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Releases

Releases

Study: Impact of public infrastructure on productivity

1962 to 2006

Between 1962 and 2006, roughly one-half of the total growth in multifactor productivity in the private sector was the result of growth in public infrastructure.

Public capital (the nation's roads, bridges, sewer systems and water treatment systems) constitutes a vital input for private sector production. It enables concentrations of economic resources and provides wider and deeper markets for output and employment.

The contribution of public infrastructure to productivity growth has not been constant over time. The largest contributions to productivity growth occurred during the 1960s and early 1970s, when it contributed up to 0.4 percentage points to average annual productivity growth.

During the 1980s and 1990s, its contribution to productivity averaged only 0.1 percentage points a year. The slower growth in the stock of public capital after 1980 occurred as decades of cross-country highway expansion came to an end.

Analysts studying productivity growth have long been faced with the problem of explaining why growth was much higher before 1980 than afterwards. A substantial portion of the difference came from the much higher growth in public infrastructure in the period preceding 1980.

In its analysis, the paper used earlier research that estimated the rate of return to public infrastructure as the impact on private sector costs. It found that the rate centred on 17%. The paper also examined how robust the results were to alternate estimates of the rate of return. To do so, it used a range of estimates of the impact of public capital on private sector costs. All produced results indicating that public capital made a significant contribution to productivity growth.

The study "The impact of public infrastructure on Canadian multifactor productivity estimates" is now available as part of *The Canadian Productivity Review* (15-206-XWE2008021, free), from the *Publications* module of our website.

Note to readers

This release is based on a research paper that uses a growth accounting framework to examine the importance of investment in public infrastructure to the growth in private sector productivity.

Despite the importance of public infrastructure, estimates of its impact on productivity growth are not widely available. The framework that is generally used for productivity analysis focuses only on business sector outputs and inputs, examining how output increases with inputs.

This omission of public capital from the statistical framework used to estimate productivity growth stems from a lack of information needed to include public infrastructure in the calculated measure of productivity, namely information on the magnitude of public capital stock and quantitative estimates of the impact of public infrastructure investments on business sector output.

The recent analytical studies "Infrastructure capital: What is it? Where is it? How much of it is there?," published in The Canadian Productivity Review *(15-206-XIE2008016, free), and "An examination of public capital's role in production," published in* Economic Analysis Research Paper Series *(11F0027MIE2008050, free), provide new more comprehensive data on public infrastructure and estimates of the impact of public infrastructure on business sector output.*

Using this information, this paper produces a new measure of multifactor productivity for the business sector that incorporates the impact of public infrastructure.

Multifactor productivity *measures the efficiency with which capital and labour are used in production. Growth in this area is often associated with technological change, organizational change or economies of scale.*

For more information on public infrastructure, consult the studies "An examination of public capital's role in production" published in the *Economic Analysis Research Paper Series* (11F0027MIE2008050, free), "Infrastructure capital: What is it? Where is it? How much of it is there?" published in *The Canadian Productivity Review* (15-206-XIE2008016, free), and "Public infrastructure in Canada: Where do we stand?" published in *Insights on the Canadian Economy* (11-624-MIE2003005, free), available from the *Publications* module of our website.

For more information, or to enquire about the concepts, methods or data quality of this release, contact Ryan Macdonald (613-951-5687), Micro-economic Analysis Division. ■

Farm business cash flows

2007 (revised)

Cash income for Canadian farm businesses rose to $9.0 billion in 2007, up $1.4 billion (+18.8%) from 2006. Higher grain and oilseed prices more than offset increases in operating costs. Meanwhile, many livestock producers were adversely affected by reduced prices, resulting from the appreciation of the Canadian dollar, and higher feed costs. The rebound in 2007 followed declines in 2005 and 2006, and was the highest level since 2002.

All provinces recorded increases in cash income, except Prince Edward Island, Nova Scotia and New Brunswick. This divergence was largely a result of the wide range of crops and livestock produced across Canada. Cash income declined in most Atlantic provinces as producers faced large rises in operating costs and declines in potato, hog and calf receipts.

Cash available to producers through borrowing increased in 2007, resulting in a $1.7 billion net increase in loans outstanding. Loans outstanding have increased for 14 consecutive years.

The amount of cash available for investment or withdrawal (cash income plus the net change in loans outstanding) increased 14.9% to $10.7 billion in 2007. This followed two consecutive annual decreases.

The loans outstanding to cash income ratio fell to 5.2 in 2007 from 5.9 in 2006. This ratio indicates the burden of farm debt on farm cash income. The high of 6.0 was set in 2003, while the record low of 2.7 was set in 1989.

