

Public Sector Efficiency: An International Comparison

Main Conclusions

- **Canada ranks 12th out of 23 industrialized countries on the Public Sector Performance (PSP) index, a measure of performance on seven indicators: administrative, education, health, public infrastructure, income distribution, economic stability and resource allocation.**
- **Canada's overall score on the PSP index is equal to that of the United States and 2 percent above the 23-country average.**
- **Public sectors in small-government countries (where public spending is less than 40 percent of GDP) outperformed public sectors in medium-government countries (where public spending is between 40 and 50 percent of GDP) by 10.3 percent, and big-government countries (where public spending is greater than 50 percent of GDP) by 5.6 percent. Canada is a considered a medium-government country as its public spending averaged 45.9 percent of GDP.**
- **Canada ranked 10th out of 23 industrialized countries on a second index, the Public Sector Efficiency index, a measure comparing public sector performance with public sector spending.**
- **Canada's score on the Public Sector Efficiency Index was 3 percent above the 23-country average but 18.3 percent below that of the United States.**
- **Countries with small governments are approximately 40 percent more efficient in achieving their public sector performance levels than countries with big governments.**
- **Canada should be able to attain the same level of public sector performance using only 75 percent of public expenditure (relative to GDP) that it is currently using. In other words, there is approximately 25 percent "waste" in Canada's public sector.**

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Introduction

In recent years, a growing body of academic studies have attempted to empirically assess the efficiency and usefulness of public sector activities in industrialized countries. That is, these studies analyze the impact of government spending on the welfare of citizens by examining a host of economic and social indicators. Most studies have concluded that government spending could be more efficient and less than it is today (see Gwartney *et al.*, 2002; Mueller, 1997; Persson and Tabellini, 2001; Rodrik, 2000; Shleifer and Vishny, 1998; Strauch and Von Hagen, 2000; Tanzi and Schuknecht, 1997, 2000).

Comprehensive measures of government performance and efficiency are, however, still quite limited. The objective of the underlying study, which this paper summarizes, is to provide proxies for measuring public sector performance and efficiency. Two indicators, the Public Sector Performance (PSP) index and the Public Sector Efficiency (PSE) index, are calculated for 23 industrialized countries, including Canada. A subsequent analysis measures the “wastefulness” of public expenditures by determining the lowest level of government spending (as a percent of GDP) necessary to attain a given level of public sector performance.

Measuring public sector performance

Public sector performance is defined as the outcome of public sector activities. That is, government activities should have a material influence on certain key economic

and social indicators. To measure the performance of the public sector in 23 member countries of the Organization for Economic Cooperation and Development (OECD), the study calculates a Public Sector Performance (PSP) index. Seven indicators of public sector performance are used in the calculation of the index and are broadly classified into two groups: opportunity indicators and Musgravian¹ indicators. Both are described in detail below.

Opportunity indicators

Opportunity indicators quantify the government’s performance in promoting equality of opportunity in the economy. That is, they measure outcomes that are expected to contribute towards enabling individuals to seek out the best economic opportunities available.

The study uses four opportunity indicators: (1) administrative performance, (2) education performance, (3) health performance and (4) public infrastructure outcomes.

The **administrative performance** indicator is a composite measure of corruption, red tape, the quality of the judiciary, and the size of the shadow economy.² These variables are intended to measure the government sector’s performance in securing property rights, administering justice, enforcing contracts, and providing a sensible regulatory environment.³

The **education performance** indicator consists of secondary school enrolment and educational achievement indicators.⁴ Secondary school enrolment is meant to measure the minimum education standard that students need to attain to have

equal opportunities in industrialized countries. Educational achievement in reading, mathematics, and science is used to measure the quality of education.⁵

The **health performance** indicator consists of infant mortality rates and average life expectancy.⁶ These measures best reflect high quality health services and equal access across a country’s population. Basic health is seen as a prerequisite for equal opportunity in the market process.

