depending upon how the increased expenditures are financed. In any event there is a reduction in the proportion of private output to total output. If total output is increasing over time both private and public output can be increased, and this has been a secular trend in the developed countries of the world, with the public sector expanding at a higher rate than the private. Indeed, certain public services are required to permit a high rate of over-all economic growth; an appropriate balance between private and public goods is essential for continuing economic progress.

[1] See Hanson, E., *The Public Finance Aspects of Health Services*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964.

The funds to finance this expansion of government activities may come from a variety of sources; from the accumulated surpluses of previous years (a fairly rare phenomenon), from the sale of bonds to the general public or from the creation of new money by the sale of bonds to the Bank of Canada. All of these have effects upon the allocation of resources, the supply of labour and capital, the distribution of income, the stability of incomes and prices, and the administrative machinery of the economy. For example, a progressive personal income tax tends to reduce not only the total output of private goods and services and increase that of public services as the funds are spent by the government, but will also affect resource allocation within the private sector of the economy. Fewer yachts and elaborate houses will tend to be built, and the output of "luxuries" generally will tend to diminish. Such a tax may tend to reduce the level of private savings and capital formation. On the other hand, the government expenditure of the funds obtained may yield a larger output over time than the private savings foregone would have done when utilized in private capital formation.

It is claimed by some experts that the harmful effects of the tax on the motivations to save and to invest have been exaggerated, particularly if society is given time to adjust and is not shocked by sudden and unexpected changes. Whatever empirical studies exist have proved inconclusive. Much saving is automatic and institutionalized in nature. Depreciation allowances and the retained profits of corporations constitute a major proportion of savings and are affected relatively little by a personal progressive income tax. Much has been made of the potential reduction in the supply of labour. It is argued that the tax reduces the incentive to work and that it tends to induce people to substitute leisure. Both theoretical analyses and empirical investigations have yielded few firm conclusions on the question. It appears that people earning high incomes will continue to work regardless of the tax because they like their jobs and because they are concerned about maintaining their relative status in society. People earning lower incomes who are affected by the tax may decide to increase their efforts in order to maintain their absolute, as well as relative, levels of income. The arguments and analyses cut both ways; the tax will tend to reduce the labour provided by some individuals and to increase that of others. It is a complex question in which varying conditions and assumptions can be analysed.

In addition, the government expenditure financed by the tax (e.g., health services) can increase both the quantity and quality of labour. It can perform the function of investment in human capital. A lowering of mortality rates and the incidence of illness among the labour force may result in an increase of the total number of man-days worked during a given period. A rise in the health of the labour force increases the productivity of workers.

The provision of welfare measures and subsidized housing may induce a feeling of security, stability and well-being among the labour force which will tend to increase the supply of labour both quantitatively and qualitatively. Many other examples could be cited.

A progressive income tax will tend to equalize incomes, which in time will have various allocative effects on which we shall not dwell. The expenditure of the funds on public goods and services also tends to be equalizing since these may be enjoyed by everyone in the country. The tax will withdraw funds from the private sector, reducing the pressure upon prices, while the expenditure of the proceeds will have the opposite effect. Thus the potential inflationary effect of the government expenditure tends to be offset by the tax. Finally, the collection of the tax will call for the organization of an administrative agency in the public sector. There will also be changes in the private sector; for example, if the tax is collected periodically at the source, employers of labour will have to make special accounting adjustments. The expenditure of the funds collected will also call for new administrative arrangements in the public sector.

We could work our way through the various kinds of taxes and expenditures in the above manner and in much more detail. This is a major task which we did not undertake. Enough has been said, however, to make one careful about statements regarding the burden of taxes and benefits of expenditures. What we are saying is that the public sector may be either too small or too large to achieve that balance between private and collective goods which promotes optimum resource allocation, a rapid rate of continuing economic growth, a desired income distribution, full employment without inflation, and productive and administrative efficiency throughout the whole economy. There is no statistical magic number which measures this state of affairs; conditions change over time. An economy with a low level of production will tend to have a smaller public sector proportionately than a highly developed economy. As the Gross National Product grows, both the public sector and the level of taxation necessary to support it, can and will tend to rise.

That this has been the case in Canada can be seen from an examination of Table 21-1. Because it is not possible to eliminate the effect or price change from taxes the data are presented in current dollars. Between 1949 and 1961, government revenue as a proportion of GNP rose from 25.1 per cent to 29.7 per cent and the latter in a year when the rate of growth of GNP was not particularly rapid. All major classes of revenue rose including direct taxes, indirect taxes, investment income and other revenue; but direct taxes did not account for a larger proportion of total government revenue over the period.

TABLE 21-1 TOTAL REVENUE, ALL GOVERNMENTS, CANADA, 1949, 1955 AND 1961

($ '000,000)

Item	1949	1955	1961
Direct Taxes			
On persons	789	1,499	2,511
On corporations	718	1,272	1,612
Withholding taxes	47	67	116
Total, Direct Taxes	1,554	2,838	4,239
Indirect Taxes*	1,885	3,319	4,970
Investment Income**	419	753	1,130
Other†	239	476	787
Total Revenue, All Governments	4,097	7,386	11,126
(Per Cent of Gross National Product)			
Direct Taxes	9.5	10.4	11.3
Indirect Taxes*	11.5	12.2	13.3
Investment Income**	2.6	2.8	3.0
Other†	1.5	1.8	2.1
Total Revenue, All Governments	25.1	27.2	29.7

*Includes customs import duties, excise duties, excise taxes, amusement taxes, gasoline taxes, licences and fees, real property taxes, retail sales taxes, and miscellaneous.

