

FIXING SASKATCHEWAN'S POTASH ROYALTY MESS: A NEW APPROACH FOR ECONOMIC EFFICIENCY AND SIMPLICITY

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SUMMARY

For a government's fiscal program to best serve the public interest, while also ensuring sufficient public revenue collection, it has to meet three criteria: efficiency, simplicity and fairness. Unfortunately, the royalty and tax system currently in place for Saskatchewan's robust potash-mining industry is none of these three things; it has actually reached the point of incoherence and absurdity, or a mess.

Under the current royalty and tax regime for potash producers, the tangled thicket of royalties, taxes and credits can differ between commencement dates for production, projects of different sizes, or even projects of similar size but with different profitability; it also has potash producers generally enjoying a much lighter tax burden on marginal investments than that borne by the oil and gas industry and most other non-resource industries. The result is distortions and inefficiencies, resulting in subpar investment activity, which can only stand in the way of Saskatchewan reaching its full economic potential.

That needs to change. The Saskatchewan government can implement a simpler and properly structured rent-based tax and a revenue-based royalty as minimum payment (where the royalty can be credited against the rent tax), each with a single rate and an identical tax base for all tax and royalty payers. Such a properly structured royalty and tax system can deliver improved productivity, without reducing investment incentives, resulting in a better partnership for both Saskatchewan's industry and government in the long run.

[†] We would not have been able to complete this study without the professional assistance provided by several officials at Saskatchewan's Ministry of Energy and Resources. We particularly thank Janet Farrell and Nichol Rea for their explanation of the trickiest parts of the potash fiscal regime and Cory Hughs for providing and explaining the latest government statistics related to potash in Saskatchewan. We also benefited from information provided by PricewaterhouseCoopers on the potash royalty system and the insightful comments from an anonymous referee. However, the views expressed in this paper are solely those of the authors.

INTRODUCTION

Saskatchewan's potash royalty regime is notoriously complex and distortionary. It is non-neutral, as it imposes levies at different rates on producers, even those of similar size. Layers of levies are conditioned on various criteria, or subject to certain limits, and some of them offset others. Investments are treated differently according to whether the company existed prior to 2002 or not. It also leads to the shifting of capital resources away from other business activities in Saskatchewan that are less favourably treated from a fiscal perspective.

Although the end result in royalty and tax payments is more likely to favour potash investment than to penalize it, the fiscal regime is unduly complicated and undermines the economically efficient use of resources for development and extraction of the resource. As one of the authors of this report termed it, Saskatchewan's potash royalty system is a "mess."¹

The summary of a recent article says it all: "Potash royalties are sparking widespread political debate but few of us understand how they are calculated."² As demonstrated by this article, fiscal distortions and complexity are a result of ad hoc quick fixes accumulated by various governments.

What is needed in designing a fiscal regime is a coherent view aimed at securing long-term economic growth and steady government revenue. A royalty regime should assess the rents earned by the industry — rents being the surplus in excess of the cost of exploration, development and extraction. Such a rent-based cash flow tax may be combined with a revenue-based royalty serving as a minimum tax. That is, the revenue-based royalty, with a return allowance for carrying forward, is creditable against the rent-based cash-flow tax, so as to ensure relative stability in the government revenue from potash.

In this briefing paper, we first comb through layers of Saskatchewan's potash fiscal regime including both royalties and other targeted levies, and then provide our evaluation of this regime in terms of its simplicity and efficiency. We also propose an alternative fiscal model aimed at improving simplicity and efficiency while achieving at least equivalent revenue for the government. We find that, in general, Saskatchewan's potash fiscal regime has erred on the side of being pro-growth, despite having excessive numbers of nominal levies on potash investment. The province should simplify its regime by adopting a royalty at a uniform rate that is ultimately rent-based (see above), eliminating most of the existing distortions and providing a more stable and transparent regime for the future.

SASKATCHEWAN'S COMPLEX POTASH FISCAL REGIME

In addition to general corporate income taxes, the fiscal regime for potash in Saskatchewan includes the following multiple layers of levies: a Crown royalty (for Crown property only), a two-layer production tax, and a resource tax levied under the provincial capital tax. Moreover, for each of these levies, there are further complications.

¹ Jack M. Mintz, "The Potash Royalty Mess," *National Post*, October 14, 2010.

² Paul Martin, "Shedding Light on Saskatchewan's Potash Royalty Structure," *Saskatchewan Mining Journal*, 2011, pages 25-29, http://www.sunrisepublish.com/common/pdfs/publications/Mining_Journal/mining_2011_web.pdf.

First, the *Crown royalty* is stipulated in The Subsurface Mineral Regulations, 1960.

The royalty rate ranges from 4.25 to nine per cent, corresponding to the grade of mine run ore as measured by the percentage of potash content, ranging from below 21 per cent to 45 per cent or higher. More specifically, with every percentage-point gap in potash density, the royalty rate changes by a certain amount, ranging from zero to 0.5 percentage points.

The royalty base is the production (not sales) volume multiplied by 49 per cent of the published selling price for the lowest grade of product, regardless of the actual grade of the product sold.

Note that the ore grade that determines different royalty rates is with regard to the chemical composition as defined by the percentage of potash contained in the ore; the product grade that defines the royalty base is specified by form (e.g., granular, coarse, standard and fine) and particle size (in millimeters) of the potash product. While the royalty rate changes by the grade of mine run ore, the royalty base is fixed at the price for the lowest grade of product regardless of the actual grade of product sold.