Lastly, **public infrastructure outcomes** reflect the quality of communication and transport infrastructure. Quality public infrastructure insures accessibility to markets.⁷

Musgravian indicators

Musgravian indicators measure the outcomes of governments’ interactions with, and reaction to, the market process.⁸ As such, this study uses three Musgravian indicators to measure government performance in income distribution, economic stabilization, and resource allocation.

The **income distribution** indicator, the income share of the poorest 40 percent of households, measures each government’s success at equally distributing incomes. That is, the greater the share of total income that the poorest 40 percent earn, the better the government performs on this indicator.

The **economic stability** indicator consists of two variables, the variance of economic growth and the average inflation rate over the period 1990-2000. These two

Table 1: Public Sector Performance (PSP) Indicators, 2000

Country	Public Sector Performance Index ¹	Rank	Opportunity indicators				Musgravian indicators		
			Admin-istration	Educa-tion	Health	Infra-structure	Distri-bution	Stability	Econo-mic Perfor-mance
Australia	1.04	9	1.17	1.02	0.94	1.00	0.87	1.31	1.00
Austria	1.12	4	1.21	1.00	0.98	1.10	1.22	1.28	1.01
Belgium	0.95	16	0.73	1.00	0.94	0.91	1.17	1.10	0.83
Canada	1.02	12	1.11	1.05	0.95	1.16	0.92	1.00	0.92
Denmark	1.06	7	1.16	1.00	1.03	1.03	1.19	1.10	0.91
Finland	1.01	14	1.26	1.07	1.04	n/a	1.18	0.75	0.73
France	0.93	17	0.72	1.03	1.03	1.01	0.90	1.12	0.70
Germany	0.96	15	1.02	0.98	1.01	1.01	0.98	0.91	0.81
Greece	0.78	23	0.60	0.94	0.93	0.81	0.97	0.55	0.69
Iceland	1.03	11	1.02	0.98	1.25	n/a	n/a	0.59	1.29
Ireland	1.05	8	1.06	0.94	0.88	1.00	0.89	1.22	1.40
Italy	0.83	21	0.52	0.96	0.93	0.84	1.10	0.76	0.69
Japan	1.14	2	0.87	1.09	1.12	1.09	1.20	1.40	1.18
Luxembourg	1.21	1	1.05	0.81	0.95	n/a	n/a	1.22	2.04
Netherlands	1.11	5	1.16	1.04	0.97	1.09	1.00	1.42	1.06
New Zealand	0.93	17	1.18	1.03	0.89	n/a	0.62	0.99	0.84
Norway	1.13	3	0.97	1.04	1.09	0.94	1.17	1.45	1.26
Portugal	0.80	22	0.54	0.94	0.90	0.75	0.92	0.64	0.92
Spain	0.89	20	0.77	1.00	1.10	0.86	1.02	0.82	0.67
Sweden	1.04	9	1.16	1.07	1.19	1.10	1.17	0.69	0.91
Switzerland	1.07	6	1.32	0.97	1.14	1.23	0.95	0.79	1.09
United Kingdom	0.91	19	1.00	1.05	0.91	0.99	0.79	0.78	0.84
United States	1.02	12	1.15	1.00	0.82	1.08	0.76	1.14	1.20
OECD average	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Small governments ²	1.07		1.11	1.01	0.98	1.08	0.94	1.17	1.17
Medium governments ²	0.97		0.93	0.98	1.00	0.93	0.92	0.89	1.03
Big governments ²	1.01		0.99	1.02	1.01	1.01	1.12	1.03	0.85