**Includes interest on government-held public funds, loans, advances and investments, and also profits (net of losses) of government business enterprises.

†Includes contributions to public service pensions, unemployment insurance, workmen's compensation, and industrial employees' vacations.

SOURCE: Hanson, E., *The Public Finance Aspects of Health Services*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964. See Appendix A, Table A-3.

Again Canada experienced much the same type of development as other industrialized countries whose tax receipts rose to match their increased expenditures. With respect to the ratio of total taxes collected to GNP, exclusive of investment income and other revenue, this ratio is higher for most western European countries and the United States than for Canada. Only a few developed countries fall below the Canadian ratio. A recent tabulation in the *Canadian Tax Journal* has set out the level of total taxation as a percentage of GNP for forty countries in 1960.[1] In this group West Germany

[1] *Canadian Tax Journal*. Canadian Tax Foundation, Toronto, September-October, 1962, pp. 348 and 349. Data derived from the United Nations Statistical Office, Yearbook of National Accounts Statistics, 1961.

leads with 34 per cent, followed by France with 33.2 per cent, Austria with 32.9 per cent, Norway with 32.1 per cent, Sweden with 31.3 per cent. The United Kingdom ranks tenth with 27.9 per cent and the United States eleventh with 27.5 per cent. Canada ranks fourteenth with 24.8 per cent. Twenty-one countries, nearly all in the under-developed category, had levels below 20 per cent, with Nigeria at the bottom of the list with 8.6 per cent.

As in the past, so in the future, the expansion of public services and the provision of transfer payments will be associated with taxation. To finance these outlays existing taxes and other revenue sources used by all levels of government will have to continue to be used. Improvements in tax regulations and administration will have to be sought but if the Gross National Product increases as we have indicated it can and will, the Canadian economy should be able to provide more funds for private spending as well as more funds for public spending if the community so desires. In this latter category, health services are one area in which the public demands have been substantial.

FINANCING PROJECTED HEALTH EXPENDITURES

When we turn to the financing of projected health expenditures the first question we have to consider is: what is private spending and what is public spending? If a family meets the cost of a particular health service out of wages or income from property, clearly this is private spending. What are we to say though if the payment is made out of family allowances, old age pensions, pensions for the blind or from unemployment insurance. In this case payment is financed by a transfer payment and could, logically, be treated as a publicly financed expenditure although it is not in practice possible to do so.

Families may have their health expenditures met by private insurance programmes, the premiums for which are paid by firms and deductions from payrolls. This can be considered as a private expenditure since premiums cover the full cost of care and are met by individuals.[1] When premiums are collected by a government agency which in turn pays private suppliers and non-profit organizations for services rendered, it is the convention to class these payments as public spending. The substitution of one form of payroll deduction for another form of payroll deduction does not, in itself, convert private spending into public spending and a different convention could well lead to such premiums being classified as private outlays even though the intermediary is a government agency.

[1] To the extent that firms deduct contributions to health insurance programmes as a cost of business, public funds are used to subsidize health care since government foregoes taxes it could have collected.

This point is particularly significant when assessing the projected cost of public health services programmes. With the implementation of the recommendations of the Commission there would be an expansion of the proportion of total spending financed in the public sector. This would be due partly to new spending initiated under the programmes but primarily because private spending now would become public spending. Much of the increased expenditures associated with our recommendations is the consequence of a shift in the method of paying for health services that would be purchased whether or not any expansion of public programmes takes place.

There is thus, a range of methods of financing, some of which are clearly private, others which are clearly public and some which can be classified as either. To some extent the distribution of health expenditures between the private and the public sector is a matter of judgment depending on the conventions adopted.

In these projections, however, we have assumed that where public programmes exist, for the most part they will be financed completely by the public sector.[1] Our projections tend then to maximize the size of the public sector but this has been offset to some extent by attributing some public expenditures to the private sector, a development which was made necessary by the limited nature of the data relating to spending on some health items. On the basis of the data available, and in view of the uncertainties of the future, our projections are approximate. But they provide a reasonable indication of the magnitude of the expenditures to be made in the public sector.

Financing Projected Health Expenditures, Assuming Existing Public Programmes, in Current Dollars, 1966 and 1971

We have described the trends in the financing of health services in the post-war period in Chapter 11 and our projection in *current* dollars for the years 1966 and 1971 is based on the trends indicated there. The proportion of medical care expenditures attributable to the public sector has been projected at 12.5 per cent over the decade 1961-1971. This was the proportion so financed in 1961 and is close to the percentage of the previous two years. The proportion of hospital expenditures attributable to the public sector has been projected at 88 per cent of total spending, the proportion which it reached in 1961 when all provinces participated in the Hospital Insurance Programme. All public health expenditures are attributed to the public sector along with 75 per cent of estimated expenditures on hospital capital—a higher per-

[1] There are two exceptions to this assumption. In the projection of the financing of health services in current dollars, assuming the implementation of our recommendations, we have allocated to the private sector a charge of $1 per drug prescription and the charges levied to pay for part of the replacement cost of glasses lost or broken.

