INCOME TAX COMPETITION IN A FEDERATION: EVIDENCE FROM A NATURAL EXPERIMENT

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Introduction

Questions around tax competition among neighboring jurisdictions have occupied economists for many years. Although early treatments of the issue were framed in the context of competition at the local level, it soon became clear that the analysis could be extended to tax competition among regions and even among nations with barriers to mobility and levels of economic integration becoming increasingly relevant as one moved from the local to the national level.

The operation of tax regimes in federal systems adds additional complications to the study of tax competition. Complications arise because the same citizens remit taxes to both regional and national governments and because of potential spillovers between regional and federal tax systems. A longstanding literature exists on the so-called "tax assignment" problem for dividing tax fields among national and regional governments.[1] More recently, advances have been made in our understanding of the interaction of tax systems in federations, leading to examinations of "vertical" and "horizontal" externalities in taxation (see Dahlby, 1996).

Competing considerations for designing a federal tax system include:

- minimizing vertical and horizontal fiscal imbalance,
- matching appropriate expenditure and revenue responsibilities,
- providing flexibility for regional tax structure preferences,
- contributing to the efficient running of the national economy (the economic union),
- maximizing transparency and accountability and
- minimizing administrative and compliance costs.

However, in an important sense, this normative literature often has little practical relevance. Economists rarely find themselves involved in the design of new federation. Indeed, the assignment of taxing powers among national and regional governments in mature federations is generally governed by historical and political

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[1] For early discussions, see Musgrave (1973) and Oates (1972).

factors and often codified in existing national constitutions and slowly evolving jurisprudence.

In this paper, we take advantage of a recent natural experiment to examine the issue of tax competition in a federation. In 2000 and 2001, nine of the ten Canadian provinces changed from levying income taxes as a percentage of federal income tax (Tax On Federal Tax – TOFT) to a system of levying taxes directly on federally-defined taxable income (Tax On Income – TONI). This change substantially increased the flexibility of provincial governments to shape their provincial income tax systems, and thus their scope for varying tax structures to meet regional objectives. Our goal is to measure and assess the impact of this change on the degree and nature of interprovincial tax competition.

The remainder of the paper is organized as follows: in the first section we provide some background information on Canada's federal and provincial tax systems; next we briefly describe some of the economic and political efficiency issues that have been discussed in the tax competition literature; the third section is devoted to describing and measuring the changes that took place followed by an assessment of the changes under the headings suggested by the theoretical literature. The paper concludes with a brief summary and discussion of the implications for other jurisdictions.

1. Background[2]

Constitutionally, both federal and provincial governments are permitted to levy income taxes. The provincial power is explicit in provinces' powers of direct taxation. The federal power comes from its general power to tax by whatever means it deems appropriate. The province of British Columbia instituted an income tax in 1876, shortly after its entry into Confederation. Some municipalities (constitutionally, creatures of the provinces) instituted income taxes as early as the 1830s. The federal government began to collect income tax in 1917 as a "temporary" measure to help finance the first World War.

By the 1930s, federal, provincial and municipal governments all levied income taxes with almost no coordination. This lack of coordination resulted in large variations in income taxes across and even within provinces, accompanied by high administration and compliance costs. In 1940, a federal royal commission (the Rowell-Sirois Commission) described the Canadian income tax environment as a "tax jungle" and recommended that provinces withdraw from the income tax field in return for intergovernmental transfers from the federal government.

Provinces rejected the recommendation that they abandon their constitutional right to levy income tax. However, they did vacate the field temporarily in return for federal transfers to allow the federal government to finance the second World War.

[2] This section draws heavily from Sheikh and Carreau (1999).

Following the war, the federal government continued the so-called tax rental agreements with a number of provinces until 1962. At that time all provinces except Quebec signed Tax Collection Agreements (TCAs) through which the federal government agreed to collect provincial income taxes with certain conditions attached.

The TCAs stipulated that the federal government would administer provincial income taxes without charge if they met three conditions:

- they were administrable (technically feasible to collect under the federal system),
- they were levied on a common base (specifically, basic federal tax) and
- they did not negatively impact the economic union – the internal flow of labour, capital or services within Canada.

No-charge administration for provinces and reduced compliance costs for taxpayers were offered as incentives to provincial governments to give up the policy flexibility that came with collecting their own income taxes.

At various times since they signed the TCAs, provinces have expressed concern about the limits put on provincial tax policy. In particular, given their tax base was basic federal tax, they objected to fact that almost all federal tax measures were automatically passed through to provincial income taxes, unless provinces took specific measures to counteract them. For example, changes to either the base or to federal rates automatically changed provincial tax revenue. This pass-through occurred regardless of the provincial governments' preferences or fiscal requirements unless explicit (and public) action was taken by provinces to counter the effects of the federal measures. In the case of federal tax reductions, provinces were sometimes required to explicitly raise rates in order to maintain revenue levels.

On several occasions, a number of provinces studied the possibility of leaving the TCAs in order to regain tax policy flexibility.[3] However, in 1997, with the federal government committed to a program of sustained income tax reductions that some provinces could not afford to match, a federal-provincial committee recommended that the TCAs be modified to permit provinces to levy taxes directly on income rather than federal tax. This limited the potential pass-through to changes to the base. The federal government finally agreed and provinces effected the transition to TONI over the two-year period 2000-01.

2. Economic and political efficiency[4]

A substantial theoretical literature on the issue of tax competition has developed since the work of Tiebout (1956). For the purposes of this paper, we can group the relevant theoretical issues under two broad headings: economic and political efficiency. By political efficiency, we mean mechanisms that permit

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3 See, for example, Hartle *et al.* (1994) and Boothe and Snoddon (1994).

4 For a recent review of the theoretical literature, see Wilson (1999).

citizens to effectively satisfy their preferences regarding publicly provided goods and services and preferences regarding the corresponding revenues used to finance those goods and services.

Under the heading of economic efficiency, theoretical work has been concerned with the issue of whether centrally controlled tax regimes can be efficient when regional preferences differ. In these models, jurisdictions offer different fiscal regimes in order to attract agents with particular preferences and migration plays a key role in attaining efficient outcomes.

