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Monetary Policy Neglect and the Great Inflation in Canada, Australia, and New Zealand

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Abstract

This paper studies the Great Inflation in Canada, Australia, and New Zealand. Newspaper coverage and policymakers' statements are used to analyze the views on the inflation process that led to the 1970s macroeconomic policies, and the different movement in each country away from 1970s views. I argue that to understand the course of policy in each country, it is crucial to use the monetary policy neglect hypothesis, which claims that the Great Inflation occurred because policymakers delegated inflation control to nonmonetary devices. This hypothesis helps explain why, unlike Canada, Australia and New Zealand continued to suffer high inflation in the mid-1980s. The delayed disinflation in these countries reflected the continuing importance accorded to nonmonetary views of inflation.

Keywords: Great Inflation, monetary policy, Canada, Australia, New Zealand.
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1. Introduction

Christiano and Gust (2000, p. 21) observe that the Great Inflation of the 1970s took place in many countries, and note the desirability of "understanding why it happened and what can be done to prevent it happening again." In practice, however, examination of the U.S. experience, rather than that of other countries, has dominated the literature on the Great Inflation. In a previous paper, I attempted to redress this imbalance by providing a symmetric treatment of the Great Inflation in the U.S. and the U.K. (Nelson, 2004). In the present paper, I extend this approach to three other countries that experienced the Great Inflation: Canada, Australia, and New Zealand.

The conclusion in Nelson (2004), based on quantitative evidence, policymakers' statements, and contemporary news coverage from the two countries studied, was that only the *monetary policy neglect hypothesis* could provide a coherent explanation of policy developments in the 1970s. This hypothesis contends that monetary policymakers viewed inflation as driven by factors other than excess demand, and sometimes combined this view with their own skepticism about monetary policy's ability to affect demand. This led to the control of inflation being allocated to nonmonetary devices. I also argued that this hypothesis is complementary, in two important respects, with Orphanides' (2003) contention that policymakers' over-estimates of potential output formed a serious source of policy error in the 1970s. For if policymakers believe inflation is a nonmonetary phenomenon, the response of monetary policy to inflation outbreaks is likely to be weak, and therefore compound any inflation that results from policy responses to biased output-gap estimates. And since nonmonetary (i.e., cost-push) views of inflation are compatible with any combination of inflation and output-gap outcomes, such views provide no mechanism for policymakers to learn from inflation outcomes that their estimates of the gap are in error.

The present paper presents further evidence for the monetary policy neglect hypothesis by showing that it accounts for monetary policy and inflation developments during the Great Inflation in Canada, Australia, and New Zealand.

The Canadian, Australian, and New Zealand inflation experiences have been analyzed by Debelle (1996) and Bernanke, Laubach, Mishkin, and Posen (1999), so some clarification of my differences in coverage with those studies is in order. Those studies principally focus on the decline in inflation in each country in the early 1990s, and on the institutional changes that built upon the decline. By contrast, I am concerned with the views on the inflation process that led to the 1970s policies, and the different movement in each country away from 1970s views. I argue that to understand the differences, it is crucial to use the monetary policy neglect hypothesis. Canada enjoyed a substantial and sustained fall in inflation from 1982–83 onward;[1] Australia

[1] The rebound of Canadian inflation late in the 1980s (not studied in this paper) was minor by comparison with this fall, justifying Debelle's (1996) label of it as a "small inflation."

and New Zealand, by contrast, suffered a major rebound of inflation in the mid-1980s. The different outcomes in these countries reflected the continuing importance accorded to nonmonetary views of inflation. Only once these countries had decisively accepted monetary policy, rather than incomes policy, as the favored way to control inflation, could the institutional changes that Debelle (1996) and Bernanke, Laubach, Mishkin, and Posen (1999) document take place.

Two other relevant studies are Guttmann (2004) for Australia, and Courchene (1976) for Canada. These studies draw, as this paper does, on archival material in the form of contemporary newspaper coverage and policymakers' statements. The aims of the present paper, however, are different from those of these studies. As far as government policy is concerned, Guttmann's (2004) focus is on the pursuit of monetary targeting in Australia (1976–85). The present study, on the other hand, provides a critical overview—from the perspective that inflation is a monetary phenomenon—of Australian government policies, both monetary and nonmonetary, against inflation over 1971–91. Courchene (1976, 1981) is concerned with the conduct of monetary policy in Canada in the 1970s, and offers little coverage of the predominantly nonmonetary approach to inflation that Canadian policymakers took over that period. The present paper provides such an analysis. Reflecting the different aims of this paper, the specific archival material I employ differs substantially from that in the abovementioned studies.

This paper proceeds as follows. Section 2 gives a selective graphical and quantitative overview of the monetary policy and inflation record in Canada, Australia, and New Zealand, while Section 3 outlines the monetary policy neglect hypothesis and how I apply it to these countries. I then analyze the details of the policy record during the Great Inflation in Canada (Section 4), Australia (Section 5), and New Zealand (Section 6). Section 7 concludes.

2. An Overview of the Great Inflation

Figures 1 to 3 plot four-quarter CPI inflation for Canada, Australia, and New Zealand. The increase in Canada's inflation rate from its 1960s values to its 1981 peak is interrupted by declines in 1970–71 and after 1975. Only the first of these declines, however, is genuine, as the second period was characterized by compulsory price controls (see Section 4). Inflation shifts decisively to single digits from late 1982. Australia (Figure 2) also has lower inflation in the 1980s than the 1970s, but the improvement is marred by rebounds in 1985–86 and 1988–90, and in no quarter over 1973–90 does the rate fall below 5%.

Figure 3 shows why a recent review of monetary policy in New Zealand could confine its remarks on the pre-inflation-targeting period to the statement: "The inflation history of New Zealand before the 1990s is dismal." (Svensson, 2001, p. 2). The temporary improvement in inflation over 1982–84 is wholly artificial—reflecting the imposition of a wage-price freeze over

that period (see Section 6). The lack of improvement in inflation performance in the 1980s explains why a former Reserve Bank of New Zealand Governor refers to "the Great Inflation of the Seventies and Eighties" (Brash, 2002), rather than the 1970s alone.

The poor 1970s performance on inflation in each country is consistent with evidence from estimated policy rules (Table 1). Better inflation performance should go hand-in-hand with a stricter monetary policy rule, one element of which is a sizable response of short-term interest rates to inflation. Table 1 is generally in line with the regularity, documented by Clarida, Galí, and Gertler (2000) for the U.S., that pre-1980s monetary policy rules exhibited weak (below unity) responses to inflation. In New Zealand, for example, the interest-rate response to inflation is only about 0.5 for 1966–84, but from 1988 takes a value around the 1.5 recommended by Taylor (1993).[2] An exception to this regularity is that, for the 1970s as a whole, the Canadian reaction function exhibits a greater than unit response to inflation.[3] As Table 1 also shows, however, this result changes if the first and last years of the 1970s are dropped from the sample. As it turns out, the treatment of 1971–78 rather than 1970–79 as a single regime is consistent with the explanation of the Great Inflation offered in this paper, since 1971–78 was the period when nonmonetary views on inflation control had their peak influence on Canadian policymaking.

Figures 4 to 6 compare actual short-term interest-rate choices with prescriptions for each year from a Taylor (1993) rule.[4] The Great Inflation in each country tends to correspond with large deviations from the Taylor rule prescription. One caveat is that the reliability of the rule prescriptions depends on the quality of the data used as inputs. Just as price controls in New Zealand artificially suppressed inflation over 1982–84, the use of the distorted inflation data in the Taylor rule produces a spurious dip in the interest-rate prescriptions.

A related caveat about data quality is that the rule prescriptions in Figures 4–6 use detrended output computed from final data. As Orphanides (2003) shows for the U.S., such revised estimates may differ substantially from policymakers' perception in real time of the position of output relative to potential. Figures 7 to 9 plot detrended output for the 1970s for each country,

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[2] The New Zealand 1966–84 reaction function is estimated with annual observations, with the short-term interest rate being the annual average of the series used by Orden and Fisher (1993). No output response is reported because detrended output entered with a negligible coefficient, and was dropped from the specification. The low output response could reflect low quality of the data, or the fact that the detrended output series used in estimation has little resemblance to that used in real time by policymakers (see Figure 9 and the related discussion).

[3] The Canadian monetary policy reaction coefficients are obtained from the long-run solution of a forward-looking quarterly partial adjustment rule of the type estimated for the U.S. by Clarida, Galí, and Gertler (2000). In this estimated rule, the right-hand-side variables are the lagged interest rate, one-quarter-ahead annualized CPI inflation, and detrended log output. The detrending of output assumes a linear trend with intercept and slope breaks in 1973 Q4 and 1994 Q4. Two lags of the interest rate, inflation, and detrended output are used as instruments.

[4] The prescriptions impose an inflation target of 2.5% and a steady-state real rate of 4% (3% for Canada).

Table 1. Estimated long-run responses in interest-rate policy rules							
	Canada			Australia[a]		New Zealand	
	70 Q1–79 Q4	71 Q1–78 Q4	80 Q1–02 Q1	63 Q1–79 Q4	80 Q1–02 Q1	1966–1984	89 Q1–98 Q4
Long-run response to inflation	1.53	0.45	1.17	0.56[a]	1.15[a]	0.48[b]	1.47[c]
Long-run response to detrended output	2.39	3.03	0.40	0.76[a]	1.13[a]	—	0.19[c]

a. Source: Kara and Nelson (2003). b. Estimated on annual data; prior year's inflation rate in rule.
c. Source: Huang, Margaritis, and Mayes (2001). (Plantier and Scrimgeour (2002) report similar results for the longer sample 1988 Q2–2001 Q3.)

Table 2. Average annual output growth rates[a]					
Canada		Australia		New Zealand	
1962–1973	1974–1993	1961–1973	1974–1993	1961–1973	1974–1993
5.3	2.7	4.8	2.8	4.9	1.0

a. For Canada and Australia, output is defined as real GDP; for New Zealand, output is defined as nominal GDP divided by the CPI.

Table 3. Correlations of CPI inflation and money growth *k* years earlier, 1969–1998								
Canada			Australia			New Zealand		
$k = 0$	$k = 1$	$k = 2$	$k = 0$	$k = 1$	$k = 2$	$k = 0$	$k = 1$	$k = 2$
0.40	0.51	0.60	0.78	0.84	0.76	0.57	0.63	0.48

using final data,[5] against estimates of the output gap during the 1970s. For Australia and Canada, historical estimates of the output gap were reported by the OECD (1973). Comparison of these 1973 estimates with today's estimates of detrended output suggests that the initial numbers overstated the weakness of demand in the early 1970s. In addition, like the U.S., the three countries studied here experienced slower growth in output after 1973 (Table 2). The detrended output series plotted in Figures 7–9 take this break in trend into account, but gap

[5] Final data on detrended output in Figures 7–9 are linear-detrended annual GDP data, also used in Figures 4–6. The linear trends assume breaks in 1974 (as well as 1995 for Canada and Australia). As Figure 7 shows, for Canada, the resulting series has the implausible property of being negative virtually throughout the 1970s. An alternative (quadratic) detrending method instead yields a series that is positive throughout the 1970s. This confirms the sensitivity of Canadian GDP to detrending methods, documented for the post-1982 period by Cayen and van Norden (2002). The high inflation and money growth outcomes in Canada during the 1970s suggest that the actual output gap was generally positive rather than negative.

estimates up to 1977 did not.[6] As a result, the 1977 gap estimates reported in Figures 7–9 are far more negative in the late 1970s than the final estimates of output relative to trend.[7]

Some perspective on the response of inflation to monetary actions is given in Table 3. Taking money growth as a crude summary of the monetary policy settings put in place by central-bank actions on interest rates,[8] the table suggests that developments in inflation are most closely related with monetary policy actions in *earlier* years. As discussed below, the failure of monetary tightenings to produce immediate inflation responses contributed to the popularity of nonmonetary views of inflation in the 1970s.

3. The Monetary Policy Neglect Hypothesis

Using the New Keynesian Phillips curve, the behavior of inflation may be written as follows:

$$\pi_t = b_1 + b_2 \, \mathrm{E}_t \Sigma_{i=0}^{\infty} b_3^{\,i} \, (y_{t+i} - y_{t+i}^*) + b_4 (u_t - \mathrm{E}[u_t]), \qquad (1)$$

where π_t is inflation, y_t is log output, y_t^* is log potential output, u_t is an exogenous disturbance, and the b_i are positive coefficients with b_3 near unity.[9] The alternative views of inflation in 1970s debates—monetary versus nonmonetary—may be expressed as restrictions on equation (1).

A nonmonetary explanation of inflation attributes the movements of inflation during the 1970s to persistent movements in the u_t term in equation (1)—often termed "cost-push" fluctuations—as well as to shifts in the mean of the u_t process (which thus produced shifts in the constant term, b_1). This explanation contends that excess demand did not matter for inflation, as it maintains that the coefficient b_2 goes to zero when the output gap ($y_t - y_t^*$) is negative. Therefore, under this explanation, output falling below potential does not produce any downward pressure on inflation. Exponents of the nonmonetary explanation of inflation in the 1970s frequently conceded that a role for excess demand factors in driving inflation arises when output is above

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[6] Appendix 3 describes the construction of the real-time output gaps for 1977.

[7] It is true that detrended output and the actual output gap can differ, because of cyclical variation in potential GDP. But this discrepancy should have a zero mean, and therefore cannot account for the nonzero-mean errors in estimates of the output gap observed during the 1970s.

[8] Money growth is measured by percentage change in currency. Following Friedman and Schwartz (1970), this choice reflects the fact that while more appropriate measures of money include noncurrency items (such as deposits or reserves), these items are more likely to suffer from distortions (e.g. changes in their own rate of return) that make their historical movements difficult to interpret. The fragmentary data available on money including deposits do, however, support the evidence in Table 3. For example, an annual series for New Zealand M3 growth obtained from Orden and Fisher's (1993) dataset leads inflation by three years with a correlation of 0.74 for 1970–79, and by one year for 1980–89 with a correlation of 0.52. Annual data for Canadian M2 growth derived from Amano and Wirjanto's (1996) dataset leads inflation over 1975–92 by one year with a correlation of 0.86.

[9] See Nelson (2004) for a derivation of equation (1) giving formulae for each coefficient.

potential,[10] but this was a minor qualification, as they believed that the output gap was rarely positive during the 1970s.