centage than that estimated for the post-war period but in accord with the trends that have developed in the past few years. The distribution of projected expenditures on the administrative costs of health insurance has been made on the basis of an estimate of their distribution in 1961, but all projected expenditures on dental care and other health services such as prescribed glasses, home nursing and private duty nursing, chiropractic services and orthopaedic appliances along with expenditures on prescribed drugs purchased from retail outlets, are allocated to the private sector.[1] The level of expenditures on health capital, research and the education of health personnel that would be reached, without the implementation of the recommendations of this Commission is difficult to project. In view of current trends these expenditures would certainly rise, but the extent of the increase is uncertain. As a consequence, as we have indicated in Chapter 20, we have assumed that expenditures on health capital will be approximately the same with and without an expanded public programme and have only projected public outlays on health research and health education assuming the implementation of our recommendations.[2]

On the basis of this projection, as shown in Table 21-2 the proportion of health spending financed in the private sector, assuming the same public programmes that existed in 1961, is projected to decline from 45.0 per cent in 1961 to 41.1 per cent in 1966 and to 38.6 per cent in 1971. Out of a total expenditure of $2,874 million in 1966, private expenditures will amount to $1,182 million; while in 1971 the amount is $1,548 million out of a total of $4,015 million.

Since we have included some public spending on dental services, prescribed drugs and other health items in the private sector, and given the development of public medical care programmes in Saskatchewan and Alberta since 1961, without any implementation of our recommendations the proportion of private financing will almost certainly continue to decline and by 1971 could fall below 35 per cent and public financing account for more than two-thirds of all spending. This proportion would be reduced further if the medical care programmes also being considered by other provinces are implemented.

Financing Projected Health Expenditures, Assuming the Implementation of Extended Public Programmes

With the implementation of the recommendations of the Commission there would be, as we have already indicated, an expansion of the proportion of total spending financed in the public sector both because of the transfer of private to public spending and new spending initiated under the programmes.

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[1] These include some relatively small expenditures by public authorities for some dental services, prescribed drugs, prescribed glasses, and orthopaedic appliances.

[2] See Chapter 20, p. 801.

TABLE 21-2 ESTIMATED PRIVATE AND PUBLIC SPENDING ON PERSONAL HEALTH SERVICES AND OTHER HEALTH ITEMS, ASSUMING EXISTING HEALTH PROGRAMMES, CANADA 1961, 1966 AND 1971

Item	1961			1966			1971		
	Total Spending	Financed Privately	Financed Publicly	Total Spending	Financed Privately	Financed Publicly	Total Spending	Financed Privately	Financed Publicly
	($ '000,000)								
Physicians' Services*	—	—	—	506	443	63	649	568	81
Dental and Other Services**	—	—	—	308	308	—	384	384	—
Hospital Services*	—	—	—	1,500	180	1,320	2,265	272	1,993
Administrative Costs of Health Insurance*	—	—	—	95	70	25	116	86	30
Prescribed Drugs**	—	—	—	154	154	—	203	203	—
Public Health Services	—	—	—	150	—	150	190	—	190
Health Research and Grants-in-Aid of Education†	—	—	—	—	—	—	—	—	—
Health Capital††	—	—	—	161	27	134	208	35	173
All Services and Capital	2,018	909	1,109	2,874	1,182	1,692	4,015	1,548	2,467
Percentage Distribution	100.0	45.0	55.0	100.0	41.1	58.9	100.0	38.6	61.4

*Projected on basis of estimated distribution existing in 1961.

**Predominantly financed in private sector so allocated to this sector.

† Included in 1961. Excluded 1966 and 1971, projection not available.

†† Projected on the basis of 75 per cent public and 25 per cent private spending. Assumed to be the equivalent of capital expenditures with an expanded programme less capital expenditures arising from the children's dental programme.

SOURCE: Based on Tables 11-23, 11-24 and 20-4; and Madden, J. J., *Economics of Health*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964.

The allocation of private and public expenditures has been carried out as follows. The projected expenditures on medical care have all been allocated to the public sector although provincial financing techniques may well leave part of these expenditures in the private sector. In view of our recommendations relating to the Hospital Insurance and Diagnostic Services Act, some expenditures, such as for out-patient care, would become a public rather than a private expenditure. In consequence we have reduced the proportion of total hospital expenditures allocated to the private sector to 10 per cent in 1966 and 8 per cent in 1971. The cost of a children's and public assistance recipients' programme for glasses and dental care has been allocated to the public sector except for a small amount estimated to cover the charges levied against those whose glasses have to be replaced through loss or breakage. Again all public health expenditures including Health Grants are allocated to the public sector along with the estimated cost of home nursing care. Expenditures on prescribed drugs have been allocated to the public sector except for a charge of $1 per prescription which is allocated to the private sector. A proportion of estimated expenditures on general hospital capital, equivalent to 25 per cent of projected spending, has again been allocated to the private sector. The projected expenditures on hospital construction to care for the mentally ill, construction of educational capital and dental clinics have been allocated to the public sector. The administrative costs of health insurance have been allocated on the basis of our estimate of total private and public spending. Other expenditures such as those for dental services and glasses for people not covered by a public programme, along with private duty nursing services, chiropractic services, etc., have been allocated to the private sector. Finally research expenditures and grants-in-aid of education have been allocated to the public sector, although some of these expenditures will be financed from private sources.