Note: This series does not include data on depreciation, which are available in the publication *Farm Operating Expenses and Depreciation Charges: Agriculture Economic Statistics* (21-012-XWE, free).

Estimates of the farm business cash flows and other data contained in the *Agriculture Economic Statistics* series have been revised to align with data from the 2006 Census of Agriculture.

Available on CANSIM: table 002-0023.

Definitions, data sources and methods: survey number 5031.

The publication *Farm Business Cash Flows: Agriculture Economic Statistics*, January 2009, Vol. 7, no. 2 (21-018-XWE, free), is now available online. From the *Publications* module of our website, under *All subjects*, choose *Agriculture*.

For more information, or to enquire about the concepts, methods or data quality of this release, contact Bernie Rosien (613-951-1875; *bernie.rosien@statcan.gc.ca*), Agriculture Division. ■

Balance sheet of the agricultural sector

December 31, 2007 (revised)

Farm sector equity in Canada increased 8.9% in 2007 to $252.3 billion, as assets rose more rapidly than liabilities. All provinces recorded an increase in equity in 2007.

Farm assets rose to $302.2 billion in 2007, an 8.0% increase over 2006. The value of farm real estate, which accounts for two-thirds of total farm assets, was the primary contributor, rising 8.8% to $201.9 billion. The value of farm quotas, up $3.4 billion in 2007, was also a factor. Decreases in livestock and poultry were offset by increases in the value of crop inventories.

Farm liabilities reached $49.8 billion, up 3.8% from 2006. Current liabilities advanced 2.8%, while long-term liabilities recorded an annual increase of 4.1%. Prince Edward Island and New Brunswick were the only provinces to record declining liabilities in 2007.

The assets and liabilities in the balance sheet of the agricultural sector include those of farm businesses and non-operator landlords (farm real estate assets leased to farm operators and the corresponding liabilities). They exclude the personal portion of farm households. This most closely reflects the assets and liabilities used in the production of agricultural products.

The debt-to-asset ratio continued to decline, reaching 16.5% in 2007, its lowest level since 1999. This ratio measures the dependence of farm businesses on debt.

The assets-to-current liabilities ratio moved up to 2.268 in 2007 from 2.088 in 2006. The lower ratios recorded since 2003 mean that operators within the agricultural sector have a reduced ability to pay short-term debts compared with earlier periods.

The interest coverage ratio assesses the ability to cover interest charges with the net income generated (before interest and taxes). This ratio increased to 1.897 in 2007 from the record low of 1.549 in 2006.

Return on equity rose slightly to 1.1% in 2007, following two consecutive annual decreases. The record low of 0.6% was set in 2006.

Note: Estimates in the balance sheet of the agricultural sector at December 31 and other data contained in the *Agriculture Economics Statistics* series have been revised to align with data from the 2006 Census of Agriculture.

Available on CANSIM: table 002-0020.

Definitions, data sources and methods: survey number 5029.

The publication *Balance Sheet of the Agricultural Sector: Agricultural Economic Statistics*, January 2009, Vol. 7, no. 2 (21-016-XWE, free), is now available. From the *Publications* module of our website, under *All subjects*, choose *Agriculture*.

For more information, or to enquire about the concepts, methods or data quality of this release, contact Bernie Rosien (613-951-1875; *bernie.rosien@statcan.gc.ca*), Agriculture Division. ■

New products

The Canadian Productivity Review: "The impact of public infrastructure on Canadian multifactor productivity estimates", no. 21
Catalogue number 15-206-XWE2008021
(free).

Balance Sheet of the Agricultural Sector - Agriculture Economic Statistics, January 2009, Vol. 7, no. 2
Catalogue number 21-016-XWE
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Farm Business Cash Flows - Agriculture Economic Statistics, January 2009, Vol. 7, no. 2
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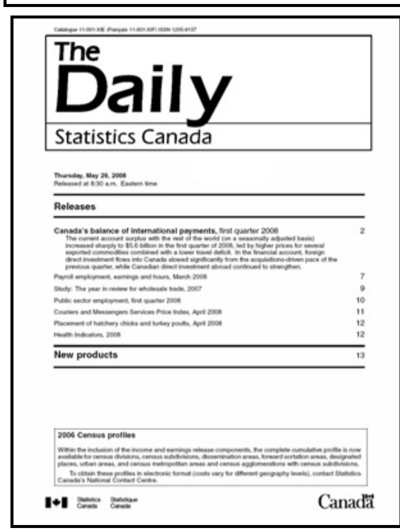
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