

# Tackling Provincial Revenue Volatility

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Submitted May 2019

Paper presented at the IIGR Workshop “Stabilizing Provincial  
Revenues: Economic, Political and Policy Perspectives”

April 2019

**Institute of Intergovernmental Relations  
School of Policy Studies, Queen’s University**

Paper 2019-05



## **Introduction**

What is the best approach for coping with provincial revenue shocks and provincial revenue volatility? Canada's current approach involves a combination of both national-level insurance, in the form of the federal government's Fiscal Stabilization Program (FSP), and self-insurance options should a province choose to implement any. What reforms, if any, could improve upon the status quo? This short paper seeks to contribute to this discussion by addressing three questions. What is the extent of revenue volatility in the provinces and how has it changed over time? What is the current level of national risk sharing? What are the key obstacles to improving upon Canada's current approach to dealing with provincial revenue shocks?

## **Revenue Volatility in Canadian Provinces**

Consider first some data on revenue volatility in Canadian provinces. Table 1 shows the results from three studies. Landon and Smith (2010) measure volatility in real, per capita own-source revenues for Alberta, Ontario, Saskatchewan and British Columbia using the coefficient of variation. In Schaufele (2016), the coefficient of excess volatility (CEV) measure highlights the resource sector's contribution to provincial GDP volatility relative to its share of GDP. Finally, Dahlby, Macaspac, and McMillan (2013) measure output, income, and revenue volatility for Alberta and Ontario using the Regional Economic Instability Index.

While not comprehensive, the results in Table 1 are illuminating. Volatility differs across provinces and the resource sector is a key source of output and revenue volatility in provinces, including those that are not resource-rich. Landon and Smith (2010) find that the volatility of Alberta's own-source revenue is more than double the revenue volatility in British Columbia, Ontario, and Saskatchewan. Removing resource revenues reduces the coefficient of variation for Alberta from 15.4 to 6.7. The results in Schaufele (2016) also show that GDP volatility in Canada's three resource-rich provinces is driven by the resource and energy sector. In Newfoundland and Labrador, for example, this sector accounts for 23.4 percent of provincial GDP but 76 percent of GDP volatility, resulting in a coefficient of excess volatility of 3.3. Even in provinces like Ontario and Nova Scotia, the resource and energy sectors disproportionately contribute to output volatility, with coefficient of excess volatility measures of 2.0 and 6.3 respectively.

Volatility changes over time but it does not necessarily increase for all provinces. Dahlby, Macaspac, and McMillan (2013) find that output volatility is moving in different directions in Alberta and Ontario. The authors compute an average REI for two periods, 1961 to 1993 and 1985 to 2008, for both provinces. Volatility in real, per capita GDP declines in Alberta between the two periods while volatility increases in Ontario.

Finally, Dahlby and Khanai (2018) (results not shown in Table 1) find that although output volatility in Alberta has fallen by 21 percent between 1997 and 2015, the volatility in labour income has increased by 40 percent because labour income has become more concentrated in volatile sectors. This is an important result when thinking about policies aimed at reducing volatility or providing insurance against economic shocks.

**Table 1: Measures of Volatility By Province, Selected Studies**

	<b>Landon and Smith (2010)</b>	<b>Schaufele (2016)</b>		<b>Dahlby, Macaspac and McMillan (2013)</b>		
	1981 - 2007	1997-2011		1961-70 to 1984-93	1985-94 to 1999-2008	
	Coefficient of variation <sup>a</sup> With/without resource revenues	Resource Sector contribution to GDP volatility	Resource Sector Share in GDP	Coefficient of Excess Volatility (CEV) <sup>b</sup>	Average Regional Economic Instability (REI) Index <sup>c</sup>	
British Columbia	7.8 / 8.1	0.023	0.031	0.7		
Alberta	15.4 / 6.7	0.508	0.221	2.3	0.0739	0.0313
Saskatchewan	6.5 / 9.2	0.421	0.159	2.3		
Ontario	6.2 / 6.2	0.012	0.006	2.0	0.0366	0.0591
Nova Scotia		0.177	0.028	6.3		
Newfoundland		0.762	0.234	3.3		

Source: See Landon and Smith (2010), table 1; table 6 in Schaufele (2016); and, table 5.1 in Dahlby, Macaspac, and McMillan (2013).