A monetary explanation of inflation, on the other hand, contends that b_2 is well above zero for all values of the output gap, and that the shifts in inflation during the 1970s are attributable to excessive aggregate demand (protracted periods of positive output gaps) created by the monetary authorities. The explanation concedes a role for the u_t term in equation (1) in producing one-time movements in the price level, but gives it no role in causing changes in the mean of inflation or fluctuations in expected inflation. Together with $b_2 > 0$, the monetary explanation therefore imposes the restrictions that y_t is interest-elastic (so excessive demand can be prevented by monetary policy), and that u_t has a zero mean (implying that $E[u_t]$ does not enter the expression for b_1) and is white noise (so only excess demand and the constant term enter the expression for expected future inflation).[11]

The monetary policy neglect hypothesis claims that the monetary explanation of inflation is the correct one, but that policymakers in the 1970s subscribed to the nonmonetary explanation. They therefore relied on wage and price controls, rather than monetary policy, to control inflation. And because their theory led them to believe that there was no connection between (negative) output gaps and inflation, policymakers were inclined to maintain the optimistic views of potential GDP that they inherited from the 1960s, instead of revising output-gap estimates in light of high inflation outcomes. Over-expansionary monetary policy in the 1970s therefore came about from two interacting factors: policymakers' failure to appreciate the need for monetary restraint in controlling inflation; and their desire to enact stabilization policy by responding to negative output gaps. The monetary policy neglect hypothesis is thus complementary with Orphanides' (2003) claim that output-gap mismeasurement was a source of inflationary policy error in the 1970s.

3.1 The Nonmonetary Explanation: Two Special Cases

Two variants of the nonmonetary explanation of inflation that became particularly popular in 1970s debates actually argued that monetary policy tightening made inflation *worse*. These variants recurred so frequently that it is worthwhile to discuss each of them here.

Unit-cost-push. This variant of the cost-push argument starts from the observation that firms' pricing decisions are based closely on their unit cost. It then claims that restrictive monetary policy pushes prices up by reducing demand and therefore output (the denominator of the

[10] That is, they subscribed to an asymmetric version of equation (1), where b_2 turns positive only when the output gap is positive.
[11] The white-noise restriction additionally implies $b_4 = 1$ in equation (1).

expression for unit cost).[12] The argument is predicated upon the view that demand restriction exerts negligible downward pressure on costs of production (the numerator of the expression for unit cost). It is therefore an invalid argument from a monetary perspective on inflation. The monetary view holds that costs are elastic with respect to aggregate demand, and so restrictive monetary policy tends to reduce unit costs.

Interest-cost-push. This version of the cost-push argument is based on the position that nominal interest payments are a component both of the CPI and firm production costs. Since monetary restriction is initially manifested in higher nominal interest rates, it is, according to this argument, a source of upward rather than downward pressure on prices. The argument confuses aggregate with relative price movements. The partial effect of monetary restriction may be higher values for certain prices and costs. But provided inflation is a monetary phenomenon—implying b_2 is positive in equation (1)—monetary restriction, by producing a smaller excess of output over potential than before, puts downward pressure on the aggregate inflation rate.

3.2 Factors in Individual Countries

The monetary-versus-nonmonetary contrast of inflation theories given above is the same as that used in Nelson (2004) for the U.S. and the U.K. Two factors frequently invoked as justifying a different analysis of inflation in countries like Canada, Australia, and New Zealand, are openness and labor market arrangements. Here, I discuss why I have not made any modifications to the analysis in light of these factors.

Openness. The above outline takes the monetary explanation of inflation as stating that, starting from low inflation, a monetary policy that keeps the path of the output gap at zero is a necessary and sufficient condition for CPI inflation to be kept low—both in the sense of a low mean inflation rate, and no persistent deviations from this mean. It is sometimes argued that for highly open economies, this proposition must be qualified, either because import-price or world inflation appears as an additional variable (beside the output gap) in the Phillips curve, or because central-bank control of inflation depends on how reliably the exchange rate responds to monetary policy. I do not accept either qualification in the analysis here. Rather, I contend that open-economy factors matter only for inflation insofar as they affect the output gap, and that episodes of import-price inflation not associated with positive output gaps lead to movements in relative prices rather than the aggregate CPI. This contention rests on the success of modeling approaches that treat imports as an intermediate good rather than a CPI component, and on the experience of the countries studied in this paper, where large exchange-rate depreciations have been compatible with stable CPI inflation (e.g., in the late 1990s).

[12] The unit-cost-push view was expressed early in the Great Inflation by an editorial in *The Economist* (*TE*, 10/25/69).

Labor markets. One factor which underpinned the adherence to nonmonetary views of inflation in Australia and New Zealand was the institutional background prevailing up to the 1990s. Specifically, government tribunals (arbitration courts) had legally binding powers over wages in the private sector—powers covering both the minimum wage and various aspects of the relative wage structure. This background has motivated the treatment of the mandated growth rate of wages as a separate explanatory variable besides the output gap in Phillips curves estimated on Australian data (e.g. Nevile, 1970, p. 81; Gruen, Pagan, and Thompson, 1999, p. 228).

In opposition to this approach, it has been argued that the fact that wage growth in practice departs from the officially-mandated values, combined with the observation that wage-tribunal decisions are influenced by economic considerations, justifies treating actual wage growth as essentially market-determined (e.g. Jonson, 1973). Another important consideration is that price inflation may be driven by excess demand even when current wage growth deviates from market forces. One reason for this is that economic theory suggests that, when prices are sticky, they are driven by the *entire expected future path* of marginal cost (see Woodford, 2003, Ch. 2), which is much more plausibly treated as endogenous than as a tribunal-determined exogenous variable.[13] Excess demand then exerts predictable effects on inflation via its effect on the expected path of costs. In line with these arguments, the position taken in this paper is that wages policy impacts inflation only via affecting excess-demand conditions. This position appears consistent with the analysis of Australian experience with incomes policies (see Section 5 below).

Let us now consider the experience of each country during the Great Inflation in more detail, beginning with Canada.

4. Canada

Canadian monetary policymakers ended the 1960s with a disinflationary strategy informed by several modern insights. Not only did they subscribe to a conventional view of the inflationary process, they recognized and explicitly endorsed the hypothesis that the long-run Phillips curve was vertical. Louis Rasminsky, the Governor of the Bank of Canada, did so in early 1969 when he described the inflation/unemployment trade-off as "an illusion" because "people… develop an expectation of continuing inflation and adjust their behavior accordingly" (*TGM*, 02/21/69). In addition, Pierre Trudeau, Prime Minister and head of the Liberal Party Government, himself stated in 1970 that it had "been shown that this trade-off is a short-run phenomenon, and that sacrificing price stability will not by itself aid in improving a country's long-run employment situation" (*CPD*, 10/09/70, p. 33). The latter statement was especially notable as it came from the executive branch of government which, in Canada as well as the two other countries studied in this paper, had effective control over monetary policy throughout the 1970s.

[13] This theory also implies that non-wage costs and measured profit margins will be responsive to excess demand, which seems in line with the Australian experience (e.g. Grenville, 1995).

By 1975, however, the Canadian authorities had moved from this conventional position to an adherence to a nonmonetary view of inflation, and imposed compulsory wage and price controls. The transition to this state of affairs is due to two factors. First, a strong body of opinion in Canada advocating cost-push positions existed from the beginning of the 1970s. Second, errors in official estimates of the output gap led to estimated gap/inflation combinations that were a challenge for the conventional theory of inflation to explain. Both these factors grew in importance over the period of conventional policy, 1969–71.

4.1 1969–71: Orthodox Beginnings

Over 1969 and 1970, the Canadian authorities gave primacy to aggregate demand restraint in reducing inflation. Prime Minister Trudeau indicated that "our policies to slow down the economy… will be slackened when the inflationary psychology is broken in this country" (*CPD*, 04/17/70, p. 5984). Moreover, policymakers indicated that they would not be perturbed if the period of monetary restriction led to an interim period of simultaneous rising unemployment and continuing high inflation. Governor Rasminsky said that it would "not be too surprising, given the lags involved, if there is a temporary, rather discouraging period when we seem to be getting the worst of both worlds" (*FP*, 11/01/69).

Several outside commentators resorted instead to cost-push explanations of Canada's macroeconomic behavior. An editorial in the *Financial Post* newspaper, for example, blamed the "1968 double-whammy" of higher rates of inflation and unemployment on tax increases and wage-push (*FP*, 04/26/69). The most persistent exponent of cost-push analysis and prescriptions, however, was the *Toronto Star* newspaper, both on its editorial page and through its economics columnist, Dian Cohen. Cohen's view was that it was "very hard to maintain that our current inflation is the result of excessive demand," and that the lesson from the U.S. experience for Canada was that monetary tightening "invariably resulted in massive unemployment without the desired price stabilization" (*TST*, 02/02/70). Restrictive monetary policy worsened inflation in her analysis via the unit-cost-push effect; fiscal tightening could also be counterproductive because "as taxes go up so, ultimately, do prices" (*TST*, 12/14/70).[14] Cohen combined these positions with interest-push and wage-push views to conclude that "the chief sources of inflation are rising taxes, rising interest-rate costs, rising wages and salaries—and even rising unemployment" (*TST*, 03/01/71), and that "economic policies that have traditionally been thought to curb inflation actually aggravate and encourage it" (*TST*, 03/27/72). As alternative policies, she advocated expansion of the money supply alongside "lower tax rates… to reduce the cost inflation" (*TST*, 11/16/70). The *Toronto Star* editorials concurred that Canada's problem was "'cost-push' inflation [which] occurs when corporations and organized

[14] Similarly, Don McGillivray in the *Financial Times of Canada* wrote that the "[e]vidence that taxes are a cause of inflation" was "piling up" (*FTC*, 12/04/72); while Lubor Zink in the *Toronto Sun* asserted that "every increase in tax rates is soon reflected in higher production costs and consumer prices" (*TSN*, 03/08/74).

labor take out more than they're putting in" (*TST*, 08/21/71), and advocated a wage-prize freeze followed by a system of direct controls—which it called "the only weapon left against inflation" (*TST*, 02/10/72).

The Government was initially in a good position to resist these criticisms, as its disinflationary policy succeeded in bringing inflation below 3% by the end of 1970 without resort to controls. However, as Figure 7 shows, the Government overestimated the amount of slack it had created in producing this favorable inflation result. Consequently, it switched to a considerably easier policy during 1970. Even in late 1971, the OECD judged that "an expansionary economic policy still appears appropriate, given the existing amount of slack in the Canadian economy" (*WFP*, 12/28/71), while the Bank of Canada's 1972 report claimed that "there is undoubtedly too much slack in the economy" (quoted in Courchene, 1976, p. 182). In fact, however, the Government had already injected so much stimulus that inflation was on the way back up.

4.2 1972–74: Blaming International Factors

While the Canadian authorities had begun the decade pursuing disinflation with success, the resurgence of inflation from 1972 converted them to cost-push analysis and nonmonetary remedies. They would deny, in line with the output-gap estimates available at the time, that Canada had an excess-demand problem. Instead, they would blame international factors—what Prime Minister Trudeau called "worldwide economic pressures largely beyond our control" (*TSN*, 03/06/74)—for provoking inflation in Canada. According to this argument, the revival of inflation in Canada arose from its pressure on the prices of world commodities, due to excess demand outside Canada. Import-price inflation and cost-of-living adjustments of wages had then driven up CPI inflation within Canada. The policy response over 1972–74 consisted of actions to affect specific prices, as well as tax cuts. Monetary policy, on the other hand, was eased to fight the perceived unemployment problem.

Finance Minister Turner foreshadowed the Government's reliance on commodity-price-push as the explanation for Canada's inflation when in early 1972 he noted that the country's inflation performance had recently deteriorated, but "this is partly attributable to special factors relating to food" (*CPD*, 02/24/72, p. 215). Reviewing still worse inflation a year later, he said "in large measure it reflected the worldwide market forces pushing up the prices of grains, meat, sugar and other basic foods" (*CPD*, 02/19/73, p. 1431). After a further year, he contended that "the sharp increase in oil prices plus the rise in commodity and food prices constitutes the primary thrust of inflation in this country" (*CPD*, 01/07/74, p. 9100).

In September 1973, Turner listed the specific measures the Government had taken against inflation: sales tax cuts, tariff reductions, and controls on the export of agricultural products (*CPD*, 09/13/73, p. 6513). Similar measures were announced in his May 1974 Budget speech,

where a section entitled "The Program against Inflation" was followed by two subsections, "Measures to Increase Supply," and "Measures to Hold Down Particular Prices" (*CPD*, 05/06/74, p. 2082). Both sets of measures were intended to offset the effects of world inflation on the CPI, the first by reducing the extent of the commodity price increase in Canada—a strategy Turner characterized as aiming for "an increase in supply so as to get to the root of inflation" (*CPD*, 09/13/73, p. 6512)—and the second by acting on the prices of other CPI components.

The Government's acknowledgement of a contribution of developments within Canada to inflation was limited. Turner saw the problem as "a complicated interaction between world demand-pull inflationary forces and the reaction in Canada of cost-push forces," such as wage-earners demanding compensation for price increases (*CPD*, 01/07/74, p. 9100). The authorities saw income tax cuts as the means of arresting wage spirals of this type, by increasing disposable income without the need for nominal wage increases (*CPD*, 02/19/73, p. 1435). Prime Minister Trudeau also indicated that the Government would increase antitrust regulation to deal with "the cause of certain types of cost-push inflation… [W]e're dealing first with the monopoly of business because that is the more dangerous one" (*TST*, 09/20/73).

To accompany these nonmonetary measures, Turner judged that a "generally expansionary monetary policy" was appropriate, so as to reduce unemployment. He expressed satisfaction that excessive money growth could be dealt with by direct controls—i.e., by an agreement among the commercial banks on loan expansion, and a lowering of the legal limit on rates on large deposits—rather than conventional monetary tools such as open market operations (*CPD*, 02/19/73, p. 1430). Turner reaffirmed in April 1973 that "monetary policy… [will] continue to be expansionary" (*CPD*, 04/10/73, p. 3132). In 1974, he rejected "deflation of demand by severe measures of fiscal and monetary restraint" as a solution to inflation (*CPD*, 05/06/74, p. 2078), and instead described his strategy as "breaking the inflationary spiral without impeding the continued strong growth of production, employment and income" (*TGM*, 06/08/74). In effect endorsing the unit-cost-push argument, he claimed that restrictive demand policies abroad were worsening inflation because they resulted in lower production (*CPD*, 10/09/74, p. 260).

