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Ontario vs. the U.S. "Rust Belt"

COPING WITH A CHANGING ECONOMIC WORLD

Contents

Executive summary

Since the recession, Ontario has recorded large, consistent budget deficits, which have served to enlarge the province's already enormous debt load. According to a prominent narrative at Queen's Park, policymakers are not to blame for this distressing fiscal trend because the province has been struck by economic forces beyond its control. These outside forces include a higher dollar and global restructuring in manufacturing.

This study subjects this narrative to empirical scrutiny by comparing the economic and financial performance of Ontario with other industrial jurisdictions such as Quebec and the US Rust Belt states over the 1999–2013 period. The "Rust Belt" states include Indiana, Michigan, Ohio, Pennsylvania, and Illinois. The selection of this peer group controls for the regional reliance on manufacturing; a number of Rust Belt states had higher concentrations of manufacturing than did Ontario or Quebec.

The main finding is that both Ontario and Quebec had markedly worse financial performances compared to the Rust Belt states even though they enjoyed much stronger economies. For instance, Ontario's real GDP grew at a compound annual rate of 1.9 percent with Quebec close behind at 1.8 percent. In contrast, the fastest growing Rust Belt economy was Indiana's 1.3 percent, while the dismal Michigan economy actually shrank in real terms between 1999 and 2013 (-0.2 percent on average).

Similarly, Ontario outperformed all of the Rust Belt states on private sector employment growth (1999 to 2013). Ontario recorded an annual average rate of 1.2 percent private sector job growth, which was second only to Quebec's 1.4 percent annual average. Among the Rust Belt states, Pennsylvania recorded the highest annual average private sector job growth over this period of 0.6 percent, half the rate of Ontario. Illinois (-0.1 percent), Ohio (-0.2 percent) and Michigan (-0.7 percent) all recorded, on average, contractions in private sector employment over this period.

Despite Ontario's and Quebec's comparative economic strength, both performed quite poorly on measures of government finances. For instance, both Ontario and Quebec have accumulated far more government debt than the Rust Belt states. Specifically, as of 2011/12, Quebec had a net provincial government debt of 49 percent of GDP, a level that was five percentage points

higher than it had been in 1998–99, while Ontario had a net debt of 36 percent, an increase of six percentage points. In total contrast, the Rust Belt states all ended the period with 5 percent or less in net debt as a share of GDP.

Even more disturbing, by 2012/13 the US Rust Belt states had all restored healthy budget surpluses (according to the broad measure used), while Ontario and Quebec continued to run large deficits. Despite enjoying higher population and aggregate economic growth, the provinces are in a much deeper debt hole.

One of the main explanations offered by Queen's Park with respect to the poor economic performance is the appreciation of the Canadian dollar vis-à-vis the USD since the early 2000s. However, in this study we show that the "strong" Canadian dollar of recent years is really just unwinding the weak Canadian dollar of the 1990s. Considering the period 1976 to the present, the CDN/USD exchange rate is currently very near its historical average. In any event, with expected tightening of US Federal Reserve policy in the near future, the "strong" Canadian dollar cannot serve as an excuse for Ontario profligacy going forward.

Simply put, bad policies in Ontario have led to poor financial performance when compared to other industrial jurisdictions, who like Ontario have weathered a global restructuring in manufacturing. The implication is that better policies can improve the finances and overall economic performance of the province. Critically, there seem to be lessons worth at least considering from both Indiana and Michigan in terms of their responses to not only the global recession but also restructuring in manufacturing.

Introduction

There is a prominent narrative at Queen's Park regarding the comparatively poor economic performance of the province over the last decade, and its connection to the large debt that the provincial government has amassed in recent years. According to this narrative, provincial policymakers have been hamstrung by the decline in manufacturing, something that is beyond their control. The Ontario economy is (allegedly) at the mercy of a higher dollar, global restructuring in manufacturing, and higher energy prices. The implication of this narrative is that the government is not to blame for the economic decline, and so therefore is also blameless for the mushrooming debt.

This is a testable hypothesis, however, since a number of nearby US states—the so-called "Rust Belt"—also maintain large manufacturing sectors, and are therefore susceptible to the very same global forces that plague the Ontario economy. This study is dedicated to gauging Ontario's performance vis-à-vis these states and identifying possible lessons from the experiences of these other industrial states for future research.

This paper is organized as follows. Section 1 defines the US Rust Belt state peer group, and shows that manufacturing is even more relevant to these states than to Ontario and Quebec. Section 2 compares the provinces and states according to economic performance, showing that despite their troubles, Ontario and Quebec enjoyed stronger aggregate growth (partially driven by population increases). Section 3 compares government fiscal outcomes; the shocking verdict here is that despite their better (aggregate) economic performance, Ontario and Quebec have run up much larger debts in recent years. We conclude with suggestions for policymakers.

1. Manufacturing in Ontario vs. the US Rust Belt

Before comparing Ontario (and Quebec) with the US Rust Belt states in terms of economic performance and then government fiscal outcomes, we must first explain our peer group and justify its choice. The US *Rust Belt* is a loose term that refers to the region hugging the Great Lakes, running from lower New York through Wisconsin. When defined in terms of states, the Rust Belt includes Pennsylvania, Ohio, Indiana, Michigan, and Illinois.[1]

The term Rust Belt is a cynical adaptation of the older term "Steel Belt," which referred to the US states specializing in industrial manufacturing. The Steel Belt emphasis on manufacturing—in contrast to the "Corn Belt's" focus on farming—was obviously influenced by geographical factors, especially access to the Great Lakes. The term Rust Belt became popular in the 1980s as the once-mighty Steel Belt entered a period of decline.

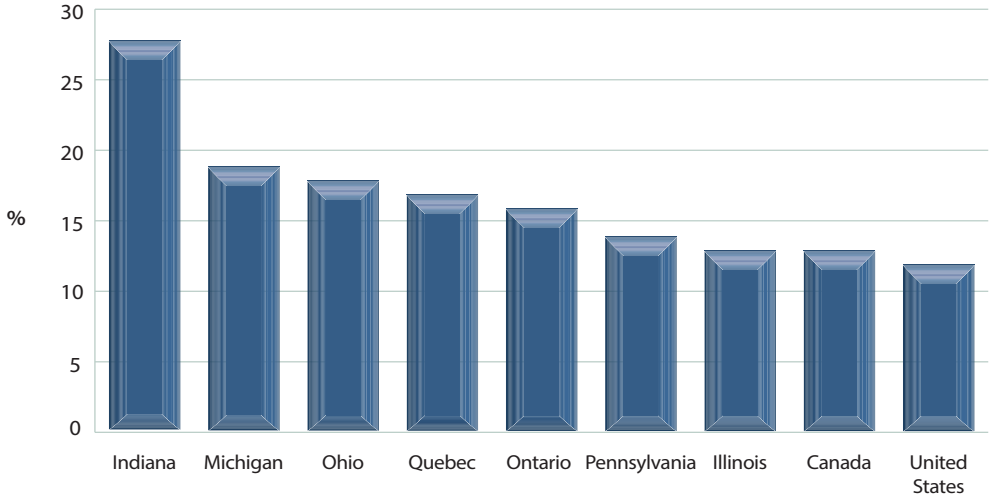
Because Ontario's economic troubles are linked to restructuring in the manufacturing sector, it is instructive to look at the share of provincial and state economies in manufacturing for Ontario, Quebec, and the US Rust Belt. This comparison will justify our choice of the US Rust Belt states as a peer group for Ontario and Quebec when evaluating the manufacturing narrative.

Figure 1 ranks the jurisdictions according to the share of their economies devoted to manufacturing output, over the period 1999–2013. For reference, we have also included the national figures for Canada and the United States. Figure 1 indicates that all of our jurisdictions had a larger manufacturing sector than the Canadian and US averages, so that the popular narrative is correct when it says that Ontario is particularly sensitive to global shifts in manufacturing. However, it also reveals that Indiana, Michigan, and Ohio all maintained larger manufacturing sectors (as a share of their total economy) compared to Ontario. Indeed, Indiana's average manufacturing sector as a share of the state economy (27.8 percent) was almost double that of Ontario (16.4 percent).

1. There are cities commonly thought of as Rust Belt cities, though their states are not typically included in the region. For example, Buffalo is considered part of the Rust Belt, but New York State is not.

Figure 1

Average annual manufacturing output as share of GDP, 1999–2013



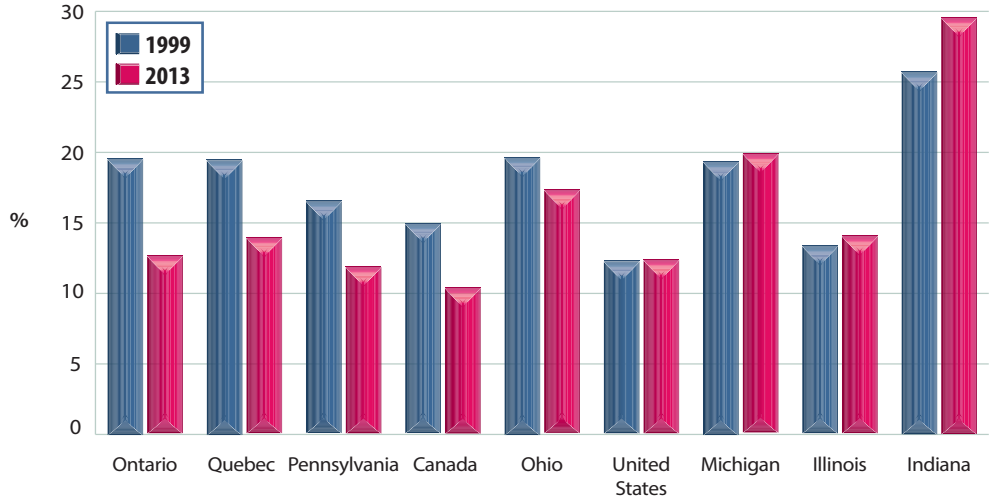
Sources: Statistics Canada, 2014a, 2015a; Bureau of Economic Analysis, 2014a.

Clearly, if the economic woes and corresponding budget deficits of Ontario are to be laid at the feet of an externally-driven decline in manufacturing, then these forces apply even more strongly to much of the US Rust Belt.

Although Ontario and Quebec did not have the highest proportion of manufacturing in their economies during the period under review, they *did* experience the sharpest *decline* in manufacturing. **Figure 2** illustrates this trend, by comparing the share of manufacturing of total GDP in 1999 and then 2013. The jurisdictions are ranked in the figure according to the drop in percentage points.

Figure 2

Manufacturing output as share of GDP, 1999 & 2013



Sources: Statistics Canada, 2014a, 2015a; Bureau of Economic Analysis, 2014a.

Ontario and Quebec had the sharpest falls. Specifically, the proportion of Ontario's economy devoted to manufacturing went from 19.9 percent of GDP in 1999 to 12.8 percent of GDP in 2013—a cumulative drop of 7.1 percentage points over the fourteen-year period. Quebec's fall from 19.8 percent to 14.1 percent was not quite as large, but still significant.

Interestingly, among the Rust Belt states only two—Pennsylvania and Ohio—saw a drop, while the other jurisdictions actually saw an *increase* in the share of manufacturing in their economies. Indiana was the undisputed leader in this respect: It started out in 1999 with the highest share of manufacturing output (26.1 percent of GDP), and then experienced the largest percentage-point increase (3.9 points), to end up in 2013 with fully 30 percent of its economy consisting of manufacturing. This makes it clear that the loss of manufacturing output in our chosen jurisdictions is certainly not a foregone conclusion, if even the share of total output devoted to manufacturing can rise in a Rust Belt state.

We have also included Canada and the United States at the national levels. Manufacturing in Canada dropped from 15.1 percent of GDP to 10.5 percent during the period, while in the United States the share of manufacturing output slightly rose from 12.4 percent of GDP to 12.5 percent. (Also note the interesting result that Pennsylvania, although it started out in 1999 well above the US average, had fallen below it by 2013.)