Therefore, based on the published selling price for the lowest-grade product, the royalty rate is often said to be in the range of 2.1 to 4.5 per cent (i.e., 49 per cent of the rates between 4.25 per cent and nine per cent), or an average of 3.3 per cent. But the effective royalty rate measured by the ratio of royalty payment to sales value may vary significantly from this nominal range of royalty rates: it can be significantly lower if the product sold has a significantly higher grade, and hence a higher selling price and sales value; or it can be significantly higher if the sales volume is significantly lower than the production volume, which is the base for royalty calculation and payment. Also note that the royalty payment, regardless of whether it is from a Crown or freehold royalty, is creditable against the base payment of the potash production tax (see below); in the case of freehold royalty, the creditable royalty amount is limited to the level of Crown royalty for an equivalent property.³

Second, the *production tax* consists of two layers: a base payment and a profit tax.⁴

The base payment, or the first layer of the production tax, is nominally 35 per cent of annual resource profits with a tight band of limits between \$11 and \$12.33 per K₂O tonne (hereafter: tonne) sold. This tight band effectively delinks the effective base-payment rate based on the selling price from its nominal rate of 35 per cent of profit. For example, for 2008-2011, the effective base-payment rate based on selling price per K₂O tonne was below two per cent, while that for 2004-2006 ranged from 3.2 to 4.3 per cent.⁵ Note that this base payment is reduced by the royalty payment (see above) as well as a one per cent resource tax credit that is based on gross revenue. Such deductions can easily exceed the tightly banded base payment

³ Refer to The Potash Production Tax Regulations, Clause 12, <http://www.qp.gov.sk.ca/documents/English/Regulations/Regulations/M17-1R6.pdf>.

⁴ For the government summary, see <http://www.er.gov.sk.ca/Potash-Tax-Guide>.

⁵ This estimate is based on the PotashCorp 2011 annual report: Its average annual sales price was \$285 per K₂O tonne for the period of 2005-2011 and above \$600 per K₂O tonne for 2008-2011. That is, with a given cost per K₂O tonne, the higher (lower) the price, the lower (higher) the effective base-payment rate in relation to revenue, because of the tight band of the very low limits based on which the base payment is calculated.

during a period of high prices, but these “excess deductions” are required to be used to “restore” the base payment to zero.⁶ As a result, the net base payment was virtually zero over the past seven years when the sales price was high. For example, the aforementioned effective gross base-payment rate of three per cent and the average royalty rate of 3.3 per cent, combined with the one per cent resource tax credit, yield a zero net base payment ($= 3\% - 3.3\% - 1\% + (3.3\% + 1\% - 3\%)$).

Note that for new investment projects, there is a 10-year holiday for this base payment. Therefore, for new investment within this 10-year holiday period, the “only” government levies that are based on gross revenue are the Crown royalty and the three per cent resource surcharge (see below). In other words, this lengthy holiday for the base payment under the production tax may not yield any meaningful tax benefit for new investors if the tax otherwise payable can be fully offset by the Crown royalty and the resource tax credit, as illustrated above.

The profit tax, or the second layer of the production tax, is two tiered — 15 per cent and 35 per cent — depending on the profit bracket, which is adjusted annually based on the price index.⁷ For 2010, this profit bracket is \$59.95. That is, the 15 per cent rate applies to profit-per-tonne up to \$59.95 and the 35 per cent rate to profit-per-tonne above \$59.95. Given that the price of potash has reached \$287 or much higher per tonne since 2007, with a net-income to sales ratio well above 21 per cent,⁸ the profit per tonne has exceeded the profit bracket since 2007 (when the profit bracket itself was below \$57). Therefore, the 35 per cent rate appears to be a common marginal profit-tax rate for all well-established Canadian potash firms over the past five years.

However, the effective average profit-tax rate may be much lower. A more careful reading shows that (1) for producers who were producing potash in Saskatchewan in 2001 and 2002, the maximum taxable volume is their average sales in 2001-2002, and (2) for producers who were not producing potash in Saskatchewan until after 2002, their maximum taxable amount is 75 per cent of their sales but for no more than 1 million tonnes.⁹ By assuming that 75 per cent of the producer’s sales in the year is taxable, the effective average profit-tax rate can be somewhere between 11.25 per cent (15 per cent x 75 per cent) and 26.25 per cent (35 per cent x 75 per cent) depending on how the given year’s profit-per-tonne matches up to that year’s profit bracket (see above).

Next, under the profit tax, both exploration and development expenditures are entitled to be written off through a 120 per cent allowance. For depreciable capital, investment above 90 per cent of the 2002 level is written off at 120 per cent, and investment below this threshold amount is written off at 35 per cent on a declining balance basis. According to the Ministry of

⁶ The official equation is: Net base payment = gross base payment - [Crown royalties + freehold royalties + Saskatchewan Resource Credit - excess deductions] - tax credits (prior year). Refer to <http://www.er.gov.sk.ca/Potash-Tax-Guide>.

⁷ Effective Jan. 1, 2001, the profit bracket is the product of \$40 and the ratio of the implicit price index for GDP for the year in question to that in 1989. For example, for year 2010, this ratio is 149 per cent ($=122.6/82.4$) and hence the profit bracket is \$59.55 ($=\$40 \times 149\%$).

⁸ Refer to the PotashCorp 2011 annual report, page 79. We noticed that the “net income” reported in this annual report is EBITDA net of finance costs, income taxes, and depreciation and amortization, which roughly matches the official definition of “profit” as the base for the potash profit tax. See <http://www.er.gov.sk.ca/Potash-Tax-Guide> for details.

