March 13, 2008

Do Corporate Income Tax Cuts require a Z-Adjustment?

George Georgopoulos
York University

The Issue:

Will corporate income tax cuts in Ontario result in (coincide with) reductions in prices as measured by the GDPIPI? To the extent inflation falls nationally, the price charged for natural gas distribution in Ontario will automatically be adjusted through the pricing mechanism.

To the extent the GDPIPI does not fall fully to reflect the extent of the corporate tax cut, the returns / revenue generated by the utilities (Union Gas, Enbridge, etc) will be higher than is justified – that is, the pricing formula will not adjust sufficiently to offset the financial benefits to the utility that come with the tax cut.

On the other hand, if the GDPIPI were to adjust (fall) to fully offset the benefits that come with a tax cut, then the pricing formula would reduce the price that the utilities would charge, and hence the financial benefits that come with the corporate income tax cut are automatically passed along to the consumer.

The question then becomes, what impact will corporate income tax cuts have on the GDPIPI? In particular, will the GDPIPI fall fully to offset the financial gains of the tax cut?

The announcement of tax cuts federally and across most provinces in Canada allows us to assume that the tax cuts are national in scope. As tax cuts are implemented, businesses within Canada “may” pass these windfalls along to their customers. The question is whether they “will” pass the savings on, and, if so, by how much and when. This is a question that may be susceptible to empirical analysis. Canada and other countries have lengthy series of fairly reliable data on both GDPIPI and tax changes. It should also be possible to make a reasonable estimate of any lead/lag factor, and to estimate the impact, if any, of monetary policy on any correlation that has been found. This is not a trivial study, and would require a substantial amount of time and effort. It certainly could not be accomplished in the few months that this proceeding has been going.

To the best of my knowledge no study of this type has been done in Canada, nor has any similar study in any other country come to my attention. In fact the lack of empirical analysis of this question forces any expert to develop a hypothesis relying on first principles or theory, rather than on data. The hypothesis Mintz and Wilson provide is one such, and it remains an untested hypothesis at this point.

Mintz and Wilson state that a corporate tax cut on prices is indirect. A corporate tax reduction stimulates investment, implying an increase in the capital stock, which then raises productivity and lowers unit costs. Lower unit costs will be passed through lower prices as a result of competitive forces. This report will argue that all firms will not pass on all of the fall in unit costs through to prices, and given that there is a decline it will not be immediate but rather the fall will be lagged and gradual.

Market Structure

We will provide an economic theoretical explanation on the response of the price level. Focusing on the response due to “competitive forces”, we argue that the extent of the price change relates to the type of market structure.

First, we look at the response of the price level in the market structure of perfect competition. In this case, in the presence of excess profits due to a corporate tax cut, the nature of the “competitive force” is the entry of new participants in the corporate sector seeking these relatively higher profits, where their entry leads to a price reduction. That is, the increased number of producers leads to an increase in overall industry supply, and given industry demand, this reduces the price level.

Thus, it is the free entry of new participants that drives the price down. Given this, theory suggests that entry occurs only in the long run, not the short run. Even if existing firms are making positive profits, no entry occurs in the short run if entering firms need time to find a location, build a new plant, and hire workers. As a result firms may enter markets long after profit opportunities first appear. This implies a gradual, long run reduction in the price level, where original participants earn excess profits in the short run at the initial price level.

Second, in reality, in many markets, firms face significant barriers to entry or must incur significant costs to enter, where such costs are (at least partially) fixed.[1] As such, there will not be a sufficient number of entrants to drive the price level down to the point where there are normal profits; the price level will not drop to the perfect competition level.