Figure 2 underscores the fact that the explanation of the decline of manufacturing in Ontario and Quebec must be nuanced. It is not enough to claim global restructuring or other macro factors, when nearby US Rust Belt states—several of which started the period with a higher reliance on manufacturing—saw a much smaller decline or even (in the case of Indiana) saw an *increase* in their economy's share of manufacturing.[2]

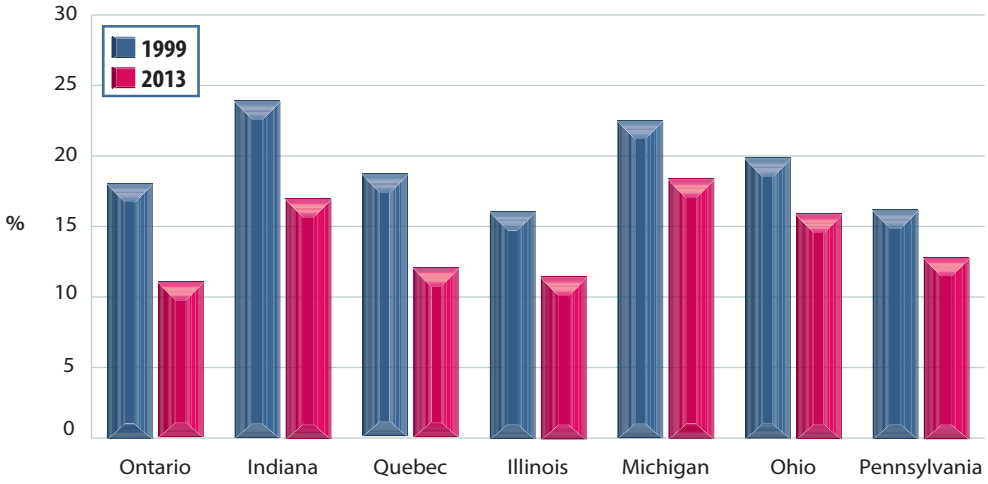
Figure 3 shows manufacturing *employment* as a share of total employment in the select jurisdictions, both in 1999 and 2013, ranked in order of the biggest percentage-point reductions. As figure 3 indicates, *all* of the jurisdictions saw a decline in the proportion of their workforce devoted to manufacturing.[3] Ontario saw the largest drop, going from 18.4 percent in 1999 to 11.2 percent by 2013. Indiana had the second-highest decline, dropping seven percentage points from 24.3 percent to 17.3 percent. It is worth remembering that Ontario experienced the largest drop in manufacturing *output* to go along with this decline in manufacturing employment, while Indiana saw the biggest increase in manufacturing output of all the jurisdictions—even though it had the second-highest decline in the proportion of its manufacturing workforce. Throughout this study, we will stress this distinction between output

2. We address the possible influence of foreign exchange rates later in this section.

3. Later in this section (figure 9) we chart the decline in absolute levels of manufacturing employment experienced in all jurisdictions.

Figure 3

Manufacturing employment as a share of total employment, 1999 & 2013



Sources: Statistics Canada, 2015b; Bureau of Labor Statistics, various years.

Note: Indiana's 1999 and 2000 values were interpolated.

and employment—the different jurisdictions saw quite different changes in productivity and hence some of the trends moved in opposite directions.

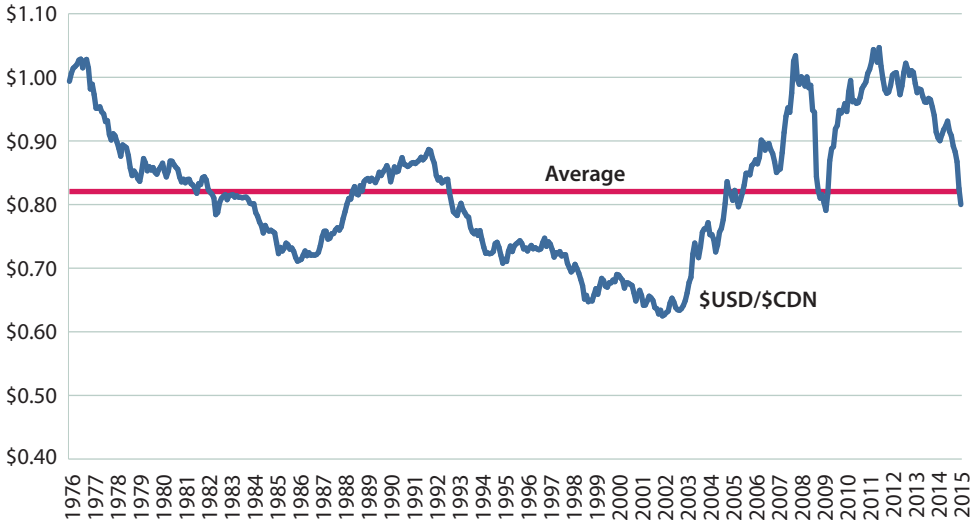
As we have seen, Ontario and Quebec experienced larger declines in manufacturing than their Rust Belt peers. One factor that *could* explain this difference is the relative appreciation of the Canadian dollar during the last decade and a half. Indeed, in the popular narrative many Canadians embrace a "zero sum game" mentality, in which the strength of energy provinces must come at the expense of manufacturing provinces, and vice versa. As a recent *Globe and Mail* article explained:

> Kathleen Wynne…recently expressed optimism that plummeting oil prices and a sinking dollar will prove a boon to manufacturing. "I don't wish for low oil prices and a low dollar for Alberta," she said earlier this month. "But at the same time, we want our manufacturing sector to rebound. So if that [low oil price] helps, then that's a good thing." (Radwanski, 2015)

There is an element of truth in the popular narrative concerning the decline of Ontario's manufacturing and the strength of the Canadian dollar. However, rather than viewing the movement over the past decade as an anomaly, it would be more accurate to describe it as a return to normal. Rather than interpreting the decline in manufacturing during the 2000s as an artificial decline, we will argue that the prior *expansion* of manufacturing in Ontario during the 1990s was itself, in hindsight, unsustainable. In other words, the popular angst against the "strong Canadian dollar" of the 2000s is arguably misplaced, because one could plausibly describe the 1990s as a period of a "weak Canadian dollar."

Figure 4

US/Canadian dollar nominal exchange rate, 1976–2015, monthly



Source: Statistics Canada, 2015c.

Figure 4 shows the long-term nominal exchange rate between the Canadian and US dollars. As of February 2015, the nominal exchange rate—at $0.80 US to the Canadian dollar—is almost precisely at its average value over the period of 1976 to the present.[4] It is true that the Canadian dollar strengthened sharply against the USD from 2002 to 2007, but that must be seen in the context of the sharp *fall* in the Canadian dollar during the 1990s.[5]

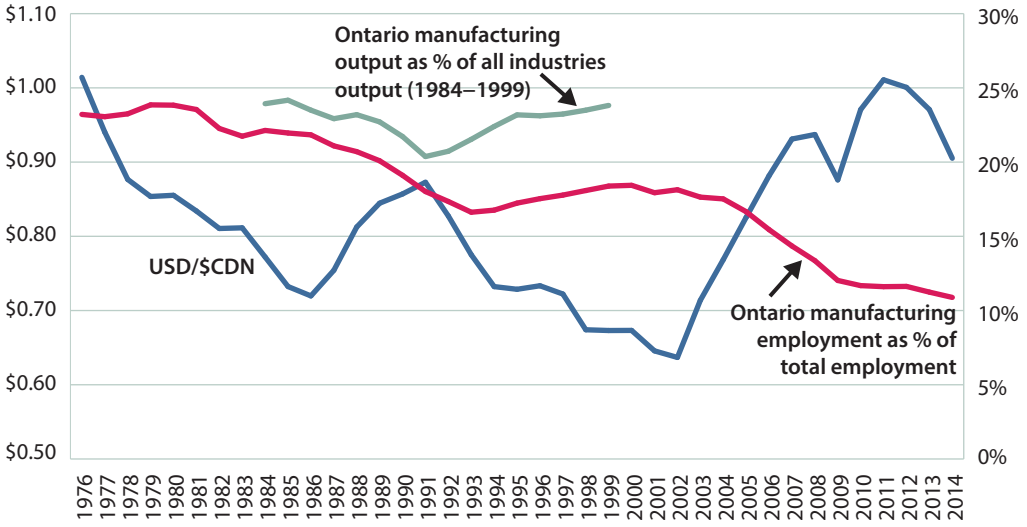
Another complication in the story of what happened in Ontario is the distinction between manufacturing employment versus manufacturing *output*. We tease out the difference in **figure 5**, which plots the long-term movement in the USD/CDN exchange rate against Ontario manufacturing employment and manufacturing output (expressed as percentages of their respective totals). Notice that Ontario manufacturing output during the period of consistent data availability (from 1984 through 1999) responded symmetrically to the movements in the foreign exchange rate. That is, when the Canadian dollar strengthened from 1986 through 1991, Ontario manufacturing output fell from about 24 percent down to about 20 percent of all-industries output. Then when the Canadian dollar weakened from 1991 through 1999, manufacturing output regained all of its lost ground as a share of total output.

4. The graph is almost identical if we use the real exchange rate, in other words adjusting for the consumer price levels in Canada and the United States.

5. Naturally, the movement in exchange rates also sheds light on the national averages in figure 2, which showed that Canada as a whole saw its share of manufacturing decline from 15.1 percent to 10.5 percent of GDP during the period 1999–2013, while manufacturing in the US was roughly constant at about 12.5 percent.

Figure 5

Ontario manufacturing employment and output vs. USD Exchange Rate, 1976–2014



Sources: Statistics Canada 2015c, 2015d, 2015e.

However, the pattern with Ontario manufacturing *employment* was different. As figure 5 indicates, there was a general downward trend throughout the period. When the Canadian currency weakened, the share of manufacturing employment did rise very gently from 1993 through 2000, but that was not enough to offset the preceding fall. This means that the decline in Ontario manufacturing employment in more recent times is not solely due to the stronger Canadian dollar; it reflects a longer term trend that was occurring in addition to movements in the currency.

Once again, the explanation for the different trends in manufacturing output versus employment involves productivity, which is the capacity of workers to create output for a given amount of labour input. Figure 5 reminds us that the history of Ontario's manufacturing sector is quite complex; even such an obvious factor as the large movements in the USD exchange rate do not convey the whole story.

More generally, our review of the longer-term history shows that the recent appreciation of the Canadian dollar is arguably the reversal of a preceding period of depreciation. As former Chief of Economic Analysis at Statistics Canada, Philip Cross, has argued:

> The myth that a low exchange rate encourages economic growth took hold in Canada in the aftermath of the 1990-1991 recession. Over the rest of that decade, Canada's manufacturing growth was led by low-wage industries such as clothing, textiles, and furniture, where employment rose 29.7% from 1992 to 2000. The flimsy basis for this allocation of resources was fully revealed after 2002, when a rising dollar and

> China's entry into the WTO [World Trade Organization] devastated output and employment in these industries. In retrospect, one can only look back with wonder and astonishment that governments and firms in Canada thought our future lay in investing in low-wage industries predicated on a chronically low exchange rate.
> (Cross, 2014: 4)

Cross also pointed out that narrowly focusing on boosting manufacturing exports through depreciation is hardly ideal policy, because there are benefits and costs to a lower currency. Most obviously, a weaker currency makes imports more expensive for Canadians.

In summary, the currency pressure on Canadian manufacturers in the 2000s was (at least partially) the reversal of a prior decade of artificial stimulus from a weak Canadian dollar. Especially in light of the expected (as of this writing) imminent tightening of US Federal Reserve monetary policy, Ontario policymakers can no longer excuse their fiscal problems by blaming the "strong" Canadian dollar. Although the adjustment pains were undoubtedly real for the affected firms and workers, going forward the currency is (as of this writing) not unusually strong from a long-term perspective.

Now that we have provided the historical context of Ontario's manufacturing sector, we focus on more recent history in a comparison with the US Rust Belt states across various manufacturing indicators.

