

Implications of Hayek's and Coase's Market Process Perspectives for Canadian Supply Managed Agriculture

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Abstract: The Canadian Farm Products Agencies Act (2012) requires that comparative advantage be used to guide the allocation of new production quota under supply management. Supply management is a policy regime that sets product prices and allocates production among provinces and ultimately farms through quotas. The Canadian dairy, egg, broiler and turkey industries operate under this policy regime. The requirement to allocate new quota, as demand for farm products increases, according to provincial comparative advantage, however, has not been met in practice. Agricultural economists have proposed several ways of making this legal requirement operational. We evaluate these proposed approaches using the Hayekian and Coasean market process perspectives and find that quota prices are the most direct measure of comparative advantage in supply managed industries. The major implication is that restrictions on quota exchanges in the Canadian dairy industry reduce the extent to which quota prices reflect comparative advantage and thus impede the implementation of federal legislation regulating the allocation of new quota.

Keywords: comparative advantage, supply management, quota prices, economic calculation, market process, Hayek's knowledge problem

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Production and marketing of milk, eggs and poultry in Canada are regulated under a policy framework known as supply management. This framework sets farm level prices with a formula and allocates farm level production and distribution to processors through a quota system. Changes in domestic market demand conditions are accommodated through adjustments in the amount of quota available.

The Canadian Farm Products Agencies Act (2012) requires that provincial comparative advantage in production be used to guide the allocation of new quota to provinces. This requirement, however, has not been met in practice.³ This has led to legal disputes. In 2004, the Province of Saskatchewan demanded reevaluation of the provincial egg quota allocations on the basis of comparative advantage. The Farm Products Council of Canada (2010) anticipates more disputes of this type.

Under a policy regime in which prices are set by formulas rather than through the interaction of supply and demand, the discernment of comparative advantage faces significant informational hurdles. Previous literature has proposed four approaches to identifying comparative advantage in the Canadian egg industry: (1) the multiple indicator approach proposed by Doyon (2007), (2) the Revealed Output Advantage (ROA) index approach proposed by Katz *et al* (2008), Bruneau and Schmitz (2009) and Sarker (2009), (3) the Domestic Resource Cost (DRC) index approach proposed Larue and Gervais (2008) and (4) the quota price approach proposed by Meilke (2009). Rajsic and Fox (2012) provide a detailed assessment of these four approaches and show that most of the indicators proposed by Doyon (2007) and the two indicators proposed by Katz *et al* (2008), Bruneau and Schmitz (2009), Sarker (2009) and Larue and Gervais (2008) represent different indirect ways of measuring average costs of production in supply managed industries.

There are two interrelated problems associated with using average cost as the indicator of

³ In the dairy industry, for example, new quota is allocated according to the so-called 10/90 rule, where 10% of the new quota in a province is based on the province's historical share of the national production, and 90% is based on population.

comparative advantage. First, the price of output under which these average costs are established is set through administrative decisions by provincial supply management marketing boards. Second, average costs are an overall measure of historical farmer performance, but it is unknown to what extent average costs reflect opportunity costs at the margin. Furthermore, the prices that farmers appear to be willing to pay for additional quota are difficult to reconcile with the difference between farm product prices and estimated average production costs.

We will argue that the price of production quota, an indicator proposed by Meilke (2009), is a more direct measure of comparative advantage than the other previously proposed indicators. However, quota prices have been criticized as unreliable sources of information on comparative advantage by Larue and Gervais (2008) and Katz *et al* (2008). These criticisms are based on an argument that the conditions in which quota prices are formed deviate from the perfect competition ideal to the extent that makes quota prices unrepresentative of the underlying comparative advantage. We argue that this criticism has failed to appreciate the Hayekian and Coasean perspectives of the market process. Our purpose in writing this paper is to re-frame the debate on how to measure comparative advantage under supply management using the Hayekian and Coasean perspectives. Both Hayek (1945) and Coase (1960, 1988), each in his own way, criticized the theory of perfect competition and Walrasian general equilibrium theory. Common to both of their critiques is the idea that the theory of perfect competition has had an unproductive influence on the ways that economists think about the market process. In the present context, this way of thinking, has contributed to an under-appreciation of the potential of using quota prices as indicators of comparative advantage.