PROJECTED PRIVATE AND PUBLIC HEALTH EXPENDITURES IN CURRENT DOLLARS, 1966 AND 1971

The implementation of the recommendations would have the effect then of both increasing expenditures on health care and transferring a larger share of total spending from the private to the public sector. As shown in Table 21-3, the proportion financed in the public sector in 1966 is projected as 82.1 per cent while by 1971, it is projected at 84.9 per cent. In 1966, the effect of this projection is that out of an estimated total spending of $3,050 million, $2,503 million is projected as being spent in the public sector and $547 million in the private sector. By 1971, total spending is projected at $4,481 million of which public spending is $3,804 million and private spending at $677 million.

PROJECTED PRIVATE AND PUBLIC HEALTH EXPENDITURES IN CONSTANT (1957) DOLLARS, 1961-1991

Our projection of *real* expenditures financed in the private and public sector is shown in Table 21-4. In Chapter 20, we outlined what we considered to be the most likely estimate of per capita health spending in constant (1957) dollars in the period 1961-1991. Our projection of the distribution of these expenditures is based upon the allocation measured in current dollars as developed above. Thus it has been assumed that in 1961, some 55 per cent of real expenditures was financed in the public sector, that this will rise to 82.3

TABLE 21-3 ESTIMATED PRIVATE AND PUBLIC SPENDING ON PERSONAL HEALTH SERVICES AND OTHER HEALTH ITEMS, ASSUMING EXPANDED PUBLIC PROGRAMMES, CANADA, 1966 AND 1971

Item	1966			1971		
	Total Spending	Financed Privately	Financed Publicly	Total Spending	Financed Privately	Financed Publicly
	($ '000,000)					
Physicians' Services*	525	—	525	797	—	797
Dental and Other Services**	302	277	25	441	331	110
Hospital Services†	1,490	149	1,341	2,274	182	2,092
Administrative Costs of Health Insurance††	95	20	75	116	25	91
Prescribed Glasses[a]	29	2	27	18	2	16
Prescribed Drugs[b]	234	71	163	361	102	259
Public Health Services[c]	150	—	150	190	—	190
Research[d]	32	—	32	48	—	48
Grants-in-Aid of Education[d]	25	—	25	26	—	26
Health Capital[e]	168	28	140	210	35	175
All Services and Capital	3,050	547	2,503	4,481	677	3,804
Percentage Distribution	100.0	17.9	82.1	100.0	14.9	84.9

*Assuming complete public financing.

**Publicly financed expenditures include children's and public assistance recipients' dental programmes and estimated outlays for home care.

†Projected on the assumption that private expenditures decline to 10 per cent in 1966 and 8 per cent in 1971.

††Private expenditures include costs of administering private hospital, dental, drugs, insurance and other categories of spending not covered by public programmes.

[a]Estimated cost of contribution of private sector for glasses replaced on account of breakage or loss.

[b]Private expenditures estimated on basis of $1 per prescription.

[c]Includes Health Professions Education Grant of 50 cents per capita.

[d]Assumed to be public spending.

[e]Private expenditures include contributions to construction of active treatment hospitals projected at 25 per cent of total spending. Cost of mental, educational and other facilities assumed to be publicly financed.

SOURCE: Based on Tables 20-4 and 20-23.

per cent in 1966 and to 85 per cent in 1971 and that this latter percentage will hold until 1991. On the basis of these assumptions we project *per capita* public health expenditures in real terms as rising from $54.67 in 1961 to $99.14 in 1966, $131.54 in 1971 and to $204.05 by 1991. Private expenditures are projected to amount to $21.76 in 1966, $22.51 in 1971 and to rise to $36.00 per capita in 1991.

Projected Public Expenditures on Health as a Percentage of Projected Total Government Expenditures

What proportion of total government real spending will be accounted for in the future by government expenditures on health?[1] The answer to this question depends on two projections—of total government expenditures and publicly financed health expenditures—both of which can be no more than indicative of the path which will actually be followed. As we emphasized in Chapter 19, it would not be in accord with the trends in our economy to assume that the proportion of GNE spent by the federal, provincial and municipal Governments, either in the form of direct spending or transfer payments, will decline in the foreseeable future. What is less certain is that the trends in total government spending will not level off at some future date below the amount projected here. As we indicated in Chapter 20, we have endeavoured to present a realistic projection of real expenditures on health services in Canada to 1991. Subsequent events may show that both the absolute level of total government spending and health spending may fall below the amounts projected here and thus produce a situation where government health expenditures as a percentage of total government spending may be different from that which we have projected. Here we can only say that the divergent trends are unlikely to increase significantly the proportion that health expenditures will contribute to total government spending and the percentage we have estimated may turn out to be not much lower than the actual figure.

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[1] In discussing government health expenditures as a proportion of government's spending, no distinction has been made between direct spending by governments and transfer payments either in the sphere of total government spending or health spending. The cost of providing health services has been calculated on the assumption that health services are predominantly provided in the private sector of the economy or, where provided in public sector, are paid for at prices comparable with those paid in the private sector. This implies, that if all hospitals were to be transformed into non-profit corporations, and if medical and dental services now supplied by salaried physicians and dentists employed by governments were paid for by the recipients who were in turn reimbursed by governments, all government health expenditures would be classed as transfer payments. Since governments will continue to employ physicians and dentists in the future and to operate hospitals, and since most of the industry will remain in the private sector of the economy, public spending will consist of both direct spending and transfer payments which we have not attempted to estimate separately.