The evidence from interest-rate rules in Figure 4 and Table 1 suggest that, contrary to official beliefs at the time, loose Canadian monetary policy was responsible for the return of Canada's inflation. As discussed above, the easing had started with the expansionary measures of 1970. Neither excess demand abroad nor the rise in commodity prices actually provides grounds for believing that Canada could have sustained inflation without monetary stimulus. Canada's exchange rate had floated in 1970, providing the conditions under which international shocks should impact relative prices, but not the ongoing inflation rate, within Canada. Those conditions were not taken advantage of by the authorities. Instead, their cost-push interpretation of inflation encouraged them to continue monetary expansion.

The Conservative Party Opposition shared with the Government a cost-push view of inflation. Its critique of the Government was therefore based on the source of the cost-push, which it argued was two-thirds domestic (*TSN*, 03/06/74). From May 1973 the Conservatives proposed a three-month wage-price freeze, followed by permanent controls, to fight inflation (*TST*, 05/11/73). Consistent with their cost-push perspective, they did not see controls as a means of speeding up the effects of traditional demand management, but instead as a new instrument that could compensate for the ineffectiveness of demand policies. In their 1974 policy document on inflation, for example, the Conservatives characterized controls as a tool required because "monetary and fiscal policies alone cannot do the job" (quoted in Saywell, 1975, p. 34). As far as traditional policy weapons were concerned, the Opposition laid emphasis on cuts in government spending and taxes, whose hoped-for anti-inflationary effect would take place largely through a cost-push channel.[15] Opposition Leader Stanfield specifically repudiated what he called "the same discredited methods of high interest rates that were used in 1969 and 1970" (*CPD*, 09/13/73, p. 6511).

The Government's rejection of controls as a solution did not rest on an acceptance of a monetary view of inflation, but instead on its favored cost-push explanation. Since it believed that the origin of Canada's inflation was in foreign price behavior, rather than principally domestic wage-push, it rejected the value of domestic wage and price controls. In September 1973, Turner speculated that "if it became evident that the fundamental nature of the problem had changed, that the main source of inflationary pressure… [was] a domestic spiral of costs and prices, [the] policy response of the Government might well be different" (*CPD*, 09/13/73, p. 6512).

4.3 1974–75: Capitulation to Controls

In late 1974 the Government began to nominate wage-push as the source of inflation. In his November Budget speech, Turner claimed that "the response to earlier international price increases has provoked domestic forces of cost-push inflation in Canada" (*CPD*, 11/18/74, p. 1421). He continued this diagnosis in a January 1975 speech, stating: "The nature of the inflationary problem is changing in a fundamental way. Initially the forces of inflation were set in motion internationally… Now the driving force is coming from the rapid escalation of wage and salary costs as those who work… keep pace with the rising cost of living" (quoted in Saywell, 1975, p. 366). Mechanically, the Government's changed diagnosis arose from the fact that commodity price growth had receded, while double-digit CPI inflation continued. Inflation—according to the cost-push view—thus became "domestic" in character. A more standard analysis, however, would dispute that inflation's character had changed—rather, excessive demand conditions remained the problem throughout. These conditions account for why high inflation continued even after commodity price pressures eased.

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[15] A sympathetic commentator on the Conservatives' program described them as "a concerted attack on the roots of inflation (i.e., government overspending and union-business cost-price fixing)" (*TSN*, 05/09/74).

The Government's response to the perceived domestic cost-push was to introduce further income tax cuts as well as to begin talks on a voluntary incomes policy (*CPD*, 11/18/74, p. 1423). Following the collapse of these talks in May 1975, Prime Minister Trudeau said that the change in character of inflation from international to wage-push meant that the case against compulsory wage and price controls had weakened (*TST*, 05/23/75). On October 13, 1975, Trudeau announced a three-year control program.

4.4 1975–78: Monetary Policy in the Controls Period

In conjunction with the imposition of the controls, Finance Minister Macdonald announced that the Bank of Canada would pursue targets for M1 growth, on the grounds that it was "essential for the success of any prices and incomes policy to avoid too rapid a rate of growth of demand and the development of excess pressure on resources" (*TGM*, 10/15/75). The stage therefore seemed set for a restrictive monetary policy to accompany price controls, thus providing a counterexample to the generalization that periods of control are accompanied by monetary ease.

In practice, however, such a counterexample did *not* emerge: while policy did tighten over 1976, nominal interest rates fell and currency growth picked up during 1977. The M1 growth targets continued to be met over the latter period, but hitting these targets did not, in the event, prove an obstacle to a substantial monetary easing—recorded in falling real and nominal interest rates, and rising growth rates of non-M1 definitions of money—because households reduced their holdings of M1 deposits relative to other classes of deposits. Consistent with the easing, output moved upward relative to trend during 1978, and inflation revived over 1978–81.

The Bank of Canada characterized this period as one of unintended ease, arising from the shift in M1 demand (see Courchene, 1981). Other evidence, however, suggests that much of the easing was conscious, and reflected the lingering influence of cost-push views—i.e., that Canada's inflation was of a nonmonetary character, and that therefore the case for restraining aggregate demand was not compelling. In a speech in June 1976, Finance Minister Macdonald reaffirmed the Government's nonmonetary diagnosis of inflation, stating: "It is frequently argued that… excessive increases in the money supply have been the major cause of inflation in Canada… But I do not believe they are the primary cause of the inflation we have experienced in this country" (quoted in *TGM*, 08/19/76).

Correspondingly, as they watched inflation fall during the controls period, policymakers appear to have had too much confidence that the decline represented the genuine removal of inflationary pressure. Just eight months into the controls, Bank of Canada Governor Bouey stated that it was "within the realm of possibility that receding inflation will permit a gradual moderation of money supply growth without the need for significantly higher interest rates than we have at present," and that "in an atmosphere of growing confidence that inflation was being brought

under control… interest rates could over time be expected to begin declining" (*TGM*, 06/24/76). This message would have been unexceptional during a period of no price controls. But in a period where an observed decline in inflation was virtually inevitable because of the controls, the message would have helped encourage expectations of interest-rate cuts to accompany the decline. By early 1977, the Bank of Canada had indeed cut short-term nominal interest rates down to levels lower than those prevailing at the start of price controls. Ex-post real rates—which overstate the actual level of real rates because of the controls' suppressing effect on inflation—were also below their pre-control levels. The experience of Canada under wage and price controls thus conforms to Grossman's (1982, p. 138) generalization that episodes of controls "have prompted the monetary authorities to become less concerned about inflation and, thereby, have helped to produce the subsequent increase in inflation."

The switch to excessive ease was, as in 1970, also prompted by an excessive pessimism about the output gap. Governor Bouey acknowledged publicly in 1975 that the authorities had in the early 1970s been slow to recognize increases in the natural unemployment rate, and so had overestimated the degree of slack (Courchene, 1976, p. 229). By the time this structural change had been recognized, however, the severe post-1973 slowdown in potential growth had become a new source of output-gap mismeasurement. Contemporary observers of the Canadian economy initially mistook much of this slowdown as reflecting weakness in demand—a misconception paralleling the U.S. situation, studied by Orphanides (2003). As Figure 7 shows, the OECD's 1977 estimates of Canada's output gap were far more negative than now seem appropriate.[16] Subscribers to a monetary view of inflation such as Laidler (1978) questioned these gap estimates, on the grounds that they were inconsistent with Canada's severe inflation. Cost-push adherents, on the other hand, felt that severely negative output gaps and high inflation were compatible.

While cost-push views do appear to have discouraged the authorities from implementing a sufficiently tight monetary policy over 1975–78, such views did lead to a genuine disinflation beginning in 1978. Just as in the U.S. in the same year (see Nelson, 2004, Section 5), a fear based on a cost-push scenario—a wage-price spiral triggered by exchange-rate depreciation—triggered a monetary tightening. The Deputy Governor of the Bank of Canada explained that the Bank in 1978 was "raising domestic interest rates repeatedly" out of concern that "the direct impact on Canada's price level of further substantial exchange [rate] depreciation could… set off a renewed outbreak of serious wage inflation" (Freeman, 1981, p. 200). The belief that exchange rate depreciation was a source of Canada's inflation was shared by the executive branch of government. Trudeau claimed in October 1978 that "inflation is coming in from outside, very simply because of the high cost of things we import, and very simply because of the lowered value of the [Canadian] dollar" (*CPD*, 10/12/78, p. 33). Finance Minister Chrétien blamed the

[16] As late as March 1977, a Canadian financial columnist described 5% as "Canada's long-term average rate of real growth," and characterized the Bank of Canada's monetary targets as guided by that rate (*FTC*, 03/14/77).

revival on inflation on "the rise in food prices and the fall in the dollar," and endorsed the fear that these would trigger "a fresh outbreak of large, leap-frogging wage and price increases" (*CPD*, 11/16/78, p. 1200).

According to an orthodox (monetary) view of inflation, this import-price-push view was invalid—depreciation could not spark a new inflation spiral, unless it was itself a symptom of excessive demand created by the government. Despite its misguided character, however, the import-price-push view was important, both in Canada and the U.S., in shifting monetary policymakers to a tighter position from late 1978. The shift is consistent with the evidence (Table 1) that Canadian monetary policy had taken on a less accommodative stance by the start of 1979. The tighter policy eventually produced dividends in lower inflation: four-quarter CPI inflation peaked in Canada in mid-1981, and had fallen below 5% by the end of 1983.

5. Australia

Australia never had compulsory price controls of the type imposed in Canada, but in other respects was more immersed in a nonmonetary tradition of inflation control that lingered until the 1990s.

5.1 1971–72: Blaming Wage-Push

In the fourth quarter of 1970, annualized CPI inflation was 7.7% and the four-quarter rate reached 4.9%; both were the highest rates in Australia since the mid-1950s. The inflation breakout occurred during the term of office of the Government headed by Liberal Party leader John Gorton.[17] In response, Prime Minister Gorton gave a televised address to the nation on January 29, 1971, which blamed inflation on wage-push. Gorton ruled out "taking monetary and fiscal measures at this time," stating that his Government did not "believe the present situation requires a lift in interest rates, already high" (*SMH*, 01/30/71). Aggregate demand measures were limited to proposed reductions in government spending; Gorton ruled out another fiscal option, increases in indirect taxes, on cost-push grounds. A business leader, H.N. Herford of the Associated Chamber of Manufacturers, endorsed this strategy; like the Government, he blamed "cost-push inflationary factors" and rejected any strategy to "dampen down demand where no dampening, on current indications, is needed" (*SMH*, 02/11/71).

A parliamentary debate on inflation three weeks later was notable for the rejection, by both sides, of monetary actions to fight inflation. Prime Minister Gorton reaffirmed that "the real

[17] In Australia, in contrast to Canada, the principal conservative party is known as the Liberal Party, with the Australian Labor Party its main electoral opponent. In the period studied here, the Liberal Party headed a government until December 1972, and was followed by Labor for two terms (1972–75). The Liberals then headed a government for three terms from 1975 to 1983, after which Labor served four terms over 1983–96.

problem… is cost-push inflation," and maintained that the "biggest single influence now which can prevent inflation is a conscious and firm effort on the part of wage-fixing tribunals" (*APD*, 02/18/71, p. 314). The Cabinet minister with responsibility for labor market issues, B.M. Snedden, acknowledged that "we must avoid excess demand by maintaining general fiscal and monetary discipline" (*APD*, 02/18/71, p. 308), but maintained, "[w]e have full employment in Australia… [T]here is an excess demand threat, but excess demand does not presently exist… Deflationary fiscal policies… are counter-productive. They would raise prices which would further stimulate wage demands… [and] also would slow the growth of demand… which would be likely to stop productivity growth" (*APD*, 02/18/71, pp. 306–307).[18] Rather, Snedden too maintained that the "answer to the present problems is that there should be more restraints on wages" (*APD*, 02/18/71, p. 308).

The Government's position, as revealed in these statements, was an amalgam of various cost-push positions, including the claim that while excess demand creates inflationary pressure, negative output gaps do not remove it; and that inflation reflects autonomous influences. The argument that policy tightenings are inflationary was also endorsed, on the grounds that they depress productivity and that higher taxes raise costs and prices. Like other theories that claimed tightening was inflationary, these views were without merit. Provided aggregate CPI inflation responds to real aggregate demand relative to potential, a tightening that reduces excess demand will be anti-inflationary in its overall effect, even if there are positive effects of policy tightenings on particular items in the CPI; and contractions of demand are often associated with declines in measured productivity growth in the short run.

The Opposition party in Parliament (the Labor Party) was more inclined than the Government to view the economy as suffering from excessive demand; nevertheless, it too did not see the solution in central bank actions. Opposition Leader Whitlam, in explaining why "the Government and its policies have been the principal cause of the current inflation" (*APD*, 02/18/71, p. 275), blamed fiscal loosening (in particular, income tax cuts) as well as increases in indirect taxes and the prices of government services; and interest-rate increases, which had "been passed on to the consumer in the form of higher prices" (*APD*, 02/18/71, p. 279). The acknowledgement of a monetary contribution to inflation in the Opposition's analysis was limited to blaming the Government for permitting growth in unregulated financial intermediaries, for which the Opposition's proposed solution was to expand regulation to include limits on the interest rates offered by nonbanks (*APD*, 02/18/71, pp. 277, 299). The debate on inflation thus left both sides of politics rejecting conventional monetary tightening—i.e., open market operations that produced increases in interest rates—as a solution to inflation.

[18] Snedden had also put on record his support for the pre-Phillips curve view—an important part of the cost-push position—that demand did not exert upward pressure on prices until full employment was reached (Department of Labour and National Service, 1970, p. 17).

For some months in 1971, the Government (by now led by William McMahon) did pursue measures to rein in demand. This did not represent an abandonment of its wage-push diagnosis, but instead reflected a fear that wage increases could lead to demand pressure. In his August 1971 Budget speech, Snedden, now Treasurer (the Cabinet member responsible for monetary and fiscal policy), described the strategy: "It would be calamitous for a general demand-type inflationary pressure to be superimposed upon and exacerbate present cost pressures… [I]f resistance to such cost increases is to be stiffened, as it must be, there has to be a sufficient degree of restraint on potential demand for resources" (*APD*, 08/17/71, pp. 39, 46). Most of the 1971 tightening took the form of fiscal, rather than monetary, actions. Partly this reflected the fact that Australian governments in the 1970s erroneously thought that there was a near-automatic relationship between budget deficits and money growth (e.g. *APD*, 08/17/71, p. 47).

