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Assessing consumer benefits in the Ontario residential retail natural gas market: ontario residential retail natural gas market: Why marketer entry did not help

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ABSTRACT

When the institutions governing transactions in the energy sector changed in Canada thirty years ago, the changes were heralded as pro-competitive for natural gas markets, and subsequently authorities and some stakeholders have suggested that households would benefit from gas commodity marketer entry. Using an analysis of the institutions together with a model of the cost pass-through regulatory process, I show that households as a group would not benefit from purchasing the gas commodity from unregulated commodity marketers rather than buying it bundled with delivery from the regulated utility. I next use monthly price data collected from the public web pages of these unregulated sellers to confirm the theoretical prediction. Depending on the time period, five-year natural gas contract commodity prices average more than 75% higher than the utility's regulated cost of gas. On average over the sample period, signing up meant paying over C$400 more for the gas commodity annually. The analysis suggests that claims about the effects of policy change should be informed by a careful assessment of the specific institutional arrangements and the new incentives created by institutional evolution.

1. Introduction

The idea that consumers benefit from a competitive energy market is uncontroversial (Fabrizio et al., 2007; Mansell and Church, 1995, p. 20; Ontario Ministry of Environment and Energy, 1996; Joskow, 2008). Economic theory predicts that, under certain conditions, the discipline exerted on the market by many sellers and buyers pursuing self-interested choices creates opportunities for improved efficiency (Tirole, 2003, p. 212).[1] On the other hand, regulation creates significant compliance costs and dulls the incentives for efficient resource use and innovative (Rose, 2014, p. 2). Competition is viewed as the best way to get the most out of current and future economic opportunities (Crampton, 2003, p. 3).

Moving toward more competitive energy markets was an important Canadian policy direction in the 1980s and 1990s (Doern, 2005, p. 8). Cudahy (2001, p. 155) argues that during that period the deregulation movement was “almost the signature cause” for American policymakers as well. Facilitating competition in the sale of gas to users is listed right above protecting the public interest in the Ontario Energy Board's stewardship goals for energy markets under its regulatory purview in Canada's largest domestic natural gas-consuming province (Ontario Energy Board, 2014, p. 7).[2]

The empirical evidence about competitive energy markets has been mixed. Arano and Velikova (2009) find a more competitive natural gas market conferred benefits for residential consumers after industry restructuring in the United States. Brau et al. (2010) are much more circumspect on the experience of European Union consumers post-reform. Spence (2008) finds that prices are systematically higher with competition in electricity markets, while Kwoka (2006) provides theoretical conditions under which the excess costs of electricity market regulation could dominate subadditivity in the underlying production function and therefore justify duplicating sunk infrastructure. Kwoka also finds that in his sample public ownership enhances efficiency. Cudahy (2001) discusses the incentives for surplus capture that deregulation creates, including how electricity markets in California were gamed by sellers. Rose (2001, p. 1296) suggests that

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[1] Efficiency is one of two criteria associated with using resources in ways that society values the most. The second criteria, equitable distribution of surplus in the economy, is normative, involving judgments of which agents in the market *should* have the surplus created by the resources. By contrast, efficiency is about maximal surplus from a given economic endowment of tastes, technology, resources and institutional rules.

[2] The regulator's stewardship goals have evolved over its history, particularly after the early 1990s. The regulator's enabling legislation does not provide guidance about which of these goals should have priority. I am indebted to an anonymous referee for both of these observations.

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the gains from technical change that justified de-integrating some vertically-integrated natural monopolies had not yet been fully realized.

A few papers look at the impacts of unbundling the natural gas commodity from naturally monopolistic pipeline services. Unbundled commodity sales are said to foster efficiency through entry and competition (Barcella, 1996; Hlásny, 2011, p. 202) but this assertion depends on the specific institutional arrangements that govern how energy is bought and sold in a particular market. The study by Lee et al. (2004) suggests that the impact of a change in rules on consumer surplus is also an empirical question. Casarin (2007) and Arano and Blair (2008) argue empirically that competitive supply after unbundling can confer benefits. Neither of these empirical papers discuss the implicit limits on commodity pricing power provided by the institutions per se.

Unbundling and new seller entry in the Ontario residential market had unexpected and negative consequences for households. The trading rule changes initiated by the federal government in the upstream or wholesale market, after over a decade of price administration, created an environment where market forces could determine prices (the Hallowe'en Agreement, Canada, 1985). Consumers benefitted as market supply and market demand equilibrated at a lower wholesale price, removing a significant wedge between producers' price and cost. However, unbundling interprovincial transportation services from gas commodity purchase made space for independent unregulated sellers to enter and market the gas commodity to households at retail prices, while the regulated distribution utility would continue to supply the gas commodity at its wholesale cost to households who did not sign up with a new seller. New electronic purchasing technologies and the new North American energy futures trading market opened in 1992 further lowered the cost of sourcing and purchasing the commodity on behalf of households, making entry into the unregulated sector cheap. A natural experiment in commodity pricing has been going on for thirty years.