One of the key challenges to the Tiebout analysis has come from those who argue that differences in fiscal regimes may lead to inefficient migration of labour and capital. It is argued, this migration may have more to do with differences in regional endowments than with the preferences of agents, so that a region well endowed with natural resources may be able to generate net fiscal benefits that attract migrants and distort economic decisions so that overall efficiency is compromised.

Under the heading of political efficiency, questions regarding transparency and accountability, and administration and compliance costs are relevant. Public choice theory suggests that political efficiency is enhanced when governments are directly accountable for raising the revenue required to finance the public expenditures they make.[5] In this environment, taxpayers are best able to judge the benefits of public expenditures in relation to their costs. Centrally controlled tax systems generally provide revenue to governments through intergovernmental grants. While some intergovernmental grants are necessary to address horizontal fiscal imbalances, transfers in excess of that amount may unduly lessen transparency and accountability.

A second set of more practical issues has to do with administration and compliance costs. To the extent that all regions use similar tax systems, efficiencies may be gained by pooling collection systems. This pooling is also important when considering the compliance costs of taxation. Tax base definitions and income attribution rules that are common to both national and regional governments reduce taxpayer compliance costs substantially as well as enhancing transparency and accountability.

Thus, we see that the theoretical literature produces potentially offsetting predictions regarding economic and political efficiency. Economic efficiency may be enhanced if tax competition permits differing regional preferences to be satisfied. At the same time, differences in regional endowments may lead to efficiency-reducing migration in response to net fiscal benefits. With respect to political efficiency, regional control of taxation may enhance the accountability of governments. However, without administrative coordination, it may also reduce efficiency by leading to excess administration and compliance costs.

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5 See Mueller (1990).

3. Provincial tax changes

3.1 The 1999 context

In 1999, all provinces except Quebec levied income taxes as a percentage of basic federal tax.[6] Each province set its own tax rates and added various surtaxes and non-refundable credits. In practice, provincial income taxes varied substantially in terms of rates, credits, and brackets. Figure 1 shows the 1999 and 2002 levels of taxation for single taxpayers with $25,000 annual income, and families with $50,000 and $75,000 annual incomes. Effective average tax rates in 1999 varied across provinces by almost 6 per cent, or double their average value. Significant variations in average rates existed for higher-income families as well, although not of the same magnitude as for single individuals at $25,000. Figure 2 shows marginal tax rates for 1999 and 2002 based on a different data set; this time for single individuals with $25,000, $50,000 and $75,000 annual income. Once again, large variations in 1999 tax rates are evident across provinces with the largest variations concentrated at the $25,000 income level.

In addition to average and marginal tax rates, another important characteristic of personal income tax systems is the low-income threshold at which income tax becomes payable. Figure 3 shows 1999 and 2002 provincial and federal low-income thresholds for single taxpayers. Given the TOFT system in place in 1999, the threshold for a number of provinces was the same as the federal threshold. Some provinces had additional personal credits, which raised the threshold by as much as $3,250, or about 42 per cent higher than its average value.

A final important characteristic of provincial tax systems in 1999 was their degree of progressivity. One indicator of progressivity, changes in average tax rates over three income ranges, is presented in Figure 4. Although the progressivity indicator for the $10,000 to $100,000 range is clustered fairly tightly around the mean (with Quebec being an obvious outlier), examination of the two intermediate ranges indicates substantial variation across provinces.

3.2 Transition to TONI

Table 1 provides a chronological account of provincial tax changes over the period 1999-2002. Five of nine provinces moved to TONI in 2000 with the remainder making the transition in 2001. As we see in Figures 5 and 6, mean average and marginal tax rates declined in every year. Average tax rates fell about 1.3 percentage points for all three family/income groupings. For marginal rates, reductions were concentrated at higher income levels with lower-income tax relief achieved primarily through enhanced personal exemptions.