The pattern of inflation and unemployment outcomes that took place over the rest of 1971 led to the first talk of "stagflation" in Australia. Opposition Leader Whitlam claimed: "With the unemployment figures issued on Monday we have a clear picture of 'stagflation'—growing unemployment with inflation" (*DM*, 10/22/71). Bob Hawke, then a labor-union leader and later Prime Minister for most of the 1980s, contended: "The McMahon Government must be the only government in Australia's history with the doubtful achievement of having created a rapid increase in unemployment and uncontrolled inflation both at the same time" (*DM*, 10/22/71).

The failure of inflation to fall in this period led to some misinterpretations. First, the episode was cited as an example of monetary policy's ineffectiveness under fixed exchange rates (e.g. *AFR*, 10/29/75). But the ineffectiveness proposition did not apply here, as it is inconsistent with the slowing of aggregate demand growth that did occur. In fact, the existence of foreign exchange controls, the success of sterilization in the short run, and (after 1972) the willingness of the authorities to alter their exchange rate targets, meant that fixed exchange rates, though formally adhered to until the end of 1983, did not prevent substantial monetary policy independence. Consistent with this, the Australian monetary authorities employed an interest-rate instrument, varying nominal rates relative to world rates on many occasions. Capital inflow did become the overwhelming influence on money base growth in 1972–73, but this reflected what was in essence a conscious domestic policy decision, as the Government at the end of 1971 voluntarily joined the U.S. in devaluation.

Second, and more importantly, the Government saw the failure of inflation to respond to tightening as validating its earlier diagnosis of autonomous wage-push. Treasurer Snedden continued to attribute inflation to "excessive wage increases" (*SUN*, 10/22/71), while Prime Minister McMahon denied responsibility: "It is obvious that the rise in the consumer price index is due mainly to cost increases brought about by very large wage increases. It is plainly absurd for the Leader of the Opposition to attribute the rise to the Government" (*DM*, 10/22/71).

The continuation of inflation also reaffirmed the doubts by the Government and outside commentators that restrictive aggregate demand policies could help bring inflation down. For example, business columnist Warren Beeby judged that "the critical level of demand inflation which Mr. Snedden sought to stem through budgetary measures hardly existed at the time… Demand is slackening, factories are operating at much less than full capacity…" He also endorsed the popular interest-cost-push view: "In the present economic climate, a reduction in interest rates is more likely to act against inflation than feed it. It would relax some of the cost pressures, stimulate demand, and get industry moving again…" (*SA*, 09/19/71). Similarly, financial columnist Kenneth Davidson judged that "the August Budget… is not proving very successful in curbing cost-push inflation. All the Budget has done is to demonstrate beyond a shadow of a doubt that excess demand pressures are not the root cause of inflation at present" (*TA*, 11/06/71). A commercial bank, ANZ Banking Group, criticized the Government for not adopting the policy mix of demand expansion and wage/price controls being pursued in the U.S.: "It is anomalous that Australia's policy… should be so different… Greater spending would stimulate an expansion of production [and] reduce unit costs…" (*TA*, 11/20/71).

In November 1971, Treasurer Snedden stated that "a good proportion of decisions on prices are already taken to some extent independently of market criteria" (*SMH*, 11/19/71). Corporations' monopoly power was thus added to wage-push on the list of causes of inflation. For policy, Snedden presented of the choice as between compulsory and voluntary incomes policies, thereby effectively endorsing the argument that demand management was not a successful weapon.

The resort to cost-push explanations of inflation by policymakers and commentators in 1971–72 reflects several interrelated flaws in their interpretation, all of which were repeated during the more severe stagflation of 1974. They neglected the role of monetary easing (revealed for instance in a pickup in money growth in 1969–70) in creating the conditions for rapid nominal wage growth. Their analysis was also marred by the exaggerated picture the initial data gave of the restriction of demand. For example, financial columnist Davidson regarded the 4% real growth rate recorded during 1971 as "hardly healthy," because it was below Australia's "long-term potential real growth rate of 5 per cent a year" (*TA*, 11/24/71). But data revisions now indicate that while GDP growth did slow down modestly during 1971, the economy was so strong in 1970 that output remained above its trend throughout 1971. And when the 1971 slowdown occurred, observers failed to account for the delayed response of inflation—which duly occurred in 1972—and so treated the absence of an immediate inflation decline as a policy failure. All these flaws meant that actual inflation outcomes were erroneously interpreted as repudiating an excess-demand-based explanation of inflation.

The cost-push view of inflation continued to be central to policymaking in 1972. In that year, an internal Treasury analysis rejected the hypothesis that Australia's inflation was due to excessive demand (resulting from capital inflow), in favor of a wage-push explanation (*AFR*, 06/13/73;

AFR, 10/29/75). In one respect, the analysis was valid—the rapid money growth of 1972 appears to have been mostly reflected in inflation *after* 1972; equally, however, the inflation of 1972 appears consistent with prior monetary developments, so the Treasury's emphasis on exogenous wage pressure was inappropriate. The Government nevertheless accepted this analysis, and late in its term was still being described as "leaning heavily on the argument that wage increases cause inflation" (*TA*, 08/03/72). Prime Minister McMahon depicted the economy's prospects as moving to full employment output over 1972–73 alongside receding inflation (*DT*, 10/10/72). Such a scenario relied on Australia's inflation being purely of a cost-push character—so that inflation could be removed by nonmonetary measures, with a shift of output toward potential exerting no inflationary pressure.

5.2 1972–73: Monetary Tightening and Push for Controls

Despite its rejection of a monetary explanation of 1972's inflation, the Treasury was aware that the undervalued dollar and accompanying rapid money growth meant the prospect of excessive demand in 1973. In light of these concerns, the Labor Government of Gough Whitlam, elected in December 1972, appreciated the Australian dollar and introduced foreign exchange controls, both of which worked in the direction of reducing money growth. To this extent, the Government was now taking conventional monetary measures against inflation. A submission to Cabinet by the Assistant Treasurer in October 1973 reveals, however, that the view of inflation held by the authorities remained unorthodox in important respects (*ACR*, 10/05/73). This document classified inflation, which was now moving into double digits, as falling into three categories: imported inflation, which it characterized as working not only through the effect of balance of payments surpluses on the money supply but also "through rising import prices;" cost inflation; and demand inflation occurring when "demand… run[s] beyond the capacity of supply" (paras. 16 to 31). This classification scheme amounted to a cost-push approach to inflation, supplemented by an acknowledgement that the output gap matters for inflation when the gap is positive. By contrast, a monetary view of inflation would not categorize cost and imported inflation as distinct from demand inflation, but as simply routes through which excessive demand is transmitted to the inflation rate.

For each type of inflation, the submission advanced different appropriate remedies. National wage-tribunal decisions were cited as the primary source of cost inflation, suggesting an incomes policy response; the Government's tariff cuts (discussed below) and revaluations were seen as having removed imported inflation; and aggregate demand restraint was invoked as the appropriate response to excessive demand. The submission did acknowledge that demand pressure was one factor behind cost inflation, and made the important point that price and wage controls were not an answer to inflation provided the output gap remained positive. But by attributing inflation when the output gap was negative to nonmonetary causes, the submission raised the prospect that demand restraint would be abandoned once it was believed that the

positive gap had been eliminated, even if inflation continued. Developments in 1974 would see this prospect realized.

The Government's classification of inflation into three distinct types is also reflected in the three main actions it took under the heading of anti-inflationary policy in the second half of 1973: the tariff cuts of July 1973; the monetary tightening of September 1973; and the wage and price control referendum proposals of December 1973.

The Government announced a 25 per cent tariff cut in July 1973 with the statement: "The justification for the general reduction of tariffs is the excessive rate of inflation which now prevails… The tariff changes will have a direct impact on import prices of about the same magnitude as an Australian revaluation of slightly less than 6 per cent" (*TA*, 07/19/73). Revaluation and tariff cuts are equivalent, however, only to adherents of a cost-push explanation of inflation. The equivalence rests on the observation that both actions withdraw import-price-push pressure on prices. But from a monetary view of inflation, the two are not equivalent. Revaluation drains aggregate demand and reduces pressure on prices by creating a balance-of-payments deterioration and thereby producing monetary contraction. A tariff cut, by contrast, need have no such effects. Prime Minister Whitlam would adhere to the import-price-push view of inflation well after he left office, maintaining in a 1977 television interview that "the biggest component of inflation at the moment in Australia is Australia's excessive protectionism" (*MC*, 09/19/77).

Action was taken to reduce money growth with a 5% revaluation in September 1973, accompanied by an announcement by the Prime Minister of "a sharp rise [about 2%]... in interest yields" to be enforced by vigorous open market sales (*SMH*, 09/10/73).[19] In his announcement, Whitlam said that the interest-rate increase was "not something to be undertaken lightly. But curbing the increase in liquidity and the money supply is an essential precondition if inflation is to be countered at all" (*SMH*, 09/10/73). The reference to monetary restraint as a "precondition" for inflation control again left open the possibility that some inflation was of a nonmonetary variety. But in acknowledging a role for monetary measures against inflation, the Government was taking a more orthodox view than several outside commentators, who either viewed inflation as entirely cost-push, or took fiscal policy to be the more reliable aggregate demand weapon. To this end, the Opposition Treasury spokesman said: "We specifically reject the present undue reliance on monetary measures because it is ineffectual" (*APD*, 11/13/73, p. 3190), mentioning the prospect of "interest rates adding significantly to the general cost structure, inducing further

[19] The Government's use of open market operations to enact monetary tightening is important, as it represented a step away from the policy it foreshadowed in Opposition of relying on quantitative controls on financial institutions. It thus implicitly accepted the position of the Reserve Bank and Treasury (recorded in e.g. *AFR*, 04/10/73, and *ACR*, 10/12/73) that quantitative controls were ineffective because they encouraged growth of deposit substitutes that were not subject to the controls. Later in the 1970s, the Fraser Government would take the retrograde step of returning to reliance on quantitative controls.

waves of cost-push inflation" (p. 3191). The *Sydney Morning Herald* took a similar view, arguing that "it would be highly undesirable to try and place the greater part of the burden of inflationary control on monetary policy" (*SMH*, 04/11/73). In its second term (1974–75), the Government itself would adopt these views about monetary policy.

The third measure against inflation by the Government during 1973 was an effort to introduce compulsory wage and price controls. As the Canadian record suggests, a strong motivation for wage-price controls typically is the belief that inflation is a wage-push phenomenon. That was indeed the view of former Treasurer Snedden, now Opposition Leader, who claimed: "They [the Government] have added greatly to inflation by their actions of encouraging wage increases to add labor cost pressure on prices" (*TA*, 04/18/73). But the Whitlam Government at this stage played down wage-push as a source of inflation, in favor of an explanation stressing foreign pressure on both aggregate demand and costs. As far as domestic sources of inflation were concerned, the Government nominated firms' pricing decisions, and foreshadowed that price control would be an important part of its strategy, with Treasurer Crean claiming: "If we do nothing about prices, it is inevitable that wages will try to keep pace with prices" (*DT*, 04/14/73).

Consequently, with different emphasis, both the Government and Opposition parties were by late 1973 advocating compulsory wage and price controls. Opposition Leader Snedden outlined a plan for a wage-price freeze, and rejected the view that "a freeze would only suppress inflation" because "[t]his objection confuses demand-pull inflation and cost inflation… [P]rices are rising not because of excess demand but because [of]… excessive wage settlements" (*APD*, 08/28/73, p. 463). As it lacked the constitutional powers to impose wage and price controls, the Government held a referendum in December 1973 to obtain those powers. The Opposition urged rejection of the referendum proposals not because of any objection to a compulsory incomes policy, but because it believed such a policy should be carried out through a joint agreement between the federal and state governments (which had the authority to introduce price controls) (*AGE*, 12/06/73). The referendum proposals were defeated on December 8, 1973.

5.3 1974–75: Abandoning Monetary Solutions

The referendum defeat, combined with the monetary tightening, meant that at the end of 1973 the Australian authorities were pursuing a largely orthodox economic package—employing monetary restriction rather than price controls—against inflation. That policy would eventually produce dividends in the form of falling inflation from mid-1975. By then, however, the orthodox policy had been abandoned in favor of a framework more closely resembling monetary policy neglect. Several factors explain the abandonment of monetary restraint.

First, the fact that the upsurge in inflation in 1974–75 came in the wake of the 1973 oil price shock, and was accompanied by high nominal wage growth, meant that cost-push

rationalizations of Australia's inflation were readily available. In public debate, these were much more readily acceptable explanations than a monetary story, which relied on the lagged response of inflation to prior monetary easing, and so required recognition that monetary policy exerts its peak effect on inflation after a year or more. A monetary view of the 1974–75 inflation also required explicit recognition of the role of monetary ease in permitting commodity price and nominal wage increases to be manifested in movements of the aggregate inflation rate, rather than simply in movements in relative prices and the distribution of income.

Second, the fact that the monetary squeeze in 1973–74 was greater than intended—actually producing *negative* growth of M1 in mid-1974—led the Government to be critical of its official advice. Whitlam would later refer to the monetary tightening from September 1973 as a product of "faulty advice" from the Treasury and the Reserve Bank (*MC*, 09/19/77), and "the worst decision we ever made" (*SMH*, 12/03/82). The flaws he cited in official advice were that the tightening "was too late in being introduced, and it was continued too long, until September 1974" (*MC*, 09/19/77); and that, when his advisers recommended further demand restraint in mid-1974, the level of unemployment they saw as arising from such a policy had in fact already been reached (*SMH*, 12/03/82). The episode brought home to Whitlam one aspect of the real-time data problem, as his advisers offered the explanation that delays in receiving economic data were a reason why the timing and severity of the 1973–74 tightening had been misjudged. Whitlam's response was to abandon the monetary tightening, reform the collection of statistics, and introduce monthly meetings between Cabinet ministers, the Treasury, and Reserve Bank officials (*MC*, 09/19/77; Whitlam, 1979, p. 15).

In retrospect, the Government drew the wrong lessons about real-time data from the episode. The abandonment of the monetary tightening replaced overkill in one direction with overkill in the other direction—a return to double-digit money growth, rather than simply the end of negative money growth. Whitlam's reforms to the data-collection process, moreover, were predicated on the view that the key problem was the quality of statistics—that if policymakers had known in real time that mid-1974 unemployment was approaching 3%, they would have seen that the need for demand restraint was over. In fact, however, a major additional real-time problem was that, due to changes in the labor market, the natural rate of unemployment was undergoing a permanent shift to levels well above its historical values of below 2 per cent. The Government failed to recognize this; in August 1974, Whitlam referred to unemployment rates of 3% as "mass unemployment" (*DT*, 08/27/74), and so interpreted the rise in unemployment to such levels and beyond as evidence of a severely negative output gap. The economy was also undergoing a fall in potential GDP growth over this period (Table 2), again misinterpreted (as in other countries) as weak demand. It was not until June 1975 that the Treasurer publicly acknowledged that "the minimum level of unemployment will be considerably higher than in the past decade" (*TA*, 06/05/75). The slowdown in potential growth took even longer to recognize.