⁹ For the tedious details in determining the taxable portion of the total sales subject to the profit tax, refer to <http://www.er.gov.sk.ca/Potash-Tax-Guide>.

Energy and Resources, annual capital investment in potash increased steadily from \$98 million (2002) to \$2,127 million (2010).¹⁰ Therefore, it is reasonable to assume that capital investment at the margin is written off at 120 per cent for profit-tax purposes.¹¹ On the other hand, such an investment boom is certainly unsustainable. Therefore, there will be future years when annual capital investment falls below 90 per cent of the 2002 level and is written off at 35 per cent under the current profit-tax regulations.

Moreover, within the production tax, this profit tax may be partially offset by a base-payment credit¹² associated with the sales, for which the producer is paying both base payment and profit tax. As described above, however, the base payment may be zero during a high-price period when it can easily be exceeded by both the royalty payment and the resource-tax credit. In other words, during a high-price period, the base-payment credit for profit tax may well be zero.

And finally, there is a three per cent *resource surcharge* on the value of potash (along with uranium and coal) sales. This tax is levied in the name of the provincial corporation capital tax (CCT).¹³ By adding this resource surcharge to the 3.3 per cent Crown royalty, and assuming a zero base-payment under the potash production tax, the total government levy based on gross revenue is roughly 6.3 per cent, assuming the production volume (which determines the royalty base) is the same as sales volume and that the product grade is the lowest standard (which is another determinant of the royalty base).

Further, Saskatchewan levies a corporate income tax at a rate of 12 per cent on non-manufacturing income (10 per cent on manufacturing income) that is added to the federal rate of 15 per cent on corporate taxable income.¹⁴ Corporate taxable income is calculated by deducting qualifying labour and capital expenses including borrowed interest, other taxes, and provincial royalties from sales revenues and financial income. The province provides a tax credit for manufacturing machinery at five per cent that reduces provincial corporate income tax payments. Other credits are provided (e.g., research and development and foreign taxes) including a federal mineral exploration and development tax credit that is being phased out after 2012.

Saskatchewan also imposes a five per cent retail sales tax that, in principle, applies to consumer goods and certain services but is also imposed on some business inputs including capital. The effective sales tax rate on capital goods (including both structure and machinery) in Saskatchewan is 1.6 per cent based on government revenue statistics.

¹⁰ Refer to the Ministry of Energy and Resources' annual reports for 2009-10 (page 31) and 2010-11 (page 33).

¹¹ Refer to the PotashCorp 2002 annual report, page 13, available at: http://www.potashcorp.com/media/POT_2002_AnnualReport.pdf.

¹² The base-payment credit = base-payment tax rate (\$11 to \$12.33) x (sales for which the producer is paying both base payment and profit tax) – 50% of Crown and freehold royalties + excess deductions from the base-payment calculation. See <http://www.er.gov.sk.ca/Potash-Tax-Guide>.

¹³ This corporation capital tax is meant to apply to provincial Crown corporations and financial institutions, but contains a special surtax applicable to “resource corporations,” excluding base metals, with assets in excess of \$100 million (<http://www.enterprisesaskatchewan.ca/provincialtaxes>).

¹⁴ The province has announced its intention to reduce the corporate income tax rate from 12 to 10 per cent at a later time.

In summary, Saskatchewan's potash fiscal regime effectively includes a production based levy (i.e., the Crown royalty), two virtual revenue-based levies (i.e., the base payment under the potash production tax and the resource surcharge), two profit-based levies (i.e., the profit tax under the potash production tax and the general corporate income tax) and other fiscal levies on capital investment (primarily the sales tax). The Crown royalty, along with a one per cent resource tax credit, is creditable against the base payment under the production tax; a version of the base payment is creditable against the profit tax under the production tax; and all these levies are deductible amounts for calculating taxable income under the corporate income tax.

SASKATCHEWAN'S POTASH FISCAL REGIME: OUR EVALUATION

The primary purpose of any fiscal levy within a given jurisdiction is to collect revenue to fund the government's functions. Such functions range from preserving the value of Crown property to improving the well-being of citizens within the jurisdiction. Ideal fiscal regimes that can best serve the public interest while ensuring revenue collection must meet three criteria: simplicity, efficiency and fairness. In this briefing paper, we focus our evaluation of the potash fiscal regime on its degree of simplicity and efficiency.

In the context of resource industries, fairness could be assessed in terms of the "fair share" taken by the government, as owner of the resource, in rents across different resource industries (e.g., potash, metallic mining, and oil and gas). In principle, the government, as owner of the resource, should receive 100 per cent of rents. However, to invite private producers to explore, develop and extract resources, the government must offer a competitive return, which could include rents, to attract investors. Without having the detailed revenue and cost data across different segments of resource companies in Saskatchewan and elsewhere, however, we do not intend to comment on "fair share" in this briefing paper.

Another way of interpreting "fairness," which is appropriate for the analysis below, is to examine "neutrality" among different investments in the resource sector. Since businesses are owned by investors with different income levels, it is best for business taxes, including royalties, to be assessed at similar burdens across different resource firms. We believe that, in principle, fairness at the business-tax level is best understood in terms of neutrality, as is economic efficiency and simplicity.

Simplicity

Based on our reading (see above), it is self-evident that Saskatchewan's potash fiscal regime is overly complex; its multi-layered levies embedded with mutual offsetting mechanisms lack economic coherence. Such complexity not only undermines economic efficiency (see the next section), but also causes confusion and wasted resources in compliance and administration. In particular, we note that the following complications are unnecessary, or lack economic justification.

