

**Research Division**  
**Federal Reserve Bank of St. Louis**  
*Working Paper Series*



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The Jagged Edges of the Great Inflation**

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Working Paper 2006-016A  
<http://research.stlouisfed.org/wp/2006/2006-016.pdf>

March 2006

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The Jagged Edges of the Great Inflation**

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March 21, 2006

**Abstract**

Ireland and Switzerland both had rising inflation during the early 1970s, but their experiences diverged thereafter, so that they form a rare example of two countries whose inflation rates are poorly correlated with one another over the Great Inflation period. In addition, each of the two countries' records is anomalous in important respects relative to other economies' 1970s inflations. This paper proposes that the monetary policy neglect hypothesis can account for the anomalies, providing a consistent explanation for the Great Inflation across countries. Extensive archival evidence is considered from each country regarding the doctrines that guided 1970s policymaking. This evidence establishes that Switzerland's better record is accounted for by the competition between monetary and nonmonetary views of inflation being resolved earlier and more decisively in favor of the monetary view. In Ireland, by contrast, nonmonetary views of inflation dominated policymaking throughout the 1970s.

Keywords: Ireland, Switzerland, Great Inflation, wage and price controls.

*JEL* classification: E31; E52; E64.

I thank Samuel Reynard and seminar participants at the Central Bank of Ireland for comments on an earlier draft. I am indebted to Lurline Campbell, Barry Condron, Kathy Cosgrove, Dave Cronin, Riccardo DiCecio, Christina Gerberding, Beat Gygi, Peter Ireland, Bernard Kennedy, Donal McSweeney, Allan Meltzer, Barbara Mento, Urs Müller-Lhotska, Anne-Marie Papadopoulos, Samuel Reynard, Kurt Schiltknecht, Gerhard Schwarz, Katrina Stierholz, Karl Whelan, and Julia Williams for information on material regarding Ireland and Switzerland; and to Michael Nelson and Samuel Reynard for advice on translations. Justin Hauke provided research assistance. The views expressed in this paper are those of the author and do not necessarily reflect official positions of the Federal Reserve Bank of St. Louis, the Federal Reserve System, the Board of Governors, or CEPR. Email: [edward.nelson@stls.frb.org](mailto:edward.nelson@stls.frb.org)

## 1. Introduction

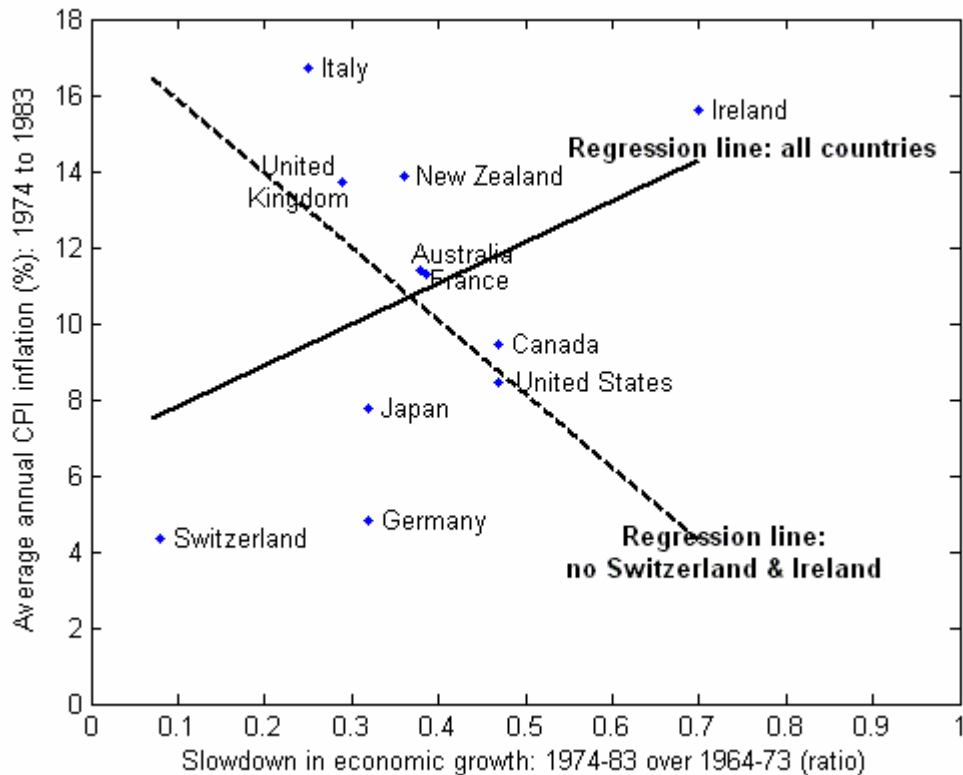
Ireland and Switzerland are the jagged edges of the Great Inflation. Ireland has one of the poorest inflation records among industrial countries over the decade of the 1970s: an average CPI inflation rate of 13.3% per annum, with the four-quarter rate never below 5% and sometimes above 20%. Switzerland has one of the finest records, with a decade average of 5.1%, and the twelve-month rate below that average for almost all the period from late 1975 to the end of 1980. The two countries' inflation rates have a correlation with one another of only 0.19 on annual data for 1969–80, a statistically insignificant relation and a contrast to the correlation of 0.50 or better of Irish inflation with inflation in each of the other OECD countries. A satisfactory explanation for the policy mistakes that produced the Great Inflation should account for these two extremes of experience.

The Swiss and Irish inflation experiences over the 1970s diverged despite several similarities in the structure of the two economies. Both were militarily neutral, small countries, both had high ratios of trade to GDP, both were substantial oil importers and so particularly vulnerable to the OPEC oil price shocks. In addition, each economy had some similarities in some of the domestic real shocks experienced over the decade: for example, major constitutional reform in the early 1970s (including the introduction of universal suffrage in Switzerland, and entry into the European Economic Community (EEC) for Ireland), and a number of years witnessing the unusual phenomenon of absolute declines in the workforce (due to emigration in Ireland's case; and repatriation of guest workers in Switzerland's).<sup>1</sup> Admittedly, Ireland had major real shocks that had no counterpart in Switzerland—notably the trading impact of its entry into the EEC, and a severe deterioration in the domestic security situation.

But it will be argued here that a focus on Ireland's real shocks is not central to explaining its 1970s inflation record. On the contrary, I contend that despite the great differences in their inflation rates, and despite the presence of real shocks specific to each country, the Great Inflation in both Ireland and Switzerland is well accounted for by a single hypothesis previously applied to other economies. This is the *monetary policy neglect* hypothesis, according to which the key source of policy error in the 1970s was the belief

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<sup>1</sup> According to the *Central Bank of Ireland Annual Report 1975*, the Irish labor force declined during financial years 1968–69, 1969–70, and 1971–72 (*CBIA*, Spring '75a, p. 69); a later revision (and current data) replaced the 1971–72 decline with a small increase (*CBIA*, Spring '79, p. 84). (Appendix A lists the abbreviations for periodicals cited in the text of this paper.) Switzerland's 1974–77 repatriation episode is discussed in Abrahamsen *et al* (2005, p. 251).



**Figure 1. Inflation and economic slowdown in the decade after 1973**

that inflation was a nonmonetary (cost-push) phenomenon. As will be documented below, the cost-push tradition was entrenched in Irish policymaking throughout the 1970s, and so led to inflation control being assigned to nonmonetary devices. In Switzerland, by contrast, while a debate on the nature of inflation did take place in the early 1970s, it was resolved quite rapidly in favor of the monetary view, leading to an eschewing of nonmonetary approaches to inflation control.

Figure 1 gives some perspective on just how atypical are the experiences of these two countries. The background to this figure is the output gap mismeasurement hypothesis advanced by Orphanides (2003, 2004). Orphanides' account of the Great Inflation focuses on the fact that U.S. policymakers' estimates of potential output were overstated for several years in the 1970s, in large part because of delays in recognizing a slowing trend in productivity. Consequently, policymakers according to this account, despite having orthodox views regarding the inflation process and a modern view of the role of monetary policy in inflation control, over-stimulated the economy.

Since other countries had similar errors in their estimates of the output gap over this period, Orphanides' hypothesis in principle can be applied symmetrically to the Great Inflation in the U.S. and other countries. Figure 1 attempts to evaluate the output gap mismeasurement hypothesis by plotting post-1973 rates of inflation against the extent of the post-1973 slowdown (measured as the ratio of post-1973 growth to pre-1974 growth). Each data point is a country average. The countries depicted are the G7 members plus Ireland, Switzerland, Australia, and New Zealand. Partitioning the data according to behavior before and after 1973 has the advantage of focusing on the effects of a global slowdown in economic growth, which took time to be recognized, and so could have had a pronounced effect on estimates of the level of the output gap in many countries. That said, it should be acknowledged that overestimation of potential output distorted policy decisions even before the 1973 slowdown, as Orphanides' (2004) account of U.S. developments in 1970 emphasizes.

Two regression lines are plotted in Figure 1: one using all countries, the other excluding Ireland and Switzerland. The regression line that excludes Ireland and Switzerland is quite supportive of the output gap mismeasurement hypothesis, in the sense that a steep negative relationship exists between the slowdown (which proxies the size of gap mismeasurement) and inflation. The graph does make clear that, for a given GDP slowdown, Germany and Japan had markedly lower inflation than the average country. This is consistent with the notion that from 1973 onward these countries had monetary policies which focused on inflation and related nominal variables and eschewed responding to the level of the output gap (see e.g. Bernanke, Laubach, Mishkin, and Posen, 1999; Gerberding, Worms, and Seitz, 2004; Orphanides and Williams, 2005, p. 1946; and von Hagen, 1999). But these two countries are not such violent outliers that inclusion of them in the regression removes the overall negative relationship.

By contrast, the inclusion of Ireland and Switzerland wipes out the correlation, even reversing the slope of the regression line. Ireland had one of the mildest economic slowdowns and one of the worst inflations; Switzerland, the worst slowdown and the lowest inflation! Clearly, these two countries, appearing at the far edges of Figure 1, pose a problem for the gap-mismeasurement account of the Great Inflation.

The deviations of international experience from the output gap mismeasurement account support an emphasis on other major conceptual errors underlying policymaking. In particular, the monetary policy neglect hypothesis advanced for the United Kingdom in

Nelson and Nikolov (2004), and extended to other countries in Nelson (2005a, 2005b), holds that policymakers' key error was the basic doctrine they used: their nonmonetary approach to inflation analysis. The hypothesis attributes the Great Inflation to policymakers' consequent reliance on nonmonetary devices for fighting inflation, and their corresponding neglect of monetary policy.

To some extent, this doctrinal error should not automatically account for the deficiencies of the output gap mismeasurement story, since there are grounds for believing that the two errors should tend to occur together and reinforce one another. Cost-push views of inflation tend to propagate the effects of output-gap mismeasurement and vice versa, since, as argued by Romer and Romer (2002, p. 73), different policymaker misconceptions are not independent of one another. Indeed, commenting on U.K. developments in the 1970s, Laidler (1974, pp. 54–55) noted that a widespread reaction to the combination of rising inflation and rising unemployment was that “these two things are incompatible with orthodox market economics. The world has changed,” and that this misdiagnosis led to the policy prescription that “you could do anything you liked to aggregate demand and it was not going to affect inflation.” On a similar note, in an early retrospective on the Great Inflation, Dornbusch and Fischer (1987, p. 518) argued that unrecognized shifts in aggregate supply led U.S. commentators in the 1970s to conclude that “the laws of economics are not working as they should because inflation is high or rising even as output is falling,” when, in fact, such combinations are completely consistent with an orthodox view of inflation.

The view that “the laws of economics are not working” corresponds exactly to the nonmonetary or cost-push view of inflation, since that view suppresses the output-gap term in the Phillips curve.<sup>2</sup> Cost-push views of inflation are therefore consistent with arbitrary output gap/inflation combinations. Accordingly, these views rationalized what policymakers thought they saw in the 1970s; and so came to dominate policymaking over that period, either by supplanting more orthodox views of inflation on the part of policymakers (as in the United States—see Romer and Romer, 2002—and Canada), or by reaffirming a preexisting consensus in favor of cost-push views (as in the United Kingdom, New Zealand and Australia).<sup>3</sup> In addition, the more extreme cost-push views—

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<sup>2</sup> For an algebraic discussion, see Section 2.1 below.

<sup>3</sup> See Nelson (2005a, 2005b) for documentation of the prevalence of nonmonetary views of inflation during the 1970s in Canada, the U.K., Australia, and New Zealand, as well as evidence on the U.S. debate that supplements the documentation of policymakers' views provided by Romer and Romer (2002).

prevalent in the U.K., Canada, and New Zealand and, as we will see, in Ireland too—led policymakers to advocate the position that stimulating demand *reduces* inflation: that moving the output gap from negative to zero is desirable as an anti-inflation measure.<sup>4</sup> This error is not present if a policymaker uses a mismeasured output gap series but subscribes to the standard, excess-demand view of inflation determination. Nonmonetary views of inflation can therefore serve as a powerful multiplier of the effects of output gap mismeasurement on a country’s inflation rate.

On the other hand, while cost-push views and output gap mismeasurement are not fully independent sources of error, neither are cost-push views liable to create policy errors *only* in the presence of gap misperceptions. Nonmonetary views of inflation can dominate policy thinking and produce inflationary policy mistakes even in the absence of output gap mismeasurement. It is clear enough that a philosophy that wage and price controls rather than monetary policy provide the means to control inflation is likely to lead to a poor inflation-control performance.<sup>5</sup> In addition, nonmonetary views of inflation prevented countries like Ireland from learning from the successful inflation record of countries like Switzerland. Instead of understanding from these countries’ experiences the advantages of using monetary policy to fight inflation, Irish commentators tended to “mirror-image”—seeing in low-inflation countries the *successful* application of nonmonetary devices to control inflation.<sup>6</sup> For example, an article in the *Irish Times* in 1977 entitled “Swiss Win Fight Against Inflation” gave as key ingredients of Switzerland’s “anti-inflation recipe” the agreement of Swiss labor unions to low wage increases along with the fact that these unions “worked harder for approximately the

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<sup>4</sup> In practice, thanks to output gap mismeasurement, this meant policies that would shift the output gap from positive to even greater positive values (such as in Ireland in 1973, as we will see).

<sup>5</sup> This could occur even in cases where—as I will argue was the case for Ireland—policymakers valued keeping output at potential even though they denied that the output gap mattered for inflation. For example, with forward-looking inflation behavior, an upward revision by the private sector of expected future aggregate demand levels tends to raise inflation today, even if policymakers are keeping the current output gap at zero. Monetary policy needs to create expectations of a tighter policy path to restore inflation and expected future output gaps back to their original position. But a nonmonetary outlook on inflation will block this tightening from taking place, since it will erroneously attribute the rise in inflation to special factors.