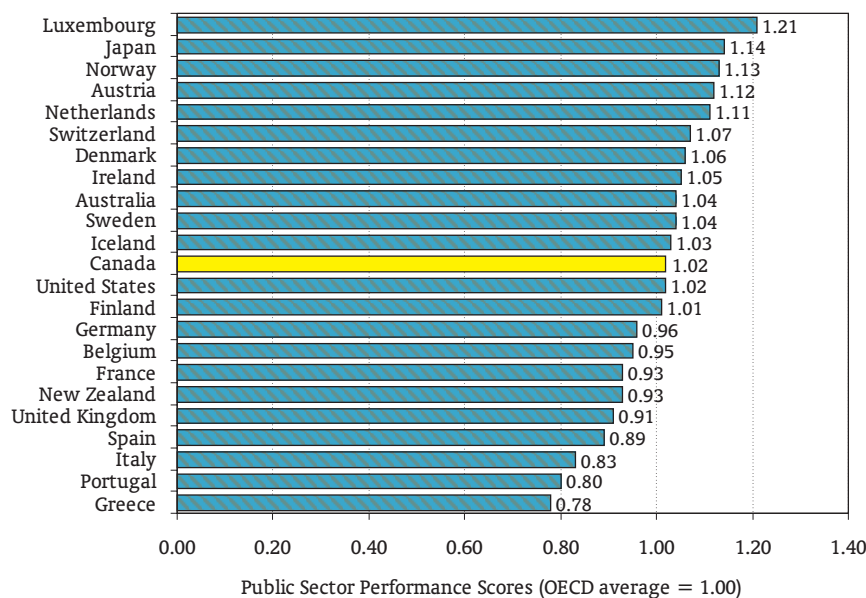
Notes

1. Each sub-indicator contributes $\frac{1}{7}$ to the Public Sector Performance index.

2. Countries with small governments have public spending that is less than 40 percent of GDP in 2000; countries with big governments have public spending that is greater than 50 percent of GDP in 2000; medium-sized governments have public spending that is between 40 and 50 percent of GDP.

Source: Afonso, Schuknecht, and Tanzi, 2005; and calculations by authors.

Figure 1: Public Sector Performance Index, 2000



Source: Afonso, Schuknecht, and Tanzi (2005).

variables illustrate how successful the government has been at achieving economic stability.

The **economic performance** indicator attempts to assess governments' achievements in their resource allocation objectives. That is, it tries to determine whether or not governments are ensuring that resources are used in such a manner that their economies are producing a combination of goods and services that maximizes the overall welfare in a country. Three measures make up the economic performance indicator: gross domestic product (GDP) per person, the 10-year average growth rate in GDP, and the 10-year average unemployment rate.

The Public Sector Performance (PSP) Index

The Public Sector Performance index is constructed from the 7 performance indicators presented

above. Each of the indicators is given an equal weighting in the overall PSP Index.⁹

For ease of comparison, the 23-country average for all indicators has been set at 1.00. The values for each country are then calculated relative to the average. For example, average secondary school enrolment in the 23 countries was 89.3 percent. In comparison, Canada's secondary school enrolment was 93.7 percent. The score for each country is calculated by the country's secondary school enrolment divided by average of the 23 countries. As a result, Canada receives a score of 1.05 on the secondary school enrolment indicator (93.7 percent divided by 89.3 percent), indicating that secondary school enrolment in Canada is 5 percent above the 23-country average.

Table 1 presents the results for the PSP indicators and the overall PSP index for 2000. Figure 1 displays the PSP index scores for 2000.

Scores on the PSP index suggest that the differences in overall public sector performance across the 23 countries are not very large. More specifically, 14 of the 23 countries received PSP index scores between 0.90 and 1.10, indicating that the majority of countries fall within 10 percent of the average on overall public sector performance. Luxembourg (1.21), Japan (1.14), and Norway (1.13) received the highest total PSP scores. Italy (0.83), Portugal (0.80) and Greece (0.78) received the lowest PSP scores. Canada ranked 12th among the 23 OECD countries with an overall score of 1.02, indicating that overall public sector performance was 2 percent above the 23-country average. The United States (1.02) received the same score as Canada.

An examination of Canada's performance on the seven individual performance indicators reveals that Canada performed below average on health (0.95), income distribution (0.92), and economic performance (0.92), above average on administration (1.11), education (1.05), and infrastructure (1.16), and average on economic stability (1.00).