Third, the sharp rise in unemployment and fall in output during 1974 alongside high inflation reinforced the cost-push diagnosis of inflation. As noted above, the output gap appeared to become severely negative at the same time that inflation was in double digits. This seemed to ratify the position that a positive output gap could push inflation higher, but a negative gap had little anti-inflationary effect. Consequently, inflation was attributed to nonmonetary factors; disillusionment set in with monetary policy as an anti-inflationary device; and the Government shifted its focus to a voluntary incomes policies in fighting inflation.

A foreshadowing of the shift in the Government's outlook was given by economics columnist Alan Wood in March 1974. He portrayed a scenario where the absence of incomes policy in Australia would mean wages in 1974 would catch up with the rapid price inflation of 1973, at the same time as the monetary tightening restricted demand, creating "a situation where demand is falling away as a result of the success of monetary policy while costs, and hence prices, are rising—in short, stagflation" (*NT*, 03/04/74). From a monetary perspective on inflation, the kind of scenario pictured by Wood can only be a transitory phenomenon: combinations of weak demand and rising inflation occur because the inflation response to monetary tightening is slower than that of output. In addition, monetary tightening will limit the extent to which both wages and prices can spiral following commodity price increases such as those in 1973. From the cost-push perspective popular at the time, however, there is nothing transitory about the combination: wage/price spirals can coexist indefinitely alongside arbitrarily negative output gaps.

The position of the Government in the first half of 1974 was that the monetary tightening *would* bring inflation down; for example, Treasurer Crean predicted inflationary expectations would taper off as the tightening took effect (*DT*, 03/25/74), while Trade Minister Cairns, who would succeed Crean as Treasurer later in the year, attributed early 1974's inflation to the monetary base expansion permitted by the previous government (*AGE*, 05/08/74). As late as June 1974, Prime Minister Whitlam reaffirmed the need to "bring demand back into line" with potential (*TA*, 06/08/74). In July 1974, however, Cairns circulated to his colleagues his revised analysis, which argued that excess demand was no longer a source of inflation, and that it was costs "where inflation will mainly come from in the future" (*NT*, 11/18/74). In light of this analysis, and the combination of rising inflation and apparently weak demand predicted by Wood, Whitlam himself adopted a strict cost-push diagnosis of inflation. "I have to be quite frank with you," he said in a televised address to the nation, invoking import-price-push, "inflation will not be wholly beaten until there is a worldwide solution" (*DT*, 08/27/74). In October 1974 he placed emphasis on union wage increases as the source of inflation: "There should be no doubt that this severe inflation will continue if there are excessive wage claims" (*TA*, 10/22/74).

A mini-budget delivered by Whitlam in November 1974 outlined the Government's change in strategy. He now rejected aggregate demand limitation as an essential ingredient in inflation control, instead claiming "[w]hat is needed is a stimulus to the economy which increases

demand, whilst at the same time abating cost pressures" (*APD*, 11/12/74, p. 3360). To this end, he had approved "a very substantial relaxation of monetary policy," while his statement announced cuts in personal income taxes. He argued that the tax cut would both stimulate demand and serve as a direct "attack on inflation, by reducing wage pressures" (p. 3361), since disposable incomes could now rise without wage increases. The Whitlam Government was now pursuing a voluntary incomes policy based on a wage/tax-push view of inflation.

Not only did the Government no longer view demand restraint as an essential part of an anti-inflation program, it now contended that monetary restriction actually promoted inflation. Treasurer Cairns said that the shift to negative money growth in 1974 had made unemployment *and inflation* worse because it had been introduced when excess demand was ceasing to be a problem (*TA*, 06/05/75). The claim that monetary restriction made inflation worse presumably reflected an interest-cost-push or unit-cost-push viewpoint. Whitlam himself contrasted the inflation problem of 1973 with that of 1975; the latter, he claimed, was due not to monetary factors but "excessive wage and salary demands" (*APD*, 04/09/75, p. 1364).

5.4 1976–79: Sending Mixed Signals

By the time of its return to office at the end of 1975, the Liberal Party had accepted an important role for monetary policy in the control of inflation.[20] Steps to reduce monetary growth were announced in January 1976, and targets for growth in a monetary aggregate (M3) commenced in March 1976. In practice, however, inflation in or close to double digits was a problem for the whole life of the Government. Little progress was made in reducing inflation after its first two years in office—and, with to the lag between monetary policy actions and inflation, the initial reduction is best attributed to the reining in of money growth that occurred in 1973–74 under Whitlam. It was not until 1980 that the Fraser Government's monetary policy became more genuinely anti-inflationary and, again due to lags, this did not deliver a substantial fall in inflation until after it lost office in 1983. The failure to achieve a major monetary tightening earlier than 1980 is attributable to its flawed execution of monetary targeting. The Government made two major mistakes that were virtually identical to those that occurred in the early years of monetary targeting in the U.K.

The first mistake was a reliance on quantitative controls to achieve the monetary targets. In contrast to Whitlam's tightening in 1973, open market sales and increases in short-term interest rates were typically eschewed in favor of heavy use of reserve-requirement changes. Indeed, the January 1976 package of measures to reduce money growth was accompanied by an announced *reduction* in official short-term rates (*AFR*, 01/23/76). In addition, Treasurer Lynch's outline of

[20] This contrasts with its position in the first half of the 1970s, when, as noted above, the Liberal Party subscribed to a pure wage-push explanation of inflation, and rejected monetary remedies. Guttmann (2004) documents the evolution of its attitudes towards a more monetary view of inflation.

the Government's monetary strategy was interpreted as giving an undertaking that interest rates would not rise (*SMH*, 03/26/76).[21] The Government's strategy seemed to draw on two valid aspects of monetary analysis—that monetary policy works through many channels beside the short rate; and that a disinflationary policy would *eventually* deliver lower nominal rates—to arrive at a fallacy: namely, that genuine monetary restriction could be accomplished by a policy that did not allow short-term rates to rise. Its reliance on quantitative controls is reflected in the fact that the compulsory cash-reserve requirement was changed 18 times over 1976–79, supplemented in 1976 by variations in secondary reserve requirements.

The second mistake was that the authorities shared with their U.K. counterparts an analytical framework which Laidler (1989, p. 1152) judges led to "overemphasis on the links between fiscal deficits and money creation." This framework supported the view that, unless the new debt was sold to the nonbank private sector, budget deficits contributed dollar-for-dollar to deposit money creation. The Australian authorities thus convinced themselves that *either* deficit reduction, *or* moving the holding of government debt from commercial banks to households, exerted powerful effects on deposit growth, even though *neither* such operation has any automatic implication for interest rates or base money growth. By contrast, standard monetary analysis states that deficits matter for money growth only to the extent that they affect the creation of base money (Friedman and Schwartz, 1963, p. 566).[22] The erroneous framework adopted by the Government further rationalized the neglect of open market operations in exercising monetary control. For example, *The Economist* characterized the Government's strategy in 1978 as using deficit control to reduce money growth "without a rise in interest rates" (*TE*, 08/19/78)—this at a time when real interest rates were close to zero.

The Government sent further mixed signals on inflation control because its adoption of monetary targeting was by no means accompanied by abandonment of cost-push analysis of inflation.[23] Both Prime Minister Fraser and Treasurer Lynch believed that wage-tribunal decisions could add directly to inflation, with Fraser characterizing them as contributing to "this vicious spiral of higher prices, higher money wages, higher costs, and yet more price increases" (*DT*, 02/14/76), and Lynch maintaining that "excessive wage and salary claims remain a direct impetus to more inflation" (*DM*, 02/20/76). In fact, the Government unsuccessfully attempted in April-May 1977 to arrange with state governments and wage tribunals a wage-prize freeze (Walsh, 1979, p. 117), a measure Fraser claimed would "break the back of inflation" (*TE*, 04/16/77).

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[21] Guttmann's (2004) detailed study of the monetary targeting period in Australia provides further examples of the authorities' unwillingness to allow interest rates to increase.

[22] The U.K. and Australian authorities' line of reasoning was that depriving commercial banks of government bond holdings reduces the asset side of their balance sheets, and so promotes a contraction of their liabilities. This rationale confused partial and aggregate balance sheet effects. With interest rates and their reserve positions unchanged, commercial banks have an incentive to respond to reduced government bond holdings by increasing their holdings of private debt. Commercial banks' asset and liabilities therefore do not change in aggregate.

[23] Again, this advocacy of both monetary targets and cost-push views paralleled developments in the U.K.

As Figure 8 indicates, another impediment to tighter monetary policy during this period was a still erroneous picture about the state of demand. In October 1977 *The Economist* expressed the widespread view that "the Australian economy is operating at well below capacity" (*TE*, 10/29/77), an assessment that reflected the continued failure to recognize the post-1973 slowdown in potential GDP.

5.5 1980–82: Moving to a Stricter Rule

Around 1980, the Australian authorities do appear to have shifted to a more genuinely anti-inflationary stance. The real ex-post Treasury bill rate was 2.4% in the first ten quarters of the 1980s, higher than in any ten-quarter period since 1962–64; furthermore, discrepancies between actual interest rates and Taylor rule prescriptions became less striking (Figure 5).

Since Australia was ostensibly on a fixed exchange rate during this period, it would be tempting to characterize the tighter policy as the authorities joining in with the U.S. monetary restriction in order to preserve their exchange-rate target. However, this characterization is unsustainable, for two reasons. First, as Gruen and Shuetrim (1994, p. 333) note, the nominal exchange rate was allowed to fluctuate considerably at a quarterly frequency; the fixed exchange-rate arrangements mainly governed day-to-day movements. Second, as Table 1 shows, the interest rate from 1980 seems well characterized as responding to domestic variables, including expected CPI inflation. It therefore appears appropriate to characterize policy from 1980 as a more restrictive interest-rate rule, reflecting a belated acceptance that an effective, inflation-oriented monetary policy could not be achieved by resort to quantitative or fiscal devices. This change may have been a response to a revival in public debate in the early 1980s of criticism of quantitative controls and calls for a more market-oriented monetary policy; in this regard, Guttmann (2004, Ch. 6) quotes an official inquiry that took place over 1979–81 as criticizing "inappropriate reliance on direct controls" in its final report. The tighter policy also probably reflected the recognition that Australia's slower growth after 1973 was supply-side in character.

The more inflation-oriented monetary policy from 1980 onward produced lower inflation in Australia, which in the decade ending 1992 Q4 averaged 6.3%, 5.4 percentage points lower than the prior decade. This better average performance, however, was poorer than that in other countries that underwent a regime shift around 1980, such as the U.S. and the U.K. The poorer performance reflects the fact that inflation in Australia underwent two major revivals, in 1985–86 and 1988–90. Each of these revivals reflects temporary lapses by the authorities back into nonmonetary strategies against inflation.

5.6 1982–84: Lapse into Monetary Policy Neglect

As in 1974, the early 1980s monetary tightening in Australia was initially felt only in recession, while wage and price inflation increased, reflecting delayed responses to past monetary ease. By late 1982, the Fraser Government had reverted to a more stimulative policy on aggregate demand, and in October 1982, with four-quarter CPI inflation having reached 12.3%, Prime Minister Fraser announced his support for a six-month wage freeze (*DM*, 10/26/82). The claimed rationale for such a freeze was that it would simultaneously reduce inflation and unemployment, and when the Government formally advanced the plan, it estimated that the freeze would reduce inflation by six percentage points (*AFR*, 12/17/82). The wage freeze was agreed to by the state governments and wage tribunals, becoming effective in December 1982. Thus, at the end of 1982, Australia was pursuing a stricter incomes policy than it ever had in the 1970s, and was relying on compulsory controls to attack inflation long after such devices had been abandoned in the U.S., the U.K., and Canada.

The new Government that took office following Fraser's election defeat in March 1983 inherited an unenviable situation. The two principal economics ministers, Prime Minister Hawke and Treasurer Keating, were the eighth Prime Minister/Treasurer combination since the onset of Australia's Great Inflation, and that inflation problem had now deteriorated in two important respects. On the one hand, the first quarter of 1983 had witnessed simultaneous double-digit rates of unemployment and inflation, an unprecedented phenomenon in Australia. Secondly, several OECD countries had brought inflation below 5%, so a challenge to Hawke and Keating was whether they could do the same. They did, though not until 1991. In the intervening years, they would deploy a number of nonmonetary strategies against inflation, and would experience for themselves many of the disappointments found in the past with such approaches.

The centerpiece of these nonmonetary tools was the "Accord," an agreement on wage growth between the Government and labor unions. For a brief period early in the Government's term, Treasurer Keating indicated that this incomes policy would not be used as a substitute for aggregate demand policies against inflation; this, however, proved a short-lived position (Kelly, 1992, p. 66), and Keating was reported in September 1983 as believing that Australia's wage-fixation system made inflation difficult to control using demand weapons (*DM*, 09/08/83). In practice, the Government continued Fraser's policy of monetary expansion, and soon reaffirmed its original view of the Accord as a weapon that could help reduce the reliance on demand management for inflation control. In a speech in August 1983, Prime Minister Hawke made it clear that he saw incomes policy as an alternative to the "traditional instruments of tighter monetary and fiscal policy to restrain inflation" (*TA*, 09/01/83). Hawke built on this theme further in December 1983: the difference between the Fraser Government's wage freeze and his Government's Accord policy, he explained, was that the wage freeze was redundant because the recession had already frozen wages, whereas the Accord policy intentionally kept nominal wage

growth rates below where market forces would normally push them during economic recovery (*TA*, 12/08/83).