First, the royalty regime that is supposed to secure the government's share in the sales value of potash is incoherent. On the one hand, it applies a 26-tier royalty rate scheme to differentiate the ore mine run by every one-percentage point variation in potash density and, on the other hand, it applies a single standard to differentiate the tax base from the actual grade and hence the sales value of the product. If this peculiar design, in addition to its creditability against the

base payment of the production tax, is to avoid “overtaxing” the potash producers, then there is no point in imposing an additional resource surcharge based on total revenue regardless of the level of profitability. Again, we are not concerned at this point about the justifiable level of government revenue, but simply about the coherence of the potash fiscal regime itself.

Second, the production tax structure that is supposed to determine the government’s share in the economic rent of the product is absurd. Theoretically, a rent-based tax is straightforward in that it is imposed on the positive cash flow that is net of all the accumulated cost, including past net-negative cash flow carried forward to reduce future payments, with the amounts indexed closely based on a risk-free interest rate.¹⁵ The potash production tax, however, appears to err on the side of minimizing investors’ tax cost while losing sight of the purpose of the tax itself — i.e., appropriating a proper share of economic rent from potash investment. This production tax is categorized as having two parts: the base payment and the profit tax. With respect to the base payment, the tight band (\$11 to \$12.33 per tonne) makes its nominal tax rate of 35 per cent meaningless, not to mention that this base payment can first be credited by the royalty payment and a generous resource tax credit, and then any possible uncredited portion of the base payment can be partially credited against the profit tax.

As for the profit tax, its structure is also hard to comprehend: it differentiates between new and old producers with multiple criteria for determining the tax rate and tax base, as well as the capital cost allowance, to ensure every potash producer is well taken care of financially. Unfortunately, all these complications in tax calculations have nothing to do with ensuring long-term stability in both government revenue and potash investment; they only cause significant waste in tax compliance and administration. Furthermore, the two-tiered capital cost allowance scheme (i.e., 35 per cent vs. 120 per cent), using the 2002 investment level as a threshold, not only complicates tax planning, but can also lead to bunching, whereby investment is deferred during years when the expected levels are below the threshold, to those years when investment is expected to be higher than the threshold.

And finally, the resource surcharge, among all the potash levies, might be the simplest taxing form considered by itself. However, it is based on the total sales value and, hence, has nothing to do with profitability: it is akin to a revenue-based royalty. In other words, this resource surcharge does not merit a stand-alone levy but rather, a minimum royalty.

Economic efficiency

Economic efficiency implies the best allocation of resources to maximize output of the economy. In a market without fiscal measures, resources are allocated to their most profitable use by businesses. Taxes and royalties can distort decisions that result in a suboptimal use of resources in the economy whereby capital and labour are allocated to less-profitable uses.

An efficient tax structure is marked by neutrality. If capital investment across all assets and industries bears a similar level of tax cost, such a fiscal regime is said to be largely neutral. Such a neutral fiscal regime is efficient because it does little to intervene in the market’s allocation of capital resources. Otherwise, the tax and royalty system distorts investment and production decisions, undermining the most productive use of resources in the economy.

¹⁵ For more detailed discussion of the concept of a rent tax, see: Jack Mintz and Duanjie Chen, “Capturing Economic Rents from Resources through Royalty and Tax,” SPP Research Paper, Volume 5: Issue 30 (October 2012), page 3.

To facilitate our evaluation of the efficiency of Saskatchewan's potash fiscal regime, we employ a marginal effective tax and royalty rate (METRR) analysis. The METRR is the tax and royalty wedge between the gross- and the net-of-tax-and-royalty return to capital in proportion to the gross-of-tax-and-royalty return to capital for marginal decisions. We focus on the marginal decision since investment is determined at the point when the risk-adjusted rate of return on capital, net of taxes and royalties, is equal to the cost of financing capital.

To illustrate, if the prevailing risk-adjusted gross-of-tax-and-royalty return to capital is 10 per cent, and the net-of-tax-and-royalty rate of return to capital is seven per cent, the prevailing METRR is 30 per cent.¹⁶ Assuming that seven per cent is the cost of financing capital from international markets, a METRR for a given business segment (including a given type of asset) higher than 30 per cent means that companies must earn a gross-of-tax rate of return on investment higher than 10 per cent to cover taxes, royalties and the cost of finance, which may cause under-investing in the given segment. In the opposite case, a segment METRR lower than 30 per cent means that companies can recover the seven per cent net-of-tax-and-royalty rate of return without earning up to the 10 per cent risk-adjusted gross-of-tax-and-royalty return to capital, which can lead to over-investing in the given segment.

In principle, the true rent-based tax associated with marginal investment should be zero. This is because marginal investment, or investment made at the margin, at which point revenue earned from the investment is only sufficient to cover the cost of capital, does not generate any rent (i.e., a surplus in excess of the cost of capital). In other words, there is no rent-based tax collectable from marginal investment. Thus, resource companies should have a METRR that is no different from that for other industries even if they pay rent taxes on all their investment projects.

Table 1 provides our calculation of METRRs by industry in Saskatchewan. For non-resource sectors, in which royalty is an irrelevant concept, the marginal effective tax and royalty rate is reduced to the marginal effective tax rate, or METR. For descriptive convenience, we use METRR and METR interchangeably throughout this paper. In the table, we provide two METRRs for potash, both of which are associated with the higher-profits tax rate of 35 per cent (vs. 15 per cent). The higher METRR of 21.9 per cent corresponds to the lower capital allowance (35 per cent) for the post-production capital investment within the official threshold (i.e., the 2002 investment level), and the lower METRR of -0.4 per cent¹⁷ corresponds to the higher depreciation allowance (120 per cent) for investment amounts exceeding the official threshold. Note that during a downturn, when potash prices — and hence profits — are lower, the lower profit-tax rate of 15 per cent may apply and hence the METRR can drop below -0.4 per cent. Further, given the incentive to bunch investment in recent years when investment is greater than threshold levels, the low METRR would more likely prevail.

