DEFLATION TEASER? KLONDIKE BARS AND THE GOLDEN 90S IN CANADA

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> For both historians and macroeconomists this period is a teaser. For macroeconomists the period provides a rare opportunity to study a secular deflation. For historians the causes of both underperformance of the economy in the early years and the boom in the second half of the period are somewhat puzzling. For both groups the fundamental question concerns the relationship between the real and the nominal performance of the economy. Was there causation or merely correlation? (Bordo and Redish 2003, p. 2)

> The migration of technique from the United States proceeded along blazed trails with cumulative intensity. The northward spread of placer mining on the Pacific coast was followed by the discovery of gold in the Yukon and the economic cyclone of the Klondike gold rush. Population and capital poured in from the United States and ushered into what was heralded as her [Canada] century. (Innis 1956, p. 167)

Deflation has become all the rage in the economics profession and financial media. Some economists have suggested that deflation is a largely benign phenomenon, even beneficial, but the bulk of opinion reports that deflation is something to be feared because it can bring, in its wake, economic depression. This fear can even be described as a phobia (Thornton 2003; appearing earlier in this issue). This fear is based on, for example, the economic problems in Japan since 1989 and the experience of the Great Depression. As a consequence, economists have turned their attention from inflation to deflation.

Michael Bordo and Angela Redish examined the question of whether or not deflation causes economic depression by examining evidence from the United States and Canada during the period of the classical gold standard 1870–1913 (Bordo and Redish 2003). They find that deflation was not necessarily related to depression or economic decline. However, they do find an anomaly in that "positive monetary shocks" in Canada during the latter half of the classical gold standard period did indeed have a positive impact on national output. While this is not necessarily a strike against deflation *per se*, it does suggest the possibility that "inflation" has the potential to beneficially impact economic growth.

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This anomaly is what Bordo and Redish label a "teaser." They offer several possible explanations for this discrepancy, but ultimately place the answer in the bin of future research. Others, including Jeffrey Williamson, also do not provide an explanation for the increased growth rates after 1896.[1] This anomaly is explained here by acknowledging that the increase in the Canadian money supply and the increase in Canadian economic output were in fact the same thing–a rapid expansion of gold mining production in Canada after 1896 associated with the Klondike gold discovery. Economic activity associated with the production of gold bars from the Klondike is what helped make this period the Golden 90s in Canada.

Is Deflation Depressing?

Bordo and Redish examine the question of whether or not deflation leads to depression by examining the evidence from the U.S. and Canada during the period of the classical gold standard (1870s–1913). The first two decades of this period were generally characterized by deflation of prices while the second two decades were generally characterized by inflation of prices. They provide important evidence that deflation is not harmful. However, they found that Canadian output (real GDP/capita) grew at an anemic 1 percent during the deflation period, but by a robust 4.3 percent in the post-1896 inflationary period. This finding is their "teaser" for which they do not provide an explanation, thus leaving the door open to inflationary policies inspired by the Phillips Curve.

The empirical analysis in their paper begins with the identification of supply shocks, money supply shocks, and demand shocks using a Blanchard-Quah methodology. They model the economy as a small open economy on an international gold standard using assumptions of how various shocks will impact national output and the price level in the long run. This allows them to separate or "decompose" how each shock impacts money, prices, and output. Their model predicts that an unanticipated increase in the supply of money, or "shock," will increase money, prices, and output. If money is truly neutral there would be no impact on output in the long run. Positive supply shocks increase both output and money in the long run, while the effects of demand shocks are largely neutral or indeterminate.

In their estimates for the U.S., they find a series of negative monetary shocks in the early 1890s followed by a series of positive monetary shocks and several negative demand shocks in the decade before 1913. For the U.S., their results are very clear and consistent–supply shocks determine most of the economic growth, demand shocks had far less impact on economic growth, and monetary shocks impacted the price level, not economic growth.[2]

In Canada, supply shocks had their impact on economic growth and on the stock of money. Demand shocks also affected the money stock, but had only small transitory impacts on the price level and economic growth. Their "surprising result" was the "persistent positive effect on output from a positive money supply shock" (Bordo and Redish 2003, p. 12). Moreover, in the first two decades of the period there was a stagnant gold supply, deflation of prices and slow economic growth in both the U.S. and Canada, while the latter two decades were characterized by gold discoveries, inflation of prices, and higher levels of economic growth. Therefore, the authors ask:

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[1]Williamson's (1974) was a "real" approach rather than one focused on monetary factors.