Grouping the countries according to the size of their governments (measured as government spending relative to GDP) reveals some interesting results. Countries with small governments (where government spending is less than 40 percent of GDP) score higher in overall performance than big governments (where government spending is greater than 50 percent of GDP) and medium governments (where public spending is between 40 and 50 percent of GDP). More specifically, countries with small governments

Table 2: Public Sector Efficiency (PSE) Indicators¹, 2000

Country	Public Sector Efficiency Index ²	Rank	Opportunity indicators				Musgravian indicators		
			Admini- stration	Educa- tion	Health	Infra- structure	Distri- bution	Stability	Econo- mic perfor- mance
Australia	1.29	3	1.25	1.09	1.04	1.17	1.53	1.66	1.27
Austria	1.06	8	1.21	0.97	1.04	1.25	0.94	1.11	0.87
Belgium	1.01	12	0.68	1.19	0.87	1.67	0.91	0.98	0.73
Canada	1.03	10	1.04	0.85	0.87	1.35	1.16	1.02	0.94
Denmark	0.96	14	0.89	0.70	0.91	1.72	0.93	0.88	0.73
Finland	0.84	20	1.09	0.82	1.05	n/a	0.85	0.62	0.60
France	0.81	22	0.60	0.97	0.87	0.94	0.68	0.97	0.61
Germany	0.96	14	1.03	1.14	0.80	1.29	0.80	0.88	0.78
Greece	0.97	13	0.81	1.91	1.21	0.71	0.95	0.54	0.68
Iceland	0.80	23	0.91	0.97	n/a	n/a	n/a	0.65	1.44
Ireland	1.27	4	1.31	1.01	1.04	1.16	1.14	1.51	1.73
Italy	0.85	19	0.54	1.18	0.98	1.00	0.93	0.68	0.61
Japan	1.40	1	1.16	1.67	1.31	0.56	1.82	1.80	1.52
Luxembourg	1.38	2	1.18	1.26	1.03	n/a	n/a	1.28	2.15
Netherlands	1.05	9	0.98	1.10	0.95	1.24	0.81	1.32	0.98
New Zealand	0.95	16	1.26	0.82	0.90	n/a	0.69	1.10	0.94
Norway	1.02	11	0.90	0.73	0.99	0.83	1.15	1.36	1.19
Portugal	0.86	18	0.57	0.98	1.17	0.57	1.09	0.68	0.98
Spain	0.95	16	0.86	1.19	1.24	0.70	1.10	0.88	0.72
Sweden	0.83	21	0.83	0.76	1.03	1.15	0.87	0.50	0.67
Switzerland	1.20	6	1.72	0.94	1.00	1.16	1.28	0.96	1.32
United Kingdom	1.10	7	1.02	1.10	0.98	1.85	0.87	0.89	0.96
United States	1.26	5	1.48	1.06	0.84	1.24	1.02	1.53	1.62
OECD average	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Small governments ³	1.28		1.38	1.15	1.05	1.06	1.36	1.49	1.49
Medium governments ³	1.00		0.96	1.10	1.02	1.04	0.97	0.93	1.08
Big governments ³	0.92		0.85	0.96	0.96	1.28	0.87	0.88	0.73