Table 1 reveals that the higher METRR (21.9 per cent) is below the midpoint among both resource industries (including potash, metallic mining and oil and gas industries) and non-resource industries. On the other hand, the possible lower METRR for some potash firms (-0.4 per cent) in recent years is substantially below the METR for any other industry.

¹⁶ For an extensive list of references that lay down the theoretical and methodological foundation of the METRR concept, refer to Jack Mintz and Duanjie Chen, "Capturing Economic Rents from Resources through Royalty and Tax" (October 2012).

¹⁷ Note that a negative METR does not necessarily mean a cash refund occurs. It instead indicates tax support for capital investment that may be utilized by the investor to reduce his overall tax bill as the latter relates to both marginal and infra capital investments.

TABLE 1 MARGINAL EFFECTIVE TAX (AND ROYALTY) RATE IN SASKATCHEWAN, 2012

| | METRR (in %) |
|--|--------------|
| Oil and Gas | 37.1 |
| Communications | 35.5 |
| Construction | 31.9 |
| Other services | 31.1 |
| Wholesale Trade | 28.7 |
| Retail Trade | 28.0 |
| Transportation and storage | 23.2 |
| Electrical Power, Gas and Water | 22.6 |
| Potash (with the higher profit-tax rate of 35%*) | -0.4/21.9 |
| Agriculture | 21.9 |
| Manufacturing | 17.7 |
| Forestry | 16.1 |
| Metallic Mining | 11.0 |

* As explained in the text, the higher statutory profit-tax rate of 35 per cent is for profit above the annually adjusted profit bracket. This statutory rate is effectively 26.25 per cent or lower because, for a firm that was not producing in 2001 and 2002, only 75 per cent or less of the sales is taxable (i.e., $26.25\% = 35\% \times 75\%$). The lower and higher numbers are calculated assuming that incremental capital is written off at the 120 and 35 per cent rate respectively.

Compared to the possibly higher METRR for potash (21.9 per cent), the three markedly lower-taxed industries include metallic mining (nine per cent), forestry (16 per cent) and manufacturing (18 per cent). These industries enjoy explicit preferential tax treatment, including an accelerated depreciation allowance for the majority of depreciable assets (i.e., Class 41a for mining and Class 43 for forestry and manufacturing); a super-allowance for metallic mining exploration and development (150 per cent), which is more generous than that for potash (120 per cent) under the provincial resource tax regime; as well as a reduced provincial corporate income tax rate of 10 per cent; and a five per cent investment tax credit for most capital assets used by forestry and manufacturing industries.

Like metallic miners, potash producers are entitled to all the preferential corporate-income-tax treatment provided to the mining sector, such as expensing for exploration expenditures and accelerated cost recovery for development and most depreciable mining assets. The less explicit fiscal concessions enjoyed by potash producers are embedded within the layers of potash-specific fiscal levies. To decompose the overall impact of all the fiscal levies related to potash — ranging from the provincial sales tax, corporate income taxes to Crown royalty, the potash profit tax (under the potash production tax) and the resource surcharge — Table 2 presents the itemized METRR impacts on potash investment. As mentioned earlier, the base payment is largely zeroed out due to the offsetting mechanism within the potash fiscal regime. We therefore exclude this base payment from our METRR calculation.

In the table, Scenario One is consistent with the higher METRR for potash in Table 2. That is, it is associated with the higher profit-tax rate of 35 per cent and the lower capital allowance of 35 per cent for the purposes of the profit tax. Scenario Two is consistent with the lower METRR for potash in Table 2; it is the same as Scenario One for all the tax/royalty elements, except for the higher capital allowance (120 per cent rather than 35 per cent) under the profit tax. Within each scenario, six cases are presented. Case A is the base case and includes all the taxes and the Crown royalty, Case B deviates from Case A by excluding only the provincial sales tax, Cases C through F each single out one of the following fiscal levies: the corporate income taxes (C), the Crown royalty (D), the profit tax (E) and the potash surcharge (F).

TABLE 2 DECOMPOSING THE EFFECTIVE TAX AND ROYALTY RATE FOR POTASH, 2012

| | |
|---|---|
| I. With 35 per cent capital allowance under the profit tax | |
| A. Base Case | 21.9 |
| B. Excluding provincial sales tax | 17.0 (Implying a PST impact of 4.9 points) |
| C. CIT only | 2.6 |
| D. Royalty only | 2.1 |
| E. Profit tax only | 8.4 |
| F. Resource surcharge only | 1.9 |
| II. With 120 per cent capital allowance under the profit tax | |
| A. Base Case | -0.4 |
| B. Excluding provincial sales tax | -13.1 (Implying a PST impact of 12.7 points) |
| C. CIT only | 2.6 |
| D. Royalty only | 2.1 |
| E. Profit tax only | -39.9 |
| F. Resource surcharge only | 1.9 |

Several observations may be drawn from Table 2.

First, albeit the least relevant finding in the present paper, the provincial sales tax on capital goods accounts for a significant share of the overall METRR on potash investment (e.g., five percentage points out of the 22 per cent overall METRR in Scenario One).¹⁸ Taxing the purchase of capital goods under the retail sales tax is a cost on capital investment for all business sectors including potash. But this is a concern beyond the focus of this study.