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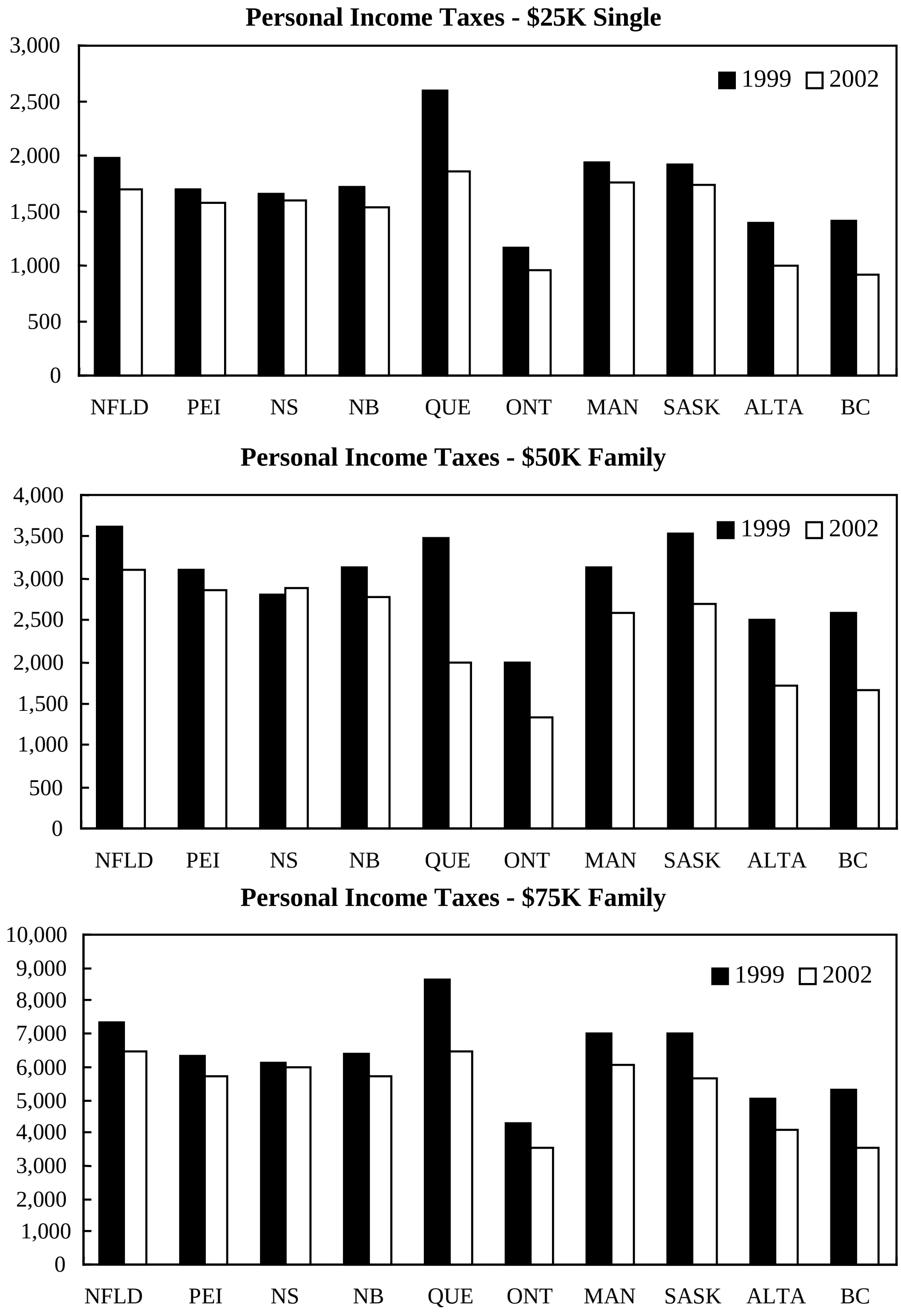
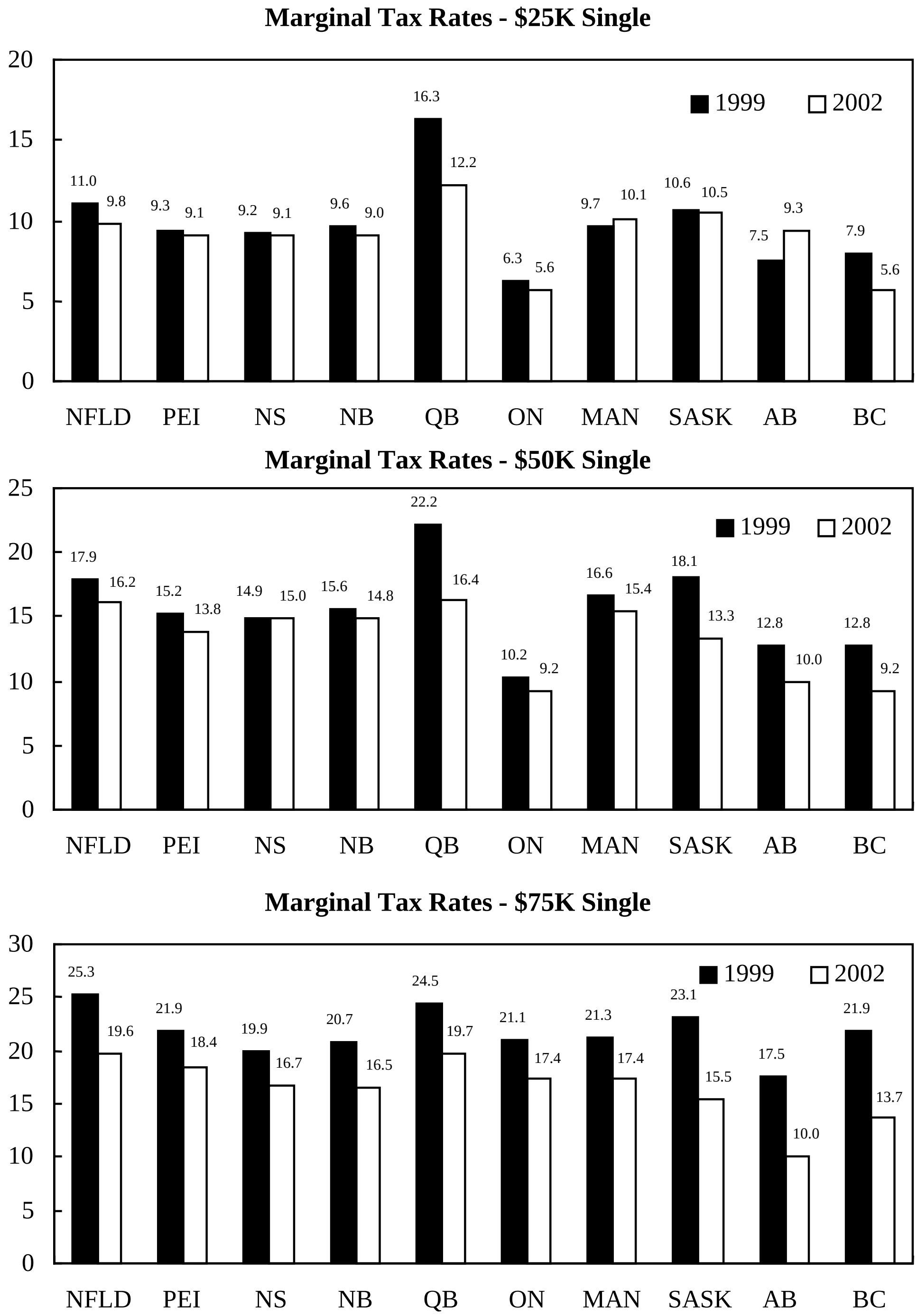
6 Basic federal tax is federal income tax owed before the application of surtaxes and non-refundable tax credits.

Figure 1



Source: Saskatchewan Finance.