Notes

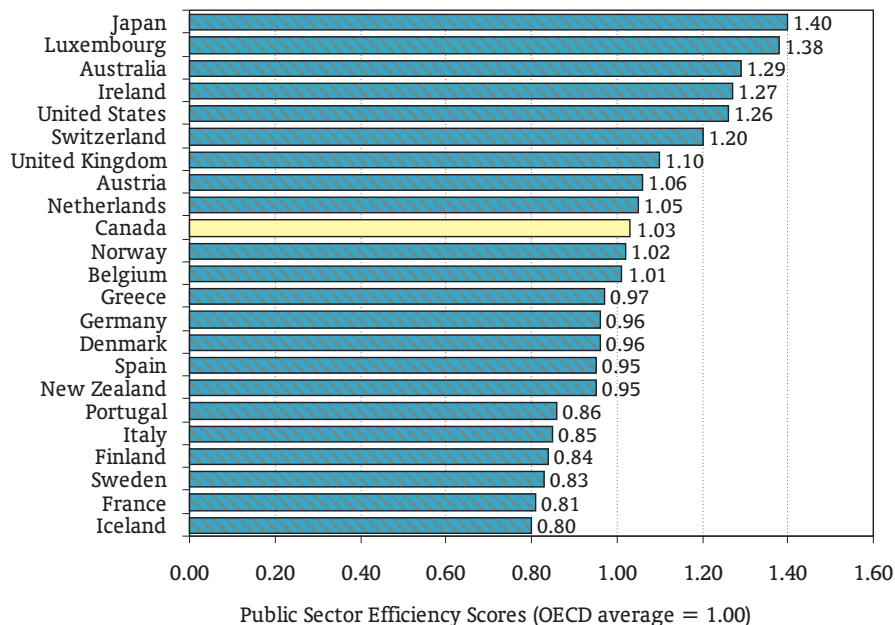
1. These indicators are the expenditure weighted “counterparts” of the indicators of table 1.

2. Each sub-indicator contributes $\frac{1}{4}$ to the Public Sector Efficiency Index.

3. Countries with small governments maintain public spending that is less than 40 percent of GDP in 2000; big-government countries have public spending that is greater than 50 percent of GDP in 2000; countries with medium-sized governments have public spending that is between 40 and 50 percent of GDP.

Source: Afonso, Schuknecht, and Tanzi, 2005; and calculations by authors.

Figure 2: Public Sector Efficiency Index, 2000



Source: Afonso, Schuknecht & Tanzi (2005)

received an average PSP index score of 1.07 compared to 1.01 for countries with big governments, and 0.97 for countries with medium-sized governments. In other words, the public sectors of countries with small governments outperform the public sectors of countries with big governments by 5.9 percent.

Measuring Public Sector Efficiency

This section measures public sector efficiency. Public expenditures—measured as a percentage of GDP—are the cost of achieving the public sector performance estimated above. To measure efficiency, public sector performance (PSP) is compared to the amount of public expenditure used to achieve it.

Total government expenditures as a percentage of GDP, along with specific government expenditures on

goods and services, transfers, education, health, and public investment, are used to calculate the cost of government activities.¹⁰ The 23-country average for all expenditure categories is again set to 1.00 and the values for each country are calculated relative to the average.

The Public Sector Efficiency (PSE) index is calculated by computing ratios of public sector performance scores (table 1) to the amount of public expenditure (government spending as a percentage of GDP) used to achieve the given performance level.¹¹ Table 2 presents the PSE scores for each of the seven performance indicators and the overall PSE index score for 2000. Figure 2 displays the PSE index scores for 2000.

Larger differences in overall efficiency are found across the 23 countries compared to the differences in Public Sector Performance.

Japan (1.40), Luxembourg (1.38), and Australia (1.29) received the highest total PSE scores, indicating a high level of public sector performance relative to the overall level of government spending. For example, the public sector in Japan is 40 percent more efficient at achieving its public sector performance level than the average of the 23 countries. Sweden (0.83), France (0.81) and Iceland (0.80) received the lowest PSE scores.

Canada ranks 10th among the 23 OECD countries with an overall score of 1.03, only slightly better than the OECD average (1.00). In addition, Canada's public sector efficiency (1.03) is substantially below that of the United States (1.26) because it achieves the same overall performance as the United States (table 1), but at a much greater cost (average government spending in Canada was 45.9 percent of GDP compared to 34.5 percent in the United States).¹²

An examination of the efficiency with which Canada achieves the seven performance objectives outlined above reveals that Canada's public sector is less efficient in achieving its economic performance (0.94), health (0.87), and education (0.85) objectives than the 23-country average, and above average on infrastructure (1.35), distribution (1.16), administration (1.04), and stability (1.02).