Ontario and Quebec manufacturing versus US Rust Belt states

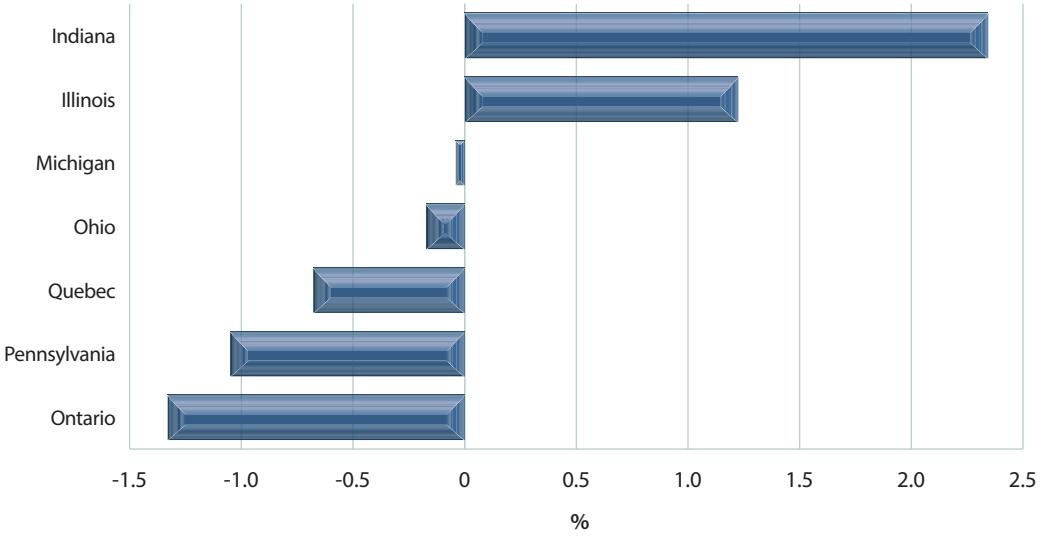
Consider **figure 6**, which shows the average annual growth in real manufacturing output over the period 1999–2013. Indiana was the clear leader in growth of manufacturing output, with annual growth of 2.3 percent. Illinois also saw solid growth of 1.2 percent annually. However, the rest of the jurisdictions saw a decline over the period. Ontario saw the most rapid drop, losing real manufacturing output at an average rate of 1.3 percent every year.

The disparity in manufacturing is even more apparent when we take population growth into account. Because the Canadian provinces experienced much higher population growth than their US Rust Belt peers, figure 6 by itself actually understates the relative decline of manufacturing in the provinces.

Figure 7 illustrates the cumulative and average annual changes in population between 1999 and 2013 for our jurisdictions, as well as the countries as a whole. (**Table 1** shows the same data.) Six of the seven sub-national regions experienced positive growth, with Ontario the clear leader at a cumulative 17.8 percent, followed by Quebec at 11.3 percent. However, Indiana experienced a fairly robust growth of 8.7 percent during this period. Again,

Figure 6

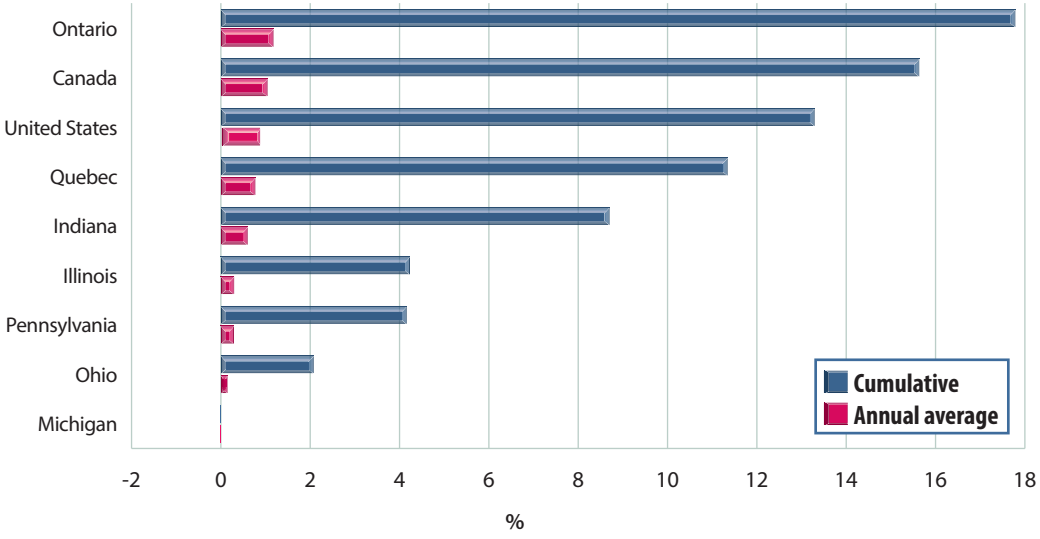
Compound average annual real manufacturing output growth (%), 1999–2013



Sources: Statistics Canada, 2014a; Bureau of Economic Analysis, 2014a.

Figure 7

Cumulative and compound annual average percentage growth in population, 1999–2013



Sources: Statistics Canada, 2015f; Bureau of Economic Analysis, 2015a.

Table 1

Cumulative and compound annual average percentage growth in population, 1999–2013

	Cumulative	Annual average
Ontario	17.8%	1.2%
Canada	15.6%	1.0%
United States	13.3%	0.9%
Quebec	11.3%	0.8%
Indiana	8.7%	0.6%
Illinois	4.2%	0.3%
Pennsylvania	4.2%	0.3%
Ohio	2.1%	0.1%
Michigan	0.0%	0.0%

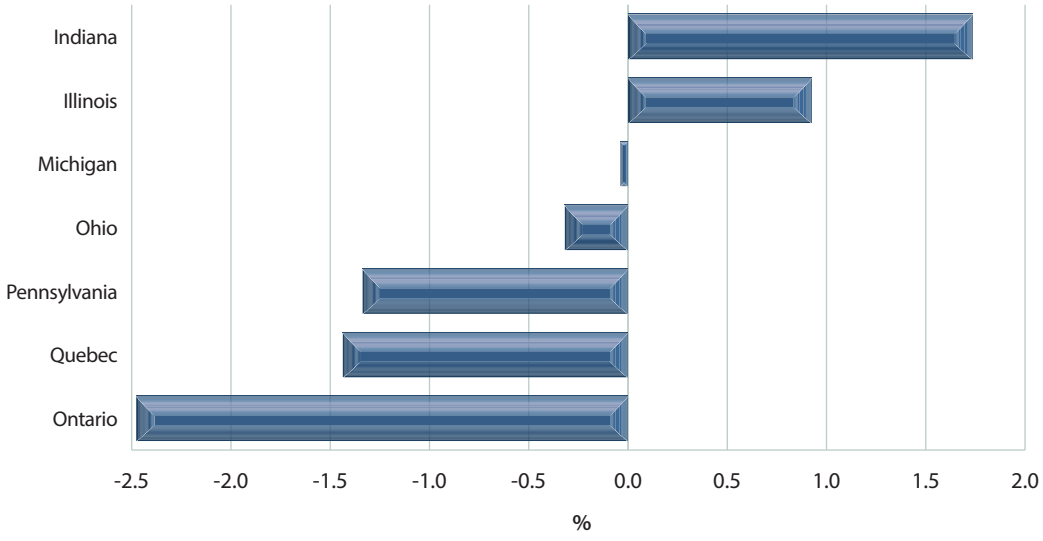
Sources: Statistics Canada, 2015f; Bureau of Economic Analysis, 2015a.

Michigan was dead last in our peer group, actually experiencing a slight *drop* in population (of 0.02 percent, which rounds to 0 percent in our chart) over the entire period. Note also that Ontario and Quebec straddled the Canadian average, while the Rust Belt states were all behind the US average, with all but Indiana being *far* behind.

Now that we have described the different growth rates of population in the provinces and Rust Belt states, **figure 8** shows the average annual growth in *per-capita* real manufacturing output.

Figure 8

Compound average annual per-capita real manufacturing output growth, 1999–2013



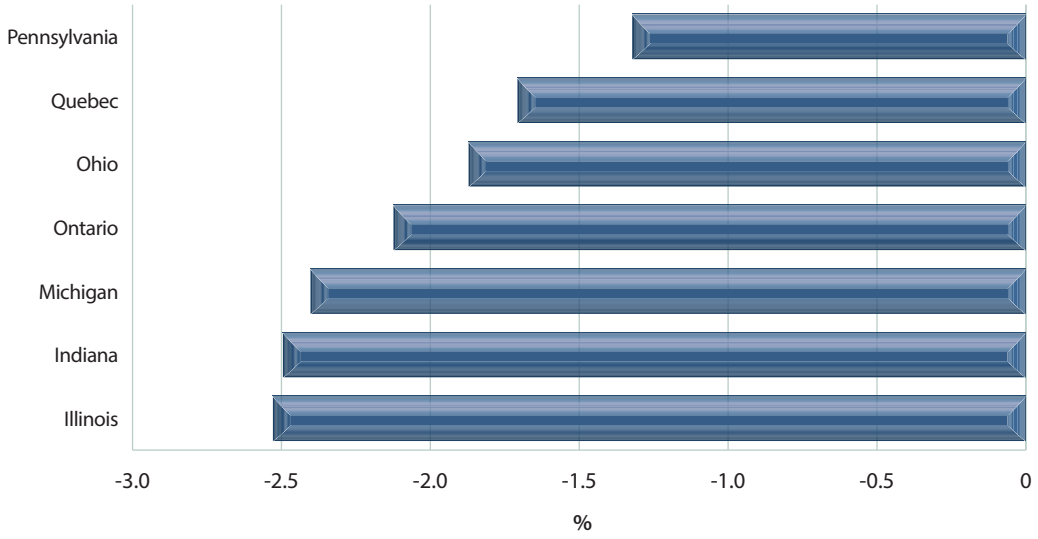
Sources: Statistics Canada, 2014a, 2015f; Bureau of Economic Analysis, 2014a, 2015a.

In figure 8, the ranking is largely the same as in figure 6: Indiana and Illinois experienced strong growth, while the rest of the jurisdictions shrank, and Ontario was in last place by some distance, with an annual loss of per capita manufacturing output of 2.5 percent. However, the inclusion of population has made Quebec fall into second-last place, swapping places with Pennsylvania. This occurs because (we recall from figure 7) Quebec's population grew 11 percent over this period, while Pennsylvania's grew only 4 percent. Thus the absolute decline in manufacturing output represents a bigger *per-capita* drop in Quebec.

Finally, **figure 9** shows the average compound growth in manufacturing employment from 1999 through 2013. *All* of the jurisdictions saw a drop in the total employment in manufacturing during the 1999–2013 period, with Illinois and Indiana experiencing the sharpest declines, while Pennsylvania's reduction was the most modest. In light of figure 9, it is interesting to recall from figure 6 that Indiana and Illinois nonetheless saw strong growth in manufacturing *output* during this same period (while the other jurisdictions saw a decline). The fact that Illinois and Indiana were also the two jurisdictions with the sharpest decline in the number of workers devoted to manufacturing again underscores the different trends in *productivity* within our peer group. To the extent that policymakers can create conditions favorable to productivity growth, a decline in manufacturing employment need not coincide with a decline in manufacturing output.

Figure 9

Compound average annual rate of manufacturing employment growth, 1999–2013



Sources: Statistics Canada, 2015e; Bureau of Labor Statistics, various years.

Note: Indiana's 1999 and 2000 values were interpolated.

Conclusions—manufacturing

Since the turn of the millennium, Ontario and Quebec have experienced significant declines in their manufacturing sectors, suffering larger falls (as shares of their economies) than any of the Rust Belt states. However, this difference in impact is not due to the initial size of the provincial manufacturing sectors, as several Rust Belt states—namely Indiana, Michigan, and Ohio—had larger manufacturing sectors during the period in question. Furthermore, Indiana not only had the largest such sector in our peer group, but it also enjoyed a significant *increase* in its manufacturing sector (as a share of its economy) during the period.

It is also important to note that Indiana and Illinois were the only members of our peer group to experience increases in real manufacturing output (measured in inflation-adjusted dollars) during the period. This occurred even though Illinois and Indiana also experienced the largest percentage decline in total manufacturing employment. This distinction between output and employment involves *productivity*, a concept to which we will return in the next section.