TABLE 21-4 ESTIMATED PRIVATE AND PUBLIC PER CAPITA SPENDING ON PERSONAL HEALTH SERVICES AND OTHER HEALTH ITEMS ASSUMING EXPANDED PUBLIC PROGRAMMES, CONSTANT (1957) DOLLARS, CANADA, SELECTED YEARS, 1961-1991*

Year	Per Capita Expenditures**	Financed Privately†	Financed Publicly†	Per Cent Projected Total Government Spending††	
				Projected Per Capita Government Expenditures[a]	Per Cent Spent on Health
	$	$	$	$	
1961	99.40	44.73	54.67	604	9.1
1966	120.90	21.76	99.14	764	13.0
1971	150.05	22.51	131.54	997	14.7
1976	178.88	26.83	152.05	1,059	14.4
1981	202.00	30.30	171.90	1,207	14.2
1986	223.00	33.45	189.55	1,373	13.8
1991	240.05	36.00	204.05	1,586	12.9

*Includes expenditures as outlined in Footnote *, Table 20-1.

**Per capita spending on health care, "most likely" projection, Table 20-1.

†Projected on basis of distribution of spending in current dollars as calculated in Table 21-3; 18 per cent private spending in 1966, 15 per cent private spending in 1971 to 1991.

††Per capita public spending on health services and health capital as a percentage of projected per capita total government expenditures including defence expenditures.

[a]See Table 19-9.

SOURCE: Based on Tables 19-9, 20-1, and 21-3.

As shown in Table 21-4 the proportion of per capita real government expenditures attributable to health spending—including both direct spending and transfer payments—amounted to 9.1 per cent in 1961. Our projection indicates, assuming that total government spending grows at a rate consistent with the projected higher growth of GNP, that this proportion will rise to 13 per cent by 1966 and to 14.7 per cent by 1971. This would be the maximum percentage reached. Thereafter, the proportion spent in health declines until by 1991 it is projected to amount to 12.9 per cent. In short, government outlays for health are unlikely to account for more than 15 per cent of total government spending at any time between 1961 and 1991, an increase of six percentage points over the year 1961 and less than four percentage points comparing 1991 with 1961.

ALLOCATION OF PUBLIC HEALTH EXPENDITURES BY LEVEL OF GOVERNMENT

Throughout this Report we have emphasized that if all Canadians are to have available adequate health services, the planning of health services and the health care coverage available must take account of adequate standards of health services for Canadians from one end of the country to the other, as well as the necessity to provide an appropriate level of health personnel and facilities to implement the health care programme. We have also stated that the efficient utilization of scarce resources will require integrated and co-operative planning in which the federal government, provincial governments, municipal governments, voluntary organizations, professional personnel and laymen must participate.

We have emphasized also that the implementation of the health care programme recommended in this Report will not lead to any substantial change in the degree of *direct* participation in the provision of health services either by the federal, provincial or municipal governments. Where it will be necessary for governments directly to provide health services, as in the case of public health services and certain classes of hospital care, these functions largely will continue to be handled efficiently by provincial authorities, regional authorities or by large municipal authorities. Some health services necessarily must be performed by the federal government in the national interest; these include food and drug regulation, health examination of immigrants, health research and the health care of veterans. The main responsibility for the provision of health services, however, will lie with the private sector or with the provincial and local authorities.

The implementation of our recommendations primarily will lead to an expansion of the role of government in the planning and organization of a health care programme, including health services, personnel, facilities, and research, as well as financing, and it is to the division of these functions, along with the expenditures and sources of revenue, between the various levels of government that we now turn.

The provision of an adequate standard of health services for all Canadians as we have already indicated will require the participation of the federal government in the planning of health care programmes and the establishment of national standards.[1] There remains the question of the division of revenues and expenditures.

In general we have taken the Hospital Insurance and Diagnostic Services Act, along with other Health Grant Acts, as a pattern for the financing of the health programmes we have recommended. In so doing we have recommended that for the predominant part of future government expenditures, the

[1] See Chapter 1 and Chapter 2, Recommendations 190 to 195.

federal government should share the cost equally with provincial governments. We wish, however, to emphasize that the provision of a minimum standard of health services may be difficult in some provinces because of their inability to finance even 50 per cent of the cost of public health care programmes. We have therefore examined the problem of fiscal need and made certain suggestions about the financing of health care arising out of this examination.

Our recommendations do not imply that we are opposed to other methods of financing such programmes. For example, it is possible that revenues might be reallocated between the federal and provincial governments along with the responsibility for various public functions. Thus as provinces expand their public hospital, medical and other health care programmes, after these have been in operation for some period of time, the federal government could shift from a conditional grant approach to a reallocation of revenue approach, withdrawing from certain tax fields, or giving a proportion of certain tax fields to the province to provide the finances for health programmes. Of course such a development would have to take account of regional fiscal capacity.

Provided that the needs of Canadians for health care are met; provided that the quality and scope of health services provided is equivalent to what we have recommended; provided such services are operated in the most economic manner and properly planned and integrated; the techniques adopted for their financing are of secondary importance.