A market's institutional arrangements are critically important to its performance. The institutional evolution of the natural gas sector provides valuable insights about pitfalls that can be avoided in market reforms. Inferences about competition among retail marketers as a class, and the actual distribution of surplus in the unregulated sector, suffer from incomplete data.[3] However, it is simple to model the distribution of surplus implied by the institutional arrangements before and after the change, and use marketers' own historical unregulated prices to show that surplus was likely transferred to newly entered natural gas marketers and from consumers actually buying in the unregulated market.[4]

The first task is to analyze the institutional arrangements in the market. I describe what the federal government changed about how Alberta natural gas is sold and how those institutions were accommodated in retail markets. I next identify a key source of efficiency that works in the public interest that was not eliminated post-1985, and outline how the new rules created an opportunity for sellers to establish and exploit information asymmetry over the public in the transition to an integrated North American wholesale natural gas market. Then I present a model of the cost of getting natural gas from the Alberta wellhead to the burner tip in Ontario in the regulated and unregulated market segments, demonstrating the cost pass-through institutional arrangement of the regulated utility. Finally, using fixed price commodity contract data collected from a commercial website I confirm the model's theoretical prediction: that, contrary to the claim of those who advocated for the policy change, the entry of new unregulated natural gas sellers has not conferred benefits to the average consumer in the form of lower prices in the Ontario residential retail natural gas market.

2. Formal institutional arrangements in the residential retail natural gas market

Institutions, the laws, rules or habituated behaviours that accompany and facilitate exchange in a market, define the rights and possible actions available to agents in the market; they delimit both the potential surplus available in a trade and the distribution of that surplus between buyers and sellers (North, 1990, p. 4; Loehman and Kilgour, 1998; Ostrom, 1986). Institutional arrangements are the (often enforceable) rules of the trading game. Formal institutional arrangements are the laws, regulations and government policies that shape and constrain economic transactions and behavioral choices available to agents in those markets, while corporate policies and habituated ways of transacting are examples of informal institutional arrangements.

Consider, for example, the institutional arrangements that give a private pipeline company the right to provide natural gas carriage in a particular defined franchise area. The constitution gives the government authority to make rules within its jurisdiction. The government in term creates a regulator endowed with a legally defined and limited authority to make rules about entry and operations in its jurisdiction.[5] The regulator vets pipeline proposals and confers to a single pipeline the right to operate in a particular franchise area, in the public interest. A monopoly structure clarifies what pipeline is unambiguously responsible for the safe movement of natural gas in that area, and incents a more efficient investment in infrastructure characterized by subadditive cost.[6] In this way, the institutional arrangements set out how the rules of commerce operate for all potential and actual entrants into the pipeline carriage enterprise.

Institutions delimit the size of the potential surplus available in a trade, and define the means to claim or defend a particular distribution of this surplus between buyers and sellers, so institutional differences can explain significant differences in prosperity between otherwise similar economies (Feeny, 1988, p. 159; North, 1994, pp. 361–362; Rose, 2001, p. 12961). They change relatively slowly and are typically known or knowable. A new set of institutions may create a larger pool of gains from trade or make such gains easier for one side of the trade to capture. Anticipated or perceived incremental gains from trade thus provide an incentive to make or lobby for institutional change. There is no presumption that such institutional evolution is socially efficient (North, 1994, pp. 61–62); presumably, though, those with the power to effect institutional evolution stand to benefit from it. The total surplus available to split between sellers and buyers institutional change could

[3] The definitive way to examine the impact of the 1985 institutional changes is to map where the difference between the price and cost of natural gas went: either to fixed costs or to surplus rents. None of the independent sellers have agreed to share proprietary cost data, and a corollary of my argument is that they have good reason to protect this information. Of course, the data in the public domain is sufficient to investigate the impact of the new rules.

[4] The opportunity to choose is itself argued to enhance consumer welfare, although this argument is harder to make with an homogenous product like natural gas.

[5] In Canada, the respective provincial pipeline regulators are: the British Columbia Oil and Gas Commission, the Alberta Energy Regulator, Saskatchewan Ministry of Energy and Resources, the Manitoba Public Utilities Board, the Ontario Energy Board, Régie de l'énergie du Québec, the Newfoundland and Labrador Board of Commissioners of Public Utilities, the New Brunswick Energy and Utilities Board, the Nova Scotia Utility and Review Board, the Yukon Environmental and Socio-Economic Assessment Board, the Northwest Territories Public Utilities Board and the Nunavut Impact Review Board. The federal interprovincial pipeline regulator is the National Energy Board, with some aspects of safety regulated by the Transportation Safety Board. Notice that only one level of government regulates a particular aspect of operations: here too economies of scale and jurisdictional clarity justifies avoiding duplication. If the pipeline crosses provincial or international boundaries, then the federal government sets the regulation; if the pipeline crosses international boundaries, then authorities from both countries must approve the pipeline.

[6] A single large pipe confers significant volumetric economies of scale. Duplicating the pipeline's sunk investment (in pipe and compressor network infrastructure, including engineering and construction) and ongoing business expenses is not an efficient use of society's scarce resources. See Mansell and Church (1995, p.7).