<sup>6</sup> Symmetrically, poor inflation performance in other countries was attributed to the *unsuccessful* application of what could be effective nonmonetary measures against inflation. The United Kingdom came in for particular criticism from Irish commentators on this score. For example, a 1976 article on the financial page of the *Irish Independent* opened with: “Britain’s reputation for hypocrisy reaches new heights today with a publication of the consultative document setting out proposed changes in the U.K. price code” (*IIND*, 06/30/76). Despite its harsh words regarding the U.K., this article merely criticized the *tactics* chosen by U.K. policymakers to fight inflation (attempting to control private sector prices, instead of the correspondent’s preferred focus on government sector prices and on private sector costs), and took for granted the validity of the nonmonetary *strategy* against inflation common to both Ireland and the U.K.

same money” (*IT*, 02/22/77). Such an analysis emphasized the same measures used in Ireland to fight inflation—attempts to limit wage agreements and to increase output—at the expense of the genuinely important ingredient in Switzerland’s anti-inflation recipe: its monetary policy.

The example of Ireland, a country with a relatively minor slowdown in productivity yet one of the worst inflation records, brings home the importance of nonmonetary views of inflation relative to other sources of policy error such as gap mismeasurement. Evidence from Ireland for the monetary policy neglect hypothesis will be documented extensively in this paper.

The counterexample of Switzerland, with its relatively early restoration of price stability, will also be documented, and shown to support the neglect hypothesis. In view of the substantial existing literature on the lessons from Swiss monetary policy, it is worthwhile discussing my points of departure. Two recent detailed and useful discussions of Switzerland are Bernanke, Laubach, Mishkin, and Posen (1999) and Rich (2003). Approximately half of the discussion of Switzerland in Bernanke *et al*, however, covers the late 1980s onward, reflecting their interest in comparing the Swiss experience with those of inflation-targeting countries. By contrast, the present paper focuses on the Great Inflation period that ended in the early 1980s. Furthermore, in Bernanke *et al*’s discussion of the 1970s, the earliest publication of the Swiss National Bank (SNB) referenced is from 1975, by which time monetary targets had already been introduced and much of the dust had settled on the early 1970s debates over the causes of inflation. Similarly, Rich (2003) covers the period beginning in 1974, the year monetary targeting was adopted. Consequently, much of Bernanke *et al* and Rich’s discussion of monetary targeting focuses on the operating procedures underlying Swiss monetary policy—the means by which monetary targets were pursued—rather than the doctrinal developments which led the SNB to adopt an inflation-oriented monetary policy in the first place.

A specific example that brings out the different focus of the present paper is Kugler and Rich’s (2001) account of the monetary expansion in Switzerland in the early 1970s. They state that it “reflected the Swiss authorities’ obligation to defend the then still fixed exchange rate” (2001, p. 5). While appropriate as a description of the proximate source of Switzerland’s monetary expansion, this account is vulnerable to Romer’s (2005) criticism of the general approach of attributing countries’ high inflation rates to the breakdown of Bretton Woods. Romer points out that this explanation does not answer



why policymakers did not embrace alternative policies that could have insulated their economies from the global monetary expansion. It is here that a focus on the fundamental doctrinal errors guiding policy can be important.

In drawing out the doctrines guiding macroeconomic policy, I use contemporaneous material, in both English and German, published by the Swiss National Bank over the period 1970–80—including an authoritative, English-language description given by the SNB of its view of the transmission mechanism (SNB, 1980) not used in the aforementioned studies of Switzerland. A further key source of documentary material for Switzerland, again not used by the preceding studies, is an archive of 1970s coverage of inflation published in the major Zurich newspaper, *Neue Zürcher Zeitung*. For Ireland, my source material includes publications of the Irish central and commercial banks, as well as an archive of 1970s articles on inflation published in four major Dublin newspapers.

This paper proceeds as follows. Section 2.1 outlines the monetary policy neglect hypothesis. Sections 2.2 and 2.3 consider the implications of exchange rate regime and openness for the study of the Great Inflation. Sections 3 and 4 consider in detail Ireland and Switzerland, respectively. Six propositions that emerge from this study are discussed in Section 5, while Section 6 concludes.

## **2. The monetary policy neglect hypothesis and its application**

This section outlines the monetary policy neglect hypothesis (Section 2.1) and discusses issues raised by applying it to small economies like Ireland and Switzerland (Sections 2.2 and 2.3).

### **2.1 The monetary policy neglect hypothesis**

The monetary policy neglect hypothesis states that 1970s policymakers embraced an erroneous view of the inflation process—i.e., a pure cost-push view of inflation—that led them to neglect the importance of monetary policy for inflation control.

The erroneous view held by policymakers can be illustrated by assuming that actual inflation dynamics are described by the standard New Keynesian Phillips curve:

$$\pi_t = c + \beta E_t \pi_{t+1} + \alpha (y_t - y_t^*) + u_t, \quad (1)$$

where  $y_t - y_t^*$  is the output gap,  $\pi_t$  is inflation,  $u_t$  is an exogenous disturbance, and where, as usual, the parameter  $\beta$  is close to unity. Decompose  $u_t$  as  $u_t = \mu_{u,t} + \hat{u}_t$ , where  $\mu_{u,t}$  is the unconditional mean of  $u_t$  (which may be time-varying), and  $\hat{u}_t$  is the deviation from mean, with this deviation an AR(1) process with parameter  $\rho_u$ . Solving this expression forward for inflation and for expected future inflation, one obtains:

$$\pi_t = \gamma + \alpha E_t \sum_{i=0}^{\infty} \beta^i (y_{t+i} - y_{t+i}^*) + u_t + \beta [E_t \sum_{i=1}^{\infty} \beta^{i-1} (\mu_{u,t+i})] + \beta [(1-\beta\rho_u)^{-1} \rho_u \hat{u}_t]. \quad (2)$$

$$E_t \pi_{t+1} = \gamma + \alpha E_t \sum_{i=0}^{\infty} \beta^i (y_{t+i+1} - y_{t+i+1}^*) + E_t [\sum_{i=0}^{\infty} \beta^i (\mu_{u,t+i+1})] + (1-\beta\rho_u)^{-1} \rho_u \hat{u}_t, \quad (3)$$

where  $\gamma = (1-\beta)^{-1}c$ .

A *monetary* view of inflation imposes two properties on the Phillips curve: the importance of the output gap for inflation:  $\alpha > 0$ ; and the restriction that the  $u_t$  series consists of one-time price-level shocks, which affect current inflation but do not affect expected future inflation: i.e.,  $\mu_{u,t} = 0$  for all  $t$  and  $\rho_u = 0$ . This view attributes the 1970s inflation to monetary policymakers' frequent creation of excessively strong demand conditions, tending to turn the output gap path upward and to create inflationary pressure.

A *nonmonetary* view of inflation instead states that inflation is insensitive to the output gap when the gap is negative—i.e.,  $\alpha = 0$  holds in equation (2)–(3) when the output gap sum appearing in those equations becomes negative. It also holds that cost-push shocks matter for expected future inflation and for the unconditional mean of inflation: i.e., in general,  $\mu_{u,t+k} \neq 0$  (with this mean taking positive values during high-inflation episodes) and  $\rho_u > 0$ . The upshot of the nonmonetary view is that keeping output below potential does not contribute to the control of inflation, and that cost-push shocks matter for the path of inflation even in the absence of monetary accommodation.

The monetary policy neglect hypothesis holds that the monetary view of inflation was correct, but that 1970s policymakers believed in the nonmonetary view of inflation. They therefore mistakenly attributed high inflation to cost-push shocks, when, in fact, those shocks by themselves could neither have an ongoing effect on inflation, nor raise mean inflation. In delegating inflation control to nonmonetary devices, and neglecting to keep monetary policy neutral (i.e., consistent with a zero output gap path) over the 1970s, policymakers unwittingly provided the conditions for high inflation to occur.

This hypothesis is distinct from explanations for the Great Inflation that assume awareness by policymakers that inflation depends on the output gap. For example, Clarida, Galí, and Gertler (2000) emphasize the consequences of particular interest-rate rules that respond to rational expectations of inflation formed with equation (1) with  $\alpha > 0$ , while Sargent (1999) also takes policymakers as aware that inflation depends positively on the gap. In these scenarios, policymakers either have accurate knowledge of the nature of inflation (Clarida, Galí, and Gertler's case) or the inaccuracies in their knowledge do not prevent them from recognizing that inflation is a monetary phenomenon (Sargent's case).

Sections 3 and 4 discuss how the evidence from Ireland and Switzerland conforms to the neglect hypothesis. But it is worth now discussing some objections to applying the monetary policy neglect hypothesis to these two countries, which in the 1970s featured both high levels of openness and much attachment to fixed exchange rates. Does the fact that Ireland voluntarily linked itself to U.K. monetary policy constitute an “explanation” of its inflation over the 1970s? And does the absence of open-economy terms (such as the exchange rate or import prices) from the Phillips curve equation (1) above, invalidate using that equation to study CPI developments in Ireland and Switzerland? In the following two subsections I argue that the answer to both these questions is “no.”

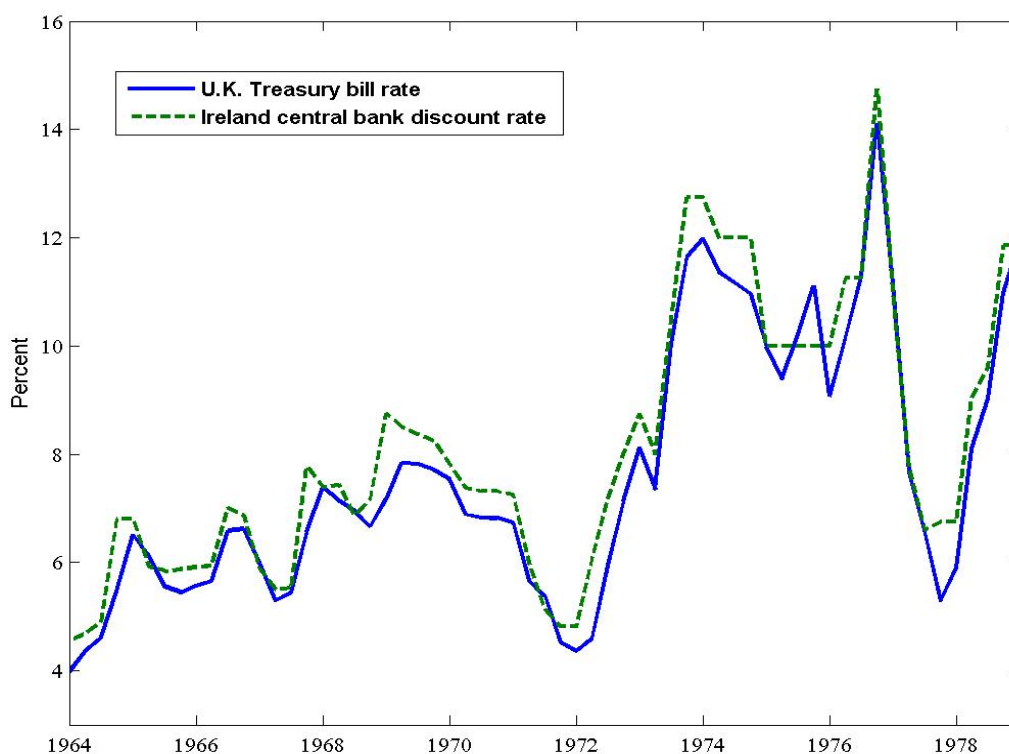
## **2.2 Shared misconceptions and the transmission of the Great Inflation**

Many discussions of the international character of inflation over the 1970s are happy to characterize the U.S. monetary easing in the leadup to the collapse of Bretton Woods as the explanation for the Great Inflation in countries outside the United States.<sup>7</sup> What is more, an explanation along these lines—whereby a small country inherits the mistakes of a leading country—would seem applicable to Ireland even beyond the Bretton Woods period, as Ireland had a fixed exchange rate with a high-inflation country (i.e., the United Kingdom) until 1979. And over this period Ireland did not have institutional features (such as foreign exchange controls regarding U.K. transactions) that might have allowed some monetary policy independence for Ireland. Accordingly, the links between Irish and U.K. short-term interest rates were quite rigid (Figure 2).<sup>8</sup>

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<sup>7</sup> Darby and Lothian (1983, pp. 506–508), for example, argue that this view of the international dimension of the 1970s inflation is widely held.

<sup>8</sup> See Darby and Lothian (1983) for an early discussion of the transmission of inflation across economies in the 1970s. Like the present discussion and Romer (2005), Darby and Lothian stress the importance of the



**Figure 2. Short-term interest rates: Ireland and the United Kingdom, 1964–79**

But simply labeling the attachment to a fixed exchange rate as Ireland’s key monetary policy mistake begs the question why Ireland maintained it for so long. Why didn’t Irish policymakers before 1978 take measures that permitted a non-inflationary interest-rate policy, either by introducing more vigorous foreign exchange controls or by adopting a more flexible exchange rate policy?

The answer cannot be found by citing lack of concern by Irish policymakers for domestic goals, such as output-gap stabilization and price stability. On the contrary, as documented in Section 3, developments in inflation, and perceived developments in the output gap, dominated Irish policy discussions during the 1970s. And the existence of a fixed exchange rate is not evidence that policymakers were not concerned primarily with

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monetary explanation for inflation, and the inadequacy of Bretton Woods as an explanation for the transmission of inflation across countries. But much of Darby and Lothian’s argument relies on considerable sterilization on the part of the small country’s central bank of international flows, which is inapplicable to Ireland over the 1970s. Accordingly, the arguments presented here differ from Darby and Lothian’s. Another difference from that study is that the two economies studied here, Ireland and Switzerland, are not part of their eight-country sample.

domestic goals. Even with a fixed exchange rate implying a rigid link of the short-term domestic interest rate ( $R_t$ ) to the leading country's interest rate ( $R_t^F$ ), so that  $R_t = R_t^F$  every period, there will be an *implied* response of the domestic interest rate to domestic variables—that is, partial derivatives  $\delta R_t / \delta \pi_t$  and  $\delta R_t / \delta (y_t - y_t^*)$ —that arises from this policy.<sup>9</sup> Adoption of a fixed exchange rate can be viewed as the choice of these response parameters over those available from alternative policy rules.

In short, attributing a small country's inflation problems to its subscription to a fixed exchange rate system—whether they are Ireland's links with the U.K., or Switzerland's membership of Bretton Woods—will not do; the proposed explanation is merely a description. Instead, as argued by Romer (2005), a satisfactory explanation should search for the errors in the economic doctrines guiding policymakers during the 1970s. Romer classifies hypotheses that attribute the Great Inflation to policymakers' theoretical errors under the umbrella title of the “ideas hypothesis.” The discussion below suggests that, of the hypotheses covered by this umbrella, the monetary policy neglect hypothesis is the most satisfactory way of understanding 1970s policy mistakes in Ireland and Switzerland. In particular, Irish policymakers' attachment to nonmonetary views of inflation explains why they failed to grasp the consequences of lack of monetary policy autonomy for inflation control. They thought that inflation could be brought down by incomes policy, with the exchange rate and interest rates left unaltered.