GRANTS-IN-AID

Our examination of the various techniques currently used to transfer funds from the federal government to the provincial governments makes it desirable to concentrate on the existing techniques developed for sharing the cost of health programmes—that is the conditional grant of which the grants made under the Hospital Insurance and Diagnostic Services Act are a most important example. Such grants-in-aid appear to solve, at present, the problems of intergovernmental finance in the field of health services more effectively and adequately than any other alternative. They enable us to take account of the two main goals, the establishment of adequate standards of services and the equalization of capacity to pay.

Professor Donald Smiley has recently published an appraisal of federal conditional grants in Canada.[1] It is a helpful and timely document

[1] Smiley, Donald V., *Conditional Grants and Canadian Federalism*, a Study in Constitutional Adaptation, Canadian Tax Foundation, Toronto, February 1963. For a further comment on the usefulness of grants-in-aid as a device for achieving national average standards of service and equity in financing, see United Nations, Department of Economic and Social Affairs, *Report on the Organization and Administration of Social Services*, Report by the Group of Experts appointed by the Secretary-General of the United Nations, New York: The Organization, 1962, pp. 28 and 29.

and provides specific analyses of the various grants, including those for health services. Here we shall indicate briefly some points he makes in connection with health and hospital grants. The federal government made many federal-provincial financial proposals of the 1945-1946 Reconstruction Conference with a comprehensive set of conditional grants for health services as part of the whole scheme of things. The Conference broke down in May 1946 and the federal government proceeded to negotiate with the provinces on separate issues and in piecemeal fashion. In the sphere of health the federal government established shared-cost programmes beginning in 1948. We traced the development of these in Chapter 4.

Professor Smiley's analysis covers the basis of federal sharing; financial administration, co-operation and conflict, and the impact on provincial finance.[1] He makes certain suggestions which deserve attention. There is a need for more progress "in rationalizing the auditing and reimbursement procedures and in eliminating some of the more anomalous definitions of shareable costs where the amounts involved are small . . .".[2] He also recommends that all the present health grants, excluding those for hospital construction, be amalgamated into one public health grant.[3] More could also be done by the federal government to inform provincial governments well ahead of time of intentions of changes in grants; conditional grants create uncertainties in provincial budgeting and planning since a matching of funds is involved. In general, he concludes: "With all their defects, conditional grants have brought an invaluable element of adaptability to a federal structure which has proved remarkably resistant to change through constitutional amendment or evolving patterns of judicial review".

As a consequence of the implementation of our recommendations many of Professor Smiley's criticisms of the health grant approach would be removed. We have generally argued for a more rational organization of health grants and for a reduction in the amount of unnecessary accounting procedures. We have also recommended the amalgamation of a number of specific grants into more general grants, particularly the elimination of certain specific disease-oriented and client-oriented grants.[4]

Bearing in mind our emphasis on flexibility in working out financial arrangements with provincial governments in the health field, we feel that the conditional grants can be used to create a structure of health services along with personnel, facilities and research that is in keeping with Canada's federal structure while providing a high level of health care for all Canadians regardless of where they reside.

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[1] Smiley, Donald V., *op. cit.*, Chapter III.
[2] *Ibid.*, p. 70.
[3] *Ibid.*
[4] See Chapter 2, Recommendations 196 and 197.

FISCAL NEED

There remains, however, one problem that is of concern; the fact that resources, and economic conditions and progress are not uniform throughout Canada. For example, there are provinces in Canada whose ability to finance a given level of health services is much less than others. Differences in the fiscal capacities of provinces are such that in order to achieve national average standards of health or other services, they need to impose a tax burden above the national average.

At present there are constitutional provisions regarding the division of revenue sources between the federal and provincial governments as well as federal-provincial taxation arrangements arrived at by negotiation. Finally there are the grants-in-aid. The consequences of all these arrangements is that the federal government collects taxes largely in excess of its expenditures and transfers large sums of money to the provinces to enable them to finance their obligations. Similarly the provinces transfer funds to the municipalities to finance expenditures in excess of their revenue.

How far the present system meets the needs of the federal government and the provinces is beyond the terms of reference of this Commission. But we are required to offer some suggestions with respect to the financing of health care programmes proposed and we do so in the sections that follow with our recommendations presented in Chapter 2.[1]

PROJECTED FEDERAL AND PROVINCIAL SPENDING ON HEALTH SERVICES AND OTHER HEALTH ITEMS

In Tables 21-3 and 21-4 we have set forth estimated private and public spending on health services and other health items both in current dollars for the years 1966 and 1971 and in constant (1957) dollars for selected years within the period 1961 to 1991. In Tables 21-5 and 21-6 we have estimated how public expenditures would be distributed between the federal and provincial governments assuming that the recommendations outlined here were adopted.[2]

For most programmes our recommendations are that the federal government meet 50 per cent of the cost of publicly financed programmes. In a few instances this is not the case. For example our estimates include spending on education of health personnel and health research. In both these areas provincial governments will spend funds but due to lack of data these have not been included in the projection. In consequence, projected

[1] See Chapter 2, Recommendations 190 to 195.

