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Potash ownership and extraction: Between a rock and a hard place in Saskatchewan☆

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A B S T R A C T

It is difficult for almost all governments to combine efficient non-renewable natural resource production with effective capture of the resource rents. Governments must navigate between a "rock" of public sector extraction using relatively inefficient state-owned enterprises with considerable attendant rent dissipation and a "hard place" of private sector extraction with potential rent transfer or dissipation. We use the privatization of Potash Corporation of Saskatchewan (PCS) to illustrate this trade-off. We employ a "pre-post privatization" performance comparison to show that privatization did result in considerably improved PCS productive efficiency. We show, however, that Saskatchewan governments have been less successful at capturing significant resource rents following privatization. We consider some political economy explanations, including industry influence and an opaque rent tax regime that minimizes any negative electoral consequences of low rent appropriation. We discuss ways of increasing public rent capture: a more efficient and transparent rent tax regime, some share acquisition in potash firms (or specific projects) in order to provide a more accurate cost window on the industry, or some combination of a better tax regime and ownership.

1. Introduction

Throughout the 20th Century, threats of either nationalization or privatization have been a feature of governments in both developed and developing countries around the world (Guriev et al., 2011; Arsel et al., 2015). In the 21st Century, however, most governments have come to recognize the efficiency benefits of private ownership of production, including those in developing countries (Boardman et al., 2016). But, the extraction of non-renewable natural resources is a notable exception to this dominant privatization trend. The use of state-owned enterprises (SOEs) for the extraction and processing of natural resources remains common (Luong and Weinthal, 2006; Wolf and Pollitt, 2009; Eller et al., 2011; Tordo et al., 2011; Arsel et al., 2015; Ganbold and Ali, 2017).[1] Why do governments continue to use publicly-owned entities for extraction? Many governments, especially in countries with weak institutions, do so because they find it difficult to effectively capture resource rents (Mehlum et al., 2006; Moore and Vining, 2017).

Whatever their ideological orientation, governments face a trade-off between *capturing rent when they employ private sector agents* to extract these resources as against *maximizing the potential available rent when they employ public agents*. The best way to maximize potential available rent is to employ productively efficient private-sector agents, because much evidence shows that SOEs are relatively inefficient extraction agents. Many governments, however, are unwilling to trust private sector agents because they fear they will seek to retain rents for shareholders and managers. Sometimes, even where governments are willing to employ them, potential private agents refuse because of fear of opportunistic expropriation behavior (Deacon and Rode, 2015). In sum, there is a trade-off between public rent capture and rent maximization because productively efficient rent-extracting agents want to keep the rent!

The "resource curse" literature shows it is difficult for almost all governments to combine efficient resource rent production with effective rent capture (Sachs and Warner, 2001; Collier et al., 2010; Hogan, 2012; Badeeb et al., 2017). Governments must navigate between a "rock" of public sector extraction using relatively inefficient SOEs with considerable attendant rent dissipation and a "hard place" of private sector extraction with potential rent transfer or dissipation. We analyze the rocks and the hard places that resource-owning governments face, primarily using the principal-agent lens (Sappington and Stiglitz, 1987; Laffont and Tirole, 1991; Dixit, 2002). Initially, we treat the government and its residents as a *unitary* principal. The political economy

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[1] Although state ownership of non-renewable natural resources remains common, state involvement is often more opaque and indirect than in the past (Bortolotti and Faccio, 2008).

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version of the principal-agent problem, in contrast, treats citizens as the principal and government as a self-interested agent with respect to the allocation of resource rents (Torvik, 2009). We analyze political economy factors that affect the trade-off and consider policy options that could reduce it.

Many policy analysts treat effective rent capture as a developing country problem (Luong and Weinthal, 2006; Barma et al., 2012). But, one purpose of the paper is to show that resource rent capture by public owners in wealthy countries is also a significant policy problem (Australia Department of the Treasury, 2010; Hogan, 2012; Chen and Mintz, 2013). We use potash in the Canadian province of Saskatchewan as a developed country case of public natural resource ownership, to assess how the provincial government has managed the ownership-extraction trade-off and why it has had difficulty doing so effectively. Specifically, we empirically analyze the pre-privatization efficiency performance of the Potash Corp of Saskatchewan (PCS) and compare it to its post-privatization performance. Pre-post comparisons are a standard methodology in the privatization literature for analyzing performance change (Dewenter and Malatesta, 2001; Boardman et al., 2013b). A right-of-center Conservative government privatized PCS between 1989 and 1994. Successor governments have subsequently faced the task of capturing rents for residents of the province when using only private-sector extracting firms.

A left-of-center New Democratic Party Saskatchewan government formed PCS as a SOE in 1975. It began operations with the purchase of four potash mines and additional reserves. Between 1989 and 1991, the subsequent right-of-center government sold a majority of the shares for approximately $1.237 billion (Canadian dollars) and sold the final shares in 1994 (Burton, 2014; Crown Investments Corporation of Saskatchewan, 2016). Legal restrictions on foreign share ownership, share ownership concentration, and headquarter location were eliminated in 1994 (Warnock, 2011). By 2010, PCS had become a diversified multinational fertilizer company with many senior executives located in Chicago.