Given the existence of some nontrivial entry barriers, we are moving away from the pure perfect competition structure. I have not seen any evidence suggesting that Canadian industries are perfectly competitive in structure (a market structure where there are many sellers, selling identical goods, and acting as price takers). There are other market structures beyond perfect competition, where these other structures differ

[1] If new entrants are from other countries (foreign direct investment), they also face institutional barriers in the form of foreign ownership restrictions in particular sectors. The OECD ranks Canada as having the ninth highest foreign direct investment regulatory restrictiveness index out of forty two countries (Koyama and Golub, “OECD’s FDI Regulatory Restrictiveness Index: Revision and Extension to More Countries”, Working Paper 525)

according to the number of firms in the market, the ease with which firms may enter and leave the market, and the ability of firms in a market to differentiate their products from those of their rivals. All these factors lead to the ability for a firm to have some influence over its price. Market structures where there are relatively fewer firms are known as oligopoly (greater than two firms), duopoly (2 firms) or monopoly (1 firm) market structures. In these cases, with a decline in unit costs, the profit maximizing firm will only partially reduce the price (to a new point were the lower marginal cost is equal to marginal revenue).

The Canadian economy is characterized by firms having differing degrees of price setting powers. As such, with an economy wide corporate tax reduction, prices will not fully fall to the perfect competition level (where a full fall to this level will reflect consumers getting the full benefit of the corporate tax cut). Furthermore the decline does not necessarily fall in the short run.

Price Stickiness

It is well accepted in macroeconomic theory that, upon an economy wide change in factors such as monetary or fiscal policy, shocks to supply or other demand factors, firms are sluggish or slow in changing their prices. That is, prices are sticky – or are not fully flexible - in the short run. After the short run they return to their long run levels (they fully respond to aggregate demand and aggregate supply conditions). Short run inflexibility in prices is a contributing factor to real output moving away from its long run level. There are a number of theories explaining price stickiness, including fixed costs involved in physically changing prices (costs include re-marking merchandise, reprinting price lists and catalogues, and informing potential customers), staggered pricing across firms, invoicing and contracts, incorrect information on relative versus absolute price changes, efficiency wages, to name a few.[2] These theories best apply to firms having some degree of power in setting their prices. Thus, in light of a reduction say in corporate taxes across all sectors in the economy (an aggregate fiscal stimulus), firm prices and consequently the aggregate price level does not fully respond in the short run.

Global Demand and Supply, World Prices

Another factor preventing firms from reducing their prices in response to a domestic cost or demand change is that the firm's good is determined by world supply and world demand. A fair amount of commodity and natural resource products in Canada are priced in U.S. dollars, where the price is determined by global demand and supply conditions.

The Bank of Canada and Inflation Policy

The Bank of Canada is pursuing a zero inflation (or price stability) policy (target CPI inflation of 1%-3%, with an objective of being at 2%). This is relevant to the discussion here because of the impact the corporate income tax cuts have on the Bank's policies. The Bank does not directly respond to the one-time changes in the price level – that is, if prices fall in response to a tax change, this would represent a one time change in prices, and hence the inflation rate before and after should be the same. If the price fall takes 3-5 years, then the Bank may recognize that this adjustment is in response to a cut

[2] For a literature review on the macroeconomic theories of price stickiness, see Abel, Bernanke and Smith, (2006), Macroeconomics, fourth edition, Chapter 12.

in taxes, and hence not necessarily respond. But to the extent the Bank does respond, then it would be to stimulate the economy (offset the fall in inflation), which reduces the extent of price drop. Therefore, to the extent the Bank does intervene to adjust inflation trends, that adjustment would mitigate the fall in the GDPIPI.

Conclusion

In summary, in a world of perfect competition, in response to a unit cost reduction from a reduction in a corporate tax rate, prices will fall fully to offset the tax cut; that is the benefit of the tax cut will be fully passed on to the consumer. Also this decline will happen only in the long run. I am not aware of any evidence that suggests the Canadian economy can be characterized as perfectly competitive. The Canadian economy is likely characterized by a majority of firms having some differing (non-zero) degrees of price setting powers. As such, with an economy wide corporate tax reduction, prices will not fully fall to the perfect competition level (where a full fall to this level will reflect consumers getting the full benefit of the corporate tax cut). Furthermore the decline does not necessarily fall in the short run.

Macroeconomic theories on price rigidity, along with prices in Canada determined by global supply and demand conditions, and current Bank of Canada monetary policy, will preclude a full and immediate fall in prices. As such, it is likely the GDPIPPI will not adjust accordingly to offset the financial gains of the corporate tax cut.