When comparing the aggregate performance of Ontario and Quebec with the Rust Belt states, we must consider the growth in population, as the provinces grew more rapidly than their US peers. When we adjust for population growth, we see that US Rust Belt states have vastly outperformed the provinces on the measure of per-capita real manufacturing growth during the period 1999–2013.

It is true that some of the disparity in manufacturing outcomes between the provinces and US Rust Belt states can be attributed to the rapid appreciation of the Canadian dollar against the USD from 2002 through 2007. However, looking at the entire period from 1976 through the present, the USD/CDN exchange rate is currently near its historical average. In other words, rather than viewing the last decade as one of a "strong Canadian dollar," it is arguably the return to normalcy following the 1990s period of an abnormally "weak Canadian dollar." The expansion of Ontario manufacturing during the 1990s can be understood as unsustainable, relying on a historically weak currency. In any event, Ontario manufacturing *employment* as a share of total employment has experienced a long-term downward trend, with only a mild uptick during the 1990s period of a weak dollar. There is clearly more to the story of Ontario's manufacturing decline than merely a strengthening currency since the early 2000s.

2. Overall economic performance comparison

In this section, we compare the jurisdictions across a number of standard economic indicators, including real GDP growth, unemployment, and per-capita income. All figures are quoted in Canadian dollars, with US figures being converted using the implied PPP conversion rate from the International Monetary Fund's World Economic Outlook Database (2013) for the relevant year.

The period for our comparisons typically will start at either 1999 or 2000 (depending on data availability) and run through 2013. This gives a broad time frame that will not be distorted by focusing on any particular business cycle, yet at the same time is relevant to the current policy debate because it looks at recent trends that are still influencing the economies in our chosen jurisdictions.

As we will see, there was a wide range of performance in the economic indicators among our chosen jurisdictions. This disparity in results indicates that the challenges facing any particular jurisdiction *cannot* merely be attributed to "outsourcing of manufacturing to China" or other simplistic summaries, because we have assembled our set of jurisdictions based on this common struggle. After documenting the economic performance in this section, we follow with a summary of various government fiscal policy indicators in Section 3. Taken together, we will then have the evidence for policy prescriptions in the Conclusion.[6]

Before proceeding to the empirical measures, we should issue a note of caution: There are many significant differences among each of the

6. Measuring economic and fiscal performance is a complex and subtle process, and different economists—guided by different theories—might produce different results. Previous Fraser Institute publications in this arena include Lammam, Palacios, Karabegović, and Veldhuis (2010)—which ranks provincial fiscal performance via a ranking of Canada's premiers that involves constructing an index based on performance in restraint of government spending, lower taxes, and lower debts and deficits—and Emes (2001), which presents a fiscal performance index of the Canadian provinces and US states with 15 variables reflecting changes in spending, government revenues, and tax structure.

jurisdictions; our analysis will only be able to consider some of the relevant factors. For example, we have already shown that Ontario and Quebec enjoyed substantial population growth compared to their US counterparts, much of which is (presumably) due to exogenous factors rather than regional government policies. For another example of a specific economic problem affecting some jurisdictions more than others, Illinois and Pennsylvania are major coal producers—ranked #4 and #5 respectively among US states as of 2013[7]—which made them vulnerable to the "fracking" boom of the last several years and the corresponding switch to natural gas for electricity generation. In addition, Toronto and Chicago are the #11 and #12 top financial centres of the world, according to a September 2014 ranking.[8] Thus we would expect our jurisdictions of Ontario and Illinois to perform relatively poorly in the wake of the 2008 financial crisis, regardless of the merits of their regional governmental policies. For a final example, the degree of federalism in Canada differs significantly from the United States, with provincial governments handling functions (such as education and health care) that are more heavily weighted at the federal level in the US. Raw government policy comparisons such as "spending as a percentage of GDP" between Canadian provinces and US states can be misleading if this context is ignored.[9]

We bring up these nuances to alert the reader that the comparisons in this study will necessarily focus on only a few key indicators; we cannot hope to include every possible factor leading to the different economic and fiscal outcomes examined.

GDP and income

This first set of measures focuses on changes in income as measured by Gross Domestic Product (GDP). GDP is a broad measure of income that includes the total value of all goods and services produced in a specific jurisdiction.

Figure 10 illustrates the average growth in real GDP between 1999 and 2013.[10] The Canadian provinces clearly lead the pack, with Ontario enjoying 1.9 percent annualized growth in real GDP and Quebec just behind at 1.8 percent.

7. For a ranking of US states by coal production, see <http://www.nma.org/pdf/c_production_state_rank.pdf>.

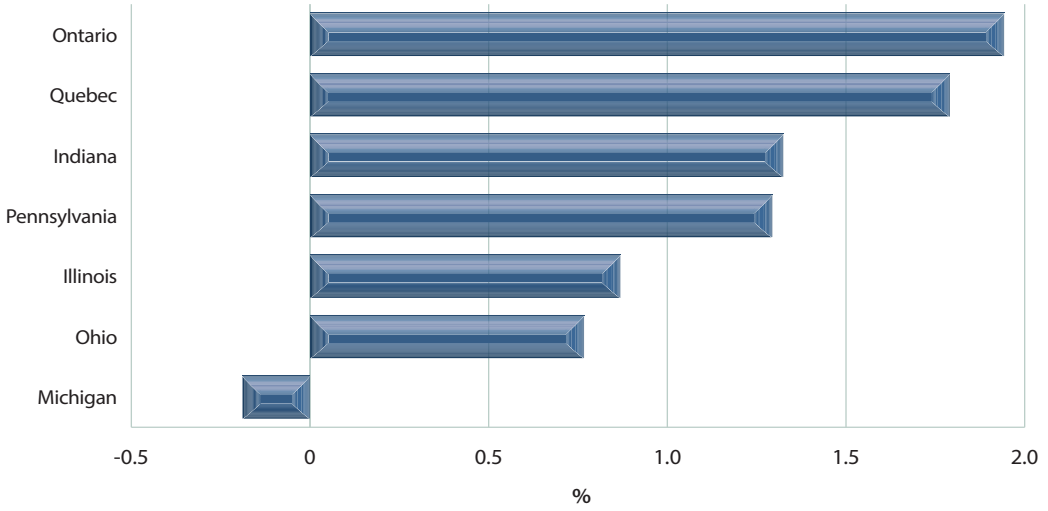
8. For a ranking of cities as financial centres, see <http://www.longfinance.net/images/GFCI16_22September2014.pdf>.

9. For a broader discussion of the differences in fiscal policy between Canadian provinces and US states, see Murphy, Clemens, and Veldhuis (2013).

10. Note that in this study, growth rates are expressed as compound average annual rates, not as the simple arithmetic mean of annual growth rates. (For the relatively low rates and number of years involved, the two approaches do not differ significantly.)

Figure 10

Compound average annual real GDP growth (%), 1999–2013



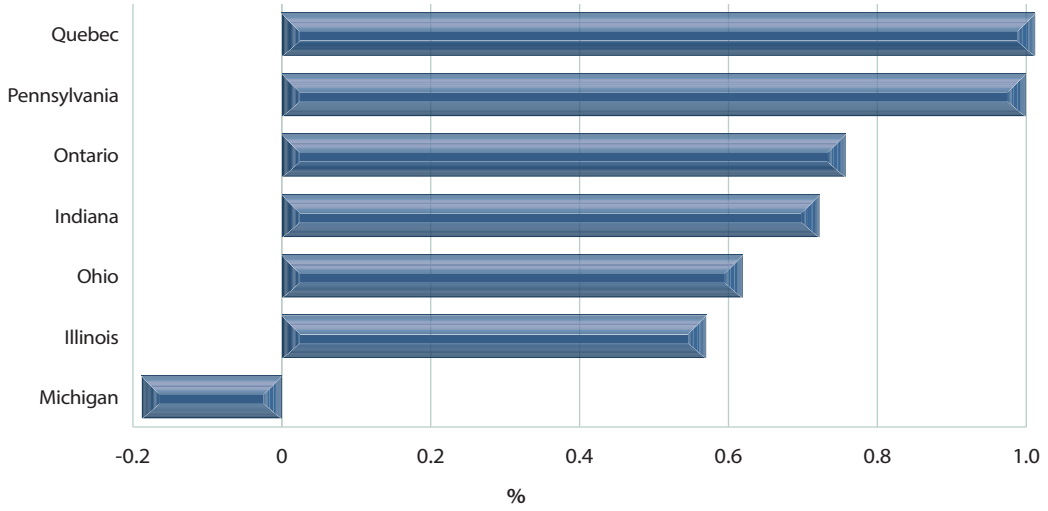
Sources: Statistics Canada, 2014b; Bureau of Economic Analysis, 2014a.

In sharp contrast, the US Rust Belt states performed much more poorly, led by Indiana and Pennsylvania at 1.3 percent each, with wayward Michigan's economy actually *shrinking* at an average rate of 0.2 percent per year.

However, we have already seen (in figure 7) that Ontario and Quebec enjoyed greater population growth during the period, and hence the total GDP growth figures can be misleading. **Figure 11** takes population into account by depicting the rankings for our seven jurisdictions in terms of the average annual rate of growth in real per capita GDP over the 1999 to 2013 period.

Figure 11

Compound average annual per-capita real GDP growth, 1999–2013



Sources: Statistics Canada, 2014b, 2015f; Bureau of Economic Analysis, 2014a, 2015a.

A comparison of figures 10 and 11 indicates the importance of population growth in our rankings. In figure 11, we see that Quebec is now the leader, with annualized growth in real per-capita GDP of 1.0 percent, with Pennsylvania immediately on its heels. Ontario, which (recall from figure 10) was the clear leader in *total* GDP growth over this period, in this ranking has fallen to third place, with 0.8 percent annual real per-capita GDP growth, which is not much higher than Indiana's 0.7 percent growth. Once again, Michigan is clearly the worst performer, registering an abysmal 0.2 percent annual *reduction* in real per-capita GDP.

To be clear, there is no obviously preferable indicator of economic performance; both figures 10 and 11 are valuable to obtain a comprehensive picture of our jurisdictions.[11] For example, whether we should credit Ontario or Quebec as the fastest growing economies—with Ontario the winner when gauging total GDP growth, and Quebec the leader when using per capita GDP growth—largely depends on how much we attribute the larger population growth in Ontario to its economic opportunities, as opposed to exogenous factors having little to do with the respective government policies in the two regions.

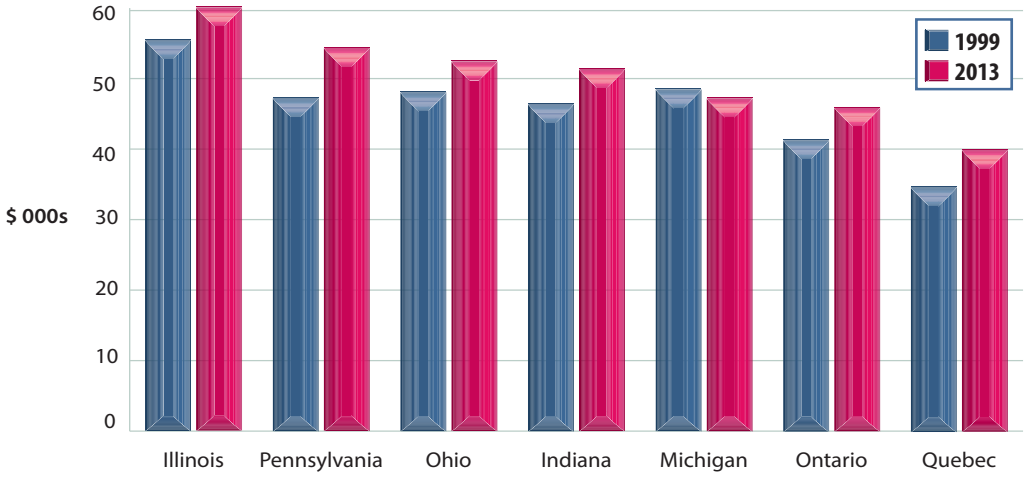
There is yet another factor to consider when evaluating GDP among different regions. Ultimately people enjoy the *level* of real income, not its *growth*. Indeed, other things equal, we would expect a poorer jurisdiction—in other words, one with a lower initial level of real GDP, either total or per capita—to experience faster growth, merely because a given dollar increment in output represents a larger percentage when starting with a smaller base. For example, in an international context, it is not surprising that the forces of globalization have produced very fast-growing economies in India and China; few analysts expect their GDPs to grow at the same *rate* if and when their per-capita *levels* surpass those in advanced Western nations.