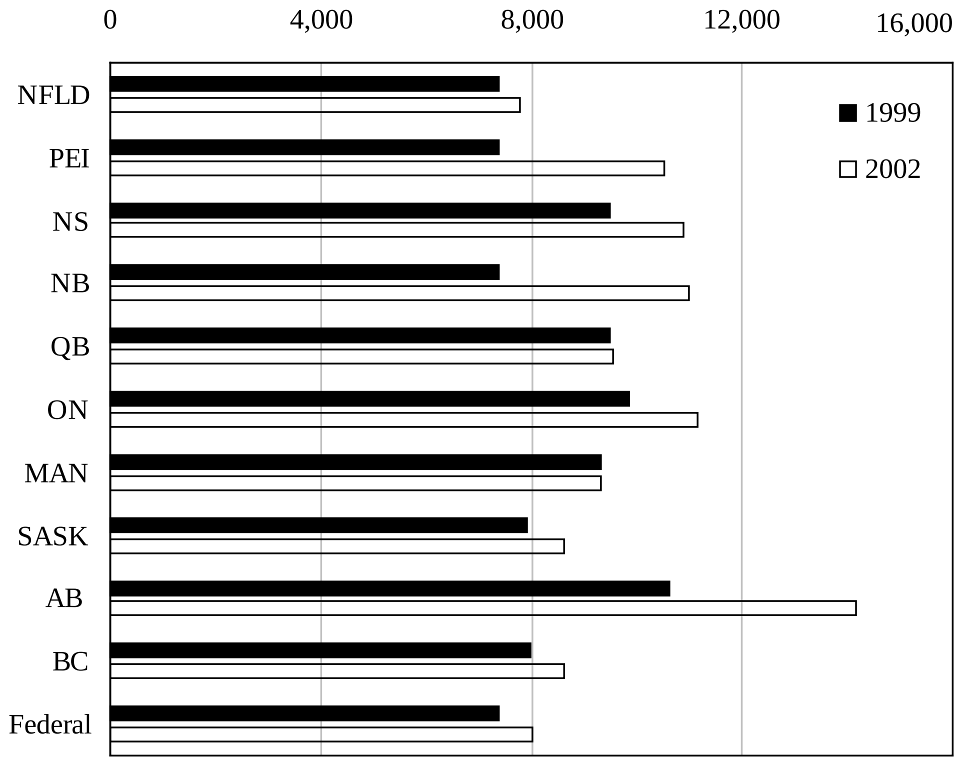
Figure 2



Source: Finances of the Nation.

Figure 3

Low-Income Thresholds



Source: Finances of the Nation.

Several provinces reduced the number of tax brackets over the period both through the elimination of surtaxes and direct bracket elimination (Figure 7).[7] The low-income threshold (Figure 3) increased in all provinces (as well as for the federal government) over the four-year period. The average value for provinces increased by $520, almost 7 per cent of its 1999 value.

Over the four year period, taxes over the $10,000 to $100,00 range became more progressive (Figure 4) in the three maritime provinces (Nova Scotia, New Brunswick and Prince Edward Island) and somewhat less progressive in the rest of the country. The same pattern is evident when examining the two intermediate ranges although magnitudes differ substantially across provinces.