Second, as pointed out earlier, the super-capital-allowance (120 per cent vs. 35 per cent) for profit-tax purposes reduces the overall METRR by almost 22 percentage points, from 21.9 per cent (Case A, Scenario One) to -0.4 per cent (Case A, Scenario Two). The impact of the higher capital allowance on the METRR is even more dramatic when only the profit-tax is considered, as measured by a METRR gap of 48 points (from 8.4 per cent in Scenario One to -39.9 per cent in Scenario Two)!

Third, corporate income taxes contribute only 2.6 percentage points of the overall METRR when all the other taxes are excluded. This rather low impact on the potash METRR reflects an important feature of our corporate income tax system: it provides full deduction for exploration expenditure (CEE) and a fast write-off for development expenditure (CDE), which, combined with further favourable treatment under the potash profit-tax regime, results in very low METRRs for these two assets (-0.4 per cent and 2.6 per cent respectively; see Table 3 below). Given that CEE normally accounts for over 30 per cent of the capital investment in potash and CDE, 13 per cent, the extremely low METRRs for these two assets contribute to a low overall METRR for potash investment.

Fourth, the Crown royalty and the resource surcharge each account for about two percentage points of the overall METRR, given the slight variation in their statutory rates (average 3.3 per cent vs. three per cent) on a presumed similar taxing base (production vs. sales value).

¹⁸ The sales-tax impact is even more evident in Scenario Two. The excessive tax subsidy related to the 120 per cent capital allowance reduces the base for calculating the METRR, thereby raising the impact of PST on the METRR. In contrast, the impacts in the other cases shown in Table 2 are calculated assuming each is the only element of the METRR, so they are not affected by the super-deduction except for Case E.

And finally, the itemized tax impacts on METRR do not add up to the overall METRR when all the non-sales taxes and royalty payments are included. That is, the sum of itemized tax/royalty impacts of Cases C through F is 15 per cent for Scenario One, rather than 17 per cent (Case B), and -33.4 per cent for Scenario Two, rather than -13.1 per cent (Case B). In other words, the interaction between the income tax and the royalty and other potash levies leads to higher fiscal burdens on marginal investments compared to the simple summation of individual tax and royalty impacts. This is because no royalty, regardless of whether it is revenue-based or rent-based, is neutral with respect to investment, since the government does not share the corporate tax burden with investors while collecting the royalty.¹⁹

Overall, taxes and royalties distort production decisions by differential treatment of asset expenditures. As shown in Table 3, the METRRs vary considerably across different asset expenditures, thereby potentially distorting productive efficiency. Generally, exploration and development are preferentially treated but so is depreciable capital when the potash company can write off depreciable capital at the 120 per cent rate under the profit-tax component of the Saskatchewan potash royalty regime.

TABLE 3 MARGINAL EFFECTIVE TAX AND ROYALTY RATES (METRR) FOR POTASH, BY ASSET TYPE

| | With 35 per cent Capital Cost Allowance under the profit tax (A) | With 120 per cent Capital Cost Allowance under the profit tax (B) |
|---------------------|---|--|
| CCE | -0.4 | -0.4 |
| CDE | 2.6 | 2.6 |
| Depreciable capital | 44.4 | -13.3 |
| Land | 18.6 | 18.6 |
| Inventory | 19.1 | 19.1 |
| Aggregate | 21.9 | -0.4 |

Source: Authors' calculations.

We believe expensing exploration expenditure is comparable to the situation with research, in that firms do not fully capture the benefits from their investment in discovery. We also believe that expensing all capital expenditures is a core component of a rent-based tax that is most suitable for a royalty system.²⁰ However, providing a super allowance (i.e., 120 per cent under the profit tax) for both exploration and development expenditures distorts capital allocation decisions; for example, companies that shift capital expenditure from post-development to development stages can reduce the overall fiscal payment to the government.

Note that for the case in which companies also qualify for the 120 per cent capital cost allowance (CCA), depreciable capital becomes even more favourably taxed compared to exploration and development expenditures (Table 3, Column B). In this case, pure tax planning may lead to excessive current post-production capital investment that is shifted either from pre-production development or from future investment as might otherwise be guided by market conditions. Such tax-induced capital investment can be both pro-cyclical and impair government revenue from potash production.

¹⁹ For an elaboration on these points, see our recent paper: Jack Mintz and Duanjie Chen, "Capturing Economic Rents from Resources through Royalty and Tax" (October 2012).

²⁰ See footnote 16.

The above findings demonstrate that the potash sector is taxed relatively lightly for marginal investments compared to a broad range of industries, particularly when the excessively higher allowance for depreciable assets (120 per cent) under the profit-tax is applied. The tax support associated with the potash sector is attributable to the corporate income tax system in general and the profit tax in particular. The corporate income tax system allows for expensing of exploration expenditure, justifiable when spillovers are present, and preferential treatment of both development expenditure and most mining assets, and the profit-tax system provides the super-allowance (120 per cent) not only for exploration and development expenditures but also for capital investment when the investment level of 2002 is exceeded. The latter is the most questionable since the static investment level of 2002 or any other given year has no policy base in guiding a long-term government tax provision.

In summary, Saskatchewan's potash fiscal regime is overly cumbersome and distorting. It also appears to treat the potash sector more favourably than the oil and gas industry and some non-resource industries, particularly through its profit-tax component.