In light of these considerations, in **figure 12** we compare the level of per-capital real GDP in our jurisdictions, for the years 1999 and 2013. (The jurisdictions are arranged from left to right in descending dollar terms for the year 2013.) We also present the same data in **table 2**.

11. In the technical economics literature, there is a distinction between extensive and intensive economic growth. Extensive growth occurs when an expansion of inputs leads to an expansion of output. Intensive growth, on the other hand, refers to extracting a greater amount of output from a given (fixed) amount of input, through increased technical efficiency. For a discussion of extensive versus intensive growth, see Irmen (2005).

Figure 12

Real per-capita GDP, 1999 & 2013 (CDN PPP$)



Sources: Statistics Canada, 2014b, 2015f; Bureau of Economic Analysis, 2014a, 2014b, 2015b; International Monetary Fund, 2013.

Table 2

Real per-capita GDP, 1999 & 2013 (CDN PPP$)

	1999	2013
Illinois	$56,312	$60,977
Pennsylvania	$48,034	$55,208
Ohio	$48,853	$53,262
Indiana	$47,168	$52,168
Michigan	$49,263	$47,979
Ontario	$41,988	$46,666
Quebec	$35,281	$40,622

Sources: See figure 12.

As figure 12 indicates, as of 2013 the highest income jurisdiction—measured in terms of annual real output per inhabitant—was Illinois, followed in gradually declining amounts by the rest of the Rust Belt states. The two lowest income jurisdictions were the Canadian provinces, with Quebec's per-capita real GDP being some 13 percent lower than Ontario's. (Not only was Quebec the poorest performer in this category, but the gap between it and the next-highest jurisdiction was also the largest in the entire group.)

Figure 12 places the large growth in Ontario GDP—shown back in figure 10—in a less flattering light. Even though Ontario enjoyed the fastest GDP growth during the period, it ended up still behind *all* of the Rust Belt states when considering the level of per-capita output. Indeed, in 2013 Illinois had per-capita output that was some $14,000 (or 31 percent) higher than Ontario's.

Labour market performance

In this section we focus on the labour markets of the chosen jurisdictions, using two main criteria: job creation and (un)employment rates. Here too we will see that no one indicator captures the full story, because of (potential) feedbacks. For example, we will see that some of the jurisdictions saw much larger rates of annual job creation, and that this ranking almost perfectly corresponds to the ranking in terms of total population growth. From these two rankings, it is not clear which way the causality flows: Did some jurisdictions experience high job creation because of an exogenous influx of new workers, or did new workers flock to those regions that had flexible labour markets and could thus easily expand their total employment?

For another example of the problems of (potential) feedbacks, consider the traditional unemployment statistics. With this metric, someone is counted as "unemployed" only if he or she is actively seeking work and yet has not accepted a job. The shortcomings with this metric cut on both sides: On the one hand, the traditional unemployment rate can *understate* the problems in the labour market to the extent that some discouraged job-seekers give up completely. On the other hand, the traditional unemployment rate can overstate the plight of job seekers to the extent that unusually generous government benefits artificially prolong unemployment spells.[12]

As this brief discussion underscores, no one measure can adequately convey the full condition of a jurisdiction's labour market. Consequently, in this section we present several different measures, the entire collection of which should give a fairly comprehensive picture.

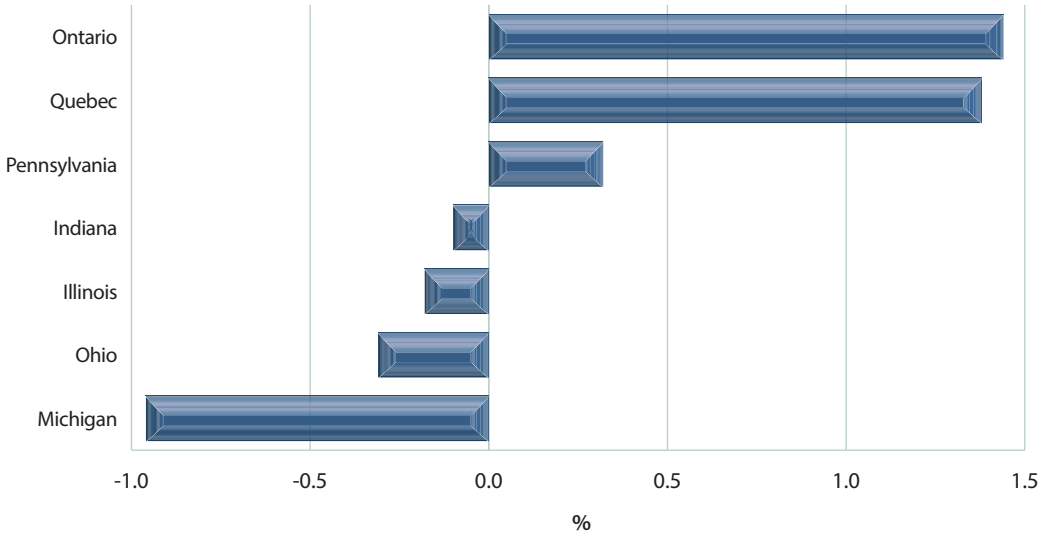
Figure 13a shows the annual growth rates in total employment among our various jurisdictions. It confirms what we would have expected to see: Total employment growth was highest in Ontario and Quebec (each growing at 1.4 percent annually), while it was negative in Michigan—falling at a rate of almost 1 percent per year.

It is interesting to compare figure 13a with figure 7, which showed the cumulative percentage growth in population in the various jurisdictions during the period under review. First, note that the rank order of the two figures is largely the same, except for Pennsylvania: It effectively "moved up two slots," posting the third-highest rate of job creation even though it only had the fifth-highest rate of total population growth.

Beyond that, however, note that *all* of the regions except Michigan saw growth in total population over the period, and yet only the Canadian

12. Several researchers have explained how extension of the United States' federal unemployment insurance to 99 weeks influenced labour market participation. These national policies have, to varying extents, influenced the labour market performance of the subsidiary states. See for example Mulligan (2012).

Figure 13a
Compound average annual rate of total employment growth, 1999–2013



Sources: Statistics Canada, 2014c; Bureau of Labor Statistics, various years.

Note: Indiana's 1999 and 2000 values were interpolated.

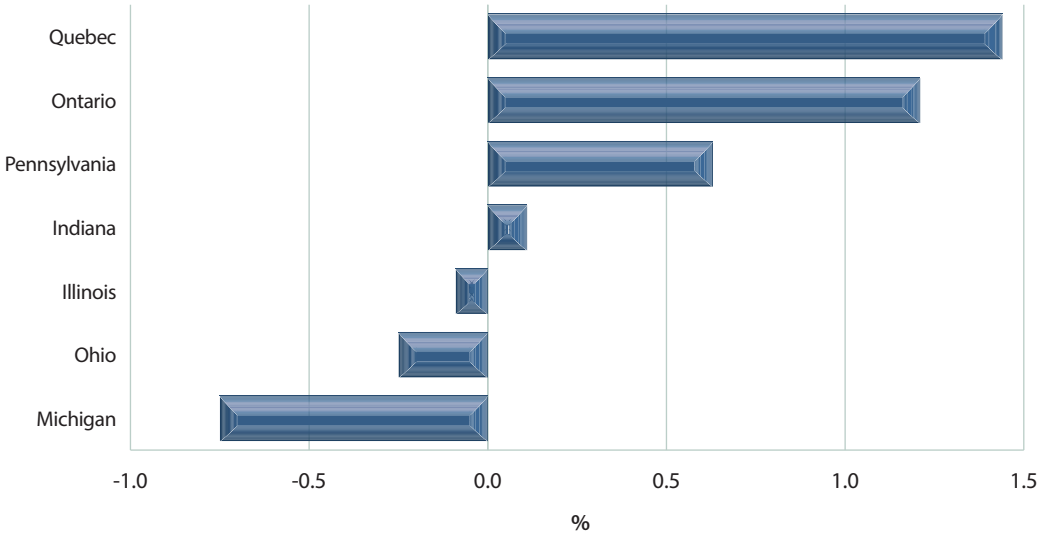
provinces and Pennsylvania saw positive job creation. Of the other four Rust Belt states, three of them saw an increase in population coupled with a decline in total employment, while the worst performer (Michigan) had a slight decrease in population coupled with a larger drop in total employment. With the notable exception of Pennsylvania, then, it is clear that something was amiss in the labour markets of the US Rust Belt states during the 1999–2013 period.

In **figure 13b** we extend our analysis by focusing on *private-sector* job creation. There are no major surprises; Ontario and Quebec led the pack (by far) in private-sector job creation, while Michigan was clearly in last place. However, note that Quebec actually had higher private-sector job growth than Ontario. Furthermore, note that Indiana had positive private-sector job growth, even though (in figure 13a) we saw that there was a net drop in total employment during the period.

These discrepancies are clarified in **figure 13c**, which depicts the annual rates of *government* job creation. Figure 13c completes our picture: The reason Ontario had the highest rate of total job creation, but was second to Quebec in private-sector growth, is that Ontario saw a much larger rate of *government* job creation. All of the US Rust Belt states saw a drop in government employment, but recall from figure 13b that this was consistent—in the cases of Pennsylvania and Indiana—with private-sector growth.

Figure 13b

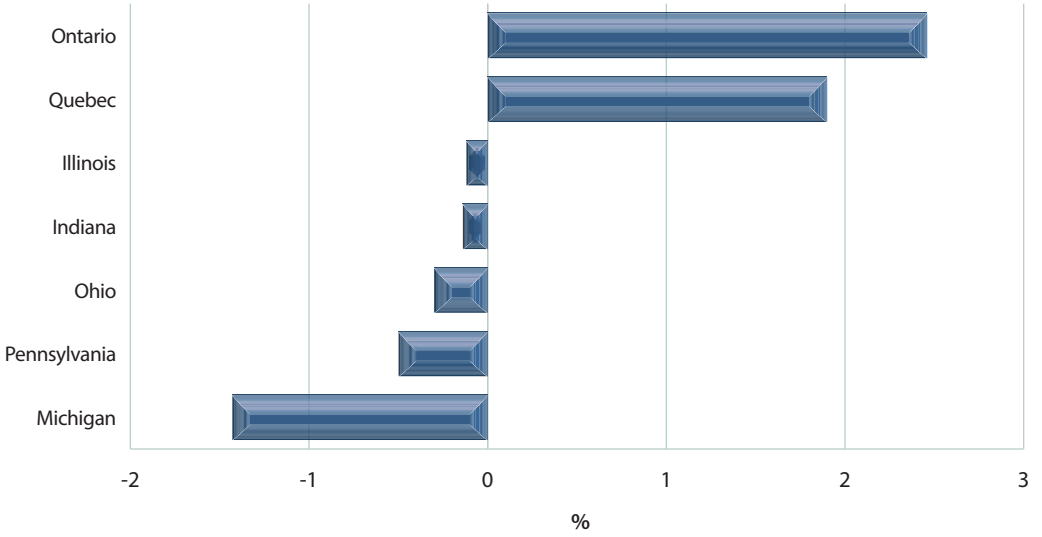
Compound average annual rate of private sector employment growth, 1999–2013



Sources and note: See figure 13a.

Figure 13c

Compound average annual rate of government sector employment growth, 1999–2013



Sources and note: See figure 13a.