### 2.3 Practical consequences of fixed exchange rates for inflation control

If the preceding argument is accepted, the fact that a country adhered to a fixed exchange rate does not rule out the likelihood that its domestic authorities' misconceptions about monetary policy were the underlying source of its poor inflation performance. But this observation does not overturn the usual message that fixed exchange rates imply a link between different countries' inflation rates. It is therefore important to discuss the channels that bring this link into effect, and their likely significance for the two countries studied here.

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<sup>9</sup> From an equilibrium that arises from a fixed exchange rate regime, one can compute the reduced-form relationship between foreign interest rates and domestic variables,  $R_t^F = r_0 + r_1 E_{t-1} \pi_t + r_2 E_{t-1} (y_t - y_t^*) + e_t^F$ , where the  $r_i$  are regression coefficients and  $e_t^F$  is orthogonal to the two key domestic variables. Substituting this reduced-form relationship into the policy rule  $R_t = R_t^F$  delivers a Taylor-rule style characterization of monetary policy in the small economy. This characterization describes interest-rate movements as consisting of systematic responses to domestic variables, with the remaining variation in the interest rate classed as a shock to the rule.

The position taken in this paper is that an aggregate demand policy that delivered a zero output gap path over the 1970s would have been sufficient to keep these countries out of any serious inflation problem. Accordingly, an analysis of the implications of a fixed exchange rate regime for CPI inflation control can focus on how the path of the output gap is affected by the regime.

This position is consistent with Phillips curve specifications where the output gap is the only variable that matters for the path of expected inflation—such as the monetary-view parameterization of equations (2) and (3) above. At first sight, it would seem inappropriate to use equation (1) (and so equations (2)–(3)) to describe CPI inflation dynamics in countries like Ireland and Switzerland. Such an approach contrasts with the more standard approach to open-economy analysis, according to which openness means that import-price-inflation terms enter the Phillips curve for the CPI (see e.g. Ball, 1999, and Svensson, 2000). Nevertheless, I argue here that equation (1)—or more generally, a Phillips curve lacking explicit open-economy terms—is useful for bringing out the distinction between monetary and nonmonetary theories of inflation in open economies, and sacrifices little in terms of realism.

To see this, it is useful to consider the implications of fixed exchange rates for a country's monetary policy. Fixed exchange rates do imply a link between different countries' inflation rates, but there are two traditions for describing the process by which this link is put into effect. The first description of the process (and the one more prevalent in 1970s discussions of Ireland's position) emphasizes the law-of-one-price mechanism. In this description, goods-market arbitrage across two countries involved in the fixed exchange rate system tends to equalize the prices of the goods traded and thereby tends to promote equality of inflation rates (possibly with qualifications about the presence of a nontraded goods sector—see e.g. Obstfeld and Rogoff, 1996, p. 202).

The second description, made more familiar by its frequent application to debates over European monetary arrangements during the 1990s, stresses that the lack of monetary policy independence for a country in a fixed exchange rate regime makes itself felt in that country's surrender of control of aggregate demand. The *ex post* similarity of inflation rates across countries is largely a reflection of the implied acceptance by the smaller economy of growth rates of nominal aggregate demand (and so, under sticky prices, a sequence of output gaps) similar to those of the leading economy.

The two descriptions of the process are by no means incompatible. Indeed, it is the lack of monetary policy autonomy that makes automatic the creation of aggregate demand conditions consistent with inflation-rate convergence engendered by goods-market arbitrage.<sup>10</sup> But the second description of the inflation-convergence process is the more attractive one for describing the implications of fixed exchange rates, for two reasons.

First, it is more general. For example, in the case where all imports are intermediate goods, there is *no* standard import-price channel to speak of; yet monetary policy autonomy is surrendered just as before. Focusing on aggregate demand brings this issue front and center, and illustrates that there is no need in principle to appeal to a goods-market-arbitrage channel, or to distinguish between tradable and nontradable goods, in describing the monetary policy implications of fixed exchange rates.

Second, the arbitrage description sweeps under the carpet the demand conditions required for inflation-rate convergence to be consistent with a monetary view of the determination of inflation. In so doing, it might appear to give nonmonetary views of inflation more credibility than they deserve. In particular, as we will see, nonmonetary accounts of inflation during the 1970s often took for granted that higher import prices (e.g., from exchange rate depreciation) automatically push up CPI inflation, without acknowledging that it is only the monetary accommodation of these pressures that prevents the CPI from being insulated from import price movements (which, absent accommodation, should not produce lasting inflation but instead be manifested in relative price movements).

To be specific for the Irish case, the view that the fixed exchange rate with the United Kingdom fixes Ireland's demand management policy starts from the closeness with which the short-term nominal interest rate in Ireland had to mimic the path of U.K. short-term rates over this period (again, see Figure 2). With the Irish policy rate ( $R_t$ ) governed by the exchange rate policy, money base growth follows the path implied by the maintenance of this interest rate; and with the base and nominal rate so determined, those variables through which monetary policy can affect aggregate demand have essentially been decided upon by the exchange rate policy.<sup>11</sup>

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<sup>10</sup> See e.g. McCallum (1996, p. 145) for a textbook acknowledgment of the equivalence.

<sup>11</sup> This conclusion would not be overturned by allowing for additional interest rates beside the short rate to matter for aggregate demand determination. In models with multiple channels of monetary policy transmission, these yields are linked to the short rate and/or money base creation, and the paths for these two core variables are fully constrained by a fixed exchange rate policy. See also footnote 23 below.

To summarize, the position underlying the discussion below is that the surrender of control over inflation implied by fixed exchange rates occurs via the implied surrender of control of the output gap. Concretely, this can be thought of as assuming that imports are solely an intermediate good, so that equation (1), where the output gap is the only forcing variable for inflation, applies to CPI inflation dynamics in an open economy.

### **3. Ireland**

This section examines the Irish record from 1969 to 1982. Throughout this period, lack of central bank independence meant that the Central Bank of Ireland was subordinate to the Department of Finance,<sup>12</sup> and so economic policy decisions were principally made by the executive branch of government. Therefore, an important component of the analysis below is the drawing out of the views on inflation held by key economic policymakers, such as the Taoiseach (head of the Irish Government, or Prime Minister) and the Minister for Finance. Nevertheless, statements of the Central Bank of Ireland remain a useful source because they elaborate upon the economic analysis underlying government policy. Another general observation is that the fluctuations in Irish political fortunes during the 1970s and 1980s mean that there are a large number of relevant policymakers over this period (see Table 1).

#### **3.1 1969–73: Wage-push fallacies**

As of late 1969, and continuing into the 1970s, Irish Government officials held standard views about stabilization policy, in the sense that they emphasized the desirability of output-gap stabilization. The Governor of the Central Bank, T.K. Whitaker, said in November 1969 that monetary policy can “help to moderate the more drastic consequences for domestic output and employment of the downward inflexibility of wages and prices” (quoted in *IBR*, 03/70, p. 7)—which amounted to a quite modern statement of a zero-output-gap goal, since removing the effects of nominal rigidities brings output equal to potential. This goal was expressed more aggressively by Finance Minister Charles Haughey in the same period with his statement: “Our policy is to push up our economic growth to the limit of our resources” (*IT*, 12/19/69). These statements also reinforce the notion (discussed in Section 2.2) that the Government had standard goals regarding stabilization policy, and perceived its adherence to a fixed exchange rate over this period as contributing to domestic stabilization.

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<sup>12</sup> See e.g. Lee (1989, p. 446).



Table 1. Irish Governments 1966–82

<p><i>Lynch Government</i> (November 1966 to March 1973)—Fianna Fáil party  Taoiseach: Jack Lynch  Ministers for Finance: Charles Haughey (November 1966 to May 1970);  George Colley (May 1970 to March 1973)</p> <p><i>Cosgrave Government</i> (March 1973 to July 1977)—Fine Gael/Labour coalition  Taoiseach: Liam Cosgrave    Minister for Finance: Richie Ryan</p> <p><i>Lynch Government</i> (July 1977 to December 1979)—Fianna Fáil party  Taoiseach: Jack Lynch        Minister for Finance: George Colley</p> <p><i>Haughey Government</i> (December 1979 to June 1981)—Fianna Fáil party  Taoiseach: Charles Haughey  Ministers for Finance: Michael O’Kennedy (December 1979 to December 1980);  Gene Fitzgerald (December 1980 to June 1981)</p> <p><i>FitzGerald Government</i> (June 1981 to March 1982)—Fine Gael/Labour coalition  Taoiseach: Garret FitzGerald    Minister for Finance: John Bruton</p> <p><i>Haughey Government</i> (March to December 1982)—Fianna Fáil party  Taoiseach: Charles Haughey    Minister for Finance: Ray McSharry</p>
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The Government’s orthodox views did not extend to its analysis of *inflation*, which had become a serious problem, with the four-quarter rate rising from 2.5% at the end of 1967 to nearly 8% at the end of 1969. Here the Government adopted a cost-push analysis, blaming domestic wage-push forces for inflation. In a speech introducing the Government’s April 1970 Budget, Jack Lynch (the Taoiseach) said: “The sharp rises in prices in recent years reflect the rising trend in demands for greater money incomes” (*IT*, 04/23/70).

On a similar note, in mid-1970 the Central Bank of Ireland expressed the judgment: “Domestic labor cost increases have been a major cause of these inflationary developments” (*CBIA*, 07/70c, p. 26), reflecting Governor Whitaker’s view that “[m]odern inflations are not entirely due to excess demand; they are also the result of income and price excesses” (*CBIQ*, Winter ’70, p. 133). In addition, Whitaker cast doubt on the notion that, in the face of cost pressures, a non-accommodative policy by the central bank would help significantly: “monetary policy can do something—but probably not a lot—to offset major disturbances caused by destabilizing forces such as excessive income... increases” (quoted in *IBR*, 03/70, p. 7). The Irish commercial banks, in their official organ *The Irish Banking Review*, elaborated that the “something” that monetary

policy could do was confined to the prevention of positive output gaps, which could superimpose demand inflation on wage-push forces: “the only type of inflation that can be influenced by banking policy is demand inflation. Inflation caused by rising costs... is not sensitive to banking policy” (*IBR*, 03/70, p. 7).

A commentary on Ireland’s growing inflation problem was provided in the weekly economics column for the *Irish Times* by Garret FitzGerald. At the time, FitzGerald was a member of the leading opposition party (Fine Gael) in the principal parliamentary chamber (the Dáil), and he would later serve as a senior minister in the 1973–77 government and as Taoiseach for much of the 1980s. His views during the early 1970s therefore acquire greater weight in retrospect. Even at the time, however, FitzGerald’s views were highly regarded due to his background as an economist. The *Irish Times*’ employment of him as an economics expert, rather than as a political figure, and his appearances in other media, indicate the attention given to his economic analysis.<sup>13</sup>

And the economic analysis FitzGerald produced was decidedly cost-push: “rising incomes are the principal cause of rising prices” (*SI*, 11/21/71), and “an incomes policy is of course essential to get things under control again” (*IT*, 04/29/70). Speaking in the Dáil, FitzGerald offered an incomes policy prescribing 4% growth in wages and salaries as a means of directly reducing inflation (*IIND*, 07/30/70).

What about the connections between demand and inflation? FitzGerald revealed his position on this issue when he simultaneously advanced two observations about recent Irish macroeconomic performance: “the recent boom has been accompanied by one of the worst inflations we have experienced” and “there are signs that as the years pass our underlying growth potential has been improving” (*IT*, 03/11/70). To an adherent of the monetary view of inflation, the two observations would be incompatible. Rising inflation alongside rapid growth would suggest a prolonged excess demand situation. The higher inflation in turn should be grounds for revising potential GDP *downward*. A cost-push view of inflation, however, disconnects estimates of potential output from developments in inflation: the absence of the output gap from the Phillips curve means that real/nominal interactions are not revealing about the behavior of potential. Consequently, FitzGerald

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<sup>13</sup> In addition to writing on economic matters for the *Irish Times* and the *Sunday Independent*, FitzGerald made frequent television commentaries over this period, to such an extent that one reaction was that his “face is as familiar to television viewers as that of Lucille Ball” (*SI*, 04/09/72). It is unlikely that this observation was intended as a compliment, but it does underscore FitzGerald’s status as a leading economic commentator in the period before he became a policymaker.

based his view that potential growth had risen on the evidence of interactions among real variables: for example, continuing strong growth in output despite a declining labor force was seen as evidence supportive of faster potential GDP. As unorthodox as it now seems, FitzGerald's judgment was shared by other authoritative figures. In particular, as FitzGerald pointed out, the OECD also thought that Ireland's potential growth had risen, with the agency envisaging a rise in annual output growth from 3.9% in the 1960s to 4.8% in the 1970s (*IT*, 06/17/70; OECD, 1970, p. 16).

Despite these unconventional views, official and outside commentary on inflation on the whole was less orthodox in 1970 than it became in later years. This was largely because it was recognized that excess demand was present in the economy. As noted above, believers in cost-push inflation typically accepted that, when output exceeded potential, it contributed inflationary pressure over and above that arising from cost-push forces that produced inflation.<sup>14</sup> FitzGerald, for example, believed that aggregate demand in early 1970 stood above potential output, a negative output gap having been closed over the course of 1968 and 1969 (*IT*, 02/04/70; *IIND*, 03/14/70). A similar view prevailed in policy circles, with the result that some Irish Government statements during 1970 sound orthodox, such as that in the 1970 Budget speech: "In the fight against inflation one of the principal weapons is monetary policy" as this could "reduce pressures in the economy" (*IT*, 04/23/70). While the Budget speech went on to endorse the dubious position that direct credit controls could achieve a reduction in pressure, the fact remains that it acknowledged a role for monetary policy in reducing inflation. Again, this was not out of line with the cost-push view. The latter differed from the standard monetary position, first in denying that monetary restraint is a *sufficient* condition for disinflation—in the nonmonetary view it is only one condition, with cost-push factors mattering for inflation at all levels of the output gap—and second, in claiming that monetary policy can produce no further downward pressure on inflation once the output gap has been brought down from positive values to zero.