Hayek's (1945, 2002) reflections on the economic

calculation debate^{4,5} emphasized the importance of time- and place-specific subjective knowledge distributed among individuals in society. Hayek (1945) explained that the only way of translating this otherwise unobservable knowledge into an observable form is through the market process. However, Hayek's view of the market is fundamentally different from the theory of perfect competition. Hayek maintained that prices are never perfect indicators of subjective personal knowledge, but that they are the only means available to observe, indirectly, this important category of knowledge. Our view is that comparative advantage is a sub-category of Hayek's "knowledge of the particulars of time and place." Coase, as well as Demsetz (1969) and Alchian (1950), emphasized the need for comparative institutional analysis in the evaluation of the performance of markets, in contrast with the approach of comparing the performance of actual markets with the hypothetical ideal of perfect competition. We use this approach and evaluate the performance of actual quota prices by assessing their potential to reveal comparative advantage in actual markets, not by comparing them to the perfect competition ideal.

In the remainder of this paper, we first review and evaluate the criticisms of quota prices as indicators of comparative advantage. Then, we derive the implications of Hayek's and Coase's market process perspectives for using quota prices as indicators of comparative advantage in supply managed industries. This is followed by the assessment of policies that place restrictions in the quota markets—restrictions on quota quantities and quota price ceilings. The major conclusion is that quota prices reveal otherwise unobservable time- and place-specific information on opportunity costs

4 It is beyond the scope of this paper to present an exposition of the economic calculation debate, which took place from about 1920 to about 1950 on the question of whether central planning was a viable mode of social organization. For a thoughtful reconsideration of this important but often misunderstood topic, we suggest Lavoie (1985).

5 Pasour (1982, 1983) has developed the implications of the economic calculation debate in the context of policies intended to limit the conversion of agricultural land to non-agricultural uses.

of alternative uses of resources in supply managed industries. The informational advantages of quota prices rely on the voluntary nature of transactions and the ability of buyers and sellers to exchange quota on mutually beneficial terms. In this context, quota price ceilings in some provinces represent an impediment to adjustments of production patterns to changes in comparative advantage and an impediment to fulfilling the legal requirements of the Canadian Farm Products Agencies Act.

CRITICISMS OF QUOTA PRICES AS INDICATORS OF COMPARATIVE ADVANTAGE

Meilke's justification for using quota prices as indicators of comparative advantage is based on the idea that quota prices "show the present value of the discounted stream of benefits (valued at opportunity costs) producers expect to receive from buying production quota" (Meilke 2009, p. 18). Larue and Gervais (2008), however, reject quota prices as indicators of comparative advantage. They argue that quota transactions occur under conditions that deviate from perfect competition. In their view, quota transactions are "sector-specific and reflect the absolute or competitive advantage of producers in a given province" (Larue and Gervais 2008, p. 14). In other words, according to Larue and Gervais, quota prices reflect the profitability of a supply-managed industry in an absolute sense, but not in a relative sense, compared to the profitability of other industries.

Larue and Gervais' conclusion, however, is based on an assumption about farmers' investment decisions, specifically, that farmers arbitrarily segment market opportunities for investment into investments related to the supply managed industry and all other opportunities. Our view is that there is no general reason to assume that prospective quota buyers and sellers limit their asset purchasing and selling decisions to opportunities in their supply managed industries. The funds used to purchase additional quota could have been used to purchase land or other real or financial assets. Quota sellers may or may not invest the proceeds from quota sales in assets specific to their supply managed

industry. Thus, investment opportunities in other industries and sectors are always available to farmers in supply-managed industries. Quota purchases indicate that quota buyers expect greater benefits from buying quota than, say, buying an asset or lending money to an entrepreneur in some other industry. The foregone returns in this wide range of assets represent the opportunity cost of investment in additional quota. For the seller, the advantage of continuing to own quota is outweighed by the full range of perceived opportunities made available by the liquidation of his or her holdings.

Katz *et al* (2008), quoting Rosaasen *et al* (1995), argue that poultry quota prices in Saskatchewan may be affected by provincial supply management policies that require quota exchange to be accompanied by an exchange of other farm assets. Tying transactions in quotas to transactions in other assets does limit the information content of quota prices as indicators of comparative advantage. Tied transactions, however, for the most part, no longer exist in Canada (Saskatchewan Agri-Food Act, 2004; Saskatchewan Chicken Marketing Plan Regulations, 2011).

Katz *et al* also argue that provincial quota prices may be affected if quota is accepted as collateral for loans in some provinces, but not in others. In this case too, more recent sources, including Kaliel (2011) and TD Canada Trust (2012), indicate that quota is accepted as collateral in all provinces. There is, however, a case of restrictions on quota exchanges in the dairy industry that is still in effect. These are the quota price ceilings in Ontario and Quebec that were imposed in 2009. While we agree that these restrictions reduce the information content of quota prices, we will argue that, after taking into account the implications of Hayek's and Coase's market process perspectives, quota prices are still a more direct source of information on comparative advantage compared to the alternative sources identified so far.