Until early 1985, it appeared that the Government's policy combination was indeed delivering its aim of falling inflation alongside aggregate demand expansion. In January 1985, the Government faced a decision on whether to tighten monetary policy after growth in the M3 aggregate persistently exceeded the target rate. It was widely accepted that M3 behavior reflected distortions from financial innovation, but other monetary aggregates less subject to distortion also suggested easy money conditions; while real interest rates, though well above 1970s values, had been slightly below U.S. levels during most of 1984, even as Australia had more serious inflation. The Government's decision to drop the monetary target, and not tighten monetary policy at all, was applauded by the *Sydney Morning Herald* in an editorial: "[M]onetary policy is anything but loose. Any further tightening of monetary policy… would be more likely to fuel inflation than control it… [because with] the Accord, the Government has promised to deliver employment and economic growth" (*SMH*, 01/30/85). Thus, three years after monetary policy had produced disinflation in major economies, and over a decade after the heyday of doubts about the effectiveness of monetary policy, the argument that monetary tightening worsened inflation was still being prominently advanced in Australian policy debate.

5.7 1985–91: Discarding the Nonmonetary Framework

The position that monetary policy was already tight, and that further tightening would re-launch inflation, was not borne out by developments in the rest of 1985. Faced with a resurgence of inflation, the Government tightened monetary policy from February 1985. The up-tick in inflation was blamed on a cost-push event—a sudden exchange rate depreciation. Other episodes, however, do not bear this explanation out: a large depreciation in 1997–98 was not followed by a revival of CPI inflation. The 1985 inflation surge instead appears to be a delayed response to the lapse into easier monetary policy over 1982–84. From 1985 the Government adhered to a more anti-inflationary interest-rate rule closer to that prevailing in the early 1980s. That monetary policy was tightened when inflation rose, despite the continuing prevalence of cost-push views among policymakers, reflects the import-price push diagnosis of the inflation outbreak. Even from a cost-push perspective, monetary tightening is the appropriate response to rising inflation if the rise is believed to have come from exchange rate depreciation.

In contrast to the fears expressed earlier in 1985, monetary tightening did not produce a wage-price spiral. Price inflation receded in 1987–88, reflecting a delayed reaction to the 1985–86 tightening; while wage inflation was lower still, in part reflecting continuing attempts by the Government to use control of wages as an anti-inflationary weapon. To this end, the Government negotiated over 1985–86 a trade-off between nominal wage increases and tax cuts, reflecting a more binding version of Whitlam's proposals in 1974. By this stage, most other countries had

abandoned or de-emphasized incomes policy in inflation control, but many commentators within Australia saw those abandonments as an aberration. The *Sydney Morning Herald* economics editor, for example, asked: "How long before [U.K. policymakers'] search for the Holy Grail leads them back to incomes policy?" (*SMH*, 03/26/88).

Contrary to their aim, however, the 1980s incomes policies in Australia appear to have contributed little or nothing to the control of inflation. Price inflation in the 1980s behaved dissimilarly to wage inflation; as one of Keating's subsequent advisers observed, incomes policy appeared "extremely successful in restraining the growth of wages but not of inflation" (Edwards, 1996, p. 282). Policymakers attributed this failure first to import-price-push, and then to profit-push. In fact, however, it appears that it was the absence of monetary restraint that really made the difference, as price inflation in the 1980s responded quite predictably to prior monetary developments.[24]

Apparently satisfied that inflation control had been satisfactorily delegated to other devices, the authorities permitted another period of monetary ease over 1987–88, an easing reflected in a surge in inflation over 1988–90. 1988 also brought a new series of nonmonetary initiatives against inflation. Many of them were introduced in the August 1988 Budget, as a newspaper report recorded: "The Budget's anti-inflationary strategy hinges on lower indirect taxes, mainly for beer drinkers, and a delay in personal tax cuts… [T]he size of the [income tax] cuts will depend on the second wage/tax trade-off…" (*TA*, 08/24/88). Reflecting on these measures, Treasurer Keating remarked: "Having succeeded in bringing down the inflation rate of 11 per cent under the Liberal Party to 5 per cent in 1985, and having watched inflation rise to 10 per cent as a result of a big depreciation of the exchange rate, we are now succeeding in bringing it back to the 5 per cent area whence it came in 1985... Inflation is declining" (*APD*, 11/30/88, p. 3547). But instead of declining after the August 1988 Budget, inflation rose from its 1988 Q1 trough of 6.9%, and ended the 1980s at a four-quarter rate of 7.8%.

1988 did also witness a major monetary policy tightening. The tightening itself was motivated by balance-of-payments rather than inflation considerations. The fall in inflation that it produced, however, did transform the views of policymakers and observers about the role of monetary policy in inflation control. As late as 1990, the Governor of the Reserve Bank rejected central-bank inflation targeting as infeasible in Australia, and cited the need for other tools such as wages policy (*AFR*, 10/18/90). When inflation fell below 5% in early 1991—clearly a response to the period of monetary restraint—Treasurer Keating spoke publicly about low

[24] For the period of strictest wage control, 1983–89, the correlation of CPI inflation and growth in average nominal wages is –0.22; the maximum positive correlation of inflation with prior wage growth is 0.42 (inflation and wage growth one year earlier). By contrast, the maximum correlation of inflation and money (currency) growth is 0.61 (inflation and money growth two years earlier). Another measure of monetary ease—the excess of the Taylor rule prescriptions in Figure 5 over actual short rates—leads inflation over 1983–89 by one year, with a correlation of 0.85.

inflation as the criterion by which macroeconomic policy should be judged (Edwards, 1996, p. 405). Gruen and Stevens (2000, p. 52) record that in the 1990s, "the main insight of two centuries of monetary economics… that monetary policy ultimately determined inflation" convinced the authorities that nonmonetary approaches to inflation control should be abandoned in favor of central-bank inflation targeting.

6. New Zealand

In the 1970s and 1980s, decisions on monetary policy were the responsibility of the New Zealand Treasury, headed by the Minister of Finance. In May 1970, Finance Minister Robert Muldoon rejected private estimates that inflation in New Zealand, which currently stood at a four-quarter rate of about 4.3%, might reach 9 per cent later in the year. Muldoon noted that New Zealand's experience was of lower inflation than in Japan, the U.S., Canada, and the U.K. (*EP*, 05/06/70). Building on this comparison, in July 1970 Muldoon said that "countries which fail to hold inflation will suffer in comparison with those which are successful. This is the test…" (*EP*, 07/21/70). Over the following fifteen years, during which Muldoon totaled eleven more years as Minister of Finance, New Zealand would perform poorly by this test. In 1985, New Zealand's CPI averaged 5.7 times its 1970 value, compared to 2.7 in Japan, 2.8 in the U.S., 3.1 in Canada, 4.1 in Australia, and 5.0 in the U.K. The deterioration reflected repeated application by the New Zealand authorities of the policy combination associated with monetary policy neglect—direct controls on wages and prices accompanied by monetary expansion.

6.1 1970–72: Rival Spiral Theories

Macroeconomic policy debates over 1970–72 in New Zealand had similarities to those in Australia. In both countries, the conservative government blamed inflation on wage-push, while the opposition party claimed inflation was a side-effect of the government's monetary and fiscal policies. There were two major differences on both sides from the Australian situation. First, the Opposition in Australia had attributed part of the inflation breakout to over-expansionary policies by the Government, while in New Zealand the Opposition's analysis was more rigidly cost-push. Secondly, unlike its Australian counterpart, the New Zealand Government had the constitutional authority to impose direct wage and price controls, which consequently formed a major part of its inflation-control policies from 1970 onward.

The Government had predicted in mid-1970 that inflation for the full year would be a little over 4% (*EP*, 05/29/70). By the end of 1970, four-quarter CPI inflation was instead moving into double digits. Finance Minister Muldoon blamed the increase on "a wage/price spiral caused… by the stronger and more militant unions" (*NZPD*, 06/25/70, p. 1298), while the Reserve Bank of New Zealand's *Annual Report* similarly judged that "[t]he 'cost-push' type of inflation now seems to be dominant" (1970, p. 7). The Government imposed a three-month wage-price freeze

in November 1970, and negotiated with unions for a voluntary wages policy to follow the freeze. After the negotiations failed, the Government introduced a compulsory wages policy accompanied by continued monitoring of prices.

Speaking when the wage-control legislation was introduced, Prime Minister Holyoake denied that the Government had attacked only the "symptoms" of inflation. Rather, he claimed that the Government had also taken "steps… to attack the causes of inflation… by dampening down the economy" (*NZPD*, 02/26/71, p. 22). The list of steps Holyoake provided, however, contained few items that would remove monetary excess from the economy. Two items in his list—increases in payroll tax and in secondary reserve requirements—did not necessarily put downward pressure on money growth. Holyoake's list did contain some ostensibly more relevant measures—increases in cash-reserve requirements for financial institutions, and some selective, modest increases in the central bank's lending rates. By the early 1970s, however, quantitative regulations such as cash-reserve requirements were considerably less effective than open market operations in inducing monetary tightness, because of the growth of an unregulated banking sector in New Zealand (*ACR*, 10/12/73). In any case, the failure to back the reserve-requirement increases with substantial increases in interest rates guaranteed the ineffectiveness of the measures, since the result was a situation where extra base money would be created to meet all of the greater demand for reserves by intermediaries. Holyoake also made it clear that he did not think excess demand was still the problem; instead it was that "the wage-cost push, the cost spiral, is still continuing" despite restraint on demand (*NZPD*, 02/26/71, p. 23).

The Opposition, headed by Labour Party Leader Norman Kirk, had its own cost-push diagnosis of inflation. Kirk rejected the wage-push explanation on the grounds that "wages and salaries were increased because costs and prices had increased" (*NZPD*, 06/15/71, p. 853). Instead he blamed a "cost-tax-price spiral" initiated by Government tax increases (*NZPD*, 06/15/71, p. 854). The Government and Opposition thus had rival "spiral" theories of inflation—a wage-price spiral vs. a cost-tax-price spiral—neither of them consistent with a monetary explanation.

Kirk also endorsed the unit-cost-push argument that demand restriction worsened inflation: "Inflation itself is a by-product of the undermining process the Government has followed. Stagnation is a cause of inflation… [by] compelling factories to run at less than full capacity so that the unit cost remains high but the volume of output falls… If we want to cure inflation, we must first increase production" (*NZPD*, 06/14/72, pp. 116–117). In fact, even the premise of Kirk's argument—that demand was weak—appears questionable on the basis of today's revised data. They suggest that output returned to its long-run trend during 1971, and moved well above it in 1972 (Figure 9).

The Government, however, by 1972 shared Kirk's view that the output gap had gone negative. This perceived deterioration had occurred alongside continued double-digit inflation through

most of 1971, so the Government's cost-push diagnosis was reinforced. The Reserve Bank of New Zealand claimed that in "a period of 'stagflation' (a low rate of real growth combined with strongly rising prices) such as New Zealand has been experiencing… orthodox monetary policy is of subsidiary importance" (1972, p. 7). Similarly, Muldoon, while not yet taking Kirk's position that tightening worsened inflation, claimed that recent overseas attempts to fight inflation with monetary restriction had raised unemployment without reducing inflation (*NZPD*, 06/10/71, p. 785).

In light of these judgments, the Government in March 1972 increased its range of direct controls—imposing stricter controls over firms' price decisions, freezes on prices of government output, and limits on dividend income (*NZPD*, 06/22/72, pp. 391–392). The Government also consciously stimulated the economy, with forced reductions in bank interest rates, and monetary and fiscal expansion. Like its U.K. and Australian counterparts, the Government believed that pressure on inflation from demand only began when the economy reached full employment, a point Muldoon regarded as far off given the "unused capacity in the economy" (*NZPD*, 06/22/72, p. 409).

The timing of Muldoon's policy loosening was far from appropriate as, like Australia, New Zealand had started a period of tremendous increases in the monetary base due to large inflows of foreign capital and export earnings. Muldoon's monetary easing was a response to the more restrained pre-1972 demand environment, which the external developments had already replaced with boom conditions. The earlier period of weaker demand, as well as the controls imposed by the Government, nevertheless secured a fall of inflation to just above 5% by the end of 1972.

6.2 1972–75: Labour Government

The National Party administration was defeated at the election of November 1972, and was succeeded by a Labour Government led by Norman Kirk. The Government was immediately faced with a revival of inflation, which in the first quarter of 1973 returned to double-digit annualized rates. The authorities took a strict cost-push interpretation of the increase. Presenting the Government's first Budget, Finance Minister Rowling acknowledged that "inflation has become the number one problem" (*NZPD*, 06/14/73, p. 1353), but insisted that "short-term economic management must keep the economy running close to full capacity" (p. 1349). To this end, the Government actually cut the Treasury bill rate by 50 basis points to 2% in May 1973 (Reserve Bank of New Zealand, 1974, p. 18). The measures Rowling outlined to "contain the inflationary pressures which are apparent" (p. 1349) consisted of interventions in the markets for particular goods. The National Party Opposition also saw the solution in direct controls, with Opposition Leader Marshall beginning his critique of the 1973 Budget with the statement: "This is an inflation Budget. There is no serious attempt to produce an incomes policy..." (*NZPD*, 06/19/73, p. 1425).

Prime Minister Kirk returned from an overseas visit in August 1973 claiming inflation was a mystery: "So far, nobody has been able to say what is causing inflation, let alone suggest a remedy for it" (*EP*, 08/16/73). His own account of New Zealand's inflation was that "living costs have risen because of the price of meat" (*NZPD*, 09/01/73, p. 3422). In addition, he blamed import-price-push: "we are also feeling the effect of inflation in the Northern Hemisphere through a sharp and very severe rise in the prices of our imports." The import-price-push analysis would produce the main monetary tightening of the year—the exchange-rate revaluation in September 1973.

New Zealand's announcement of a 10% revaluation was synchronized with the revaluation taking place in Australia. However, in contrast to the statement by Prime Minister Whitlam in Australia, which had mentioned the need to curb money growth, Kirk's rationale for the revaluation concentrated on the import-price-reducing aspects of the action. "The increasing cost of imports and the higher prices of meat and other goods which we export have been major causes of the rising cost of living in New Zealand… A major threat to cost and price stability that we face now is the surge of inflation reaching New Zealand from abroad," he told a press conference. He argued that the revaluation would be anti-inflationary via "a reduction… in the cost of imported goods and of those export commodities whose prices tend to be determined in overseas markets… [with] further benefits as these price effects work their way through the national cost structure" (*CP*, 09/10/73).

Other than a brief reference to the strength of New Zealand's overseas reserves, the implications of the revaluation for monetary and aggregate demand conditions went unmentioned by Kirk, even though, from the perspective of a monetary view of inflation, these were the most important aspects of the policy action. The *New Zealand Herald*'s editorial also evaluated revaluation on cost-push criteria, judging that the effect on inflation would be less than 2 per cent, on the grounds that this was the weighted effect of a 10 per cent reduction in import prices (*NZH*, 09/10/73*a*). The editorial did not deal with aggregate-demand aspects of the devaluation, although an analysis by a *Herald* reporter did mention briefly that the devaluation was useful because "New Zealand should be running down its overseas reserves, which are too high and are part of the cause of the inflationary gap between goods and incomes" (*NZH*, 09/10/73*b*).