[2] It is recognized that certain health expenditures will be financed by municipal governments, but for purposes of this analysis, spending is only classified as federal or provincial. See footnote (a) in Table 21-5.

expenditures on health education and health research are all assumed to be financed by the federal government, recognizing that this underestimates provincial expenditures. In the case of hospital construction, it has been assumed that for the construction of psychiatric beds and institutions for the mentally retarded, where these replace obsolescent institutions, that there will be no private sharing and that the federal government will bear 50 per cent of the cost. For all other beds and bassinets, the federal share has been projected at 15 per cent of the cost remaining after deducting 25 per cent that represents private donations or funds belonging to the hospitals.[1]

In terms of current dollars, assuming the implementation of the recommendations made here, Table 21-5 indicates that the federal share of total public spending in 1966 is projected at $1,246 million or 49.8 per cent while spending by other levels of government is projected at $1,257 million or 50.2 per cent. By 1971, federal spending is projected to rise to $1,894 million or 49.8 per cent and spending by other levels of government to rise to $1,910 million or 50.2 per cent.

TABLE 21-5 ESTIMATED PUBLIC SPENDING ON HEALTH SERVICES AND HEALTH CAPITAL BY LEVEL OF GOVERNMENT, ASSUMING EXPANDED PUBLIC PROGRAMME, CANADA, 1966 AND 1971*

Year	Projected Total Public Expenditures	Projected Federal Share of Total Spending		Projected Provincial Share of Total Spending	
	($'000,000)	($'000,000)	Per Cent	($'000,000)	Per Cent
1966	2,503	1,246	49.8	1,257	50.2
1971	3,804	1,894	49.8	1,910	50.2

*Provincial government spending includes expenditures made by municipal governments.

SOURCE: Based on Table 21-3 and Madden, J. J., *Economics of Health*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964.

When spending is measured in constant (1957) dollars as indicated in Table 21-6, real expenditures by the federal government are projected to rise from $369 million in 1961 to $1,002 million in 1966 and $1,435 million by 1971. By 1991, federal spending is projected at $3,567 million. These are sizeable sums of money but in terms of percentage of Gross

[1] In the case of projected expenditures on facilities associated with the development of the Children's Dental Services, the federal share has been estimated at 75 per cent of projected outlays in 1966 and 50 per cent in 1971 and thereafter.

National Expenditure it can be seen that at no time does federal spending exceed more than 2.8 per cent of Gross National Expenditure and that it expands at a rate well within the capacity of the Canadian economy. The most rapid increase in federal spending comes in the period 1961 to 1966 as public spending is substituted for private spending but once the transitional stage is completed, federal outlays grow no more rapidly than Gross National Expenditure amounting to 2.8 per cent of GNE in 1976 and 2.7 per cent in 1991.[1]

Table 21-6 also indicates projected spending in constant (1957) dollars by governments other than the federal government, namely provincial governments (including municipal outlays). In 1961, expenditures amounted

TABLE 21-6 ESTIMATED PUBLIC SPENDING ON HEALTH SERVICES AND HEALTH CAPITAL, BY LEVEL OF GOVERNMENT, ASSUMING EXPANDED PUBLIC PROGRAMMES, CONSTANT (1957) DOLLARS, CANADA, SELECTED YEARS, 1961-1991*

Year	Projected Total Public Expenditures		Projected Federal Share of Total Spending		Projected Provincial Share of Total Spending	
	Total Spending	Per Cent of GNE	Total Spending	Per Cent of GNE	Total Spending	Per Cent of GNE
	($'000,000)		($'000,000)		($'000,000)	
1961	998	2.9	369	1.1	629	1.8
1966	2,013	4.5	1,002	2.2	1,011	2.3
1971	2,881	5.1	1,435	2.5	1,446	2.6
1976	3,837	5.5	1,911	2.7	1,926	2.8
1981	4,850	5.6	2,415	2.8	2,435	2.8
1986	5,980	5.6	2,978	2.8	3,002	2.8
1991	7,163	5.4	3,567	2.7	3,596	2.7

*Based on a projected high level of growth of GNP, the "most likely" projection of per capita spending on health services and capital, the distribution of private and public spending as projected in Table 21-3, and the distribution of federal and provincial spending as projected in Table 21-5. Provincial government spending includes expenditures made by municipal governments.

SOURCE: Based on Tables 11-14, 11-26, 19-1, 21-3 and 21-5.

to $629 million and these are projected to rise to $1,011 million in 1966 and to $1,446 million in 1971. By 1991, expenditures are projected at $3,596 million. Again these are sizeable sums, but in terms of Gross National

[1] With a slower growth of GNE, federal spending on health would account for a somewhat larger share of GNE if health spending remained unchanged. Since it is likely that health spending would be less if GNE grew more slowly the percentage of GNE allocated to health is not likely to be significantly higher.

Expenditure, once the transitional stage is past and public funds substituted for private funds, provincial expenditures as a percentage of GNE do not exceed 2.8 per cent in 1976 and by 1991 are at 2.7 per cent.

Moreover, the transitional stage involves much less of an expansion of provincial spending than it does in the case of federal government spending. Between 1961 and 1966, provincial spending as a proportion of GNE rises by only .5 percentage points, and between 1961 and 1971 rises by only .8 percentage points. This is, of course, the consequence of federal sharing in the costs of mental and tuberculosis hospital care, the construction of psychiatric hospital beds, and medical, dental and other health care provided to welfare recipients, most of which in 1961 was borne by the provincial or municipal government.[1]

WILLINGNESS TO FINANCE PUBLIC PROGRAMMES

We have concluded that the implementation of our programme will necessitate an expansion of public expenditures and thus an increase in the premiums and taxes collected by the federal and provincial governments. How do Canadians in general feel about the possible higher cost of improved health care and the prospect of higher taxes or other forms of contribution for this purpose?