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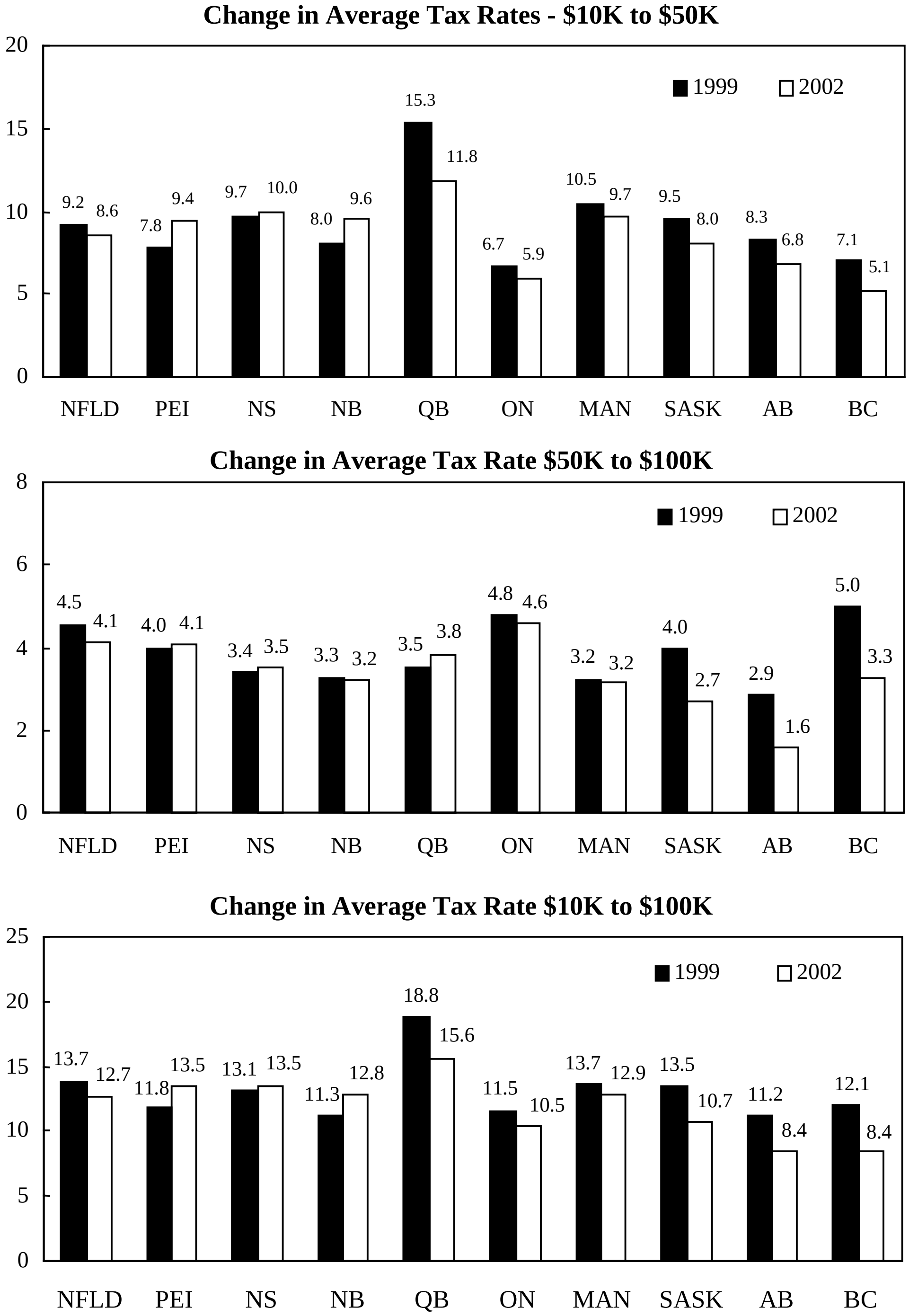
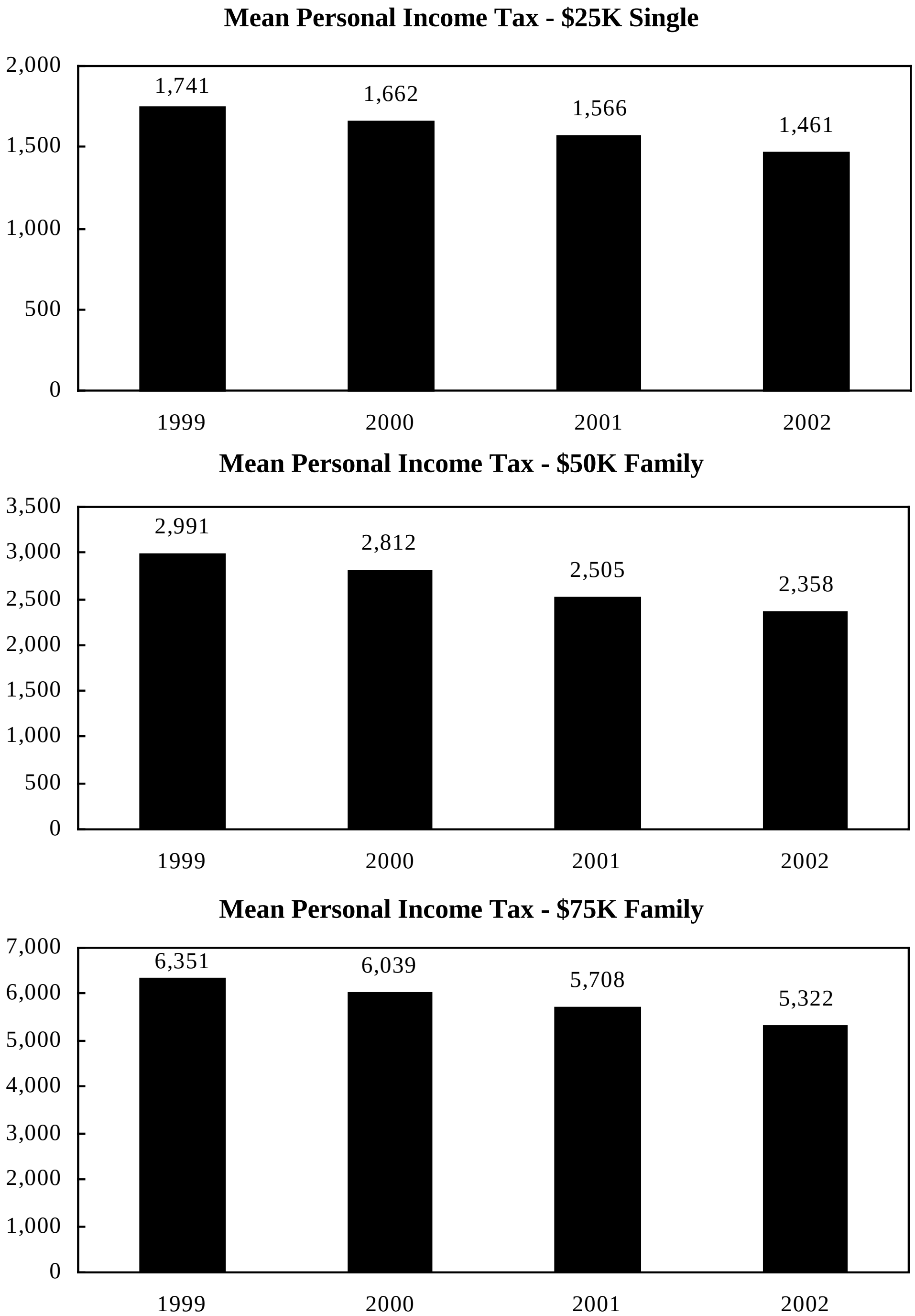
7 Indeed, one province, Alberta, adopted a single rate tax system with a large personal exemption to add progressivity to the system.