Grouping the countries according to the size of their governments again reveals some interesting results. Countries with small governments (where public spending is less than 40 percent of GDP) reported an average PSE index score of 1.28 compared to 1.00 for countries with

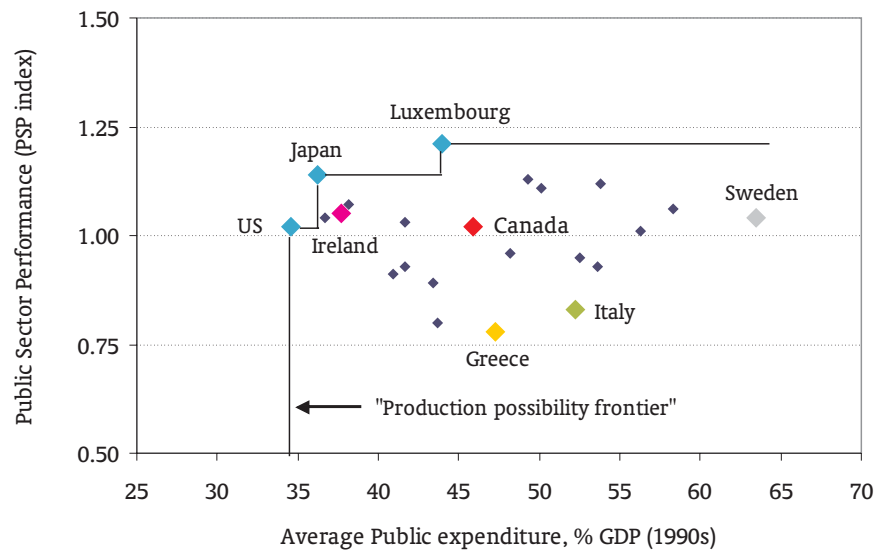
medium-sized governments (where public spending is between 40 and 50 percent of GDP) and 0.92 for countries with big governments (where public spending is greater than 50 percent of GDP). In other words, public sectors in countries with small governments are nearly 40 percent more efficient in achieving their performance levels than public sectors in countries with big governments.

Expenditure Efficiency Analysis

This section measures the input and output efficiency of public sectors across countries to determine the “wastefulness” of public spending. Input efficiency determines how much less a country could spend in order to attain the same outcomes. Conversely, the output efficiency score indicates how much more outcome a country could achieve using the same amount of public expenditure.

The first step of the expenditure efficiency analysis is to plot public sector performance index scores against total public expenditures as a percent of GDP (see figure 3). Next, a “production possibility frontier” is determined which shows the most efficient combinations of public sector performance and expenditures. A production possibility frontier typically shows the maximum output attainable for a given level inputs.¹³ In the case of public sector efficiency, a production possibility frontier shows the maximum public sector performance that can be attained at a given level of public expenditures (as a percent of GDP).¹⁴

Figure 3: Public Expenditure and Public Sector Performance, 2000



Source: Afonso, Schuknecht & Tanzi (2005).

Figure 3 shows that the most efficient countries are the United States, Japan, and Luxembourg. The United States is one of the most efficient countries because no other country achieves its level of public sector performance with less government spending. Put differently, all countries that have lower public sector performance scores than the United States and that spend more as a percent of their GDP are inefficient compared to the US. Japan and Luxembourg are similar. They spend more than the US does, but they achieve comparatively more with that spending, so no country achieves their levels of public sector performance with lower spending. Because these countries have the most efficient combinations of public sector performance and expenditures, they make up the “production possibility frontier.”

The efficiency of the public sectors in the other 20 countries are ranked by comparing each country’s

position relative to the production possibilities frontier. The further removed the countries are from the frontier, the less efficient are their public sectors. For instance, Italy’s public sector is considered extremely inefficient because it achieves a much lower public sector performance score than any country on the production possibilities frontier while spending significantly more as a percentage of GDP than any of these countries.