<sup>a</sup> The ratio of the standard deviation of the differences in real, per capita own-source revenues from an exponential trend to the average value of the series, multiplied by 100. <sup>b</sup> The ratio of the resource sector's contribution to provincial GDP volatility to its share in GDP. A CEV > 1 means the resource sector contributes a greater than proportional share of volatility to variance in provincial GDP. <sup>c</sup> REI is based on deviations in real, per capita GDP from the trend value. The higher the REI index, the more volatility.

## **The Status Quo Approach to Coping with Provincial Revenue Volatility**

A province that experiences a large negative revenue shock can, under certain conditions, receive assistance from the federal government's Fiscal Stabilization Program (FSP). Since regional shocks do sometimes spill over to the rest of the country, an economic argument can be made for a federal role.<sup>1</sup> The Fiscal Stabilization Program was introduced in 1967. To be eligible, the province must suffer a greater than 5 percent decline in annual non-resource revenue; resource revenues are included only if the decline from this source exceeds 50 percent. Provinces must apply to receive assistance and, importantly, the maximum per capita payment is capped at \$60.

In practice, the FSP provides a minimal amount of insurance. Consider an example. In 2015-16, Alberta experienced a \$9.9 billion decline in own-source revenues and did qualify for FSP assistance. The FSP payment, however, covered only 2.5 percent of the revenue decline.<sup>2</sup> More formally, a recent study by Poghosyan, Senhadji, and Cottarelli (2016) finds that while net fiscal transfers in Canada (federal taxes and federal transfers to persons and to provinces) play an important role in stabilizing common shocks to provinces, federal transfers to provincial governments (including Fiscal Stabilization payments) do not have much of a role in offsetting idiosyncratic regional shocks.

While the current level of national risk sharing is low, provincial governments do have access to powerful levers that can be used to self-insure against negative economic shocks and to address problems arising from revenue volatility. Options include the adoption of various fiscal rules, changes to the tax mix or tax diversification, borrowing, and the creation of a provincial stabilization fund. Compared to an annual balanced budget approach, certain fiscal rules have been shown to reduce volatility in government spending and improve welfare, particularly in provinces that depend on highly volatile resource revenue.<sup>3</sup>

## **The Bumpy Road Ahead: Key Obstacles to Improving On the Status Quo**

There is probably scope for enriching the federal government's Fiscal Stabilization Program but moral hazard concerns are a serious obstacle to doing so. National-level insurance reduces provincial governments' incentives to act on their own to limit their exposure to such risks. The current level of national risk sharing is low so provinces should have strong incentives to self-insure. There is limited evidence to suggest that provinces are aggressively pursuing their self-insurance options.

As noted, provinces have considerable scope for implementing their own self-insurance measures but they can and do abandon, revise, suspend, and fail to introduce such policies for both practical and political reasons. Alberta's experience with the Alberta Heritage Savings Trust

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<sup>1</sup> See Boadway and Eyraud (2018) for a broader discussion of the economic rationales for the allocation of expenditure and revenue functions between government levels in decentralized countries.

<sup>2</sup> See Dahlby (2019).

<sup>3</sup> See Landon and Smith (2015).

Fund is one example.<sup>4</sup> There is also evidence to suggest that some provinces relaxed the fiscal rules that were in place when the 2008 recession hit.<sup>5</sup> Given this inability to commit, concerns about a moral hazard problem with an enhanced national-level insurance approach should not be discounted.

These are not the only obstacles on the road to reform. The federal government may have difficulty committing to an enriched Fiscal Stabilization Program in the longer term for its own political or fiscal reasons. And greater reliance on national risk sharing can weaken fiscal accountability and the long-term sustainability of provincial policies.

Moving forward, any serious proposal for reforming the status quo will need to address these challenges.

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<sup>4</sup> See Landon and Smith (2013).

<sup>5</sup> As observed in Tapp (2013) and Simpson and Wesley (2012).  
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