Thus a key indication of the hold in Ireland of cost-push views was the widespread rejection of the judgment that negative output gaps reduce inflation. Discussions in Ireland during 1970 on the situation in other economies, such as the United States, which were believed to be experiencing negative gaps, emphasized the insensitivity of inflation

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<sup>14</sup> Recall that the definition of the cost-push view in Section 2.1 allowed positive output gaps to increase inflationary pressure.

to excess supply. In its newsletter, the Confederation of Irish Industry said that higher interest rates had become ineffective at reducing inflation, while higher taxes had a perverse effect on inflation due to the tax-wage-push channel (*IT*, 02/18/70). And, as noted above, Central Bank Governor Whitaker had cast doubt in 1969 on whether monetary policy could offset the effects of cost pressures on inflation; since monetary policy works on inflation via the aggregate demand channel, this amounts to the claim that inflation is insensitive to the output gap.<sup>15</sup> Nevertheless, in a speech in March 1970, Whitaker expressed some optimism that restrictive monetary actions taken in the United States in 1969 would exert their “full effect” on U.S. inflation during 1970 (*CBIA*, 07/70a, p. 74). Such optimism about the effects of monetary restriction on inflation would become rare in Ireland in subsequent years, no doubt in part because U.S. inflation at the end of 1970 was little different from where it stood at the end of 1969.<sup>16</sup>

During 1970 the Irish Government attempted to establish an incomes policy focused on the labor market. Outside support for incomes policy was substantial: as noted, FitzGerald had called for it; the Irish commercial banks stated that it was “generally agreed that Ireland should have an incomes policy” (*IBR*, 03/70, p. 5), while the *Irish Press* editorialized: “A prices and incomes policy is now recognized as the key to economic and, perhaps, to political stability in any modern state” (*IP*, 06/10/70). Finance Minister Haughey called in April 1970 for unions and firms to reach an agreement to spread out wage increases, which he said would be “essential if present inflationary pressures are to be eased” (*IT*, 04/23/70). The Government spent the following months attempting to secure a voluntary incomes policy via deliberations with employer and labor groups.

The Taoiseach, Jack Lynch, described Ireland’s choices as either a voluntary or compulsory incomes policy: “If a general agreement of this kind is unrealizable, or would be threatened by dissident elements, the only way of securing that general and equitable slowing-down of money income increases which is necessary to control inflation may be to express a statutory limit” (*IT*, 07/29/70). In keeping with this position, when an agreement failed to emerge, Finance Minister Colley announced in October 1970 that the

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<sup>15</sup> The monetary view of inflation implies that a monetary policy that keeps the output gap at zero in the face of a cost-push shock is sufficient to insulate inflation in coming periods from the effect of the shock. It also implies that a still stricter monetary policy, one that makes the output gap negative for a period after the shock, would produce downward pressure on inflation.

<sup>16</sup> As Orphanides (2004) emphasizes, the 1970 U.S. economy was widely misinterpreted as featuring a large degree of spare capacity.

Government would introduce legislation putting a ceiling of 6% on increases in all types of incomes in 1971. Justifying the proposals, Colley said: “This is not a negotiating position by the government—this is it... We have all suffered from a certain amount of madness in the last few years. We are all now trying to restore ourselves to sanity” (*IIND*, 10/17/70a). The *Irish Independent* praised the measure, claiming that “Government action to protect employment and to contain the price spiral was unavoidable” (*IIND*, 10/17/70b). An academic economist, Moore McDowell of University College Dublin, endorsed the incomes policy approach: “no other weapon... would achieve the desired effects... [T]he case for prices and incomes policy is irrefutable.” McDowell specifically applauded the lack of reliance on “fiscal and/or monetary controls” since “these would be ineffective anyway,” as wage growth was insensitive to a slack economy (*IIND*, 10/26/70). The last observation on policy ineffectiveness deserves special note: it was *not* the (reasonable) position that the fixed exchange rate tied Ireland’s hands regarding control of aggregate demand, but instead the cost-push position that, *even if* demand restriction were achieved by Ireland’s policymakers, it would not reduce inflation.

In the event, the Government withdrew its proposed legislation when in December 1970 the union and employer bodies signed a national wage agreement (*IIND*, 12/17/70; *IIND*, 12/21/70). The anti-inflation policy of the government that emerged from 1970 developments was therefore a voluntary, nationwide incomes policy.

Discussions of inflation over 1971–72 turned away from an acknowledgement of an excess-demand element in favor of hard-line cost-push explanations. Ireland’s Economic and Social Research Institute judged that inflation was “almost exclusively ‘cost-push’” (*IT*, 01/29/71). Slower rates of economic growth in 1970 and 1971 seemed to justify an emphasis on factors other than demand, prompting an *Irish Times* analysis in early 1972 to ask, “Why should Ireland suffer from inflation and stagnation at the same time?” The article placed the blame on cost-push forces, especially “the influence of the multi-national companies” whose behavior “upsets established economic laws.” In particular, using a version of the “unit-cost-push” argument,<sup>17</sup> the article claimed that “an important explanation for rising prices in a stagnant economy” is that a “multi-national company is

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<sup>17</sup> This is the argument that, when output is initially below potential, contractions in demand lead to declines in output but not in wages, so that unit costs increase. If, for example, total nominal costs are given by aggregate wage payments  $WN$ , the argument rests on the notions that the nominal wage ( $W$ ) is exogenous and that labor productivity is procyclical (so that  $N/Y$  and  $1/Y$  move together), with the result that unit costs  $WN/Y$  and output  $Y$  move in opposite directions in response to shifts in aggregate demand.

likely to put up its prices when sales are down, in order to keep up its cash flow.” Additional cost-push pressures cited in the article were imported inflation and indirect taxes, the latter operating on inflation partly through a tax-wage-push channel (*IT*, 02/10/72). The *Irish Independent* took a similar view, claiming in an editorial that “tax increases add to inflation pressures” (*IIND*, 04/12/71). So too did an analysis in the *Irish Press*, which claimed: “The old classical theories no longer work. In the past wage demands have tended to diminish... with increasing unemployment; [but] now wages and unemployment rise together” (*IP*, 08/21/72).

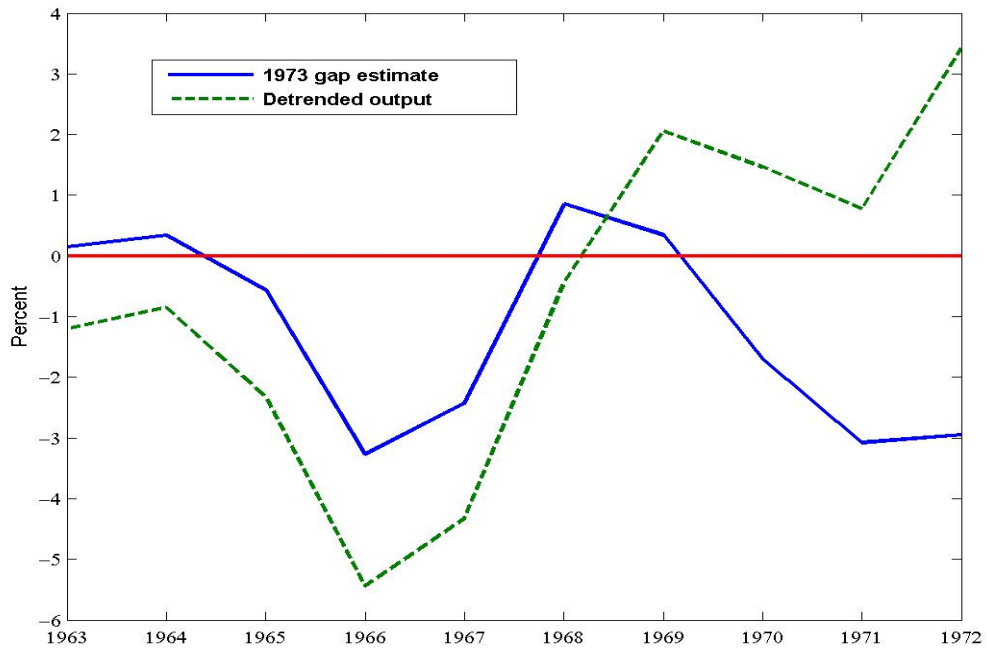
In retrospect, these commentaries attached too much significance to the slowing of real GDP growth in 1970 and 1971. This slowdown certainly occurred, but still left the economy growing at about 3% in both years. The conclusion that it produced a substantial amount of slack was largely due to inflated estimates of potential. Figure 3 shows estimates of the output gap for Ireland to end-1972 published by the OECD (1973) against a measure of detrended output based on late-2005 vintage data.<sup>18</sup> The two series differ in sign during the 1970s. As noted above, the OECD judged that Ireland’s potential growth would be higher after 1970 than previously. This led it to exaggerate the amount of spare capacity in Ireland in 1971 and 1972, an error shared by Irish policymakers.<sup>19</sup> Demand pressure was further underestimated because real GDP growth was consistently under-reported in the early 1970s compared to later revisions (Figure 4).

The Government continued to take actions based on a cost-push view, setting up a National Prices Commission to monitor and authorize price increases (*IIND*, 09/09/71). The *Irish Independent* applauded price control as a “necessary part of an active anti-inflation policy,” of which the other components were restraint of costs and taxes (*IIND*, 10/23/71). Wage-push continued to be the favored explanation for inflation in Ireland during 1971, with the president of the Irish Exporters’ Association claiming that “wage increases must, inevitably, be followed by price increases” (*IT*, 04/07/71), and Garret

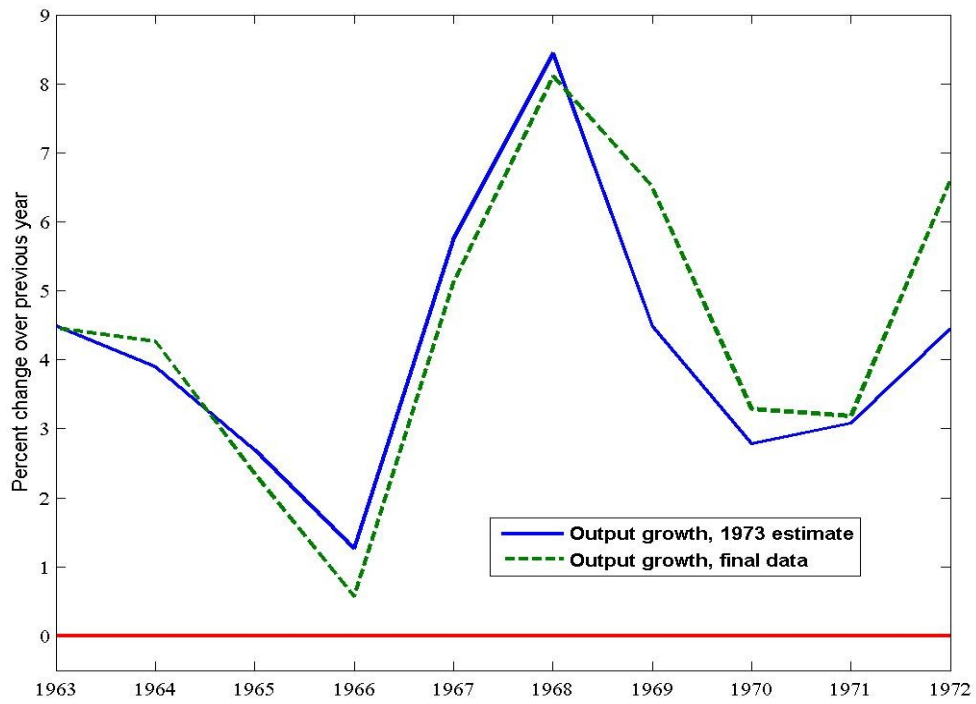
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<sup>18</sup> Figures 3 and 4 are derived from GDP and potential GDP data in OECD (1973), with annual averages taken. The modern vintage of real GDP used is annual data on the *IFS* GDP volume index for Ireland, downloaded December 2005 (along with the data used for Figures 1 and 2). Detrended output consists of the residuals from a regression of the log of this index on a time trend, allowing for intercept and trend breaks in 1974 and 1995, and rescaled into percentage units. Other detrending procedures give similar results for the early 1970s: see Slevin (2001).

<sup>19</sup> The OECD series in Figure 3 has a marginally positive gap on average in 1969 followed by negative gaps in 1970, 1971, and 1972, which is consistent with Finance Minister Colley’s own statement that the economy in 1972 was “for the third year in succession, running at well below capacity” (*IT*, 04/20/72).



**Figure 3. Detrended output vs. 1973-vintage output gap series**



**Figure 4. Real GDP growth: recent vs. 1973 vintage of data**

FitzGerald stating that “slack in our economy is accompanied by inflationary pressures arising from increases in incomes” (*IT*, 04/16/71).

The Government made fiscal policy more expansionary in its April 1972 Budget, whose aim Finance Minister Colley described as one of closing Ireland’s output gap by adding 1.75% to annual economic growth in the following year, with the intention of bringing GDP back onto the path of potential output. Inflation, meanwhile, would be taken care of by wage restraint (*IT*, 05/17/72). The *Irish Independent* applauded the budget measures for their contribution to reducing wage-push pressure: “the prospect of getting a less inflationary National Wage Agreement has been greatly aided” by the Budget’s tax cuts (*IIND*, 04/20/72). It now seems unrealistic for policymakers to have had such confidence in the ability of fiscal measures to stimulate aggregate demand. But the statements on the part of policymakers about the *intended* policy combination—demand expansion alongside incomes policy—reveal that they regarded inflation control as separable from demand management. The OECD itself advocated a strategy of “stronger growth of domestic demand... accompanied by vigorous action to moderate the rise in wages and prices,” its main caveat being that the Government should exercise a sufficiently strict and centralized incomes policy (*IT*, 04/17/72). On a similar note, in 1973 the Central Bank of Ireland posed the question: “How can this winding down of price inflation be achieved? Only by simultaneously keeping up a high rate of economic growth and reducing the rate of money income increases” (*CBIQ*, Spring ’73, p. 5).

Taoiseach Lynch said in February 1972 that “the improving trend is expected to continue in the coming months, so that by the year-end, price increases should be in the region of 5% to 6%” (*IT*, 02/21/72). Instead, four-quarter inflation was above 8% late in 1972. In a retrospective on the year, an *Irish Times* columnist acknowledged that there had been a “strong upsurge in demand” in Ireland, but ruled this out as a source of Ireland’s rising inflation because increasing demand had been alongside a “high level of spare capacity” and rising productivity (*IT*, 12/30/72). Consistent with this, the Central Bank of Ireland stated in November 1972 that the “increase in prices which has taken place during 1972 is attributable largely to autonomous internal cost and external price factors rather than to excess monetary demand” (quoted in *IT*, 02/14/73). So again inflation was blamed on cost-push factors, of which Garret FitzGerald nominated three main elements: continuing pressure from high import price inflation from 1969 to 1971; commodity price inflation; and wage-push (*IT*, 10/21/72). These analyses essentially rationalized the failure of the



nonmonetary approach to inflation control by blaming further nonmonetary sources of inflationary pressure.