To answer this question we have throughout our hearings inquired from spokesmen of representative population groups with varying interests, whether those they represented would accept higher taxation to pay for the cost of increased and improved health services. The answer has been yes, and there has been no dissenting voice. The position has been stated in its most succinct form as follows:

> "If we as individuals or as organizations accept or ask for greater services from senior government, from others than ourselves, we must be prepared to pay."[2]

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[1] Although we recognize that provinces may finance their programmes by any means they choose, we have calculated the percentage of GNE that the provinces would have to raise in order to finance provincial and municipal health spending if the provinces collected in the form of premiums the same proportion of real GNE as was collected in 1961, by private medical care insurance and provincial hospital care insurance plans. Private insurance plans collected about 0.55 per cent of real GNE while those provinces that had premiums collected about 0.30 per cent of GNE. The total collected was about .85 per cent of GNE. Reducing provincial expenditures by this amount, projected provincial share of health spending as a percentage of GNE would be reduced to 1.7 per cent in 1961. With the transfer of financing to the federal government, in 1966, provincial expenditures would account for only 1.35 per cent and would be less than 2 per cent throughout the period.

[2] Transcript, *op. cit.*, January 25, 1962, Regina, Vol. 20, p. 4743. (Mr. Boileau for the Saskatchewan Wheat Pool).

Labour, agricultural, business and consumer spokesmen all made similar statements.[1]

THE FUTURE

It is obvious, even if no new programmes are adopted, that gross expenditures on health services will increase very substantially by 1971 (see Table 20-23). The population will be 22.6 million by then, an increase of 24 per cent over 1961. Over the same period hospitalization costs alone will have increased by over 1.3 billion, or by 145 per cent, and Canada is committed to the hospital programme. *No one* has suggested curtailing or abandoning it. The sum total of all our proposals is to add to the hospital programme and to the existing services the personal health services needed to round out the concept of comprehensive and universal coverage. These additional services will, if implemented, cost an extra $466 million in 1971. That is the price tag which must be affixed to our proposals. We are fully aware that it is a substantial sum. But we are equally aware that the benefits which will flow from such a comprehensive universal health service will be more than worth the price in terms of good health and human happiness.

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[1] a) Transcript, *op. cit.*, November 1, 1961, Halifax, Vol. 5, p. 1313. Mr. Bell for the Nova Scotia Federation of Labour: "We think in conjunction with such a program the Government should look at its source of revenue itself to the point of not only calling upon people to meet the cost through personal income tax but also through upward revision of corporation tax and probably increases in succession duties and other means which are at their disposal."
Transcript, *op. cit.*, February 22, 1962, Vancouver, Vol. 30, p. 6508. The B.C. Federation of Labour.
Transcript, *op. cit.*, April 9, 1962, Quebec, Vol. 40, p. 7890. The Federation of National Trade Unions.
Transcript, *op. cit.*, May 25, 1962, Toronto, Vol. 60, p. 11284. Canadian Labour Congress.
Transcript, *op. cit.*, June 2, 1962, Toronto, Vol. 66, p. 12493. Ontario Federation of Labour.

b) Transcript, *op. cit.*, March 19, 1962, Ottawa, Vol. 33, p. 6844. Mr. McNally for the Canadian Chamber of Commerce: "Our position is that in our view no Canadian should be allowed to suffer medical illness or accidents because he can't pay for it, and to the extent that the provinces or municipalities must increase their budget to take care of these people in these circumstances, we are prepared to pay for it."
Transcript, *op. cit.*, May 23, 1962, Toronto, Vol. 58, p. 11006. Mr. Drysdale for the Ontario Chamber of Commerce: "Yes, we would. After all, if we accept it I think we have to be prepared to pay for it, and just how that might be done is another question. In other words, depending upon who you extract the money to do this."
Transcript, *op. cit.*, February 16, 1962, Edmonton, Vol. 26, p. 5775, statement for the Edmonton Chamber of Commerce.

c) Transcript, *op. cit.*, May 14, 1962, Toronto, Vol. 52, p. 10002. Dr. Hastings for the Toronto School of Hygiene: "There would have to be substantial federal contribution, which would presumably come out of taxation, but the provincial portion, we feel, should be left to the individual provinces."

d) Transcript, *op. cit.*, March 23, 1962, Ottawa, Vol. 37, p. 7555. Mrs. Annie G. Haggerty speaking on behalf of the Federated Women's Institutes of Canada: "I think they would (pay his/her taxes) if the health services were better."
Transcript, *op. cit.*, January 23, 1962, Regina, Vol. 18, p. 4317, testimony by Mr. Gleave on behalf of the Saskatchewan Farmers' Union.

ALL OF WHICH WE RESPECTFULLY SUBMIT
FOR YOUR EXCELLENCY'S CONSIDERATION

Everett M. Hall

Chairman

Commissioners

Alice Girard

D. M. Barkan.

O. J. Firestone

C. L. Strachan

Arthur F. Van Wart

B. L. Blicken.

Director of Research

Secretary

February 26, 1964.