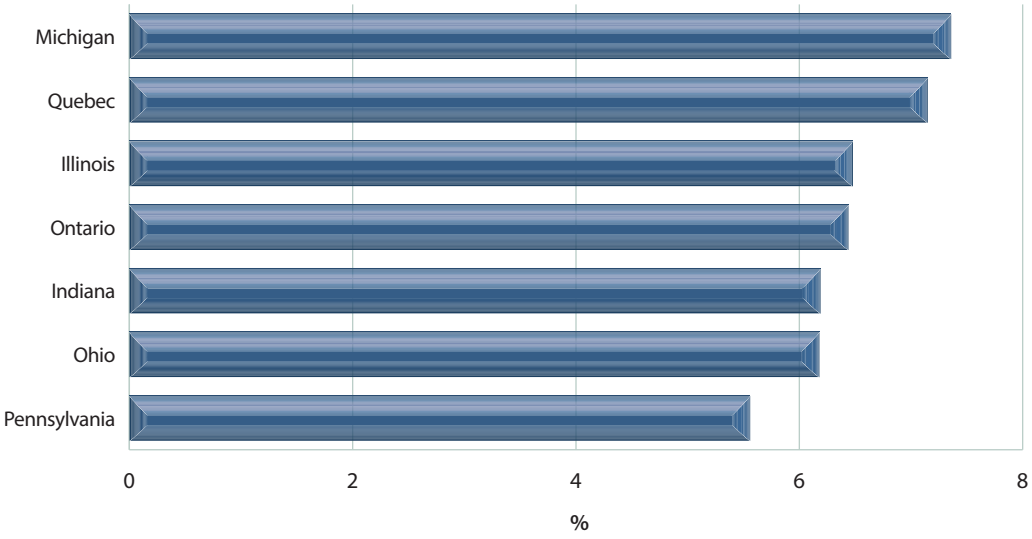
The interpretation of the data presented in figures 13a through 13c depends on one's view of the efficient role of government in an economy. Those subscribing to a demand-side framework might think that growth in government employment provides stimulus to the regional economy, by propping up spending in addition to the direct services provided by the government employees themselves. In contrast, those subscribing to a supply-side framework would

point out that government employees, however important their social functions might be, are nonetheless funded by real resources taxed (or borrowed) away from the private sector. A government workforce thus acts as a drag on private-sector growth; other things equal, the creation of a government-sector job means that there is one fewer worker available to produce in the private sector.

In addition to looking at total growth in employment (among various categories), we can also gauge the health or sickness of a labour market by unemployment rates. **Figure 14** charts the average annual unemployment rate (from 2000 to 2013) among our jurisdictions.[13]

Figure 14

Average annual unemployment rate, 2000–2013



Sources: Statistics Canada, 2015g; Bureau of Labor Statistics, various years.

Note: Indiana's 1999 and 2000 values were interpolated.

When it comes to unemployment rates, the typical superiority of the Canadian provinces vanishes. Over the chosen period, Pennsylvania had the lowest average unemployment rate (5.6 percent), while Ontario was in the middle of the pack (6.4 percent) and Quebec was in second-last place at 7.2 percent. Only Michigan performed more poorly than Quebec on this measure, with an average unemployment rate of 7.4 percent during the period. In light of the frequent extensions of US federal unemployment benefits and the possible impact this policy decision had on the US labour market—the subject of a growing literature[14]—it is remarkable that the Canadian provinces did so poorly on this measure compared to the Rust Belt states.

13. For the provinces, we use the R3 measure of unemployment, which is described as "comparable to the United States rate."

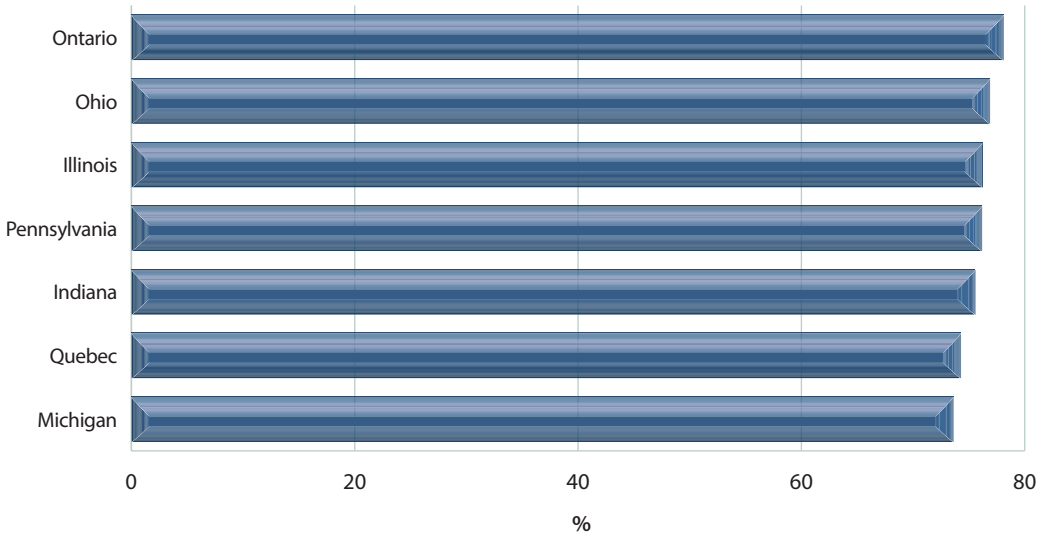
14. See Mulligan (2012) or the working paper by Hagedorn et al. (2015).

Although it does not appear in figure 14, we should also mention that the various regions suffered disproportionately during the recent recession. The hardest-hit was Michigan, which saw its annual unemployment rate shoot up to 12.4 percent in 2009—a full five percentage points higher than the period average. The other Rust Belt states also saw large increases in their unemployment rates in 2009 and/or 2010, while the increases in Ontario and Quebec were the most modest of the group.

Another popular indicator is the fraction of the employed among the working age population, in other words those aged 18 to 64.[15] This metric avoids some of the difficulties plaguing the total employment figure (which can be misleading between regions because of different demographic trends) and the conventional unemployment rate (which can be misleading because of discouraged workers). **Figure 15** shows the average annual figures for the 2000-2013 period.

Figure 15

Employment as a share of the 18–64 population, annual average, 2000–2013



Sources: Statistics Canada, 2014c, 2015f; Bureau of Labor Statistics, various years; United States Census Bureau, 2014a, 2014b, 2014c.

On this particular criterion there is not much variation among our jurisdictions. Ontario has the highest ratio of employment at 78.1 percent, while Michigan (as usual) is the worst performer at 73.6 percent. However, in contrast to our other indicators—and as a simple visual inspection of figure 15 indicates—the various jurisdictions all fall within a relatively tight range.

15. To avoid confusion, note that the employed to *working age* population ratio is not the same thing as the employed to population ratio, which is another common metric.

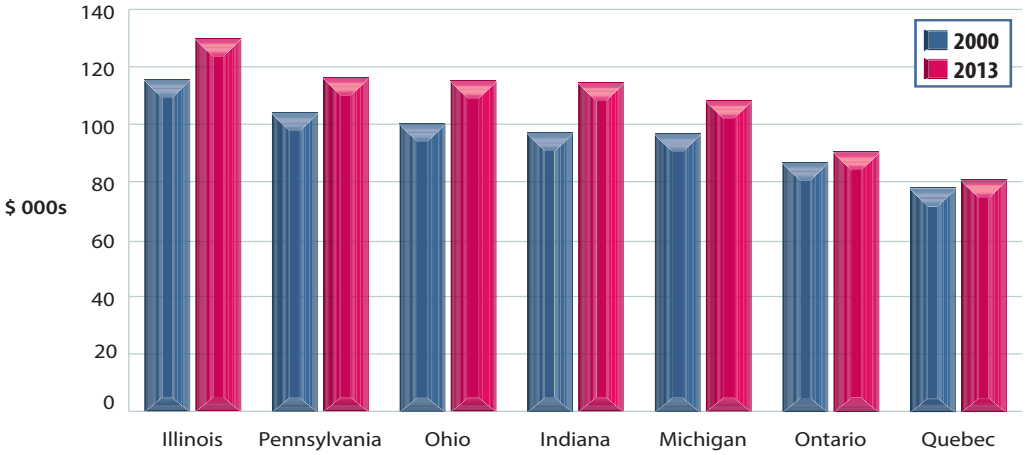
Combined with our other metrics—in which we see, for example, that Ontario is clearly superior economically in many respects to Michigan—figure 15 suggests that domestic migration is an important "governor" for disparate regional economies. Specifically, the (relatively) booming job creation and low unemployment rates in the Canadian provinces attracts an influx of working-age adults, while the job losses and relatively high unemployment rates of some of the US Rust Belt states, particularly Michigan, led to an outflux of working-age adults. The net result is that our various jurisdictions have wide variations on many of our economic indicators, yet a similar performance on the fraction of employment among the working-age population.

Labour productivity

In this section we look at measures of productivity, meaning how much real output is produced per worker (as opposed to per capita). This measure is a good indication of the efficiency with which a region can deploy scarce labour power into the production of real goods and services. However, keep in mind that one of the chief means of boosting labour productivity (measured in this way) is through increased *capital* investment—where better tools and equipment augment the raw labour power of a given worker.[16]

Figure 16a arranges our jurisdictions according to real GDP per worker, as of 2013. It also includes the levels for 2000 for comparison.

Figure 16a
Real GDP per worker, 2000 & 2013 (CDN PPP$)



Sources: Statistics Canada, 2014b, 2014c; Bureau of Economic Analysis, 2014a, 2014b; International Monetary Fund, 2013; Bureau of Labor Statistics, various years.
Note: Indiana's 1999 and 2000 values were interpolated.

16. For a comprehensive discussion of labour productivity and its empirical estimation, see Law (1999).

We present the same data in **table 3**:

Table 3

Real GDP per worker, 2000 & 2013 (CDN PPP$)

	2000	2013
Illinois	$117,358	$131,797
Pennsylvania	$105,623	$118,107
Ohio	$101,927	$116,942
Indiana	$98,612	$116,278
Michigan	$98,302	$109,980
Ontario	$88,266	$91,922
Quebec	$79,232	$82,146

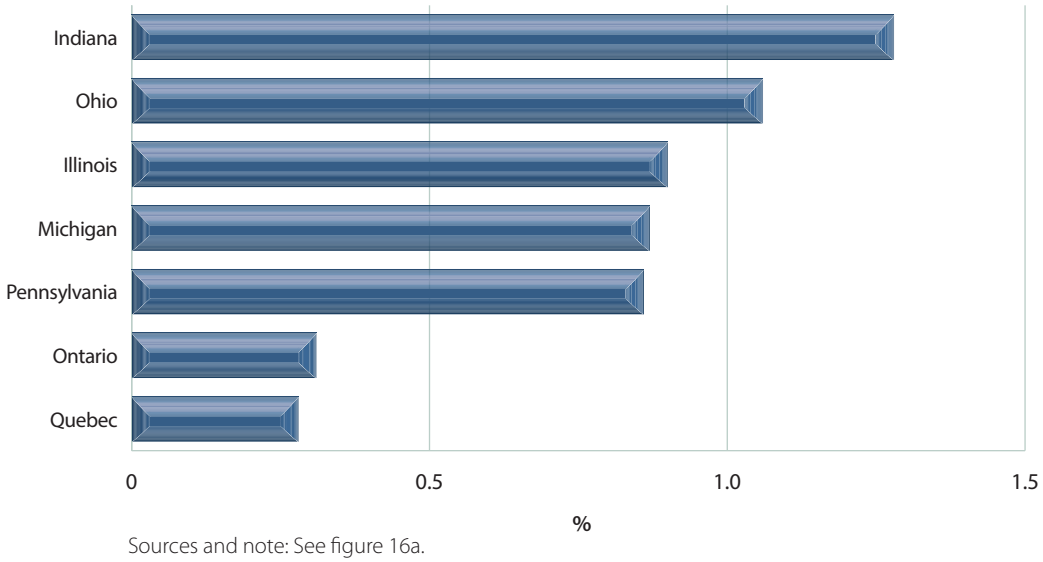
Sources and notes: See figure 16a.