In focusing on direct management of wage- and price-setting as their anti-inflation policy, the Irish authorities were following a strategy similar to that being undertaken in the United Kingdom. Discussions in Ireland, however, tended to play down the similarities, and claimed that the particular forms of wage and price control used in Ireland had a better chance of success than their U.K. counterparts. For example, Martin O'Donoghue, the economic adviser to the Taoiseach, argued that there was "ground for greater optimism with the Irish situation" because the National Prices Commission had more "effectiveness" in price control than its U.K. version (*IT*, 12/20/72). Likewise, with respect to wages, it was reported in Ireland that "it is felt that the Government here has been able to achieve what Whitehall [i.e., the U.K. Government] has failed to do—obtain a *voluntary* pay agreement with the unions" (*IIND*, 01/18/73).

In practice, of course, divergences from the United Kingdom in incomes policy were of hardly any relevance for Ireland's inflation outcomes. For Ireland and the United Kingdom continued to move in parallel with respect to their *monetary* policies. Ireland shared in the United Kingdom's major monetary expansion of 1971–73, a result assured by Ireland's commitment to a fixed exchange rate with the pound, which continued even after the U.K. exchange rate floated against other currencies in June 1972. The dangers of the monetary expansion for inflation were not widely appreciated. For example, in mid-1972 the *Sunday Independent's* economics columnist claimed that "from an economic point of view we just don't want or need an increase in interest rates," one of his reasons being the interest cost-push argument that "[i]nterest rates are an element of costs for practically all companies, so if rates go up, so must costs and as a result, prices" (*SI*, 07/23/72).

As the monetary expansion continued, some of the most reasoned and forceful critiques of official attitudes towards inflation emerged. Speaking at a Confederation of Irish Industry conference in early 1973, Professor N.J. Gibson of the New University of Ulster said that he was "very puzzled by so-called explanations of inflation which place little or no emphasis on money in the determination of price levels" (*IT*, 01/24/73*a*). A news report on his speech summarized his argument: "Much official analysis of inflation in the Republic puts undue stress on the cost-push aspects to the neglect of the effects of monetary policy." Gibson noted that Ireland's recent inflation had been against the

background of high money growth rates, leading him to “suspect that inflation is more of a monetary phenomenon than is often allowed, though I doubt the ability of the authorities to do much about controlling money” as long as the fixed exchange rate and free capital movements with the U.K. were maintained (*IT*, 01/24/73*a*). The *Irish Independent* noted some relevant background to Gibson’s position: “Professor Gibson studied under the well-known American monetary economist, Milton Friedman” (*IIND*, 01/24/73).

Gibson’s presentation received a hostile reply from the Government as represented by Martin O’Donoghue (the Taoiseach’s advisor, as noted above), who contended that inflation was instead largely due to wage-push within Ireland, and that monetary restriction was an “unwise” policy compared to the Government’s combination of output expansion alongside incomes restraint (*IT*, 01/24/73*b*). A few months later O’Donoghue wrote that an analysis that “correctly diagnosed the problem” would instead find that “traditional [monetary] methods of dealing with inflation are powerless” because union leaders did not adjust their wage claims in response to rising unemployment (*IT*, 05/14/73).

A related critique of official views on inflation was made by Antoin Murphy of Trinity College, Dublin, in a series of articles for the *Irish Times*. After noting the high double-digit rates of money growth experienced in Ireland during 1972, Murphy observed: “One does not have to be Milton Friedman to conclude that such an expansion in the money supply will raise the price level.” But, on the contrary, Irish monetary analysis and policy had a record of “neglect of the money supply” (*IT*, 02/14/73).

### **3.2 1973–77: Domestic and imported inflation theories**

The Lynch administration was defeated in the February 1973 general election and was replaced by a coalition government, headed by Liam Cosgrave, of the Fine Gael and Labour parties. It was quickly established that the new administration would maintain Ireland’s nonmonetary outlook on inflation. By the time of the Government’s election, food prices had become the most cited cost-push factor, with the Central Bank of Ireland claiming at the end of 1972 that “a major reason for continued price inflation has been the rise in food prices” (*CBIQ*, Winter ’72, p. 6), and the *Irish Independent* contending in April 1973 that food price increases were “the main cause of the inflation rate at the moment” (*IIND*, 04/10/73). The Government announced that sales taxes on food would be removed in September and, in anticipation of this, imposed a food price freeze in June

1973 (*IIND*, 06/27/73). The Government gave a target CPI inflation rate of 5% per year or less as the intended result of these and other measures (*IIND*, 06/28/73).

In a lengthy interview with the *Irish Independent* in August 1973, the new Minister for Finance, Richie Ryan, reaffirmed the earlier diagnoses: “The factors contributing to inflation here are ones which we recognized. They are mainly on the food front” (*IIND*, 08/15/73). Ryan added a further nonmonetary dimension to the analysis through his enthusiasm for the “unit-cost-push” view of inflation (which contends that demand restriction, by being effective in restraining output but not costs, *raises* inflation). “Now, where we have control over inflation,” Ryan began, “it is in relation to our own input—our own unit costs of production. One of the reasons why these have tended to increase in recent years is because we have been working under capacity. I think if you look at the figures you’ll see that, in fact, the most significant increases in unit costs have occurred where we have been working under capacity, other than the year 1969, where we had a rather sudden inflationary spiral along the wage front.” Continuing along these lines, Ryan saw demand stimulation as a key part of fighting inflation: “we are going to achieve full capacity this year... I think towards the end of the year you will see a reduction in the rate of inflation” (*IIND*, 08/15/73).

In retrospect, Ryan’s analysis was exactly backwards: Ireland’s inflation reflected extended periods of excess, not deficient, demand. Ryan’s failure to recognize this reflected his nonmonetary view of inflation, since under the monetary view inflation and negative output gaps cannot exist in combination on a sustained basis. Output had probably already passed potential, so that instead of the gap closing in 1973, the output gap was becoming even more positive. But cost-push advocates, blaming inflation on special factors such as food and wage-push, could not deduce from high inflation rates the true excess demand picture.

But outside discussions at the time lent much support to Ryan’s position—even if this meant singling out Ireland’s inflation as different in character from that in other countries. For example, the *Irish Independent* stated in late 1973: “The causes of inflation are very different in different countries. There is a strong argument that heavy deflation policies affecting demand are not of major relevance in [solving] the current situation in Ireland” (*IIND*, 11/13/73). Similarly, the Irish commercial banks criticized the acknowledgement of a role for demand restriction in inflation control that had come out of a meeting of EEC finance ministers. The Irish banks argued instead: “The causes

of inflation vary greatly in different countries and the appropriate remedial measures must also vary... Rising food prices have been the major cause of the rapidly rising overall price level in Ireland. To an extent this has reduced the effectiveness of policies of demand restraint as an anti-inflation weapon,” with such restraint uncalled for, the banks added, because the Irish economy was below full capacity (*IBR*, 12/73, p. 24). Joe Durkan, the research officer of Ireland’s Economic and Social Research Institute, similarly claimed that “maintaining domestic demand at a high level [in 1973] contributed to reducing the rate of increase in unit wage costs... a necessary condition for keeping inflation at 11% rather than very much higher” (*IT*, 12/24/73).

As the 11% figure given by Durkan indicates, the fall in inflation to 5% which the Cosgrave Government had forecast did not occur; instead, inflation had risen over 4 percentage points in 1973 (most of the rise taking place prior to the start of OPEC’s measures). But, as in 1972, failure to control inflation led most observers simply to add more cost-push explanations (of which the OPEC shock was a natural candidate). The one policy option that had the prospect of decisively reducing Ireland’s inflation rate—namely, a restrictive Irish monetary policy, effected by breaking the link with U.K. monetary policy—was, as the quotations above indicate, regarded at the time as one likely to raise, not lower, inflation.

The way in which inflation developments were scrutinized came to take a specific form. The period 1974–76 saw the zenith in official and unofficial Irish commentary of the distinction between “international” and “domestic” causes of inflation—the former supposedly impossible for the Government to control, the latter allegedly suitable to control via nonmonetary methods.<sup>20</sup> For example, the *Irish Independent* editorialized in early 1974: “The real lesson of a study of the causes of inflation is that we must do everything possible to control the domestic causes, which do lie within the capacity of the Government to influence and moderate,” leading it to argue that the “Government must give priority to avoiding any further tax increases which would lead directly to further pressure on prices” (*IIND*, 02/07/74). The Taoiseach, Liam Cosgrave, used the domestic/international distinction to blame three-fifths of 1974’s 17% inflation rate in Ireland on import price inflation (*IIND*, 02/11/75). Symmetrically, the fact that inflation rose in 1975—to a four-quarter peak rate of about 25%—while import price inflation

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<sup>20</sup> Walsh (1983, p. 167) notes that this analysis was prevalent in Ireland after 1970; and in 1972, as we have seen, Garret FitzGerald was dividing inflation into domestic and imported components. But the volume of discussions of this type was highest in the years following the first oil shock.

subsided was seen as changing the character of inflation to “domestic,” and so allegedly making inflation susceptible to reduction through incomes and tax policies. Cosgrave outlined this position in March 1975, claiming that the “relative importance of these different factors is changing radically... Now the predominant causes of inflation are domestic. We are, as a nation, paying ourselves too much” (*IT*, 03/24/75). Reinforcing this message, Central Bank Governor Whitaker said that “increases in money incomes have been the most important *domestic* source of inflation” (*CBIA*, Spring ’75*b*, p. 127).

The newly emphasized breakdown of inflation into two types did little to raise the prominence of demand restriction as part of a solution. The *Irish Independent* reaffirmed that “cutting demand and spending... would not have all that much effect on the prices situation” (*IIND*, 10/22/74)—with the implied acknowledgement of *some* effect reflecting the fact that Irish observers realized that output had probably exceeded potential in the 1973–74 boom.<sup>21</sup> As for whether moving the output gap from zero to negative would contribute to inflation reduction, Finance Minister Ryan, as we have seen, explicitly rejected this notion in 1973, and in 1974 he again denounced “resort to contractionary policies” (*IT*, 10/25/74), claiming that “orthodox cures... would aggravate rather than ameliorate our problems” (*IP*, 07/19/74). Governor Whitaker further bolstered the position that inflation did not respond to negative gaps in a speech in November 1975 (*CBIQ*, Winter ’75*a*). Whitaker drew his audience’s attention to an article by J.R. Hicks entitled “What Is Wrong with Monetarism,” and gave it the official seal of approval by reprinting it in the *Central Bank of Ireland Quarterly Bulletin* (*CBIQ*, Winter ’75*b*). Hicks’ article emphasized the insensitivity in modern economies of wage inflation to excess supply. Governor Whitaker took the message of this analysis to be that “cost inflation... can be an independent cause of inflation and that this creates a problem for which the monetarist prescription is inappropriate” (*CBIQ*, Winter ’75*a*, p. 72).<sup>22</sup> Whitaker accordingly expressed the hope that future national wage agreements would be subject to greater government control: “I am certainly not happy about leaving the most important influence on the whole economy and its future—the rate of [wage] increase in money terms—entirely to employers and employees” (*SI*, 04/27/75).

Of course, no means of engineering a sizable contraction of demand was really available to Irish policymakers as long as they adhered to a fixed exchange rate. But it was *not* the

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<sup>21</sup> For example, Governor Whitaker said in 1975 that “1973 was a year of unsustainable boom conditions from which there had to be a decline” (*SI*, 04/27/75).

<sup>22</sup> In 1983, former Governor Whitaker identified this speech as the definitive record of official views of monetary policy as of 1975 (Whitaker, 1983, p. 181).

case that it was widely accepted that a floating exchange rate (or a more flexible, managed exchange rate) was a necessary part of the solution for inflation. Finance Minister Ryan asserted that there were “other and more realistic ways of putting our house in order” (*IT*, 05/15/75a). The *Irish Independent* likewise argued that there was “much force in the Central Bank viewpoint that until such time as we get our own inflation under control and below Britain’s, we cannot afford to consider breaking with sterling” (*IIND*, 05/20/75). This was indeed the Central Bank’s position, which it reaffirmed in 1976 (*CBIA*, Spring ’76, p. 11), and the position was shared by the economic policy spokesmen of both major political parties (*IT*, 05/15/75a; *IT*, 06/13/77) as well as by the *Irish Times* (*IT*, 05/15/75b). It was left to a letter to the editor that appeared in the *Irish Times* to expose the fallacy in this widely held position:

In recent editorials you have argued that new exchange rate arrangements, involving an end to the sterling parity, should not be undertaken until such time as the rate of inflation in the Republic can be reduced substantially below the British rate. Surely this is a *Catch 22* type of argument. The principal motivation for a break with sterling is precisely that there can be no substantial divergence between our rate of inflation and the British rate until the sterling link is broken (*IT*, 05/21/75).

This critique was valid, but in 1975 the cost-push view of inflation seemed to justify the Government’s position. According to that view, domestic costs and prices can be manipulated directly irrespective of the Government’s monetary and exchange rate policies; and aggregate CPI inflation can be controlled by influencing a portion of the index.<sup>23</sup>

To this end, the Government in 1974 and 1975 adopted a barrage of nonmonetary devices to reduce inflation: cuts in indirect taxes; food price subsidies; and efforts to negotiate a wage/tax trade-off. Finance Minister Ryan said after over a year of such measures: “There is a general realization that a moderation of income increases is a major weapon in our war on inflation” (*IIND*, 10/15/75). In early 1976 Ryan suggested that the

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<sup>23</sup> Cost-push views also likely blocked policymakers from accepting the constraints of the exchange rate on demand management policy. While acknowledging that the fixed exchange rate obligation entailed surrender of “interest rate policy and open market operations,” the Central Bank of Ireland argued that it could exercise quantitative controls on “money supply and domestic credit” (Banking Department, 1979, pp. 152, 145). But monetary policy measures that are likely to matter for aggregate demand are precisely those that affect “interest rate policy and open market operations”; in the absence of these effects, an impact on aggregate demand is unlikely. A cost-push perspective, however, implied that higher nominal interest rates did not need to be part of an anti-inflation package; successful incomes policy would be sufficient to restore inflationary expectations and real interest rates to pre-Great Inflation levels, even with nominal interest rates constant.