Consistent with the Government's rejection of excess demand as a source of inflation, Kirk's revaluation announcement was not, unlike that in Australia, accompanied by interest-rate increases; rather, Kirk introduced a range of new controls on the prices and export of agricultural goods prices (*NZH*, 09/10/73*c*). The four-quarter rate of CPI inflation nevertheless ended 1973 at 10%, nearly double its value a year earlier. Finance Minister Rowling attributed the increase in the inflation rate during 1973 to "three major factors: meat prices, governed by overseas realizations; fruit and vegetable prices, governed by the weather in this country; and import prices, governed by other people's costs. None of these things comes very directly within the

control of the Government" (*NZPD*, 06/05/74, p. 1642). Symmetrically, he characterized the Government's ability to arrest inflation as limited to its scope for affecting these prices directly; and, to this end, listed the actions taken to fight inflation as the exchange-rate revaluation and a new subsidy for sheep-meat prices. Confirming that he did not see an excess-demand dimension to the problem, Rowling said the Government deserved credit for "keep[ing] the economy moving forward at a very rapid pace" while fighting inflation (*NZPD*, 06/05/74, p. 1642).

Like their Australian counterparts, the authorities turned later in 1974 to blaming domestic wage-push for inflation. The Government (now led by Rowling after Kirk's death) introduced new, compulsory controls on wage growth and in 1975 negotiated wage agreements with the leading labor-union body (Reserve Bank of New Zealand, 1975, p. 8). In his 1975 Budget, Finance Minister Tizard claimed that "an effective incomes policy is crucial in the current economic situation… a relaxation of controls on wage bargaining is directly dependent on a moderation of our present inflation" (*NZPD*, 05/22/75, p. 1295). Prime Minister Rowling rejected a contraction of demand on the grounds that it had been tried overseas and had caused unemployment with little effect on inflation. Instead, he pledged that the Government would "ensure that there is the least possible disruption to sustained economic growth and employment" (*EP*, 12/03/74).

6.3 1976–79: Misleading Austerity

Following the Rowling Government's defeat in the November 1975 election, the National Party returned to office, now led by Robert Muldoon who, in addition to becoming Prime Minister, resumed his former position of Minister of Finance. Throughout his term in office, Muldoon maintained cost-push views of inflation. He nevertheless consciously pursued a policy of zero real GDP growth in 1976; the rationale for this strategy was to improve the current account balance rather than inflation (*CP*, 01/13/82). The Government announced in March 1976 a number of measures designed to tighten monetary policy, including a 100 basis point increase in Treasury bill rates to 4 per cent (Reserve Bank of New Zealand, 1976, p. 14). With inflation at over 15 per cent, this still implied highly negative real rates. Real rates were nevertheless less negative than they had been in 1975, and this, along with the slowdown of reserve and deposit growth that had occurred after 1973, produced somewhat more restrained monetary conditions in the mid-1970s than had prevailed earlier in the decade.

With the tighter conditions, a slowdown in the economy did occur over 1976–77, and this slowdown, in turn, accounts for the decline in inflation to around 10 per cent in late 1978. The reason why inflation did not fall further is that in terms of *excess* demand, the measures to restrict demand were nowhere as austere as thought at the time, because potential output growth had undergone a particularly severe slowdown (Table 2). As in other countries, the authorities were slow to recognize the reduced growth of supply; and, again as in other countries, in the meantime they observed protracted periods of high inflation and negative output gaps, seemingly

confirming cost-push views of inflation. It was not until 1978 that the Reserve Bank of New Zealand made it clear that "New Zealand's slow growth reflects fundamental structural factors" (Reserve Bank of New Zealand, 1978, p. 7).

Growing recognition of the productivity slowdown had no effect on the Muldoon Government's adherence to nonmonetary views on inflation. Muldoon imposed a four-month freeze on prices in late 1976; when inflation continued after the freeze's removal, he claimed, "Two main factors are maintaining the present inflationary momentum. These are import prices and wages" (*NZPD*, 07/21/77, p. 1525). Giving little priority to monetary policy in his anti-inflation strategy, Muldoon allowed policy to ease during 1978, and by the end of the 1970s, inflation was close to its 1970s peak of 17 per cent.

6.4 1980–84: Reaffirming Nonmonetary Approaches

In January 1980, while several major economies were assigning a central role to monetary policy in fighting inflation, the Muldoon Government continued to adhere to the view that inflation was largely beyond the reach of macroeconomic policy. "New Zealand is, of course, still vulnerable to overseas influences, particularly oil prices, and to domestic factors, such as wage increases," Muldoon said. "What happens to prices over the coming year will be determined largely by these two factors" (*CP*, 01/14/80). Shortly afterward, four-quarter CPI inflation reached a peacetime peak of over 18 per cent, a rate which Muldoon claimed was "almost entirely" due to the second oil shock (*AST*, 10/02/81).

While disagreements did exist about aspects of Muldoon's macroeconomic strategy, the nonmonetary analysis of inflation underlying the Muldoon approach continued to command substantial support in the early 1980s. A 1980 critique of Muldoon's inflation strategy by Opposition Leader Rowling rested on a nonmonetary approach: Rowling called for limitations on the prices of government services, increased monitoring of private-sector pricing decisions, and intervention in securities markets to bring down interest rates (*NZH*, 01/14/80). Similarly, an academic economist, J.D. Gould, observed in June 1982: "Milton Friedman, a leading exponent of the monetarist view, was in New Zealand last year trying to persuade us that 'inflation is always and everywhere a monetary phenomenon.' Only a minority of New Zealand economists unreservedly share this view… Probably most New Zealand economists hold an eclectic view, seeing inflation as the outcome of an 'interactive' process in which both trade unions and the money supply (and the government deficits which fuel it) play a part, but which also depends on other elements of New Zealand's economic structure." The "other elements" listed by Gould included a number of factors prominent in cost-push explanations of inflation, such as indexation, wage-fixing arrangements in the government sector, corporate monopoly power, and successive exchange-rate devaluations (*CP*, 06/30/82).

The wage-push diagnosis of inflation led the Muldoon Government to attempt to negotiate a wage/tax trade-off with trade unions over 1981–82.[25] When these negotiations broke down, Muldoon imposed a one-year wage-price freeze. Muldoon's justification for the freeze cited declining inflation in most major OECD countries. "Rates of inflation in most of these countries are declining… These countries are major suppliers of products to New Zealand. The rate of price increases in the goods that we import is also steadily declining. The price of oil is expected to decline in real terms throughout the remainder of this year… All of these things give us a unique opportunity to reduce New Zealand's rate of inflation…" (*NZH*, 06/23/82).

The political reaction to the controls announcement was a watershed, reflecting the increased role since 1980 for conventional economic analysis in New Zealand debate. In contrast to prior years, in which opposition parties frequently responded to government control measures with incomes-policy proposals of their own, Opposition Leader Rowling gave an orthodox critique of Muldoon's freeze:

> The wages and prices freeze will not work… After all, in the year A.D. 301, a little before the Minister of Finance's time, but not before the policies adopted by the present Government—that dates the policies—the Emperor Diocletian introduced a price freeze with the death penalty for non-compliance, and it still did not work. There is no way in which it will work in 1982, any more than it [c]ould in A.D. 301, because such a proposition resolves absolutely nothing. (*NZPD*, 07/20/82, p. 1199).

Similarly, Rowling's successor as Labour Party leader, David Lange, said that New Zealand's trading partners had reduced inflation by tightening monetary policy, while Muldoon's Government had undertaken no such attack on the causes of inflation (*CP*, 07/11/83).

For his part, Muldoon in his 1983 Budget claimed that "monetary restraint" had accompanied the wage-price freeze (*NZPD*, 07/28/83, p. 891). The actual record, however, suggests that the opposite was the case—the Government was exercising monetary policy neglect by substituting direct controls for monetary restraint. Muldoon made it clear that he had no intention of reining in demand during the freeze: "I would think that we should be able to keep the general level of economic activity high enough that there should be no big increase in unemployment" (*CP*, 12/28/82). The freeze itself prohibited increases in the interest rates charged by financial intermediaries, and the Government's own actions on interest rates turned in an even more expansionary direction. In July 1983, for example, Muldoon reduced the interest rate on three-month Treasury bills from 12 to 7.8 per cent, and indicated that he would impose regulations on financial institutions if they did not cut rates on private loans by commensurate amounts (Gustafson, 2000, p. 350; *AST*, 07/30/83).

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[25] The Reserve Bank Governor also voiced support for an incomes policy, stating: "I don't believe inflation, which is well-entrenched and is being encouraged by the close linkage between costs and prices, can be overcome solely by tight monetary and fiscal policies" (*NZH*, 02/13/82).

The evolution of macroeconomic policies during the freeze thus confirmed a fear expressed by Don Brash, later head of the central bank, but in 1982 a newspaper columnist. At the time of the freeze's imposition, Brash worried that the worst side-effect of the freeze would be that it would "fool people into believing that something is actually being achieved in the reduction of inflation," at the same time that the Government did nothing to reduce monetary growth (*AS*, 06/23/82). The appearance of success proceeded as the four-quarter CPI inflation rate fell into single digits in mid-1983, troughing at 3.5 per cent at the end of the year, by which time the freeze had been extended to February 1984. A member of Muldoon's Cabinet, Foreign Affairs Minister Cooper, declared victory: the Government, he said, was the first in the history of Western civilization to have cured inflation successfully via a wage-price freeze (*CP*, 09/17/83).

A more sober perspective was offered by a private economist, Len Bayliss, who said that experience showed that wage-price freezes suppressed inflation for 18 months to two years before losing their effectiveness (*CP*, 04/15/83). This judgment proved accurate in July 1984, when CPI data for the first post-freeze quarter revealed that prices had jumped by 2.2 per cent (*CP*, 07/10/84). Shortly afterwards, the Muldoon Government suffered electoral defeat.

6.5 1984–90: From Price Controls to Inflation Targets

Immediately upon taking office, the Labour Government abolished Muldoon's controls on interest rates, and tightened monetary policy. Short-term interest rates increased sharply, and from 1985 took positive real values for the first time (excluding the freeze period) since 1969. Finance Minister Douglas justified the interest-rate increases on the grounds that they would "assist in keeping both inflationary pressure and inflationary expectations down" (*CP*, 08/03/84), a contrary judgment to that of defeated Prime Minister Muldoon, who deplored the changes on interest-cost-push grounds (*CP*, 07/19/84). Given the lagged response of inflation to monetary policy actions, the monetary policy tightening begun in 1984 did not prevent higher inflation over 1985–87—a rise reflecting the earlier period of ease, the removal of remaining price controls, and the impact effect of higher indirect taxation. Inflation did, however fall into single digits at the end of 1987, and the four-quarter rate fell below 5 per cent at the end of 1988. Also in 1988, the Government appointed Don Brash as Governor of the Reserve Bank of New Zealand. Brash's view of the record of controls was negative: "literally hundreds of governments, of all political persuasions and in all parts of the world, have tried to reduce inflation by direct controls. There is no case where controls alone succeeded" (*AST*, 06/23/82).[26] Over 1989–90 the authorities cemented the delegation of inflation control in New Zealand to monetary policy through their much-discussed launch of inflation targeting (see e.g. Debelle, 1996, pp. 60–62; Bernanke, Laubach, Mishkin, and Posen, 1999, Ch. 5).

[26] Similarly, Brash judged that other nonmonetary devices such as wage/tax trade-offs had "a negligible impact on inflation" (*AST*, 06/17/82).

7. Conclusion

The analysis in this paper indicates that the course of macroeconomic policy during the Great Inflation in Canada, Australia, and New Zealand shared six common features.

First, policymakers at least from 1971 viewed inflation as resulting from factors beyond their control, not as a consequence of their monetary policy decisions. This rules out explanations of the Great Inflation which characterize the monetary authority as consciously choosing the inflation rate to achieve certain outcomes for real variables, or as part of an optimization exercise. Such explanations include those used in the time-consistency literature, and also accounts that rely on a government belief in a permanent trade-off between unemployment and inflation. The record of policymakers' views is, however, consistent with the monetary policy neglect hypothesis.

Second, policymakers embraced nonmonetary approaches against inflation in a manner that defied political classification. In the total of five countries studied here and in Nelson (2004), the highly interventionist strategy of compulsory wage and price controls was adopted by the traditionally more anti-interventionist of the major political parties. Not only did conservative governments in the U.S. and the U.K. introduce compulsory price controls; but in Canada, Australia, and New Zealand, the anti-conservative governments in power in 1973 came under criticism from the conservative opposition parties for not imposing compulsory controls. And when conservative parties returned to power in Australia and New Zealand, they did eventually impose controls more severe than seen previously.

Third, nonmonetary theories of inflation were not espoused simply for "political cover" by policymakers who, in truth, understood the monetary character of inflation. Cost-push analysis dominated the analysis used in governments' internal discussions. And many critics of government policy in the financial community, academia, and media used cost-push analysis too.

Fourth, nonmonetary actions against inflation were accompanied by monetary expansion, not restraint. Occasionally policymakers verbally acknowledged the need for monetary restriction to complement incomes policies, but in practice they did not follow such a combination. On other occasions, they were quite explicit that they intended to stimulate or maintain aggregate demand while delegating inflation control to other devices.

Fifth, output-gap mismeasurement reinforced the tendency for monetary policy neglect. The belief that inflation behavior was proceeding in spite of negative output gaps motivated the shift to nonmonetary theories of inflation; and once nonmonetary devices against inflation had been deployed, the desire to eliminate output gaps justified monetary expansion.

Sixth, the monetary policy regime change that produced disinflation did not always coincide with a rejection of the nonmonetary view of the inflation process. In the U.K. and New Zealand, the adoption of firmer monetary policies did coincide with the election of governments which took a monetary view of inflation. In Australia, Canada, and the U.S., however, the monetary changes were triggered either by cost-push considerations (i.e., fear of exchange rate depreciation in Canada and the U.S.) or factors beside inflation (i.e., balance-of-payments considerations in Australia). The disinflations that followed, however, converted policymakers in these three countries to a monetary view of inflation.