Using a “pre-post privatization” performance comparison, we show that privatization did result in considerably improved PCS productive efficiency. But we also show that subsequent Saskatchewan governments have been less successful at capturing significant resource rents for provincial residents. We consider explanations for this outcome, including subsequent governments’ acquiescence in low levels of rent appropriation, and argue it is a form of industry capture of government (rather than the more usual problem of regulatory agency capture). Governments can co-operate with industry in this way if they have other goals that trump rent extraction, such as private sector employment or (typically right-of-center) ideological preferences (den Hertog, 1999). A complex and opaque rent tax regime helps to minimize any negative electoral consequences of low rent appropriation. We consider ways of increasing public rent capture: a more efficient rent tax regime, or some share acquisition in potash firms (or specific projects) in order to provide a cost window on the industry and to offset informational asymmetries between government and firms. These options are not mutually exclusive, as the example of Norway's partial public ownership combined with a simple, effective resource rent tax regime shows.

The paper is organized as follows. Section 2 provides an overview of the global potash industry and the role of PCS in it. Section 3 discusses the ownership-extraction regime trade-off given the presence of resource rents, and the principles that should underlie an appropriate social welfare analysis of resource rent capture by public owners. Section 4 examines the relationship between different ownership regimes and the capture of scarcity and monopoly rents, and how principal-agent issues are relevant to the ownership-extraction trade-off. Section 5 reviews the literature on the productive efficiency effects of private versus public ownership. It outlines the methodology used to compare the performance of PCS before (pre) and after (post) privatization, and presents the results of this comparison. It also shows a reduction of government rent capture over the years following the PCS privatization. Section 6 documents the inefficiency and obscurity of the current Saskatchewan potash tax regime and considers some political economy explanations for the persistence of this inefficient regime. Section 7 assesses the potential ability of the Saskatchewan government to capture a greater share of the scarcity and monopoly resource rents using a more efficient tax regime, partial ownership, or a combination of both options. Section 8 concludes and provides policy recommendations. These recommendations consist of partial public ownership in tandem with a more efficient tax regime. A minority public-ownership stake should both reduce the informational asymmetries between the government and private sector resource extractors and should also reduce other principal-agent problems, such as tax-avoiding transfer pricing.

2. Global potash production and North American market structure

Potash is a water-soluble compound of potassium derived from K_2O (potassium oxide) that is an essential plant nutrient. The most common mineral forms of potash are sylvite (potassium chloride) and sylvinite (potassium chloride and salt), followed by carnalite. Other forms of potash are mixed with soluble sulphates or other salts (Garrett, 1996). Although potash mining is a global industry, it is found in significant commercial quantities in relatively few places (Taylor and Moss, 2013; al Rawashdeh and Maxwell, 2014; al Rawashdeh et al., 2016). Fig. 1 shows the global (2016) production of potash by country in percentages. It demonstrates that Canada is the world's largest producer, followed by Russia, Belarus, China, and Germany. These five countries produce approximately 84% of global output. U.S. output is only about one percent of the global total and has been falling.

Fig. 2 shows that global potash reserves appear almost as concentrated as production, although estimates of what constitutes reserves are always somewhat speculative.

In 1980, after PCS became an SOE and made various acquisitions, there were 6 Saskatchewan-based Canadian-owned potash producers (Richards, 1987). By 2010, only PCS, Mosaic and Agrium remained, and they owned around a third of global operational potash capacity (Conference Board of Canada, 2010). PCS and Agrium (Canadian, but based in the province of Alberta) merged in 2017. The merged firm possesses about 23% of global potash capacity and more than 60% of North American capacity (Wall Street Journal, September 12, 2016). The Canadian and American firms market independently in the US, but export jointly outside North America through Canpotex, which is effectively an export cartel. Each Canpotex firm has one vote on production and pricing decisions, although PCS has over a 50% share of exports.

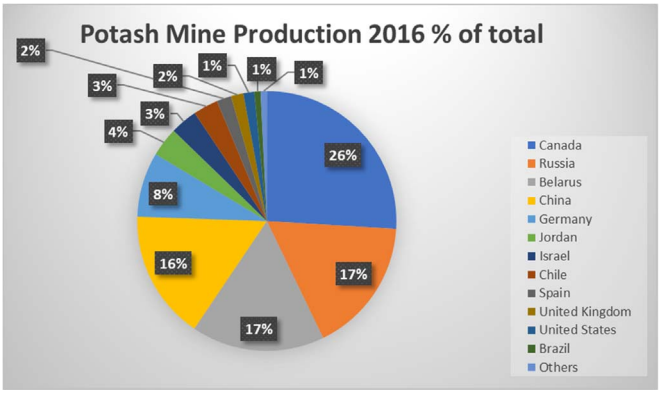

Fig. 1. Source: U.S. Geological Survey, 2017, Mineral commodity summaries https://doi.org/10.3133/70180197US Geological Survey. Numbers may not add exactly to 100% due to rounding.