Note that the ranking in figure 16a is identical to that of figure 12, which showed real GDP per capita. Once again, Illinois is the leader, with the two Canadian provinces well behind the Rust Belt states. Here too, the disparity in levels is striking: As of 2013, real GDP per worker in Illinois was almost *$40,000* higher than the level in Ontario, a gap of 43 percent.

One of the striking aspects of figure 16a is the relatively modest increase in real GDP per worker in Ontario and Quebec, considering that they started out from so much lower a base. We quantify this precisely in **figure 16b**, which shows the average annual growth of real GDP per worker during 2000-2013.

Figure 16b

Compound average annual growth in real GDP per worker, 2000–2013 (CDN PPP$)



Sources and note: See figure 16a.

Compared with most of our other economic indicators, the data in figure 16b should be quite alarming for a Canadian reader. Specifically, when it comes to expanding the quantity of real output from a given worker, Ontario and Quebec lag *far* behind the Rust Belt states, even Michigan. In this category, Indiana is the clear leader. We note that Pennsylvania's relatively poor performance could partially be excused due to its second-highest level of GDP per worker—it's harder to grow when starting from a higher base—but no such excuse is available to Quebec and Ontario, which (to repeat) started and ended the period under examination with the lowest GDP-per-worker levels in the group.

Conclusions—Overall economic performance

We can draw some general conclusions from our review of various economic measures. First, when it comes to aggregate growth indices such as total GDP, population, or employment, the provinces of Ontario and Quebec far surpass their Rust Belt peers. However, this superiority may obscure some of the underlying weaknesses in the provinces, especially to the extent that some of the population growth is due to exogenous factors. When we adjust for population, we find that *per-capita* GDP growth shows Pennsylvania in second place (behind Quebec), while worker productivity—both in levels and growth rates—is lowest in the provinces.

Further complicating the picture, we find that the levels of GDP per capita (corresponding to the average "real income" or standard of living) are lowest in the provinces, compared to their Rust Belt peers; Illinois and Pennsylvania, in contrast, had the highest levels of average real income in 2013. Furthermore, for the criterion of the average unemployment rate, Ontario was in the middle of the pack while Quebec was second to highest (i.e., second to worst); Pennsylvania had the lowest (i.e,. the best) average unemployment rate during the period. Across many of the economic measures, Michigan was the poorest performer.

The overall conclusions for a Canadian audience are straightforward enough: Ontario and Quebec have experienced top-line economic growth, but it is (partially) driven by population growth, and masks an underlying weakness in enhancing their levels of income per person. In particular, the Canadian provinces score the lowest in levels of real GDP per capita or per worker, and they have not even made much progress in closing the gap with most of their Rust Belt peers during the 1999–2013 period.

3. Government fiscal comparison

In this portion of the study we assess our jurisdictions across a range of government fiscal measures. As with our economic indices, here too no single measure conveys a complete picture. Taken together, however, we gain a good sense of the nature of provincial and state fiscal policies over the period in question. Specifically, we will analyze various measures of absolute and relative government deficits and debt, and then explore measures of the burden of government by looking at its overall size.

We caution the reader that provincial and state fiscal indicators are not as readily comparable as economic indicators. Canadian provinces and US states have different institutional arrangements with municipalities in their jurisdictions and with the federal government, different constitutional restrictions, as well as differences in data definitions. US states, for example, have their own constitutions that affect their fiscal powers, whereas the powers of Canadian provinces in relation to the federal government are set out in the 1867 British North America Act and the 1981 Constitution Act. This is particularly important to consider when examining fiscal measures such as deficits and debt, since 48 states have constitutional requirements imposed on them for balanced budgets.[17] As mentioned above, there are also large differences between Canada and the United States concerning the federal responsibility for education and health care, which should be taken into account when looking at provincial versus US state government spending. Furthermore, the local government share of combined state-local spending in the US is generally higher than the local share of provincial-local spending in Canada.[18]

The surplus/deficit measure used herein is based on as broad a definition of government activity as possible. For provinces this means we use "consolidated" rather than "general fund" revenue and spending figures to calculate

17. The importance of the constitutional requirement for states to balance their budgets is often overstated. Many states' constitutional requirements for a balanced budget only pertain to their operating account and exclude other spending facilities that may allow for deficits and debt. For further information, please see Clemens, Veldhuis, and Joffe (2013).
18. For a discussion of some of these differences, see Ferris and Winer (2007).

the surplus/deficit values. Consolidation brings in activities of government business enterprises such as lottery, liquor control, and power enterprises, and gives a complete picture of government operating activity. The broad definition of government for states means we add utility, liquor store, and insurance trust activities to those of the general fund. Using a consolidated approach generally produces higher revenue and spending values and, for the states at least, yields some unusually large surplus/deficit values because states recognize the unrealized gains and losses of government-administered employee retirement systems in insurance trust revenue. Governments, provincial and state alike, often focus their financial reporting on the "general fund" only, meaning that the values presented in this report may not match those presented elsewhere.

As the focus of this report is to compare Ontario's performance to that of other jurisdictions, we have chosen to base our analysis on the values which best represent Ontario's fiscal performance. For Ontario this means using consolidated revenue, spending, and hence surplus/deficit. Using a broad definition of provincial government requires we do the same for those US jurisdictions to which we are comparing it.

Fiscal balance: surplus/deficit

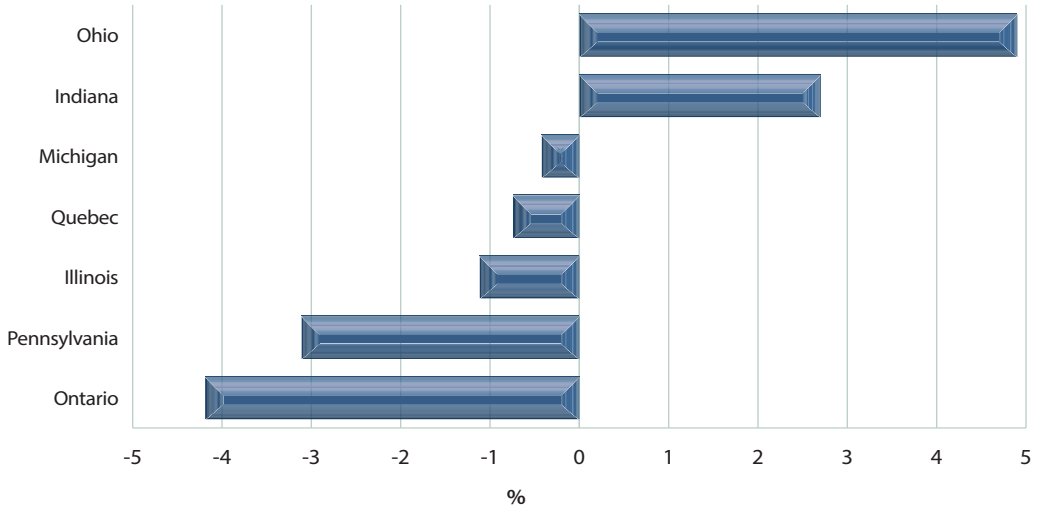
Governments, particularly at the provincial/state and local level, borrow money for the same reason that corporations and households do. Issuing debt allows for more flexibility in spending, especially when there are irregularities in the flow of incoming tax receipts and fees. Bond issues also allow for the financing of long-term capital projects (such as roads and bridges) which will effectively be paid for over time by the users; in this respect, government bonds act in the same way as a mortgage for homebuyers.

Just as with private corporations and households, provincial and state governments must manage their debt loads prudently. By running budget surpluses in good economic times, these governments retain the option of running large deficits in bad times. If governments irresponsibly continue to run large deficits even after temporary crises have subsided, it removes the cushion for the next crisis. Furthermore, rising debt loads absorb more of current tax revenues just for debt service, and can push up interest rates.

In this section we look at several measures of the fiscal balance, meaning the relationship between provincial/state expenditures and revenues. First, in **figure 17**, we chart the average surplus/deficit as a share of spending for the period 2000/01 to 2012/13. Over this period, Ohio and Indiana (on average) ran healthy budget surpluses, while the other jurisdictions typically ran a deficit. Ontario was the worst in this respect, with an annual deficit averaging 4.2 percent of its annual provincial budget.

Figure 17

Average surplus/deficit (including retirement funds) as percentage of state/provincial government spending, 2000/01–2012/13



Sources: Canada, 2014; United States Census Bureau 2012 a, 2012b, 2013a, 2013b, various a, b, c.

However, figure 17 by itself does not fully convey the different situations regarding fiscal imbalance between the Canadian provinces and the US Rust Belt states. Note in figure 17 that the four worst regions—in terms of budget balance—are Ontario, Illinois, Pennsylvania, and Quebec. In **figure 18**, we look at this cohort of four jurisdictions *over time* to see how the recent recession contributed to the average figures charted in figure 17.

Figure 18

Surplus/deficit (including retirement funds) as percentage of state/provincial government spending for select jurisdictions, 2005/06–2012/13

Sources: See figure 17..

In figure 18, we have isolated the two Canadian provinces as well as the two *worst* performing Rust Belt states (in terms of average fiscal balance). We have focused on the period 2005–06 through 2012–13, to show the different patterns with respect to the business cycle. It is true that in 2008–09, the implied budget deficits—which we remind US readers are a broad measure including earnings (and losses) on state employee retirement assets, and therefore much bigger than what would be reported in the media—for Illinois and Pennsylvania were much larger than the corresponding values for Ontario and Quebec. However, looking at the years before and after the financial crash, we see large implied surpluses as well—much larger than for the provinces.

Most troubling of all to a Canadian audience, note that from 2008–09 through the present, Ontario and Quebec have *consistently* run budget deficits,[19] whereas Pennsylvania and Illinois have fluctuated between surplus and deficit.

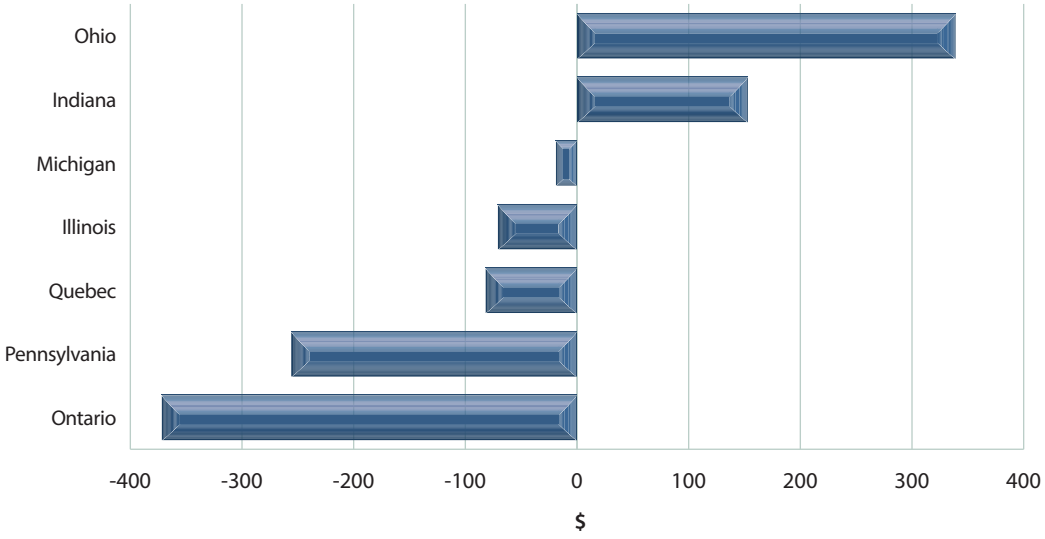
Taking figures 17 and 18 together, our analysis indicates that over the entire period, Ontario is clearly the worst on budget balance of the entire peer group, while since the financial crisis, both Ontario *and* Quebec have shown an inability to return to budget balance. These trends cannot be explained away as due to the difficulties of adjusting to global trends in commerce, or to the severity of the recent recession, because Ontario and Quebec are performing more poorly than *all* of the US Rust Belt states in this regard.