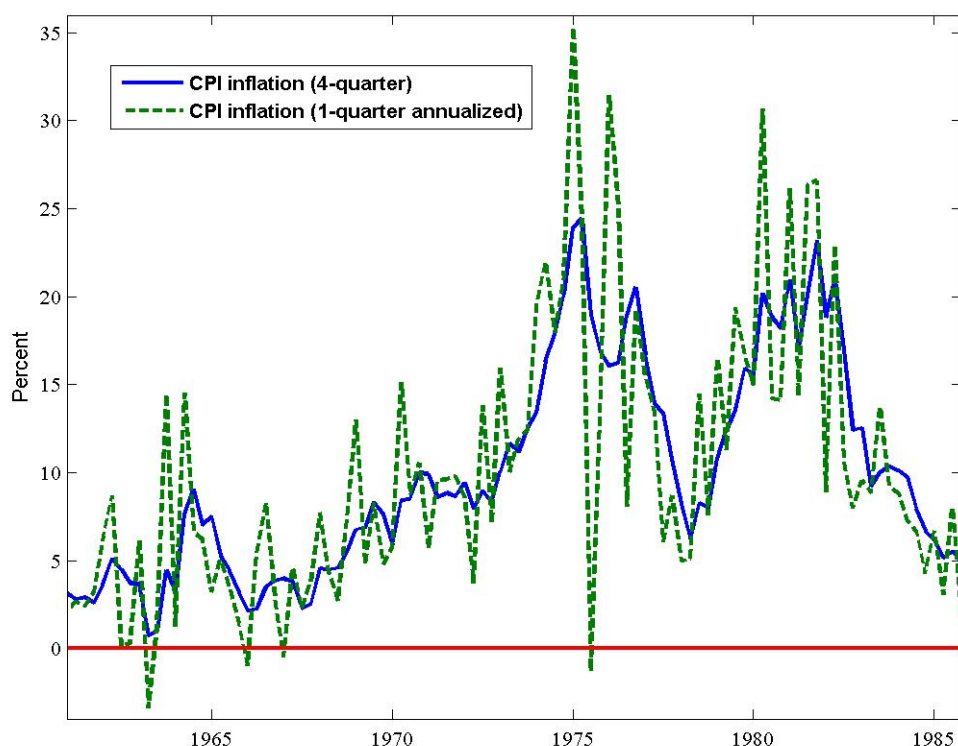
Government might increase its legal powers over wages if necessary: “If we can eradicate from our society the selfish grabbing and squabbling of sectional interests and replace it with a spirit of comradeship and common interest, we could make this little country of ours a really worthwhile place to live” (*IIND*, 03/10/76). Statements like this confirmed the criticism that Antoin Murphy had made of economic policy: “If one accepts the monetarist line of reasoning, then recent statements by the Minister for Finance and the Taoiseach are most difficult to understand” (*IIND*, 10/14/74).

Of the Government’s nonmonetary measures against inflation, the subsidies and indirect tax cuts actually had a detectable impact on the CPI, which fell in absolute terms in mid-1975 (*IIND*, 09/18/75)—visible in the negative quarterly inflation rate in Figure 5. The wage-price spiral view underlying the measure, however, saw these price cuts as permanently lowering inflation by providing a circuit-breaker for the spiral. Their effect instead was more in line with the monetary view’s position that such price cuts would affect inflation in the desired direction only temporarily. A once-and-for-all shift in the price level, unaccompanied by monetary measures, should not alter the trend of the price index.<sup>24</sup> This episode is reconsidered in this light in Section 5 below.

The flawed policies that arose from domestic/imported inflation decompositions underscore the pitfalls of such an approach. It is possible, in models with imported consumer goods, to make a legitimate distinction between the portion of the Phillips curve that is also present in closed-economy analysis and the extra term (involving import prices or the exchange rate) implied by the presence of imports. Properly used, such distinctions do not deny that monetary policy determines the behavior of the aggregate CPI; rather, the terms in the Phillips curve describe the various channels through which monetary policy impacts on inflation (see e.g. Svensson, 2000). But mid-1970s discussions in Ireland failed to reach this conclusion, and instead used the decomposition to argue in favor of nonmonetary approaches to inflation control. In particular, the decomposition gave rise in Ireland to the fallacious view that once monetary policy has been assigned to maintaining a fixed exchange rate, there remains scope for policymakers to influence aggregate CPI inflation via direct intervention in the pricing of domestic goods and labor.

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<sup>24</sup> The monetary view of inflation therefore provides no support for the notion that “once-and-for-all reductions in prices could also help to curb the growth in money incomes,” a sequence advanced by the *Irish Times* in its defense of the Government’s strategy (*IT*, 06/16/75).



**Figure 5. CPI inflation in Ireland 1961–85**

This approach also gave rise to an understatement of the potential improvement in CPI inflation available under a flexible exchange rate regime. The decomposition was taken to imply that improved inflation performance was dependent on import price inflation becoming lower under such a regime.<sup>25</sup> By contrast, as stressed in Section 2.3, a focus on the aggregate demand implications of an exchange rate regime, combined with a monetary view of inflation, stresses that aggregate price level behavior is determined once a fixed exchange rate policy has been adopted. The aggregate’s behavior is determined by the output gap path implied by the exchange rate policy; incomes policies will be ineffective in manipulating the aggregate. Conversely, the domestic control over aggregate demand implied by a flexible exchange rate regime implies that aggregate CPI inflation can be controlled by monetary policy irrespective of the behavior of import

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<sup>25</sup> For example, Governor Whitaker said in 1973 that “to the extent that tradable goods constitute a large proportion of domestic expenditure, revaluation would tend to be a powerful anti-inflationary weapon” (*CBIQ*, Winter ’73, p. 72; also quoted in Walsh, 1983, p. 166). If, as argued in Section 2 above, imports should be modeled as an intermediate good, the expenditure share cited by Whitaker is *zero*, not *sizable*; yet a floating exchange rate continues to confer on a country the ability to set an inflation rate of its own choosing.



price inflation. It is legitimate, in fact, to regard Ireland's CPI inflation in the 1970s as *wholly imported*—in the sense that having assigned monetary policy to pursuit of a fixed exchange rate, policymakers had no further means of affecting inflation. It is also legitimate to label Irish inflation as *wholly domestic*—in the sense that the way fixed exchange rates matter for inflation is via implying a certain demand policy for Ireland. But it is less useful to treat inflation as a combination of domestic and imported factors, as this classification scheme obscures the key point that the choice of monetary policy regime implies a path for aggregate CPI inflation.

The Government's policies drew heavy criticism, of course, but some of this criticism in effect accepted many of the Government's premises regarding how to control inflation. For example, a report on Ireland's economy by the McKinsey and Co. management consultancy was described as one that "severely criticizes the Government's policies." But having criticized the *status quo*, the report made recommendations that were actually within the prevailing nonmonetary framework, with a key proposal being that the "centerpiece of economic management" should be an agreement with unions for wage restraint in exchange for tax cuts (*FT*, 11/02/76).

Further dissent from the Irish Government's position on inflation, but in the direction of a more valid and orthodox analysis, came in 1975–76 from the National Economic and Social Council (NESC), a state-financed but independent body. It commissioned a book-length study (Morgan, 1975), which was published in October 1975 and rejected the cost-push view of inflation (*IIND*, 10/22/75).<sup>26</sup> The NESC itself tried to reconcile the wage-push and monetary views of inflation by portraying Irish monetary policy as having accommodated wage pressures (*IT*, 10/08/76). If anything, this position was too generous to the wage-push view of inflation.<sup>27</sup> But the Government's own position amounted to a rejection of the NESC's emphasis on the role of monetary ease in producing inflation. Following the appearance of the NESC report, the Government was reported as interested in dissolving the NESC (*IT*, 10/09/76).

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<sup>26</sup> Among Morgan's differences with official positions were his observations that very little in the way of negative output gaps had arisen in the early 1970s; that Ireland's wage inflation developments reflected market forces rather than independent wage-push; and that the "usefulness of incomes policies and social contracts therefore appears very doubtful" (Morgan, 1975, pp. 197, 203, 205).

<sup>27</sup> As emphasized by Darby and Lothian (1983), descriptions of the 1970s inflation in terms of monetary accommodation of wage or commodity-price developments are typically at odds with the evidence on the lags observed between monetary expansion and inflation. In Ireland's case, furthermore, the fixed exchange rate foreclosed the authorities' ability to time monetary expansion in such a way that it occurred when domestic wage-push forces were supposedly present.

In late 1976, Garret FitzGerald (who had become Foreign Minister in the Cosgrave Government) described new incomes policy proposals by the Government as “designed to achieve in the years ahead a rapid rate of growth and moderation of excessive price increases” (*IT*, 09/14/76). FitzGerald later added that the depreciation of the U.K. pound (and so the Irish pound) had been “a powerful inflationary factor,” and that the alternative to incomes policy was “reinforcement of imported inflation by domestic inflation [which] will keep the inflation rate at a disastrously high level” (*IT*, 11/12/76).

FitzGerald also said that the level of potential output had undergone a downward shift after 1973, but did not suggest that a slowdown in trend growth had occurred (*IT*, 06/23/76). In fact, a slowdown of long-term growth had occurred in Ireland, although a muted one by international standards (see Figure 1). For the United States over the mid-1970s, Orphanides (2003) emphasizes policy errors that arose from the flawed output gap estimates entering the monetary policy rule in the wake of the post-1973 slowdown. Because Ireland’s policy rate was essentially pinned down by the behavior of the U.K. rate, discretionary responses by Irish policymakers to their output gap estimates appear unlikely to be an important reason for monetary policy errors in the mid-1970s. Rather, it is likely that output gap mismeasurement had effects in Ireland by making nonmonetary theories of inflation plausible, encouraging policies based on those theories, and shifting attention away from anti-inflation proposals based on greater exchange-rate and interest-rate flexibility.

Wage- and tax-push views of inflation continued to guide the Government’s policies into 1977, with Taoiseach Cosgrave stating in May 1977: “If we pay ourselves too much, we automatically drive up prices,” and “extra taxation causes inflation, directly and indirectly” (*IT*, 05/23/77). The following month, the Cosgrave Government was defeated in a general election.

### **3.3 1977–82: Moving to disinflation**

The outcome of the 1977 election was the return to office of Taoiseach Lynch and Finance Minister Colley, while Martin O’Donoghue joined the Cabinet as an additional macroeconomic planner. The new Lynch Government introduced a guideline of a maximum 5% per year increase in wages for 1978 (*IT*, 09/19/77), and also aimed for 7% per year growth in output, to be achieved by fiscal expansion (*IT*, 01/24/78). The Government also retained the fixed exchange rate with the United Kingdom. Typical

retrospectives on the events in 1977 and 1978 criticize Irish policymakers for expanding demand too aggressively through fiscal policy (e.g. Lee, 1989, pp. 487–89). But as the fixed exchange rate was retained throughout these years, a more valid criticism is that the Irish Government overestimated Ireland’s scope for determining aggregate demand and inflation by policies independent of those that maintained the fixed exchange rate.

As it was, falling price inflation in 1978—most likely a delayed reflection of the contractionary monetary policy which the United Kingdom and Ireland shared during 1976—encouraged policymakers in both countries to believe in the success of the nonmonetary measures pursued against inflation so far,<sup>28</sup> and that low wage inflation outcomes were feasible in 1978. In fact, the U.K.’s monetary easing after 1976, inherited by Ireland, made such outcomes infeasible. In Ireland, after the 5% wage growth target for 1978 had been breached, Taoiseach Lynch in 1979 arranged a “National Understanding” with union leaders. The new agreement aimed to deliver restraint in wage growth in exchange for tax rebates (*IIND*, 10/25/79).

When the United Kingdom decided in late 1978 not to join the European Monetary System (EMS), the Irish Government finally decided to break its traditional link with the U.K. currency (*IIND*, 12/16/78). The Government introduced foreign exchange controls regarding transactions with the United Kingdom at the end of 1978, and proceeded to join the exchange-rate mechanism when it began in March 1979, thereafter floating against the U.K. currency. EMS membership was an appealing alternative to the traditional arrangements because, as the *Irish Independent* put it: “By joining the European currency arrangements, we would be much more influenced by the European inflation rate—which has been much lower than the British inflation rate” (*IIND*, 07/17/78).

That said, Ireland’s decision to enter the EMS did not amount to a sudden conversion on its leaders’ part to the need for Ireland to follow a tighter monetary policy to fight inflation. Rather, EMS membership had logic as an anti-inflation measure both from the monetary perspective on inflation—since it effectively gave Germany’s non-inflationary monetary policy a heavy influence over Ireland’s interest-rate choices; and from the prevailing nonmonetary perspective—since the import-price-push view of inflation saw exchange-rate stability with key European currencies (in contrast to the depreciations that

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<sup>28</sup> As late as 1990, Martin O’Donoghue said that “the success of the initial tax- and cost-cutting actions... saw inflation [in 1978] down to half its 1977 level” (O’Donoghue, 1990, p. 311).

had been implied by the sterling link) as automatically restraining inflation. In addition, there existed a number of factors which made EMS entry attractive to Ireland, without implying any change in Irish policymakers' thinking about inflation. These included the EEC subsidies that Ireland would receive upon EMS entry, and the belief that joining the EMS would reduce Ireland's dependence on the U.K. for trade.

The Irish Government in the early EMS period gave increasingly mixed messages about the role of incomes policy. It did not make clear whether incomes policy was designed as an anti-inflation measure, as before, or whether EMS membership itself tied down Ireland's inflation rate, whereupon incomes policy presumably had a role in reducing labor market frictions. For example, in June 1978 Lynch stated unambiguously that excessive wage increases caused inflation (*IT*, 06/29/78), but in December 1978 sketched a possible scenario under the EMS arrangements: "If prices cannot be raised to match cost increases, the consequence can only be unemployment" (*IT*, 12/16/78). On the whole, strong elements of cost-push analysis did survive into the early 1980s in Ireland, under a succession of governments. Thus, when Garret FitzGerald first became Taoiseach in 1981, the policy platform agreed upon by his coalition stated: "The Government's second major task is the reduction of inflation... The critical part of this process will be the central pay norms established between trade unions, employers, and the Government as an employer... With a view to holding back price rises... the Government will, during this period, subsidize key foodstuffs" (*IT*, 06/29/81).

Inflation exceeded 20% during both 1980 and 1981. At the time, the worsening was partly attributed to the U.K. pound appreciating against Ireland's currency. A more satisfactory explanation, however, is that the high double-digit inflation rates in both Ireland and the United Kingdom reflected delayed reaction to the U.K.'s late 1970s monetary expansion, which had occurred while Ireland was still linked to sterling.

Irish monetary policy did tighten considerably in the early 1980s. Naturally, much of this reflected the constraints of EMS membership. But in addition to EMS membership, another important influence on Irish policymakers was the widespread emphasis on monetary policy in fighting inflation—an emphasis prevalent not only in Germany, but now the United Kingdom and the United States too. While EMS membership was a constraint on Irish monetary policy, it was not an obligation that eliminated all discretion. Rather, as they acknowledged, Irish policymakers in the early 1980s now had some choice over short-term interest rates, thanks to the new foreign exchange controls on U.K.

transactions and the exchange-rate bands permitted by the EMS (*IBR*, 06/82, p. 18).<sup>29</sup> Ireland's inflation outcomes would depend in part on how they used this new discretion. And in 1981 policymakers used it in the direction of tightening monetary policy, prompting the *Irish Times* to note: "the Central Bank raised its key money-market rate by ½% to 15%... Interest rates have been a primary weapon of economic policy in Britain and the United States for some time... [but] hardly figured in Ireland" (*IT*, 07/25/81). The Governor of the Central Bank, T.F. Ó'Cofoigh, noted in 1982 that "the Bank can exercise some discretion as to the level of interest rates" and that Irish interest rates had only recently become positive in real terms (*CBIQ*, Summer '82, p. 50). Thus an important event over this period in turning around Ireland's inflation performance was greater acceptance within Ireland of the links between monetary policy and inflation, operating via the demand channel.