SASKATCHEWAN'S POTASH FISCAL REGIME: AN ALTERNATIVE DESIGN

In proposing an alternative to the existing potash fiscal regime in Saskatchewan, we aim at setting up a simpler and more efficient prototype fiscal structure that can be developed further to help bring about long-term stability in both government revenue and capital investment in Saskatchewan's potash sector.

In our view, a simpler and more efficient prototype fiscal structure for potash, in addition to the existing corporate income taxes, should include a revenue-based royalty and a rent-based tax, each of which with a single rate and an identical tax base for all tax/royalty payers.

Theoretically, a rent-based tax is the only justifiable tax for the government to share the resource rent, in addition to taxing resource firms in the same manner as taxing any other firms. That is, because of the existence of rent that exceeds the normal return to capital — the latter being subject to the corporate income tax — the government has the right to share such rent given its ownership of the resources. In practice, however, the government may use a revenue-based royalty to secure a relatively stable revenue stream from the resource sector through the entire productive life of an extractive project. That is, with a revenue-based royalty that can be collected as soon as production commences, but that is creditable against the rent-based tax collectable only until the project reaches its pay-out point, the government will be able to even out its rent-based tax revenue through the whole productive life of a project. In other words, a proper combination of a revenue-based royalty and a rent-based tax, with the former creditable against the latter, will enable the government to secure a relatively smooth revenue stream from the potash sector.

By "proper," we first mean that the revenue-based royalty rate should be set so that it is high enough to be worth the administrative costs, but not so high as to become a deterrent to potential investment.

Further, with a proper rent tax, there is no need to provide differing royalty or tax rates according to the size of the project or its rate of return on capital. Such differentiation in rates, a unique feature of some provincial resource tax regimes in Canada, is avoided under rent taxes used in Norway, the United Kingdom and Australia. These countries avoid setting different royalty or rent-based tax rates according to profitability or size, since such rate differentiations cause investment distortions as well as opportunities for tax and royalty avoidance.

Therefore, with the existing potash fiscal regime as a baseline, as measured by METRR (Tables 1 to 3) for its capital-investment impact, our proposed fiscal regime for potash contains only two fiscal levies: a revenue-based royalty and a rent-based tax. The specific royalty rates and rent-tax rates proposed in this prototype regime are for illustrative purposes only; they are set to meet the criterion of keeping the current, higher METRR that is below the midpoint among other industries, unchanged.²¹

Mirroring the aggregated rate of existing revenue-based potash levies, which is effectively set at about 6.3 per cent (i.e., the 3.3 per cent average royalty rate based on production and the three per cent resource surcharge based on sales value), we assume a revenue-based royalty at seven per cent in our primary prototype fiscal structure. This rate is somewhat arbitrated so as to meet the criterion of matching the existing METRR for potash. It may be altered for different tax scenarios. The royalty base is the total sales value net of transportation and distribution cost. Ideally, the royalty payment should be creditable against the rent tax. But we also provide simulations for the “deductible” case as a technical reference for policy makers.

The rent tax may be set at 35 per cent or higher depending on whether the royalty payment is deductible or creditable. The tax base is the positive cash flow that is net of all the accumulated cost including past net-negative cash flow carried over on a risk-free interest rate. That is, all the capital expenditures, ranging from exploration and development to post-production capital investment, are fully expensed, no less and no more. And no selective conditions for differentiating among taxpayers are required. Such a rent tax should also be free of any sensitivity to market conditions in order to avoid interacting with economic cycles.

Table 4 presents a simulation of our proposed prototype fiscal regime with four alternatives that would yield similar METRRs. All the options are simple in that they include only a revenue-based royalty and a rent-based tax in addition to the corporate income taxes; they vary only in the royalty and rent-tax rates depending on whether the former is deductible for the purpose of the latter, or creditable against the latter. We divide these four alternatives into Scenarios A and B to illustrate how a provincial sales tax harmonized with the federal GST (Scenario B), in comparison with the case under the current provincial sales tax (Scenario A), can help lower the tax cost on capital investment and hence create room for greater revenue collection from potash production without discouraging potash investment determined under the existing tax system.

²¹ Given that the current METRR for potash is below that for some resource and non-resource industries in Saskatchewan — which reveals a fiscal preference for the potash sector over some other business sectors, particularly in the case where the lower profit-tax rate and/or the super-allowance for capital investment is applicable — we are of the opinion that government might consider raising revenue collection from the potash sector when reforming its fiscal regime for the sector. The ultimate royalty/tax rates, however, may be determined by policy preferences and the province’s fiscal condition.

TABLE 4 METRR SIMULATIONS FOR ALTERNATIVE POTASH FISCAL REGIMES

| | METRR | Reference |
|---|--------------|---|
| The Existing Fiscal Regime | 21.9 | Royalty = 2.1-4.5%, base payment = 35%, Profit tax = 35%, resource tax credit =1%, resource surcharge =3% |
| Alternative Prototype Fiscal Regimes: | | |
| A. With the current provincial sales tax | | |
| Royalty deductible | 21.9 | Royalty = 7%, rent tax = 35% |
| Royalty creditable | 21.7 | Royalty ≥ 7%, rent tax = 62% |
| B. With a sales tax harmonized with GST | | |
| Royalty deductible | 21.9 | Royalty = 10%, rent tax = 42% |
| Royalty creditable | 21.6 | Royalty ≥ 10%, rent tax = 70% |

Table 4 shows that to keep the METRR for potash at the level consistent with that associated with the current fiscal regime for potash, a much simpler fiscal regime may contain a royalty rate of seven per cent that is deductible for the purpose of a rent tax of 35 per cent, or a royalty rate of seven per cent or higher that is creditable against a rent tax which is as high as 62 per cent. Should the government decide to harmonize the provincial sales tax with the federal GST (Scenario B), so that the sales tax in a value-added tax (VAT) form has no impact on the purchase of capital goods, the deductible royalty may be raised to 10 per cent, combined with the rent-tax rate of up to 42 per cent, or the rent tax can be raised as high as 70 per cent if the royalty is creditable. Note that all these specific royalty and rent-tax rates are assumed so as only to keep the current tax cost to potash investors, as measured by METRR on potash, unchanged or reduced. In practice, policy makers may set these rates very differently to better serve their specific policy goals.