Figure 3 indicates that most European countries are well inside of the production possibility frontier. They mostly report a much higher ratio of public expenditure to GDP than the United States and often report lower PSP indicators. Similarly, Canada is also well inside the production possibility frontier because of its much higher public-expenditure-to-GDP ratio than the United States while achieving the same level of performance.

Table 3: Efficiency Scores

Country	Input Efficiency		Output Efficiency	
	Score	Rank	Score	Rank
Australia	0.99	4	0.92	7
Austria	0.67	17	0.92	8
Belgium	0.66	19	0.79	18
Canada	0.75	12	0.84	13
Denmark	0.62	21	0.87	11
Finland	0.61	22	0.83	14
France	0.64	20	0.77	20
Germany	0.72	16	0.79	17
Greece	0.73	14	0.65	23
Iceland	0.87	7	0.90	10
Ireland	0.96	5	0.93	6
Italy	0.66	18	0.68	22
Japan	1.00	1	1.00	1
Luxembourg	1.00	1	1.00	1
Netherlands	0.72	15	0.91	9
New Zealand	0.83	9	0.81	15
Norway	0.73	13	0.93	5
Portugal	0.79	11	0.70	21
Spain	0.80	10	0.78	19
Sweden	0.57	23	0.86	12
Switzerland	0.95	6	0.94	4
United Kingdom	0.84	8	0.80	16
United States	1.00	1	1.00	1
Average	0.79		0.85	
Small governments	0.98		0.96	
Medium governments	0.81		0.82	
Big governments	0.65		0.83	

The values in bold signal the countries located on the production possibility frontier.

Note

Countries with small governments have public spending that is less than 40 percent of GDP in 2000; countries with big governments have public spending that is greater than 50 percent of GDP in 2000; medium-sized governments have public spending that is between 40 and 50 percent of GDP.

Source: Afonso, Schuknecht, and Tanzi, 2005.

This framework allows for the calculation of input efficiency scores (how much less a country could spend in order to attain the same outcome level) and output efficiency scores (how much more a country could achieve using the same amount of public expenditure). Input efficiency scores are calculated as a ratio of what a country's public expenditures as a percent of GDP would be if it were on the production possibilities frontier to the country's actual public expenditure as a percent of GDP. Output efficiency scores are calculated as a ratio of a country's PSP index score to what it would be if the country was on the production possibilities frontier. The input and output efficiency scores range from 0 to 1 with the most efficient countries, those on the production possibilities frontier, scoring 1.00.

Table 3 presents the input and output efficiency scores for the 23 OECD countries along with each country's ranking. The input efficiency scores range from a low of 0.57 in Sweden to a high of 0.99 in Australia. Canada receives an input efficiency score of 0.75 meaning that it should be able to attain the same level of output using only 75 percent of the money it is currently spending. In other words, Canada should be able to achieve the same PSP score with public expenditures at 34.4 percent of GDP rather than the average of 45.9 percent of GDP it maintained throughout the 1990s. Canada's input efficiency score implies that there is approximately 25 percent "waste" in the public sector.¹⁵

The output efficiency scores range from a low of 0.65 in Greece to a

high of 0.94 in Switzerland. Canada received an output efficiency score of 0.84, which implies that with given public expenditures, Canada's public sector performance is 84 percent of what it could be if it were on the production possibilities frontier.

Grouping countries according to the size of their governments reveals that those with small governments have much higher input and output efficiency scores than do countries with large or medium-sized governments. Specifically, countries with small governments report an average an input efficiency score of 0.98, indicating there is approximately 2.0 percent waste in their public sectors. Countries with medium-sized governments report an average an input efficiency score of 0.81 (19.0 percent waste in their public sectors) while big government countries report an average an input efficiency score of 0.65 (35.0 percent waste in their public sectors).

Conclusion

The comprehensive index of public sector performance (PSP) provides empirical evidence of moderate differences in public sector performance among 23 industrialized countries in 2000. Canada ranks 12th out of 23 industrialized countries on the PSP index with a score slightly above the 23-country average and equal to that of the United States.