IMPLICATIONS OF HAYEK'S AND COASE'S MARKET PROCESS THEORIES

Boettke (1997) argues that modern economists have largely misinterpreted Hayek's ideas about

the role of the market process in discovering and communicating dispersed bits of knowledge among market participants. Hayek's theory of the market is often viewed as equivalent to perfect competition theory. The perfect information requirement in the theory of perfect competition implies that the underlying technological and preference conditions can be known independently of the operation of the price system, which is antithetical to Hayek's characterization of economic knowledge. Hayek's view is that direct knowledge of subjective preferences, expectations and perceptions is generally not possible, but that the price system, under conditions of several property and freedom of contract, make indirect knowledge of these inherently unobservable subjective mental states possible in the form of prices. If all knowledge were available to all individuals prior to exchange, the function of the price system in revealing time- and place-specific individual knowledge would be redundant. Instead of explicating that role of markets as means of discovering and communicating individual knowledge in a world of genuine ignorance, the perfect competition model attempts to establish a normative standard for efficiency. This standard requires that prices always reflect all of the underlying knowledge possessed by perfectly informed market participants, a level of knowledge that these participants can never possess.

One of the reasons for this misinterpretation, Boettke argues, is that economists have tried to fit Hayek's ideas into a mathematical form.⁶ Boettke (1997, p. 35) goes on to show that this formalism cannot meaningfully incorporate "an examination of how imperfect human beings attempt to cope in a real world of ignorance and uncertainty." The ideas of genuine ignorance and uncertainty are, according to Boettke, critical for understanding the economic purpose of real-world institutions. However, these ideas were omitted because they did not fit either into the perfect competition

6 This framework is largely based on an approach pioneered by Walras. Walras, Jevons and Menger are often seen as simultaneous and independent discoverers of the two foundational ideas of neoclassical economics, marginalism and subjectivism. Jaffé (1976) has shown, however, that Menger and Walras offered fundamentally different perspectives on economic theory.

framework of the Chicago School or into the market failure framework of the New Keynesian School. Boettke (1997, p. 21) stresses that “[e]ven when an idea was thought to be interesting, if it could not be translated into an appropriate model, there was not much that could be done with it”. Hayek’s view that markets are unavoidably imperfect but, at the same time, the only available means of coordinating actions of imperfectly informed individuals was one of those ideas.

The harmful effects of mathematical formalism are not a unique to Hayek. Ronald Coase’s theory of transaction costs has been equally difficult to integrate into modern microeconomics. Boettke (1997) and Fox (2007) demonstrate that, instead of being understood as a critique of the perfect competition theory and a preliminary analysis for understanding the world with positive transaction costs, Coase’s 1960 paper was interpreted as analysis of welfare implications of a world with zero transaction costs. Coase (1992, p. 714) himself was critical of what he termed as “blackboard economics” where “[t]he firm and the market appear by name but they lack any substance.” Coase was referring to the absence of the logical link between the institutional context and the process of production and exchange in neoclassical models of the market and the firm. In the fictional world of perfect competition, Coase (1937, 1992) argued, there is no need for firms because coordinating market transactions in such a world is costless and all production could be performed through market transactions among independent individuals.

The implications of Hayek’s and Coase’s approaches for the understanding of quota prices are two-fold. First, according to Hayek, quota prices reveal unobservable subjective knowledge possessed by quota buyers and sellers. Market prices convey information about production conditions and opportunities, according to Hayek, information that cannot be obtained through any other means. Second, Coase argues that a better understanding of real world institutions requires abandoning the perfect competition ideal. This, however, does not mean all quota price observations are equally valid sources of the underlying time- and place-specific information. As Barnett (1992) demonstrates, the

translation of individual knowledge into market prices requires that the exchange of ownership be voluntary (i.e., requires several property and freedom of contract).

These insights imply that the most direct method of applying the principle of comparative advantage in allocating additional quota to provinces is offering quota at an auction open to producers from all provinces. However, considering the historical experience with interprovincial quota markets⁷, this method may meet formidable political hurdles. In this case, we propose using provincial quota prices as indicators for guiding the allocation of new quota.

In contrast to the ideal of the perfectly competitive price, we adopt the view that a price is undistorted if it is formed in the conditions of voluntary exchange of property as elaborated by Barnett (1992). Quota price controls are examples of interferences with quota exchanges that are backed by force. These and other restrictions distort the voluntary nature of quota prices and thus can be used to evaluate different types of quota prices.