In late 1983, the Central Bank, in contrast to its analyses during the 1970s, gave a monetary explanation for inflation: "Progress in reducing inflation internationally is attributable, for the most part, to the anti-inflationary policies adopted in the post-1979 period" (*CBIQ*, Autumn '83, p. 29). Ireland's own disinflation was delayed compared to the other countries, with four-quarter inflation falling substantially from late 1982 and falling below 5% in late 1985.

#### **4. Switzerland**

This section considers the Swiss record, starting with the period 1970–74.

##### **4.1 1970–74: From nonmonetary to monetary views of inflation**

In a brief outline of pre-1974 Swiss monetary policy, Rich (2003, p. 7) argues that the Swiss National Bank (SNB) subscribed to a standard, monetary view of inflation. But an examination of the statements of senior SNB officials during the early 1970s instead suggests that their views of the inflation process had adopted major nonstandard, cost-push elements by 1970, and were strongly nonmonetary in outlook during 1971–72.

For example, in a speech in December 1970, the SNB's President, Edwin Stopper, argued that the economy was in a "phase of cost inflation," and criticized the use of monetary restriction against such inflation, as monetary methods "are suitable mainly for achieving

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<sup>29</sup> Browne (1986) finds empirical support for the existence of this greater autonomy.

a removal of excessive demand.” Stopper pointed to “the absence of effective methods which act directly on cost developments,” and argued that in future Swiss policymakers “must increasingly apply means which more directly suppress cost increases.” Predictably, Stopper saw incomes policy as able to achieve such a task, with the “most important component of incomes policy in the phase of cost inflation” being “getting those involved in the production process to renounce wage and price increases that are not caused by excessive demand.” While again emphasizing that it was “most difficult” to fight cost inflation by demand restriction, Stopper acknowledged that such a strategy was at least feasible, with “the weakening of the forces causing cost increases... primarily achieved via a certain amount of under-production” until such time as incomes policy provided the means of fighting cost inflation directly (December 11, 1970, speech, in *AUP*, 12/29/70, *a.t.*).<sup>30</sup>

This speech reveals a hybrid of monetary and nonmonetary views regarding inflation. It implies that Swiss policymakers believed that, if monetary policy kept the output gap constant at zero, persistent inflation could still arise from cost-push forces. In terms of equation (2), they believed that  $\mu_{u,t} > 0$  and  $\rho_u > 0$ , both inconsistent with a monetary view of inflation. On the other hand, the explicit statement by Stopper that negative output gaps could offset some of the impact of the cost-push shocks on the overall inflation rate amounted to an acknowledgement that inflation was responsive to the output gap, i.e. that  $\alpha > 0$ —although he also said that “the traditional means of lowering inflation have become less effective” (*a.t.*), suggesting that the SNB in 1970 believed  $\alpha$  had become smaller than in earlier periods. The policy recommendations in Stopper’s speech reflected the underlying mixture of monetary and nonmonetary views of inflation—with the speech arguing (contrary to the monetary view) that direct actions on prices and wages are desirable as a *substitute* for monetary actions against inflation, while accepting (contrary to the *nonmonetary* view) that keeping output below potential can produce some downward pressure on inflation.

From early 1971, Stopper and other SNB officials adopted a stricter cost-push view of inflation, whereby demand restriction could no longer hope to offset the forces driving up inflation.<sup>31</sup> In an April 1971 speech, Stopper conceded that excess demand had been an

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<sup>30</sup> The abbreviation “*a.t.*” is used here after quotations that are the present author’s translations of German-language material.

<sup>31</sup> This conversion paralleled in timing that taking place in the United States in the same period, although even the views offered by Stopper in 1970 already had more cost-push elements than those offered by U.S. officials in the same year. See Romer and Romer (2002) and Nelson (2005a) for details.

element in initially raising inflation and so allowing “its present scope and nature.” But he claimed that wages in Switzerland had now become insensitive to market forces and were acting as a permanent obstacle to the removal of inflationary pressure. This was because once inflation started, “wage-earners, in particular, forced through further compensation for their services. And these have to be granted, as a precondition for goods to be produced for the market. This process prolongs the rise in costs and prevents inflation from being brought down again.” (*NZZ*, 04/03/71, *a.t.*). Similarly, the Swiss National Bank’s report on the year 1971 stated: “The rise in prices was in large part caused by the persistent increase in wage costs” (*SNBA* ’71, p. 20, *a.t.*).

A hard-line cost-push view continued to prevail among Swiss policymakers over 1971 and 1972. SNB Council member Fritz Leutwiler said in 1971 that the remedy for inflation was available in “efforts to restrain the battle for the distribution of national income, by encouraging a dialogue of the social partners... In the long term we should look at amending the Constitution with an article on economic policy, using this to create legal standards which set boundaries on economic behavior in such a way that essential economic policy goals become achievable” (*NZZ*, 05/09/71, *a.t.*). In September of the following year SNB President Stopper reaffirmed the need for incomes policy, and said that near-automatic indexation of wages was “virtually promoting inflation” (*NZZ*, 09/13/72, *a.t.*), some of this occurring through a sales tax-wage-price spiral (*FZ*, 09/25/72). Reflecting the wage-push view, the Swiss Government attempted in late 1972 to persuade its employees to have their year-end bonuses postponed, an action which was reportedly intended as “an example for their countrymen in the fight against inflation” (*NYT*, 02/11/73). Limited price controls were also in force by late 1973 (*CSM*, 10/27/73).

A front-page editorial in the *Neue Zürcher Zeitung* made the important criticism of policymakers’ emphasis on indexation as the source of inflation. The editorial noted that wage bargaining in real terms did not imply that the market mechanism was being distorted: “under the given conditions [i.e., of inflation], rational agents will want to keep the effects of inflation away from themselves” (*NZZ*, 11/22/72, *a.t.*). In addition, contrary to the impression given by Stopper and others, a close linkage (other things equal) of wages to prices is not, of course, a reason for doubting that wages and prices—and so inflation and expected future inflation—adjust to the aggregate demand conditions created by monetary policy.

Some reporting in the *Neue Zürcher Zeitung* into 1973 shared the mechanical view of inflation that the newspaper had justly criticized, with one article listing wage growth and import price increases as epitomizing the “influence of nonmonetary factors on the price level” (*NZZ*, 04/20/73, *a.t.*), overlooking the endogeneity of these variables, and uncritically seeing import prices as automatically implying ongoing inflation, through an import price-CPI-wage spiral channel.

The SNB did make monetary policy much tighter over 1972 and 1973. The existence of extensive and variable foreign exchange controls gave the Swiss authorities considerable autonomy over domestic short-term interest rates, transformed to full autonomy by the floating of the Swiss franc in early 1973. In 1972 the SNB used this autonomy to adopt a more restrictive monetary policy. This action did not constitute a repudiation of cost-push views; rather, it represented the early recognition of excess demand pressures. Switzerland was the *only* country of those considered in Figure 1 for which the OECD (1973, p. 64) reported that output gaps in 1972 were positive. As emphasized in Section 3.1, even cost-push analysis assigned a role to aggregate demand tightening when faced with a positive output gap, and the policy tightening in 1972 reflected this logic.

In the course of 1973 and 1974, there took place a more fundamental change in the authorities’ views on inflation toward support for the monetary view. This change probably reflected evidence from both real and nominal variables. Regarding real variables, the aforementioned OECD (1973) gap estimates actually suggested that Switzerland’s output gap had been positive since early 1969, and generally growing. To the extent that the SNB in 1973 shared this conclusion, the judgment would have contradicted earlier characterizations of 1970 and 1971 as years of high inflation and weak growth (e.g. *NZZ*, 11/19/71). The retrospective judgment that the gap had been strong reduced the need for cost-push explanations for Switzerland’s inflation.

The evidence from nominal variables that was uppermost in the SNB’s analysis was that on the connection between Switzerland’s money growth and inflation rates. While Fritz Leutwiler (who became SNB President in 1974) would later stress that “we were never strict, doctrinaire monetarists” (*NZZ*, 04/27/79, *a.t.*), Kurt Schiltknecht (1976, 1980), his Chief Economist, acknowledged the weight that the observed closeness of inflation to money growth had in shaping Swiss monetary policy from 1973 onward.



The clear shift from late 1973 toward more orthodox views on inflation was evident also in several prominent discussions outside the SNB. An important contribution was an article that appeared in both the Swiss and German press by Professor F. Aschinger entitled “Rising Prices Aren’t Always Inflation.” Aschinger distinguished inflation, which he defined as a state of “monetary demand exceeding the economy’s supply of goods,” from *Teuerungen*, or “rising prices,” the term traditionally used in German-language discussions of inflation. Aschinger observed: “We’ve gotten used to regarding rising prices and inflation as interchangeable... But rising prices aren’t always inflation. As well as price rises associated with inflation, there can be price increases caused by a supply shock or by structural changes on the supply side.” (*NZZ*, 11/20/73, *a.t.*).

Aschinger’s categorization of price-level shocks as supply shocks is restrictive compared to the monetary view of inflation as defined in Section 2.1 above, which allows for price-level shocks to have an impact effect on inflation (via the  $u_t$  term) for a given output gap. But just as in Aschinger’s example, these shocks should not be regarded as able to produce ongoing inflation; instead, from equation (3), it is monetary policy permissiveness—allowing a positive output gap to emerge from either a cost-push or supply-shock event—that raises expected inflation. A common fault of Irish policymaking throughout the 1970s and Swiss policymaking in 1970–73 was the illegitimate belief that price-level shocks automatically trigger inflation spirals.

An indication of the monetary perspective on inflation control prevalent among Swiss officials by 1974 was given by Max Zumstein, of the Swiss Government’s Agency for the Surveillance of Prices, Wages, and Profits. In other countries (such as Ireland), agencies like Zumstein’s were perceived as having the ability to fight inflation directly, without reference to monetary policy; and as we have seen, earlier in the 1970s the SNB had lent credence to the view that wage-price control agencies had just this ability. Zumstein, however, in reply to a critic of the Swiss Government, emphasized that the Government now did *not* take this view:

Gehrig advances the criticism that the monetary dimension [of inflation control] has been neglected. He notes that inflation in the wake of supply-side shocks can only take place with monetary accommodation. We are in full agreement with this position; it is true for demand-side shocks too. Where we disagree is with his claim that the monetary aspect has been ignored [by the authorities]. It has in fact been explicitly acknowledged by the authorities that they can insulate the economy from a supply shock by holding to a firm traditional stabilization policy. That amounts to the same thing as the position that inflation following a supply shock is only possible with monetary accommodation. (*NZZ*, 08/20/74, *a.t.*).

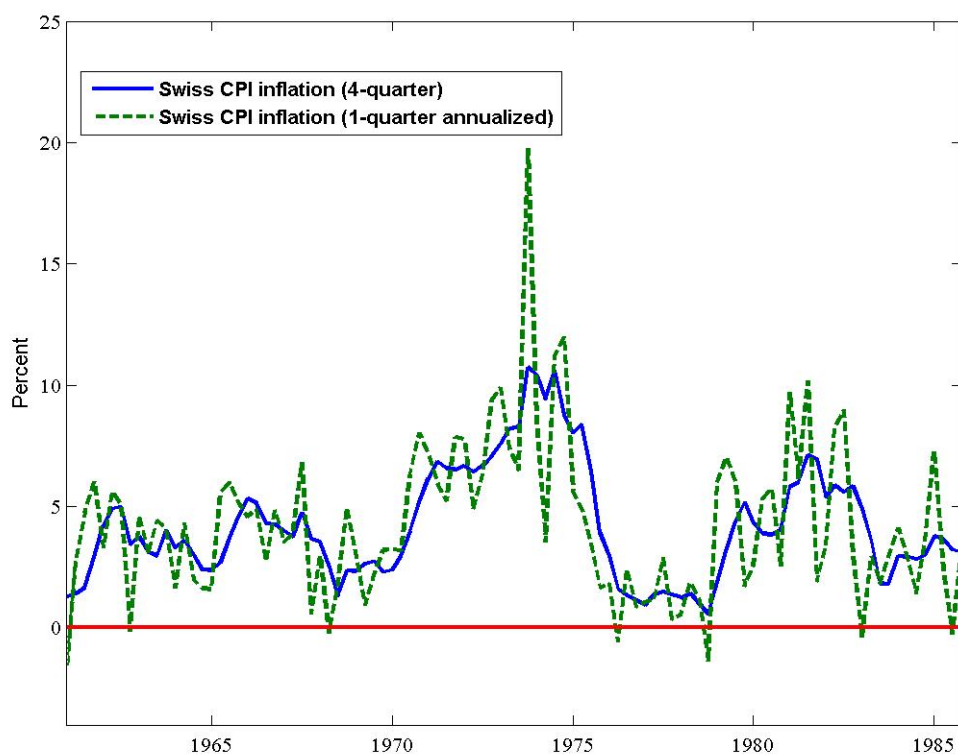
The monetary nature of inflation was thus widely accepted among Swiss officials by 1974. In particular, in the above statement Zumstein acknowledges that incomes policy cannot serve as an instrument against inflation. This position is in marked contrast to Swiss officials' statements in immediately prior years, statements that had portrayed incomes policy as a substitute for monetary restriction (the 1970 view), or even as the only effective instrument against inflation (as suggested in policy statements during 1971 and 1972).

#### **4.2 1974–77: The envy of Europe**

The SNB's conversion to the monetary view of inflation was consolidated at the end of 1974 by its much-discussed adoption of monetary targets (expressed in terms of M1 growth). As the SNB's Vice-President, Martin Thomann, observed, the message was that "we mean business" in fighting inflation (*SCMP*, 08/21/75). The continuation of disciplined monetary policy since 1973 was evident in the sharp decline of the Swiss inflation rate from 1975 (Figure 6), an achievement that resulted in Switzerland being described as the "the envy of Europe" (*SMH*, 12/11/76).