Figure 4



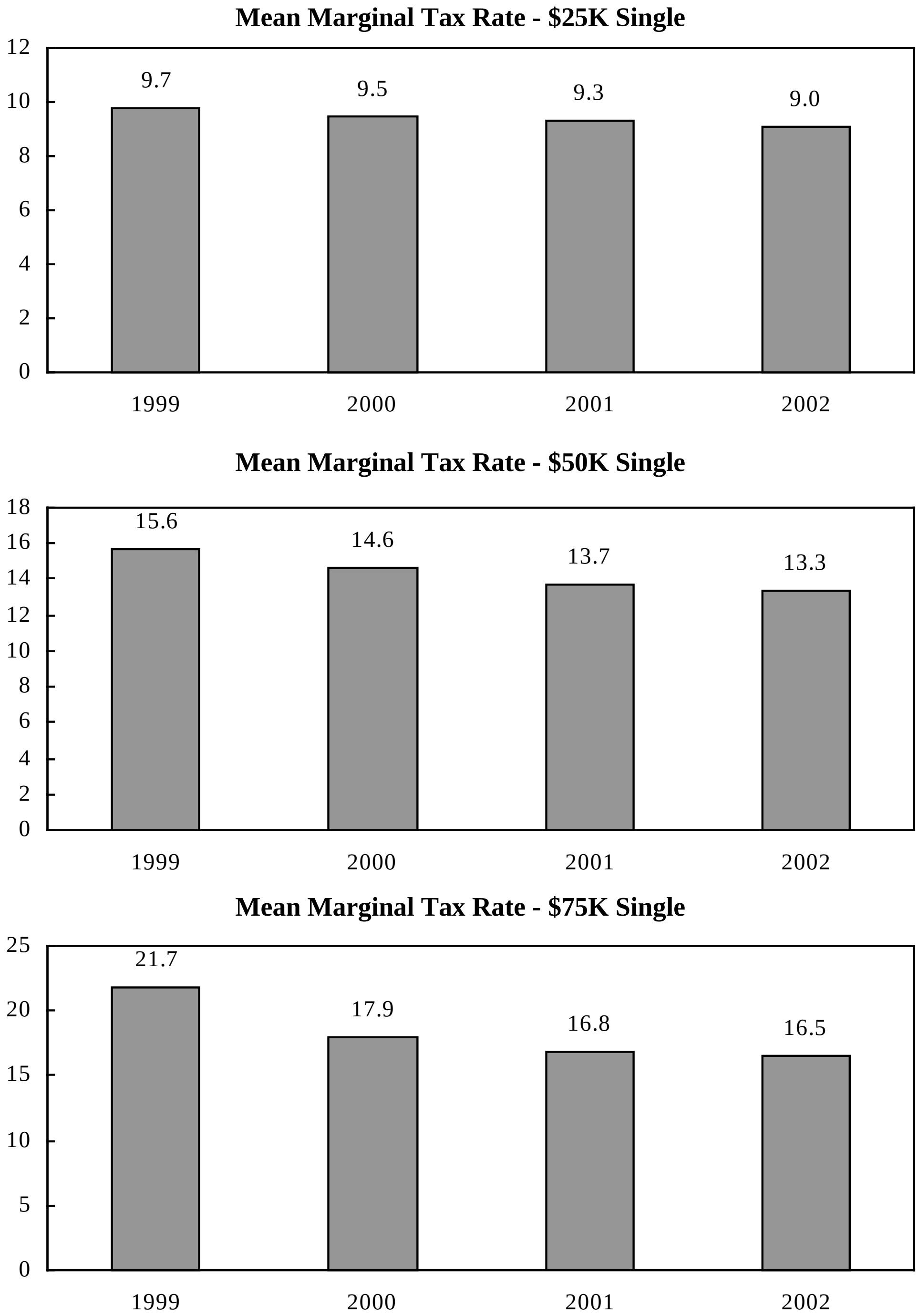
Source: Finances of the Nation.

Figure 5



Source: Saskatchewan Finance.

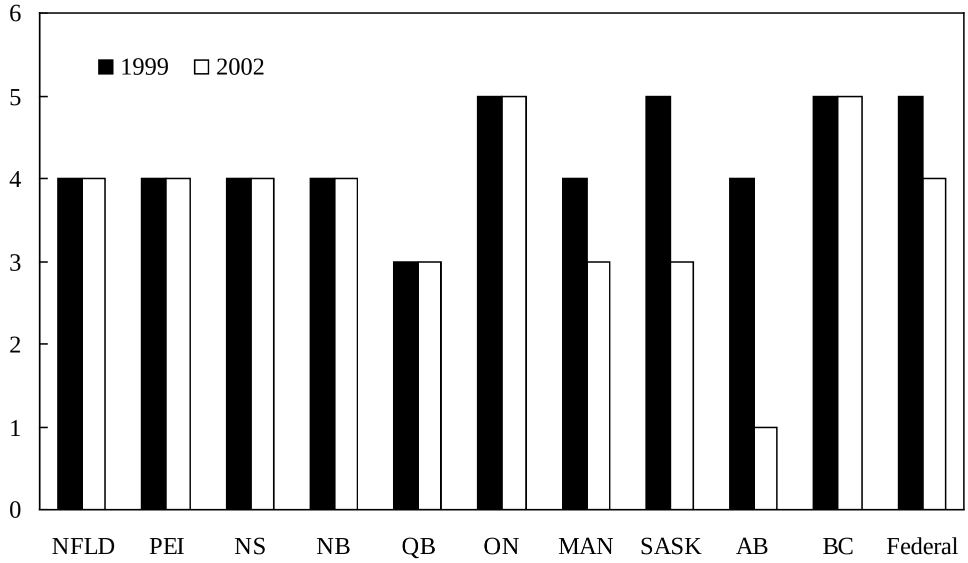
Figure 6



Source: Finances of the Nation.

Figure 7

Number of Income Tax Brackets



Source: Finances of the Nation.