[2]It should be noted that the nature of shocks, their effects, and the source and persistence of those effects is not an incontrovertible subject. For example, in the traditional Keynesian view, fluctuations tend to be demand driven, while in real business cycle theory supply shocks explain real output fluctuations.

> Was there a direct connection? Did monetary forces generate the bust and boom? We find that the connection was more coincidence than causation. . . . An open question that our analysis has raised is the apparent non-neutrality of the money shocks in Canada, and why the Canadian responses are so different from those in the U.S. (Bordo and Redish 2003, pp. 13–14)

Several possible explanations were raised by Bordo and Redish. For example, the U.S. and Canada had different banking systems, with Canada following a branch banking system and lower reserve ratios, while the U.S. had more unit banking and relatively higher reserve ratios. Second, the debt-deflation "story" of Irving Fisher (and modern deflation doomsayers) may have negatively affected the early period but was absent from the latter period. Finally, there was the "wheat boom" and large migrations and capital flows into Canada in the latter period. However, none of these suggestions seems to clearly or completely explain the surprising result of rapid economic growth in Canada and the authors are forced to conclude that further research will be necessary.

KLONDIKE INFLATION

The most obvious cause for the surprising result in the Canadian data–that of monetary-output shocks–was the Klondike gold discovery; an event mentioned, but not exploited, by the authors themselves (Bordo and Redish 2003, p. 5). A gold discovery meant that the economy would be "shocked" by an increase in the supply of money, but it would also entail an increase in economic output and therefore show up in GDP statistics. The Klondike Gold Rush, a noteworthy event in Canadian history, could therefore explain the "teaser" and reinforce the authors' judgment that deflation is not bad for the economy, and remove the suggestion that "positive monetary shocks," especially of the paper variety, might be good for the economy.

Mining was a leading factor in Canadian economic growth around the turn of the century. As two economic historians of Canada observed:

> Total output [in mining] doubled between 1886 and 1895, from $10 million to $20 million, trebled again in the next five years, and then doubled again by 1913. During the boom years after 1897 it was minerals, especially in British Columbia, and not agriculture or manufacturing, that attracted the bulk of British investment in Canada. (Norrie and Owram 1996, p. 260)

In 1896 gold was discovered in the Yukon Territory of Canada, igniting the Klondike gold rush. At first it was the local population of natives, prospectors, and fur traders that exploited the discovery, but after the first steamship arrived in San Francisco with a substantial gold export the following year, the rush of immigrant prospectors began in earnest. Soon more than a million dollars of gold was being produced each month and by 1898 Dawson was considered to be the most cosmopolitan Canadian city west of Winnipeg with a population of 30,000 (Norrie and Owram, p. 262). By 1900 gold production in Klondike peaked at $22 million and gold extraction started in earnest in nearby Alaska.

> Metallic minerals are the main story of this period, in terms of economic importance as well as of political excitement. Gold is far and away the most spectacular of the lot. . . . The next phase of the gold industry was more spectacular yet. News that gold of immense value had been found on the Klondike River brought miners from around the world to this isolated and inhospitable area. Success was immediate, for some at least, and gold production soared. (Norrie and Owram, p. 262)

Could this gold rush really explain the anomaly posed by Bordo and Redish? After all, it was far from the world's largest gold discovery and the world was on the international gold standard, so that gold "would seek its own level" and be dispersed throughout the world. How could money be neutral in a general case, and yet be positive in this special case, especially when the weight of theory, opinion, and evidence so clearly indicates that it (inflation) can have a negative impact on economic growth?

The Klondike can explain this anomaly because the gold rush represented new economic output. The gold and gold bars extracted from the Klondike territory were tangible economic goods even though most of them were destined for export and used as money. Money is a commodity, although unlike paper money, gold is a commodity money with a well-established monetary value and numerous nonmonetary uses.

The gold rush in the Klondike was small by some standards, but large relative to Canadian standards, which had a small, widely dispersed population of approximately five million people. The Canadian economy was largely agricultural in occupation and had a lower per capita income than in the U.S.[3] The gold rush was also immense by western Canadian standards which had a predominately subsistence economy and very small population. Western Canada had few towns and settlements and an economy that depended largely on hunting, trapping, farming, and fishing. The Klondike helped establish the mining industry and attracted the foreign capital investment that continued to exploit opportunities throughout Canada long after the gold rush.