IMPLICATIONS OF RESTRICTIONS ON QUOTA EXCHANGES

While quota prices, in principle, reflect the knowledge of the particulars of time and place distributed among farmers and producers in other sectors in a province, quota markets operate in a policy context that limits exchange possibilities. This distorts the information content of actual quota prices. These distortions need to be taken into account if we are to use actual historical quota prices as indicators of comparative advantage.

In the case of the dairy industry, the quantity of the provincial fluid milk quota is under the jurisdiction of provincial marketing boards while industrial milk quota is under federal jurisdiction. Provincial boards exercise some control over provincial quota prices by controlling provincial milk prices and the quantity of provincial fluid

⁷ The Dairy Farmers of Ontario (DFO) (2012) reports that Ontario withdrew from an interprovincial quota exchange program with Quebec and Nova Scotia six months after the program’s inception in September 1997. Larue (2012) reports that there is currently no interprovincial quota exchange in the supply managed industries.

milk quota. In addition, both provincial and national milk supply management authorities price-discriminate between raw milk classes based on the end product.⁸ Depending on the utilization ratios of different milk classes, this can result in different milk prices received by farmers in different provinces. If quota buyers and sellers in different provinces face different farm gate prices for their output, some differences in quota prices might arise. Such quota price differences are a result of interplay between the supply management policy and the underlying production possibilities and preferences.⁹ The implication is that a harmonization of provincial milk pricing policies would increase the extent to which provincial quota prices reflect comparative advantage, which is based on the underlying production possibilities and preferences.

Some provincial boards also have imposed quota price ceilings. This is an additional reason to believe that the information content of quota prices impairs their ability to reflect comparative advantage at the provincial level. The application of ceilings on quota prices has obvious consequences for the use of quota prices as measures of comparative advantage in the allocation of new quota. Under allocation rules based on quota prices, provinces with higher quota prices would receive higher allocations of new quota. But it is precisely these provinces that would likely experience the most intense pressure to impose a ceiling on quota prices. This action, however, would put those provinces

8 Raw milk used for the production of, say, cheese is priced differently than the milk used in the production of skim milk.

9 It is beyond the scope of this paper to answer whether and how calculations of comparative advantage based on quota prices should account for these policy effects, but, for one potential approach in accounting, please refer to Rajsic and Fox (2012)

at a disadvantage with respect to their prospects of receiving additional quota. If new quota allocations are intended to help match supply with trends in demand, then reducing allocations to provinces that would, in the absence of quota price ceilings, have higher quota prices, would frustrate the purpose of the allocations.

CONCLUSIONS

The purpose of this paper was to re-frame the discussion on the use of quota prices as indicators of comparative advantage under supply management from the Hayekian and Coasean perspectives. Several methods have been proposed as practical alternatives to compliance with Canadian federal legislation regulating the allocation of new quota in supply managed industries. These methods, in the main, use variations on average cost estimation as indirect measures of comparative advantage. Our view is that provincial quota prices, while being admittedly imperfect indicators of comparative advantage, are more direct indicators than proxies based on average production costs.

Federal legislation requires that the principle of comparative advantage be used to allocate new quota across provinces. Our analysis suggests that there is no perfect way to do this, but that quota prices have certain economic informational advantages over rival approaches. On the other hand, individual provinces, in response to various concerns about the levels of quota prices, have imposed price ceilings. The policy paradox is that we can't have it both ways. Quota prices may have economic informational advantages, but these advantages rely on the voluntary nature of transactions and the ability of buyers and sellers to exchange quota at mutually beneficial terms.