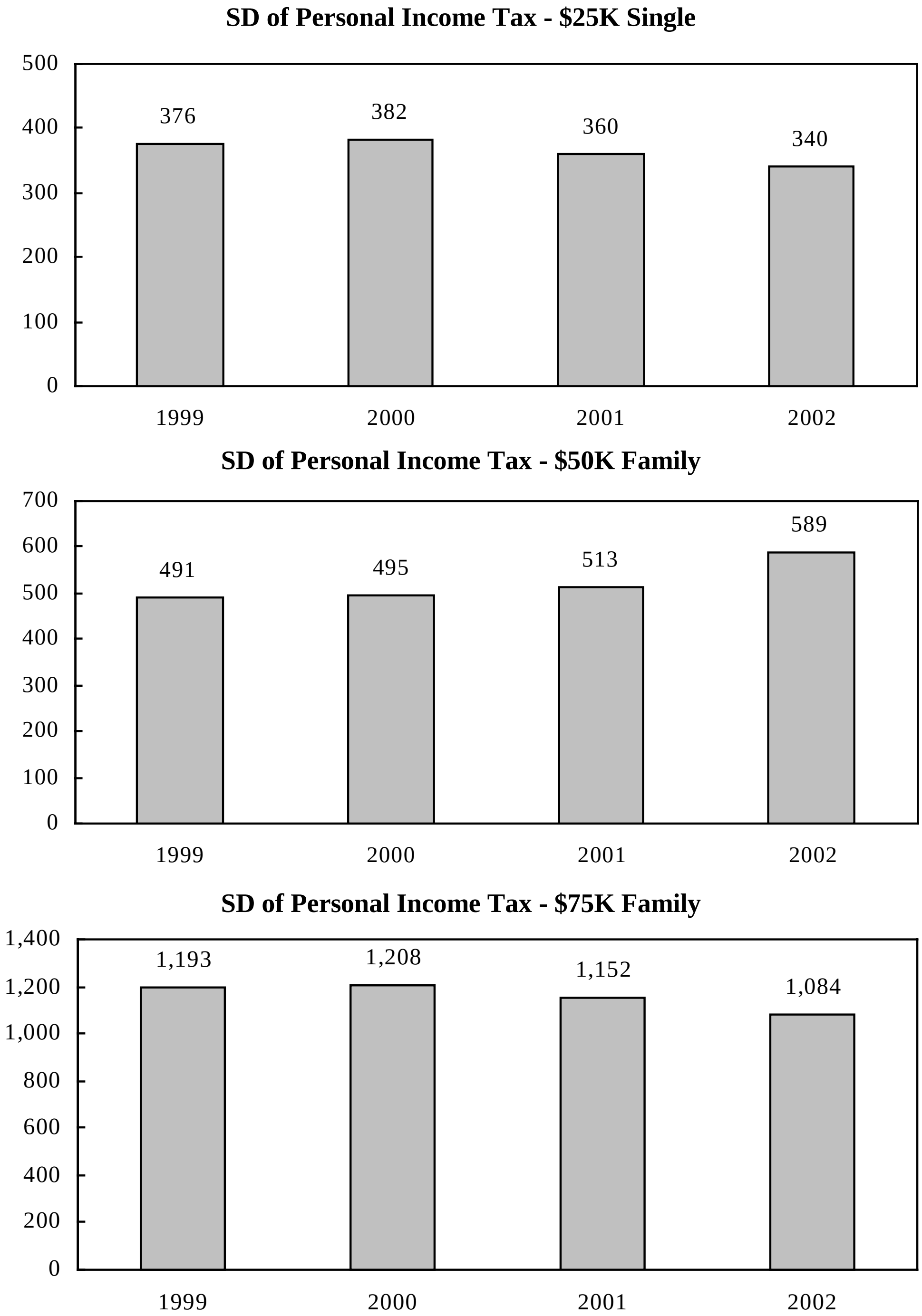
4. Evaluation

As we saw in the previous section, all provinces moved to lower average tax rates over the period 1999 to 2002. Given this trend, and the greater opportunity to tailor provincial tax regimes to regional preferences, it is interesting to consider whether variations in provincial tax systems have actually increased and the implications for economic and political efficiency.

Given that tax systems have a number of distinct characteristics, the answer to these questions may not be clear-cut. Probably the best overall measure of variation to employ is the average level of taxation by income/family group. In Figure 8 we show the standard deviation of taxes for three income/family groups. For the $25,000 single taxpayer, we see that dispersion of provincial taxes actually declined over the period. The same results obtain for the $75,000 family, while the dispersion of provincial taxes increased for the $50,000 family.

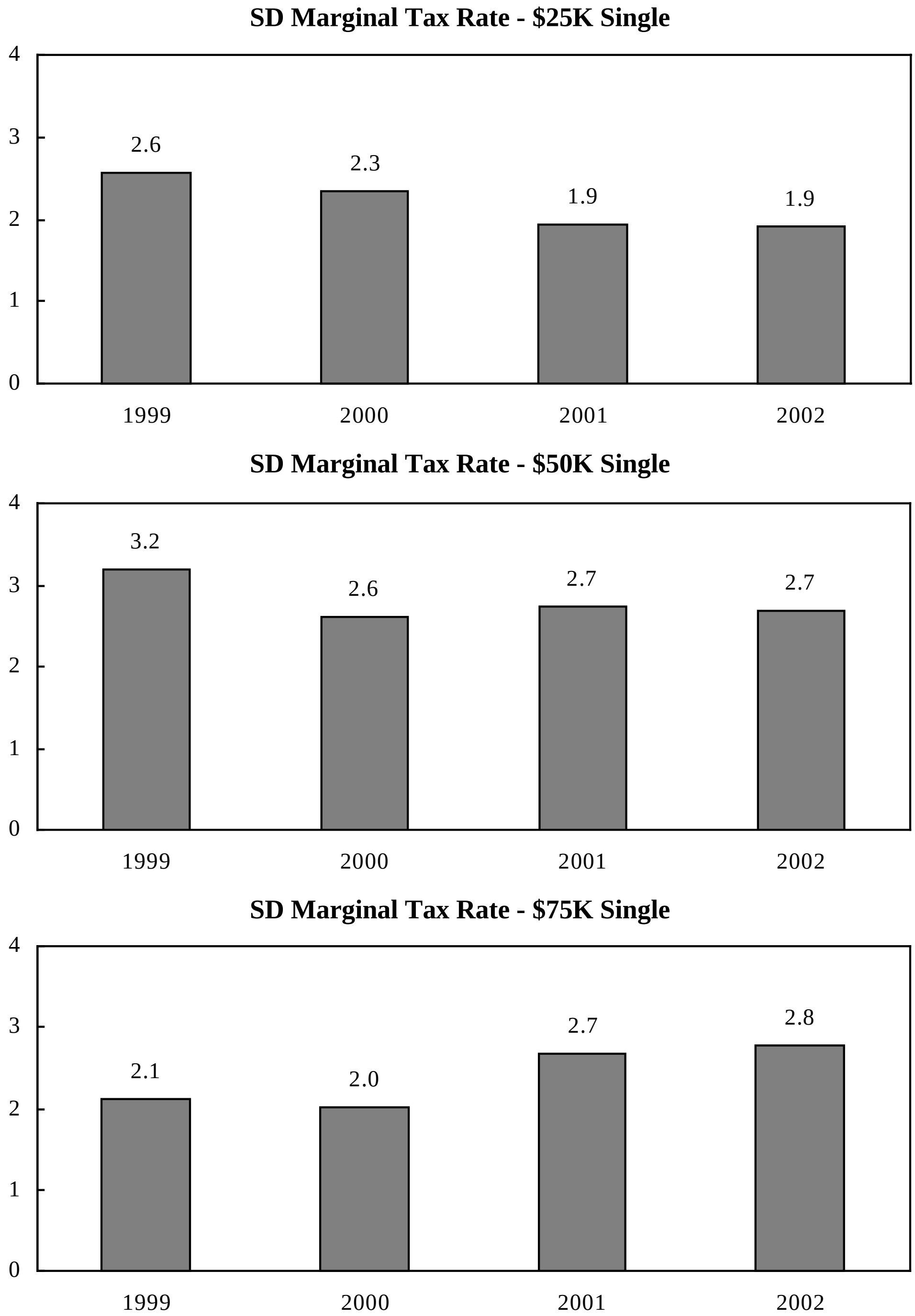
These summary results obtain despite substantial variation across different characteristics of provincial tax systems. For example, the pattern of marginal tax rate dispersion across income groups (Figure 9) is slightly different than the summary measure. For these rates, dispersion declines for $25,000 and $50,000 single taxpayers and increased for $75,000 single taxpayers largely as result of one province adopting a single rate tax.