When performance is weighed against the public expenditures used to achieve it, there are important differences across countries. Notably, countries with small governments are significantly more efficient in achieving their public

sector performance levels than countries with medium-sized or big governments. Canada ranks 10th out of 23 industrialized countries on public sector efficiency, 3 percent above the 23-country average, but 18.3 percent below the United States.

Finally, the input and output efficiency of public sectors across countries is used to determine the "wastefulness" of public spending. Canada received an input efficiency score of 0.75, meaning that it should be able to attain the same level of public sector performance using only 75 percent of public expenditure (relative to GDP) that it currently spends.

Notes

- 1 Musgravian indicators take their name from Harvard Professor Richard A. Musgrave who analyzed the role of government by classifying its fiscal activities into three economic functions: allocation, distribution, and stabilization.
- 2 Each area contributes 25 percent to the administrative performance indicator. Note that activities in the last area, the shadow economy (or "black market" as it is sometimes called), are untaxed and unregulated. A large shadow economy in a country may undermine the objective of achieving a level playing field.
- 3 Data for corruption, red tape, and efficient judiciary come from the World Economic Forum's *World Competitiveness Yearbook 2001*. Data on the size of the underground economy is taken from Schneider (2002) and uses a currency demand approach in its computations. See Afonso, Schuknecht, and Tanzi (2005, pp. 345) for a complete table of data sources and notes.
- 4 Secondary school enrolment data is from the World Bank's *World Development Indicators 2001*. Education achievement indicators are from PISA 2000, the OECD's survey of test scores in reading, mathematics and science.
- 5 The education indicator is a mixed indicator in that it measures both opportunity and efficiency. In terms of efficiency, test scores are a proxy for the country's human capital base.
- 6 Health performance indicators are from the *World Development Indicators 2001*.
- 7 The public infrastructure indicator is also a mixed indicator in that it measures both opportunity and efficiency. In terms of efficiency, infrastructure proxies the provision of public goods.
- 8 See note 1.
- 9 Alternative weights schemes were tested, but in most cases they did not change the results much.
- 10 Average spending over the 1990s is used given the expectation that performance lags government spending.
- 11 Several caveats should be stressed in the use of public expenditure to measure performance outcomes. First, the effects of public expenditure on outcomes cannot be easily separated from other influences. Health outcomes may be the result of public expenditure on health as well as factors such as climate and dietary habits. Second, not all expenditure categories are relevant in achieving a certain outcome. For instance, education spending is more relevant in the attainment of educational outcomes compared with expenditure on goods and services. Third, public spending across countries is not always comparable due to differences in the composition of expenditures, tax regimes and costs of providing public sector services.
- 12 See note 10.
- 13 The concept of a "production possibilities frontier" is best described through a simple example:

Robinson Crusoe is alone on an island. Each day Crusoe must decide how to divide his 8 hour “work day.” Suppose he has two options: fishing and gathering bananas. More time spent fishing obviously results in fewer bananas gathered and vice versa. Crusoe’s “production possibilities” is simply a list of all the possible combinations of fish and bananas he can obtain depending on how he divides his work day. His production possibilities frontier is a graph representing all of the combinations of fish and bananas he could obtain working 8 hours a day.

- 14 The term production possibility frontier is somewhat misleading, as the true “frontier” is unknown. The countries on the frontier are efficient by definition, even though they too may have scope for savings.
- 15 Canada has reduced government spending as a percentage of GDP in recent years which may bring some changes to these results. Specifically, in 2005 Canada’s total

government spending was 39.3 percent of GDP.

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Acknowledgements

This Alert is based on a technical, academic paper entitled *Public Sector Efficiency: An international comparison* by Antonio Afonso (European Central Bank), Ludger Schuknecht (European Central Bank) and Vito Tanzi (Inter-American Development Bank). The study was published in the academic journal *Public Choice* in June 2005. We would like to express our thanks to Kumi Harischandra, a research intern at The Fraser Institute, for her assistance.

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Editing, design, and production

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