Also note that the rent-based tax (e.g., the rates of over 60 per cent for the cases where the revenue-based royalties are creditable against the rent-based taxes) combined with the federal-provincial corporate income tax rate of 27 per cent appears exceptionally high. Once accounting for deductibility of the rent-based taxes from the corporate income tax base, the combined rate is around three-quarters of profits, which could encourage substantial tax avoidance. But as repeatedly pointed out, these rates are for illustrative purposes only and are intended to match the METRR incurred under the existing fiscal regime. They should not be perceived as an optimal tax rate based on rent generated from potash investment in Saskatchewan.

The advantage of our approach to royalty and tax design is that it reduces distortions across asset expenditures, simplifies considerably the royalty structure and provides more certainty to investors in the long run (surely no stable royalty system can be based on the existing 2002 calculations). With more efficient production, the industry and government would earn more rents over time. While an assessment of revenues would be needed to determine revenue-neutral rates, the flatness of our proposed structure would improve productivity without reducing the incentive for investment.

CONCLUSIONS

In this paper, we have assessed the Saskatchewan royalty for the potash industry and we have come to the conclusion that it is a mess. The system is complex and distorting, which leads to subpar investment activity. It is likely unstable over time, since it is improbable that calculations based on investment levels a decade ago could be used for long periods of time.

It is possible to develop a far simpler and efficient royalty structure without impairing the incentive for potash producers to invest in Saskatchewan. We highly recommend a simple structure with a revenue-based royalty that would operate as a creditable minimum tax and a single-rate profit tax on rents — income in excess of the economic cost of production.

Regardless of how our proposed prototype fiscal regime for potash may be received among stakeholders, we strongly believe that reforming the existing fiscal regime for potash — for reasons of simplicity and efficiency, at least — is in the public interest of all residents of Saskatchewan.

APPENDIX A

EQUATIONS FOR CALCULATING MARGINAL EFFECTIVE TAX AND ROYALTY RATE

Marginal effective tax and royalty rate (METRR) is the proportional wedge between the gross-of-tax rate return to capital, R_g , and the net-of-tax rate of return to capital, R_n . That is, $METRR = (R_g - R_n)/R_g$. Based on Saskatchewan's fiscal regime for potash, as described in the text, this appendix presents the equations for calculating R_g for different types of capital investment, including: exploration and development (E&D), depreciable capital, inventory and land (a more complete model is available upon request).

EXPLORATION AND DEVELOPMENT (E&D)

$$(1) \quad R_{g_t} = (1+r)^{(T-t)}(1 - \tau(1+S))/(1 - \tau-g/PCM)$$

R_{g_t} = gross rate of return on capital (at the margin, and time-dependent, based on the years before production takes place).

r = real financing cost, equal to $R - \pi$

with $R = \beta i(1-u) + (1-\beta)q$

with i = nominal long-term corporate bond rate,

q = nominal cost of equity,

β = debt to asset ratio,

π = inflation rate.

τ = effective profit-tax rate = 26.25% (=35% x 75%).

S = super-allowance rate of 20%.

g = sum of the Crown royalty and the resource surcharge = 6.3% (=3.3% + 3%).

PCM = price-cost margin = 70%.²²

CAPITAL

$$(2) \quad R_g = (\delta + R - \pi)\{1 - \tau Z'(1-u) - uZ\}/((1-u)(1 - \tau))$$

δ = economic depreciation rate.

Z = present of capital cost allowances under the corporate income tax.

Z' = 120% when the investment allowance is 120% under the profit tax, or

Z' = .35/($R + .35$) when the annual allowance is 35% under the profit tax, and

u = combined corporate income tax rate.

INVENTORY (FIRST-IN-FIRST-OUT ACCOUNTING)

$$(3) \quad R_g = (R - \pi)(1 - \tau(1-u) + u\pi)/((1-u)(1 - \tau))$$

LAND

$$(4) \quad R_g = (R - \pi)(1 - \tau(1-u))/((1-u)(1 - \tau))$$

²² This is a rough assumption based on the price-cost margin, ranging from 61 per cent to 81 per cent for 2008, 2009 and 2010, derived from information in the PotashCorp 2010 annual report, page 26 (http://www.potashcorp.com/annual_reports/2010/).

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Jack M. Mintz was appointed the Palmer Chair in Public Policy at the University of Calgary in January 2008.

Widely published in the field of public economics, he was touted in a 2004 UK magazine publication as one of the world's most influential tax experts. He serves as an Associate Editor of *International Tax and Public Finance* and the *Canadian Tax Journal*, and is a research fellow of CESifo, Munich, Germany, and the Centre for Business Taxation Institute, Oxford University. He is a regular contributor to the National Post, and has frequently published articles in other print media.

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ISSN

1919-112x SPP Research Papers (Print)
1919-1138 SPP Research Papers (Online)

DATE OF ISSUE

February 2013

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