Another way of measuring fiscal balance is to express the same (implied) budget surpluses or deficits in per-capita terms, to get a sense of the relative magnitudes among our jurisdictions. **Figure 19** charts the results of this comparison, and is quite similar to figure 17, except that Quebec and Illinois have swapped places; Quebec falls into the bottom-half of the peer group when expressing average fiscal balance in per-capita terms. As before, Ohio and Indiana are the clear leaders (at $339 and $153 average per-capita budget surpluses over the period) whereas Ontario is well at the back of the herd, with an average per-capita budget *deficit* of $372. This figure means that, after adjusting for inflation, Ontario (on average) ran up its debt by an additional $372 for every single person in the province, for every single year during the period examined.

19. Although they do not appear in figure 18 because of data limitations with US states, the budget deficit figures for the 2013–14 year are 8.3 percent for Ontario and 2.1 percent for Quebec. Note that Ontario's deficit for 2013-14 was thus *higher* (relative to provincial spending) than it was the previous year, showing that its deficits are clearly not merely the lingering effect of the recession.

Figure 19

Average per-capita state/provincial surplus/deficit (including retirement funds), 2001/02–2012/13 (CDN PPP$)



Sources: Canada, 2014; United States Census Bureau 2012 a, 2012b, 2013a, 2013b, various a, b, c; International Monetary Fund, 2013; Bureau of Economic Analysis, 2015a.

Provincial/state indebtedness

Budget surpluses and deficits are flow variables, showing the balance between expenditures and revenues over a particular time period (typically a fiscal year). The public debt, in contrast, is a stock variable that is a snapshot at any particular moment of the outstanding level of indebtedness.[20] Intuitively, the current government debt reflects the accumulated budget surpluses and deficits in the past.

In this section we will look at provincial/state net debt. While this study relies on a single measure of accumulated indebtedness, namely net debt, there is another measure that feeds into net debt. More specifically, gross debt refers to the outstanding stock of financial obligations of the governmental entity in question, while net debt offsets the gross figure by subtracting the value of any assets that the government entity owns.

In our presentation below, we adopt the familiar convention of expressing government debt as a share of GDP. However, although this is standard, it can sometimes understate the true size of a government's debt load. For private firms and households, a typical measure of indebtedness is the ratio of debt-*to-income*. This gives some idea of how hard it would be for a given

20. The two concepts are closely related, of course, as the flow of a surplus/deficit will cause the stock debt to either fall/rise.

entity (firm or household) to carry a particular debt.[21] When it comes to governments, it is important to remember that GDP is *not* the analog of "income," because neither government tax receipts nor expenditures will equal 100 percent of GDP. Thus the debt levels depicted in the following figure—particularly those of Ontario and Quebec—are possibly much more significant than they first appear to some readers.

Figure 20 shows the levels of net debt among the provinces and US Rust Belt states, in the fiscal years 1998-99 and then 2011-12. Quebec and Ontario have far higher net debt levels (as a share of GDP) than their Rust Belt peers. Even the *increase* (in percentage-point terms) was higher among the provinces than any of the Rust Belt states.

Figure 20
Net government debt as share of GDP, 1998/99 & 2011/12

Sources: Canada, 2014; Statistics Canada, 2015h; Bureau of Economic Analysis, 2014c; United States Census Bureau, 2006; Urban Institute-Brookings Institution, 2015.

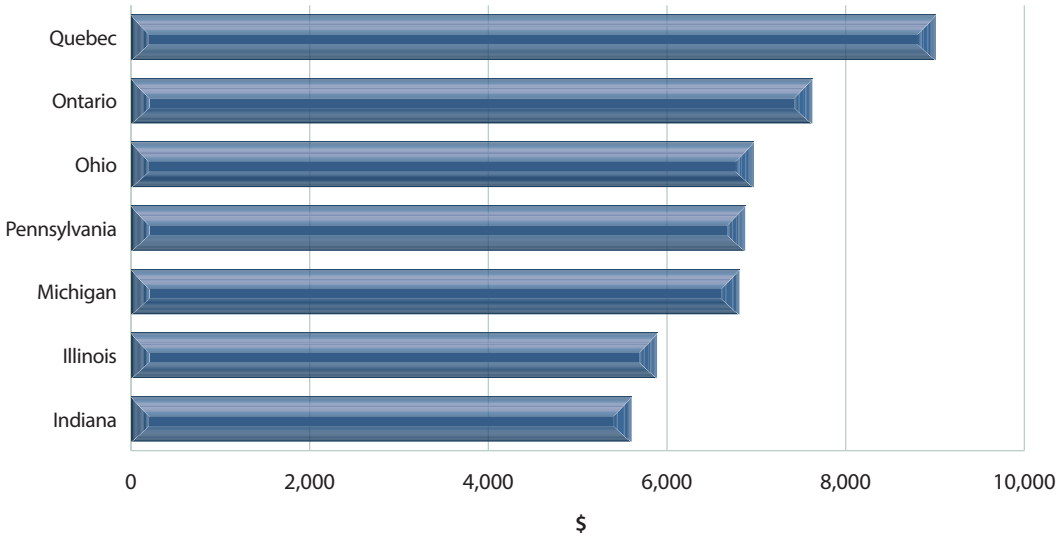
21. For example, an unsecured debt of $100,000 is not particularly onerous for a firm with annual net income of $1 million, but it would be crippling for a household with an income of only $75,000.

Size of government

One of the simplest and most telling measurements of the size of government is the level of expenditure. Whether the funds are obtained through taxation, fees, borrowing, or (if applicable) through the issuance of new money, all government spending diverts real resources away from potential uses in the private sector, and into channels chosen by the political process. Such a diversion of resources may be beneficial in light of the proper role for government in society, but we should never lose sight of the opportunity cost involved when potential goods and services in the private sector can no longer be produced.[22]

In this section we present two methods of measuring government expenditure, first as per capita and then as a share of GDP. **Figure 21a** ranks the provinces according to per-capita spending. During the period under analysis, Quebec and Ontario led the group with per-capita annual expenditures, averaging $9,007 and $7,626 respectively. Ohio, Pennsylvania, and Michigan formed a distinct middle cohort, with annual state spending near $7,000 per person. Indiana and Illinois were the lowest of the group, with per-capita spending of $5,602 and $5,890 respectively.

Figure 21a
Average per-capita government expenditure, 2000/01 to 2012/13 (CDN PPP$)



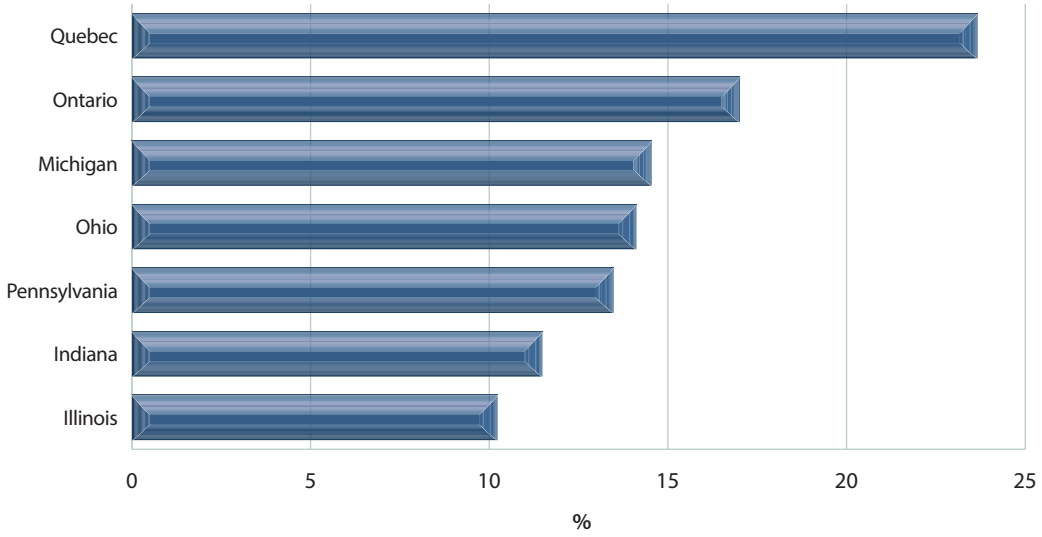
Sources: Canada, 2014; Statistics Canada, 2015f; Bureau of Economic Analysis, 2015a; United States Census Bureau, 2012, 2013, various years a, b; International Monetary Fund, 2013.

22. For a comprehensive analysis of the economics of the size of government, see Di Matteo (2013).

Although per-capita spending is illustrative, it does not give a complete picture because income levels can differ from jurisdiction to jurisdiction. In other words, even adjusting for currency differences (which we have done throughout this study), a given dollar expenditure per capita in a poorer jurisdiction is more significant than in a richer region. (Recall from figure 12 that Quebec, Ontario, and Michigan had the lowest real GDPs per capita as of 2013.) Consequently, in **figure 21b** we rank government spending as a share of GDP.

Figure 21b

Average government expenditure as share of GDP, 2000/01 to 2012/13



Sources: Canada, 2014; Statistics Canada, 2015h; Bureau of Economic Analysis, 2014c; United States Census Bureau, 2012, 2013, various years a, b.

Figure 21b shows that relative to the size of the provincial/state economy, average government spending was by far the highest in Quebec, at a whopping 23.7 percent. Next highest was Ontario at 17.0 percent, followed by Michigan at 14.6 percent. Illinois and Indiana were the most modest spenders in the group, with average state expenditures of 10.2 percent and 11.5 percent respectively.

In summary, no matter which measurement we use, the provincial governments of Quebec and Ontario spent more by far than their Rust Belt peers, while Illinois and Indiana were the lowest spenders. Measuring in terms of per-capita expenditure, Michigan falls in the middle cohort, but when measured as a share of the economy, Michigan's state government was the highest spending in the Rust Belt.

Conclusions—Government fiscal policy

We can draw some general conclusions from our review of various fiscal measures. Most obviously, Ontario and Quebec had bigger and more burdensome provincial governments on every measure than their Rust Belt state counterparts. Net debt relative to the economy was almost an order of magnitude higher in the provinces. The provincial debt problem is even more alarming when we look at annual budget deficits, which have been consistently high in the provinces—particularly Ontario—since the financial crisis, whereas the Rust Belt states have largely restored their budget balance. The provinces also exhibit significantly higher rates of government expenditure as a share of GDP (particularly Quebec).

Turning to the Rust Belt states, we saw that Ohio and Indiana on average ran healthy budget surpluses (using the broad measure which includes state retirement assets) during the period analyzed, while Pennsylvania on average ran fairly large budget deficits, though they were smaller than Ontario's (both as a share of total spending and per capita). All of the Rust Belt states except Indiana saw their net debt levels (relative to GDP) increase from 1998/99 to 2011/12, though the jump was not as large in percentage-point terms as it was in the provinces. Regarding government spending relative to the economy, Illinois and Indiana had the smallest expenditures on average during the period, while Michigan had the highest.

Conclusion

According to a popular narrative, Ontario policymakers are not to blame for the mushrooming debt of the last decade, because it was driven by economic forces outside of their control—most notably a higher dollar and global restructuring in manufacturing. This study has challenged this popular narrative. We have compared Ontario and Quebec to the US Rust Belt states to assess whether the challenges of deindustrialization can explain the provinces' poor financial performance. We found that the Rust Belt states were more reliant on manufacturing, meaning they were more sensitive to global restructuring. We also found that the appreciation of the Canadian dollar versus the USD of the 2000s was a reversal of the unusual weakness of the 1990s. In any event, the exchange rate is currently near its long-term average, so Ontario policymakers cannot continue to cite this as an excuse for chronic budget deficits.

Our most alarming finding was that Ontario and Quebec have grown faster economically (in aggregate) than their Rust Belt counterparts, yet they have been much more irresponsible fiscally. Even if we restrict our attention to the aftermath of the 2008 recession, we find that Ontario and Quebec policymakers have been far too permissive of deficit spending, compared to their Rust Belt peers.

Our comparisons raise the question of why the various regions experienced such disparate outcomes. In particular, why did Indiana see such a surge in manufacturing, particularly when looking at manufacturing output per worker? And why did Michigan suffer so much, even compared to its Rust Belt peers? The lessons that Canadian policymakers should learn from the experiences of some of the Rust Belt states will be detailed in future work.

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