Figure 8



Source: Saskatchewan Finance.

Figure 9



Source: Finances of the Nation.

In addition, the dispersion of low-income thresholds as measured by the range, increased by about $2,500 from its 1999 value of $3,250 (Figure 3). By 2002, there was more variation in the number of brackets and greater dispersion in our progressivity indicator (Figure 4) over the $ 10,000-100,000 range, although dispersion actually declined for the $10,000-50,000 range.

Thus, provinces used the move to TONI to tailor their tax systems to preferences that appear to differ across regions. However, it seems that tax competition in an environment of high capital and labour mobility prevented actual levels of taxation at different income levels from becoming significantly more diverse.

Have changes to provincial tax systems since the move to TONI served to fragment the Canadian economic union? Beyond general competition on average tax rates, the answer is a qualified no. Inspection of Table 1 shows that with the exception of Quebec (the only province that used TONI prior to 2000), few provinces introduced measures designed specifically to attract targeted groups of taxpayers. Quebec continued its reliance on tax measures to attract specific kinds of human capital.

Finally, all nine provinces adhered to the common definition of taxable income and income allocation rule proposed by the federal government as they moved to TONI. Thus, compliance and administration costs did not increase significantly. The move to TONI was accompanied by measures designed, in part, to simplify provincial tax systems, for example, the reduction in the number of tax brackets. Both the move to TONI and the accompanying simplification have improved the transparency and accountability of provincial and federal income tax systems.

5. Summary

In this paper, we have taken advantage of a natural experiment to examine the impact of increased tax competition on the economic and political efficiency of the tax system in a federal state. In 2000 and 2001, nine of ten Canadian provinces moved from an income tax levied as a share of basic federal tax to one levied directly on federally-defined taxable income. While provinces used this opportunity to tailor their tax systems to more closely match regional preferences, the forces of competition prevented an increase in the dispersion of overall levels of taxation. Beyond competing on overall tax levels, provinces have not generally introduced measures that would distort the location decisions of individuals. The exception to this finding is Quebec, a province that has historically maintained a distinctly different tax system from the other provinces.

Further, the move to TONI has been accompanied by a trend toward simplification of provincial tax systems. Both of these developments have contributed to better transparency and accountability in the collection of personal income taxes in Canada.

Table 1

Selected Provincial Tax Measures, 1999-2002

1999

PEI • cuts PIT
NB • cuts PIT
QUE • new measures for self-employed, disabled, children • modified Alternative Minimum Tax (AMT) • tax holiday for non-residents working in R&D and Intl Fin
ONT • cuts PIT • tax credit for R&D employees buying stock
MAN • cuts PIT

2000 (Five Provinces Move to TONI)

NFLD • cuts PIT
PEI • cuts PIT • special reduction for low income • 2001 move to TONI • 2001 adopt federal brackets
NS • moves to TONI • adopts federal brackets
NB • cuts PIT, moves to TONI
QUE • changes brackets and rates, cuts PIT • new tax credits: infertility, elite athletes, adoption expenses, corporate directors, charitable donations • harmonizes capital gains inclusion rate
ONT • moves to TONI, adopts federal brackets, cuts PIT • change in charitable donation tax credits • harmonize capital gains
MAN • moves to TONI, adopts federal brackets
SASK • cuts flat tax • PSE grad credit
BC • moves to TONI, adopts federal rates and brackets

2001 (Federal Tax Moves to a Five Bracket/Surtax System, Four Provinces Move to TONI)

NFLD • moves to TONI with 3 brackets • higher credit for low-income seniors
PEI • moves to TONI with 3 brackets
NB • eliminates surtax and moves to 4 brackets • increases and indexes personal credits • adopts federal capital gains inclusion rate
QUE • cuts PIT • enhanced credits – sales tax, northern villages, disability, infertility, people living alone, artists, political contributions, scholarships, and bursaries
ONT • changes to credits – disability, caregiver, education, medical expenses, AMT, parents with children in private schools
MAN • cuts surtax, enhances all credits • matches federal capital inclusion rate
SASK • moves to TONI • major tax reduction, substantially increased credits • 3 brackets that differ from federal brackets • political contribution tax credit • reduced capital gains tax on disposition of farms and small business
AB • Moves to TONI and single rate • large personal credits
BC • eliminates surtaxes, moves to 5 bracket system • major reductions to PIT

2002 (Federal Surtax Eliminated)

NFLD • enhanced dividend tax credit
NB • enhanced dividend tax credit
ONT • enhanced dividend tax credit
MAN • Enhanced political contribution tax credit • some investment tax credits enhanced
SASK • cuts PIT
BC • cuts PIT

What lessons for other jurisdictions can be drawn from the results of this natural experiment? Despite the political fact of having ten strong and relatively autonomous provinces, Canada is an integrated economy with a high degree of factor mobility. As might be expected, it is in environments such as these that tax competition is likely to have its greatest effect. If these results can be generalized to Europe, for example, they suggest that as economic integration proceeds, overall levels of taxation may become more harmonized. However, these findings do not support the view that European Union members will be unable to tailor their national tax systems to satisfy regional preferences.

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