References

- Alchain, A. 1950. Uncertainty, Evolution and Economic Theory. *Journal of Political Economy*, 58(3): 211-221
- Barnett, R. 1992. The Function of Several Property and Freedom of Contract. *Social Philosophy and Policy* 9 (1): 62-94.
- Boettke, P. J. 1997. Where did economics go wrong? Modern economics as a flight from reality, *Critical Review*, 11(1): 11-64.
- Bruneau, J. F. and A. Schmitz. 2009. Identifying and Applying a Comparative Advantage Framework in Canadian Supply-Managed Agriculture: Response. *Canadian Journal of Agricultural Economics* 57 (1): 165-68.
- Coase, R. H. 1937. The nature of The Firm. *Economica* 4(16): 386-405.
- Coase, R. H. 1960. The Problem of Social Cost. *Journal of Law and Economics* 3(1): 1-44.
- Coase, R. H. 1988. The Nature of the Firm: Influence. *Journal of Law, Economics, & Organization* 4(1): 33-47.
- Coase, R. H. 1992. The institutional structure of production. *The American Economic Review* 82(4): 713-719.
- Dairy Farmers of Ontario. 2012. Dairy Statistical Handbook for 2010-2011. Mississauga, ON.
- Demsetz, H. 1969. Information and Efficiency: Another Viewpoint. *Journal of Law and Economics* 12(1): 1-22.
- Doyon, M. 2007. Discussion of Over-base Factors Using Various Indicators. Report prepared for the CEMA Board of Directors. Ottawa.
- Farm Products Agencies Act (R.S., 1985, c. F-4). 2012. Department of Justice Canada. <http://laws.justice.gc.ca/en/F-4/index.html> (accessed April 20, 2011).
- Farm Products Council of Canada. 2010. Notes for Remarks by Vice-Chairperson, Brent Montgomery of the Farm Products Council of Canada To Egg Farmers of Canada 2010 Annual General Meetings. <http://www.fpcc-cpac.gc.ca/index.php/eng/the-fpcc/publications/belltin-focus/208-notes-pour-une-allocation-poc-24-mars-2010> (accessed December 1, 2011).
- Fox, G. 2007. The *real* Coase theorems. *Cato Journal* 27 (3): 373-96.
- Hayek, F. A. 1945. The Use of Knowledge in a Society. *American Economic Review* 35 (4): 519-30.
- Hayek, F. A. 2002. Competition as a Discovery Procedure. *The Quarterly Journal of Austrian Economics* 5(3): 9-23.

- Jaffé, W. 1976. Menger, Jevons and Walras De-Homogenized. *Economic Inquiry* 14(4): 511–524.
- Kaliel, B. P. 2011. Agricultural Law NetLetter, Issue 237. Miller Thomson LLP, Edmonton. [http://www.millertomson.com/assets/files/Kaliel%20NetLetter/7037041_1_Issue%20237%20\(published\)%20.PDF](http://www.millertomson.com/assets/files/Kaliel%20NetLetter/7037041_1_Issue%20237%20(published)%20.PDF) (accessed July 3, 2012).
- Katz, M., J. F. Bruneau and A. Schmitz. 2008. Identifying and Applying a Comparative Advantage Framework in Canadian Supply Managed Agriculture. *Canadian Journal of Agricultural Economics* 56 (2): 129–43.
- Larue, B. and J. P. Gervais. 2008. *The Assessment of the Concept of Revealed Comparative Advantage and its Applicability in the Allocation of Egg Overbase Production*. Report prepared for the National Farm Products Council. Ottawa.
- Lavoie, D. 1985. *Rivalry and Central Planning: The Socialist Calculation Debate Reconsidered*, Cambridge University Press, Cambridge.
- Meilke, K. D. 2009. An Evaluation of Economic Indicators for the Five Over-Base Egg Quota Allocation Factors. Report prepared for The National Farm Products Marketing Council. Ottawa.
- Pasour, E. C. Jr. 1982. Agricultural Land Protection Is Government Intervention Warranted. *Cato Journal* 2 (3): 739–58.
- Pasour, E. C. Jr. 1983. Land-Use Planning: Implications of the Economic Calculation Debate. *The Journal of Libertarian Studies* 4 (1): 127–39.
- Rajsic, P. and Fox, G. 2012. “Quota Prices as Indicators of Comparative Advantage in Supply Managed Industries,” Working Paper 2012-04, Canadian Agricultural Trade Policy Research Network.
- Rosaasen, K., J. Lokken and T. J. Richards. 1995. Provincialism: Problems for the regulators and the regulated. In *Regulation and Protectionism under GATT: Case Studies in North American Agriculture* edited by A. Schmitz, G. Coffin and K. Rosaasen, pp. 245–68. Boulder, CO: Westview Press.
- Sarker, R. 2009. How Appropriate the Balassa Index is for Measuring the Comparative Advantage in Production and Allocating Overbase Production Quota in the Egg Industry. Report prepared for the National Farm Products Council. Ottawa.
- Saskatchewan Agri-Food Act. 2004. Consolidated Regulations of Saskatchewan (c. A-15.21). The Queen’s Printer for the Province of Saskatchewan, Regina.
- Saskatchewan Chicken Marketing Plan Regulations. 2011. Consolidated Regulations of Saskatchewan (c. A-15.21, Reg. 13). The Queen’s Printer for the Province of Saskatchewan, Regina.
- TD Canada Trust. 2012. Agriculture Services. Dairy Term Loan. <http://www.tdcanadatrust.com/products-services/small-business/agriculture/dairy-term-loan/dairyloan.jsp> (accessed July 4, 2012).