> Similarly, the silver and gold booms in northern Ontario, centering in Cobalt and Porcupine, attracted American attention because they were the most dynamic mining areas in North America in the 1906–14 period. Most spectacular in this regard was the impact of the Klondike which for its few historical moments held center stage. (Marr and Paterson 1980, p. 292)

The gold rush permitted the monetization of the western Canadian economy, distant from its eastern cities, where the native population had traditionally been subsistence producers and limited traders. The population in western Canada consisted mainly of farmers, fur trappers, hunters, and fishermen who had limited access to cash and formal types of credit. The Klondike and other gold discoveries helped monetize these local economies, a key ingredient in economic development. As Canadian economic historian, Harold Innis noted "Gold mining introduced an advanced state of monetary organization which accentuated flexibility in the specialization of production" (Innis 1956, p. 330). Trends in Canadian money supply confirm that there was an upward shift in the money holdings beginning with the Klondike (Metcalf, Redish, and Shearer 1998, p. 105).

Monetary development went hand in hand with all forms of economic development. The gold miners increased the population, brought capital with them, and as their income grew, so did their desire for goods, services, and more advanced implements of their trade. The gold rush would also be expected to drive up wage rates and rents across much of the economy. Ancillary industries in timber, shipbuilding, and coal were also started in the gold rush territories as a result of the rush for gold and the Klondike even hastened the building of additional transcontinental railroads

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[3]Canadian GNP statistics indicate that mining experienced the largest percentage increase between 1895 and 1900. Mining output increased by 218 percent, while GNP (at market prices) increased by less than 43 percent, and contributed more than 12 percent of the economic growth that occurred during the period. Even this greatly understates the impact of mining because, to take one issue, gold prices were in a sense "fixed" while that of all other goods experienced high rates of relative price inflation (Urquhart 1993, p. 13).

(Innis 1956, pp. 245, 314). Trading posts, settlements, and buildings were established. Yes, much of the gold production was exported, but much of these exports were counterbalanced by a flow of imports that constituted a large spectrum of consumer and capital goods. Gold discoveries in nearby Alaska did quickly dampen the Klondike gold rush but the overall effect was to increase the region's population, economy, communication and trade with the outside world. Also, other metals were discovered and exploited in the region after the initial rush was over (Dow 1985, p. 213). This was clearly a "golden age" for the Klondike, the Yukon Territory, and western Canada and a textbook case of Rostow's "take-off" stage of sustained economic growth (Rostow 1960).

Conclusion

In an age when deflation is widely feared and the threat of deflation serves as a justification for radical policy proposals, Bordo and Redish have done a great service in showing that deflation is not harmful to the economy, at least on the gold standard. However, they find an anomaly—a teaser—in Canada during the latter stage of the classical gold standard where positive monetary shocks led to positive shocks of increased economic output.

Naturally, given that the first half of the overall period was one of deflation and the second half was inflation, one is immediately suspicious that other factors are at work. Other possible causes of this anomaly, such as differences in banking between the U.S. and Canada, the "wheat boom," and large increases in migration and foreign capital, have failed to satisfy economic historians, but each must be treated as a potential contributor to economic growth.

The Klondike gold rush is offered here as the explanation for Bordo and Redish's "surprising result." All of the other factors (i.e., significant increases in land, labor, and capital) were no doubt important contributors to higher rates of economic growth, but it is the Klondike gold rush, along with other gold discoveries in the U.S. and Canada that explains the anomaly. The gold rush had both a monetary effect (higher price level and cash balances) and a real effect (increased production and higher returns to labor and capital). Both are clearly driven by the gold rush phenomenon and its various impacts on markets and thus Klondike's bars of gold were the important catalyst to the Golden 90s in Canada. The positive monetary shocks and the positive output shocks, in Bordo and Redish's "decomposition" were essentially the same thing.

Ironically, both the teaser and its solution may rest with the same theoretical apparatus—the international gold exchange mechanism. Economies with excess supplies of gold tend to experience higher prices and trade deficits in goods, while economies with excess demands for money tend to experience lower prices and trade surpluses. This process, first discovered by Richard Cantillon and latter by David Hume, demonstrates that money, prices and trade in goods tend to balance or equilibrate between economies over time. The Bordo and Redish anomaly would seem to rest on the notion that this mechanism is always at or near equilibrium, while the solution recognizes that the mechanism is a time-consuming process subject to new shocks over time. Therefore, it would seem that even the pre-classical economists still have something to teach us about the modern economy.

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