Appendix 1. Abbreviations for Material Cited in the Text

Canada		
CPD	*Canadian Parliamentary Debates* (*House of Commons*)	Ottawa, Ontario
FP	*Financial Post*	National newspaper
FTC	*Financial Times of Canada*	National newspaper
TGM	*The Globe and Mail*	Toronto, Ontario
TST	*Toronto Star*	Toronto, Ontario
TSN	*Toronto Sun*	Toronto, Ontario
WFP	*Winnipeg Free Press*	Winnipeg, Manitoba
Australia		
ACR	*Australian Cabinet Records* (*National Archives*)	Canberra, Australian Capital Territory
AFR	*Australian Financial Review*	National newspaper
AGE	*The Age*	Melbourne, Victoria
APD	*Australian Parliamentary Debates* (*House of Representatives*)	Canberra, Australian Capital Territory
DM	*Daily Mirror*	Sydney, New South Wales
DT	*Daily Telegraph*	Sydney, New South Wales
MC	*Monday Conference*	Television program (transcripts)
NT	*National Times*	National newspaper
SA	*Sunday Australian*	National newspaper
SMH	*Sydney Morning Herald*	Sydney, New South Wales
SUN	*The Sun*	Sydney, New South Wales
TA	*The Australian*	National newspaper
New Zealand		
AST	*Auckland Star*	Auckland, N.Z.
CP	*Christchurch Press*	Christchurch, N.Z.
EP	*Evening Post*	Wellington, N.Z.
NZH	*New Zealand Herald*	Auckland, N.Z.
NZPD	*New Zealand Parliamentary Debates*	Wellington, N.Z.
Sources from other countries		
TE	*The Economist*	London, U.K.

Appendix 2. Chronological List of Newspaper Articles Cited in the Text

I. Canada

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Editorial, "The Worst of Both Worlds," *Financial Post*, April 26, 1969, page 6.

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Dian Cohen, "Economic Tightening Could Worsen Inflation," *Toronto Star*, March 27, 1972, page 39.

Don McGillivray, "Cure Made Inflation Worse," *Financial Times of Canada*, December 4, 1972, page 3.

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John Turner, "Turner: Stimulate Economic Expansion," *The Globe and Mail*, June 8, 1974, page 7.

Editorial, "Why Did Trudeau Let It Happen?," *Toronto Star*, May 23, 1975, page B4.

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Wayne Cheveldayoff, "Bank to Reduce Money Supply Growth Target," *The Globe and Mail*, June 24, 1976, page B1.

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II. Australia

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Appendix 3. Construction of Real-Time Output Gaps in Figures 7–9

The 1977 Canadian output gap in Figure 7 is an approximation of the series used (but not reported) in McCracken *et al* (1977). This approximation is obtained first by using the annual data on real GDP for Canada in *IFS* (June 1977). A potential GDP series for Canada, designed to match that used by McCracken *et al*, was then deduced from the information given in McCracken *et al* (1977, p. 319) and Laidler (1978), i.e. 5% annual growth in potential output, and only one year (1973) in the 1970s during which output exceeded potential. For Australia and New Zealand, the 1977 gap estimate is obtained by detrending the log of the 1977 vintage of real GDP from *IFS*, with the trend estimated on annual data for 1957–73. This is intended as an approximation of how policymakers in 1977 estimated potential GDP; Gruen, Robinson, and Stone (2002) express doubt that the actual estimates of potential made by policymakers can be recovered for Australia, and the same is true of New Zealand.

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Figure 1. Four-quarter CPI inflation: Canada



Figure 2. Four-quarter CPI inflation: Australia

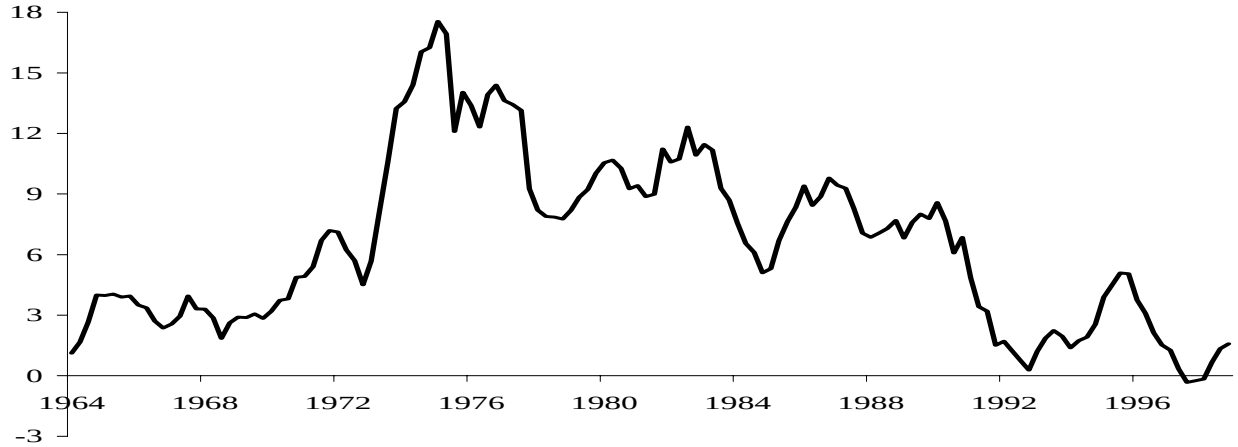


Figure 3. Four-quarter CPI inflation: New Zealand



Figure 4. Short-term interest rate and Taylor rule prescriptions: Canada

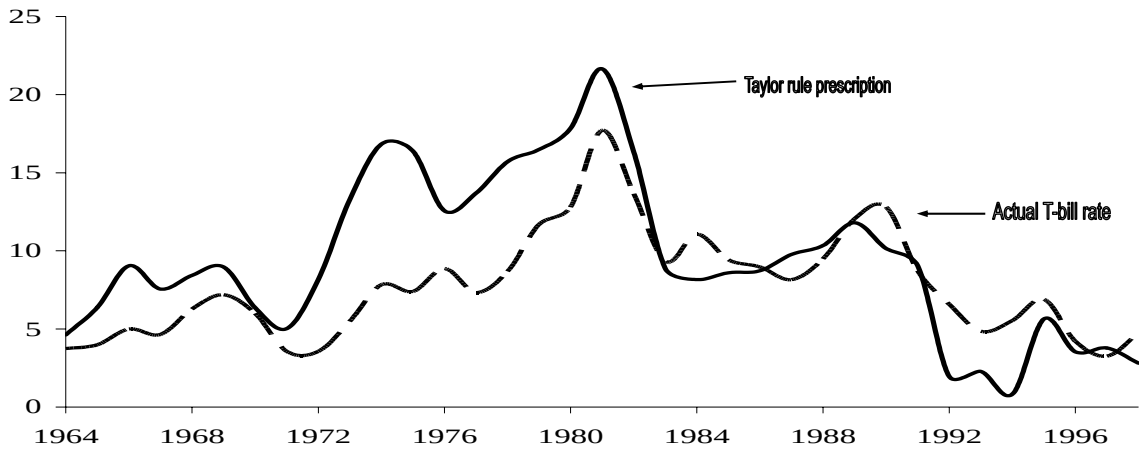


Figure 5. Short-term interest rate and Taylor rule prescriptions: Australia

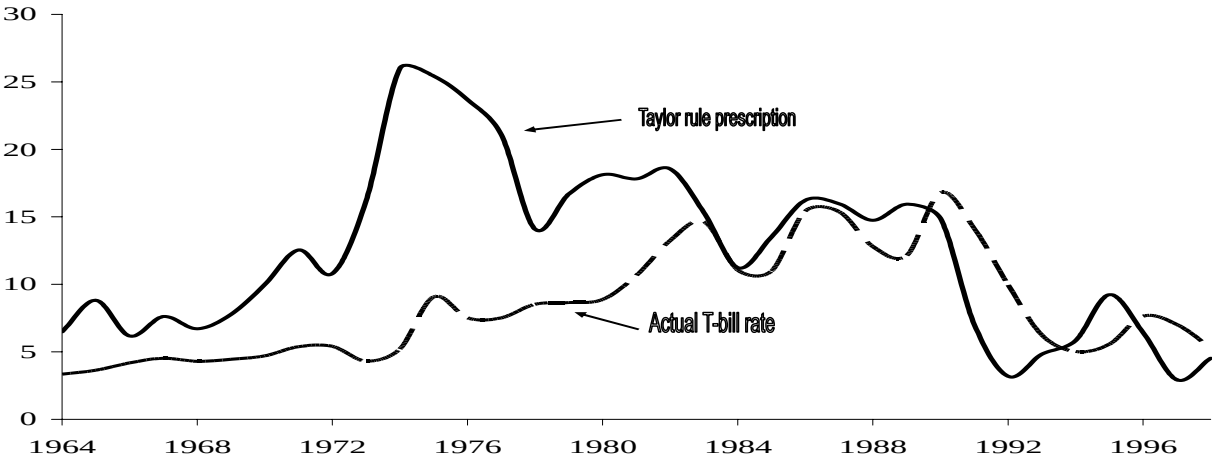


Figure 6. Short-term interest rate and Taylor rule prescriptions: New Zealand

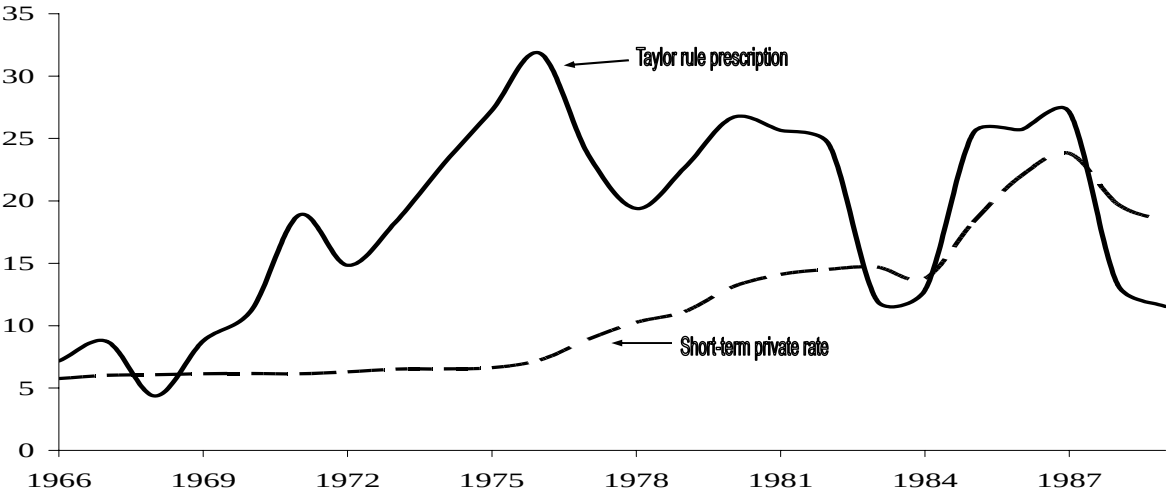


Figure 7. Output gap estimates: Canada

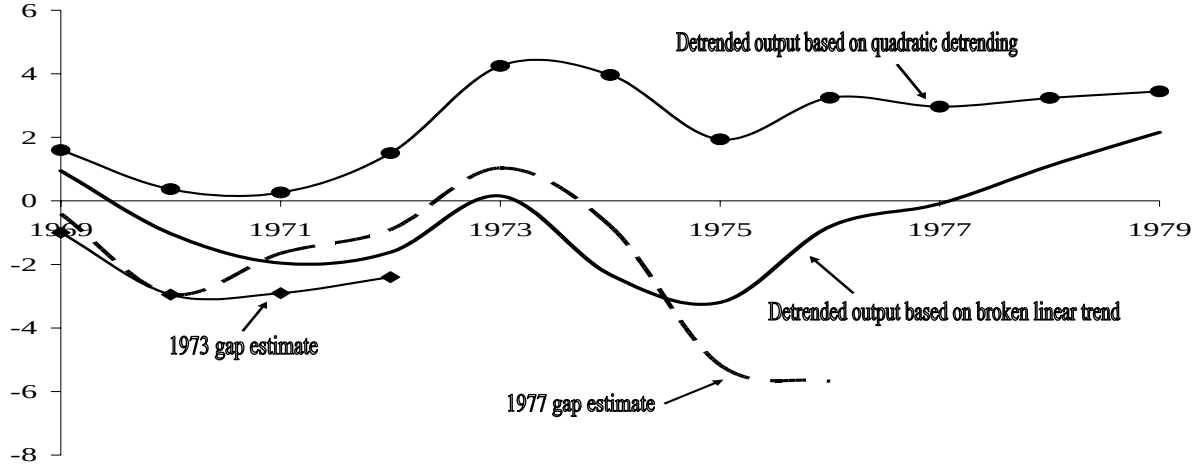


Figure 8. Output gap estimates: Australia

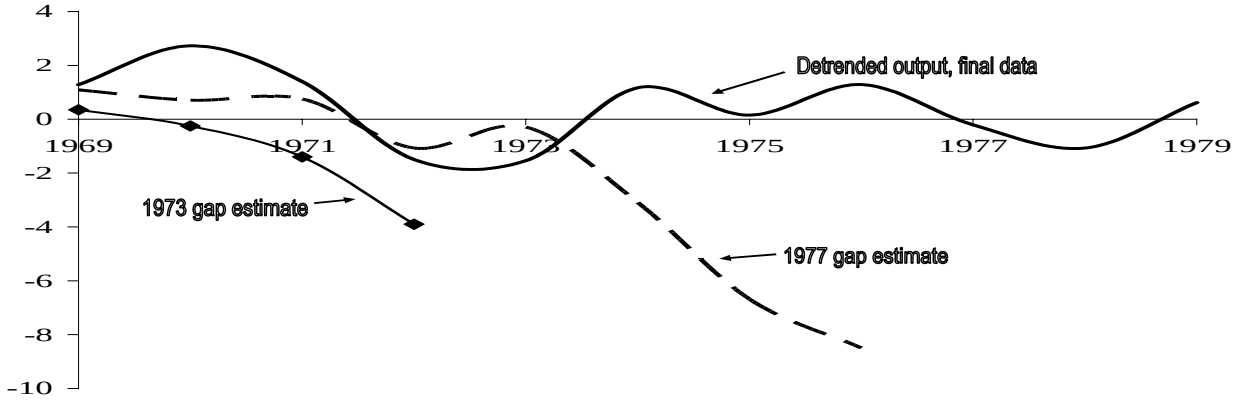


Figure 9. Output gap estimates: New Zealand