In one important respect, however, Switzerland could not be considered the envy of Europe. As Figure 1 shows, Switzerland underwent an especially severe GDP growth slowdown after 1973, including unfavorable developments in the trend of productivity. One question this raises is why the slowdown did not spill over into inflationary policy mistakes after 1973, in the form of monetary policy responses to the mismeasured output gap. It is likely that the gap was indeed severely mismeasured, as Swiss policymakers did not recognize the extent of the slowdown immediately. Rich (2003, p. 13) dates Swiss policymakers' acknowledgment of a slowdown in long-term GDP growth to 1977, which is only a year or two ahead of similar acknowledgments in high-inflation countries. In addition, Schiltknecht (1980, p. 1) states that Swiss monetary policy over this period "was not the outcome of sophisticated research work," which suggests that price stability in the late 1970s was not due to better modeling of the output gap.

The most important likely reason for the lack of spillover of gap errors to interest-rate levels is the monetary targeting policy. As discussed by Orphanides (2003, p. 622), money growth targeting has an important generic feature. It relies on an estimate of the long-run growth of output, but not on an estimate of the level of output relative to potential. A by-product of monetary targeting is therefore that it insulates monetary



**Figure 6. CPI inflation in Switzerland 1961–85**

policy from much of the error present in estimates of the level of the output gap. As the SNB itself put it in 1980: “Target paths may compel, or at least induce, the authorities to abstain from fine-tuning” (SNB, 1980, p. 42).

Another reason why the SNB did not stimulate the economy in response to perceived negative output gaps was its view, voiced by SNB Vice-President Thomann, that demand stimulation would reignite inflation as well as closing the gap (*SCMP*, 08/21/75). Such a concern becomes relevant if policy is expected to overreact to economic slack, and so creates expectations of positive output gaps and higher inflation.<sup>32</sup> For the present discussion, the most important aspect of Thomann’s reservation is the implied acceptance of a continuous relationship between excess demand pressure and inflation, including an acknowledgment of the restraining effect that negative output gaps had on inflation. This

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<sup>32</sup> This fear can be mapped into equation (3) by regarding it as the concern that stimulus today would create expectations of a long-lasting monetary easing, which eliminated the existing negative output gap but created expectations of a positive output gap in the future.

acceptance reflects a belief in the monetary view of inflation—and stands in contrast to the SNB’s denial of the output gap channel earlier in the decade.

Switzerland’s 1974–77 experience of more enlightened policymaking and falling inflation did not invariably lead to acceptance outside the SNB of the monetary view of inflation. On the contrary, the Union Bank of Switzerland’s report on the Swiss economy in 1974 had a strongly cost-push passage:

The elimination of excess demand calls for a reformulation of our present stabilization policy. We must devise a set of tools and powers for this stabilization policy that will enable us to get a grip on domestic cost-push inflation... If we were to apply our present anti-inflation policy, which is outdated and thus no longer compatible with actual conditions, we would run the danger of maneuvering the economy into a crisis-like imbroglio without essentially curbing inflation. (*UBSA* ’74, pp. 9–10).

In the same vein, the summary of a July 1975 meeting of ten Swiss economists included on the list of post-1973 developments the claim that “the response of prices to insufficient or falling demand may have undergone a longer-lasting change... as more and more industries keep raising prices to cover costs with no (or little) regard for the [demand] conditions prevailing in product markets” (International Center for Monetary and Banking Studies, 1975, p. 31).

The success of the SNB against inflation over this period spoke for itself, and so limited the pressure for a policy change. But these outside commentaries testified to the enduring popularity of the cost-push view among Swiss economists, and to the danger that nonmonetary views of inflation might come to the fore again in policymaking. This danger was realized in 1977.

### **4.3 1977–82: Resurface and burial of cost-push views**

Speaking in 1976, the SNB’s Chief Economist said the pre-1973 policies that stabilized the Swiss franc had a “destabilizing effect” which meant that “a monetary policy determined primarily by exchange rate considerations is out of the question, as far as we are concerned” (Schiltknecht, 1976, p. 6). The SNB’s position on this issue changed dramatically, however, from late 1977. Beginning in that period, the SNB introduced a policy of stabilizing the Swiss franc against the mark, and gave the new policy a more official status in October 1978 when the M1 growth target for 1978 was formally

dropped.<sup>33</sup> These policy changes meant that the SNB, by its own account, “massively overshot” its M1 monetary target (*SNBA* ’78, p. 9, *a.t.*). What is more, monetary policy registered ease by measures beside M1. For example, the key Libor short-term interest rate averaged 3.5% in 1977 Q2, but averaged below 0.25% in the final quarter of 1978. This expansionary monetary policy brought about Switzerland’s reentry into the Great Inflation, with four-quarter inflation peaking above 7% in 1981 (Figure 6).

Most discussions of this period concede that the monetary expansion arising from exchange rate targeting was responsible for the resurgent inflation in the early 1980s, with the SNB acknowledging this publicly as early as 1980.<sup>34</sup> At the same time, discussions of this policy change, including those of Bernanke, Laubach, Mishkin, and Posen (1999) and Rich (2003), tend to exonerate policymakers from deeper errors. This is so because the accounts generally portray the episode as one featuring technical misjudgments—i.e., errors in the SNB’s judgments regarding the timing and extent of monetary expansion when faced with an exchange rate shock—on the part of authorities, rather than any new theoretical error.<sup>35</sup> If accepted, these accounts contradict the monetary policy neglect hypothesis, since they suggest that Switzerland’s reentry into the Great Inflation was not a result of misconceptions about the character of inflation.

But the present discussion will argue that in fact more than technical misjudgments underlay this episode, and that the period saw a resurfacing and official embrace of cost-push views, a change that accounts for the misjudged monetary expansion.

For the present discussion, two key points about this episode deserve emphasis: (i) the actions by the Swiss authorities did not constitute a reweighting of their objectives in favor of exchange rate stability over gap and inflation stability; on the contrary, they thought that the actions on the exchange rate would contribute toward keeping the gap

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<sup>33</sup> Bernanke, Laubach, Mishkin, and Posen (1999, p. 62) date the SNB’s adoption of an exchange rate target to Fall 1978, coinciding with the formal suspension of the M1 target in October. But SNB statements provide grounds for dating the shift to an expansionary, exchange rate-stabilizing monetary policy to much earlier. For example, the SNB (1980, p. 42) acknowledged “an exchange rate target” in “the summer of 1978,” that is, in mid-1978; while in April 1978 SNB President Leutwiler said that exchange-rate stabilization was “already” an aim of monetary policy by February 1978, and given greater weight from that date onward (Leutwiler, 1978, p. 7). My dating of the policy change to late 1977 is also in line with the account in Rich (2003, p. 24), which is based on SNB sources different from those just listed.

<sup>34</sup> See the Schiltknecht (1980) quote given below.

<sup>35</sup> For example, Dueker and Fischer (1996, p. 100) estimate that base money growth in the period was “higher than necessary” for the exchange rate target to be met; while Rich (2003, p. 27) argues that exchange rate targeting was the correct policy in principle.

and inflation stable;<sup>36</sup> (ii) in 1979, in the immediate aftermath of the policy, the authorities believed that their actions had indeed succeeded at creating conditions of both exchange rate and price stability.<sup>37</sup> Taken together, these points indicate that something had happened to the SNB's view of the economy over this period that made it believe that monetary restraint was neither a necessary nor sufficient condition for maintenance of price stability.

In this light, it is informative to sample from the numerous discussions of inflation in the late 1970s that attempted to explain the "secret" of Switzerland's success. A monograph on Switzerland on this subject by a Swiss scholar (Küng, 1978) gave a narrow picture of how monetary policy had produced Switzerland's low inflation. Küng noted that the 100% appreciation of the Swiss franc, together with reductions in import taxes, had produced falling import prices for several years, concluding: "Clearly, these declines helped in the fight against inflation to a degree that *can hardly be overestimated*" (1978, p. 3; emphasis added). Küng cited these declines as contributing to low inflation in Switzerland both by reducing import price inflation and by reducing the market power of Swiss firms. Küng argued that without the import price pressure, domestic firms' market power would have produced unit-cost-push inflation in Switzerland (1978, pp. 3–6). Similarly, an article on Switzerland in an Australian newsmagazine in 1978 claimed: "The most important factor has been Switzerland's drastic revaluation of the franc. That has helped to swing the country from a 'vicious circle' of a self-sustaining price-wage spiral to a 'virtuous circle' of falling import prices, which fostered wage moderation" (*BUL*, 04/18/78).

In effect, these explanations denied the relevance of an output gap channel to the delivery to Switzerland of low inflation. As we have seen, this was not an isolated judgment: it dovetailed with views about pricing behavior expressed by the UBS and by private Swiss economists in 1974–75. To adherents of this view, the actual moderation in inflation rates of domestically produced goods was not testimony to the importance of the demand channel; instead, this outcome was attributed (as in the 1978 accounts above) to the influence of low import price inflation. In other discussions, low inflation was even

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<sup>36</sup> The SNB claimed that "sticking to the monetary targets would entail still greater risks" than the exchange rate policy, including "economic losses" (*SNBA* '78, p. 10, *a.t.*) Schiltknecht (1980, p. 10) details that these feared economic losses included the end of price stability if the 1978 appreciation was not moderated.

<sup>37</sup> President Leutwiler observed (1981, p. 10) that in 1979 it appeared "we had averted a major, externally-induced domestic recession at a cost that seemed negligible."

attributed to domestic *nonmonetary* measures that restrained Swiss wages and prices. For example, as we saw in the introduction, wage restraint was sometimes attributed to union moderation rather than aggregate demand conditions; while an official in the Swiss Government, Leon Schlumpf, was labeled “Mr. Price” for his supposed success in holding down inflation by direct ceilings on prices. In an interview, Schlumpf claimed: “Price control done by a small body in a relatively small economy can be effective” (*CT*, 08/13/78). He was also reported as sharing the view that the franc’s appreciation had been the main contributor to low Swiss inflation.

The general message from these accounts of Switzerland’s inflation success was that monetary policy had made a contribution to fighting inflation, but *only* through creating negative import-price-push forces that reversed the CPI spiral. The channel of monetary policy that worked through the output gap was not given credit for low inflation. That is, monetary tightness was seen as working through lowering import prices, not through restricting aggregate demand. This interpretation could easily lead to the view that if an exchange rate shock was creating a strong tendency for the exchange rate to appreciate, then monetary restraint was not necessary for preservation of low inflation.

There is evidence that the SNB’s policy shift in 1977–78 was motivated by its acceptance of this import-price-push variant of the cost-push view. For example, President Leutwiler (1978, p. 9) gave the impression that as long as franc depreciation was avoided, the SNB’s exchange-rate policy could not contribute to inflation, with his statement: “There is no immediate threat to price stability... Should the franc weaken appreciably, the risk of an inflationary push could quickly materialize.” The concentration on the import-price channel meant that the SNB neglected the effect that expansionary monetary policy had on domestic demand, and so on aggregate demand and overall inflationary pressure. The SNB therefore became comfortable with devoting monetary policy to exchange-rate stabilization.

It took the rise in inflation that followed the policy change for the SNB to disown the nonmonetary view of inflation once more. At first, the increase in inflation was small enough for the SNB to argue that it reflected the transitory effect of OPEC’s oil price increases, which it could legitimately argue was “not an inflationary development in the genuine sense” (*SNBM*, 08/79, p. 3). As inflation continued to worsen in the early 1980s, however, this position became untenable, and Chief Economist Schiltknecht acknowledged in 1980 that the “expansionary monetary policy of late 1978, coupled with

last year's oil price hike, [is] responsible for the current difficulties on the inflation front" (1980, p. 11).

This evaluation of the effects of the exchange rate policy brought the SNB back to a monetary view of inflation. Monetary targets were resumed in 1980, and in that year the SNB stated: "we doubt that in Switzerland the exchange rate is the only link between monetary policy and the ultimate targets. Monetary impulses can also be transmitted via interest rates and credit conditions" (SNB, 1980, p. 43). Interest rates and credit conditions work via aggregate demand, so the SNB was decisively affirming the importance of the output gap channel for inflation control—a sharp break with the influential late-1970s view that the exchange rate was the only relevant channel.

In effect, the SNB had rejected, for the second time and decisively, cost-push views of inflation. Its firm conversion to the monetary view of inflation was reflected in observations by SNB President Leutwiler in 1981:

That inflation constitutes fundamentally a monetary phenomenon is, by now, a commonplace... This widely accepted tenet of monetary theory lies, with certain qualifications, at the center of the Swiss central bank's thinking about inflation. (Leutwiler, 1981, p. 5).

The shift to monetary restraint associated with this shift in thinking was reflected in Switzerland's restoration of low inflation after the end of 1982.

## **5. Lessons from the Great Inflation in Ireland and Switzerland**

In addition to providing support for the monetary policy neglect hypothesis, the experiences of Ireland and Switzerland support several generalizations which are discussed in this section. These lessons from the two countries' experiences also bring out the weaknesses of some alternative explanations for the Great Inflation.

### **5.1 Policymakers did not target a positive output gap**

The comparison of Ireland and Switzerland provided here does not support the notion that countries that experienced high inflation did so because their policymakers targeted positive output gaps.<sup>38</sup> On the contrary, in the high-inflation country studied here, Ireland,

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<sup>38</sup> This is the explanation for the Great Inflation offered by the time-consistency literature. Peter Ireland (1999) finds that the time-consistency story accounts well for U.S. inflation-unemployment combinations



the Central Bank stated the desirability of “maintain[ing] a reasonably close correspondence between the level of the community’s aggregate expenditure and the physical capacity of the economy to produce goods and services” (*CBIA*, 07/70*b*, p. 12). Similarly, Finance Minister Ryan said in 1974: “The policies of both the Government and the Central Bank are directed in parallel to achieve the maximum sustainable growth of output and employment” (*IP*, 06/25/74). These policymaker statements, along with those given in Section 3, indicate a zero-output-gap goal.

## **5.2 Policymakers did not exploit a Phillips curve trade-off**

Policymakers’ stated views about the unemployment/inflation relationship in Ireland during the 1970s contradict the notion that inflation was the deliberate result of policymaker attempts to exploit a trade-off. On the contrary, Irish policymakers repeatedly suggested the opposite message to that of the Phillips curve: that is, they suggested that one should expect inflation and negative output gaps to coexist. Taoiseach Lynch said in 1972: “If we push up our prices it means that our exports are harder to sell, while cheaper imports will flood in to displace Irish goods in the home market. This is the link between rising prices and unemployment... We have it within our power to ensure that we do not force Irish workers out of their jobs” (*IT*, 02/21/72). This scenario, of course, is conditional on continuation of a fixed exchange rate. But on another occasion Lynch expressed a similar judgment regarding the unconditional relationship: “many people may mistakenly believe that inflation is a necessary price to pay in order to secure higher living standards... We can only hope to achieve full employment in Ireland if we put an end to the inflation which was triggered off four years ago” (*IP*, 12/18/72).

Lynch’s successor as Taoiseach, Liam Cosgrave, gave his view in 1975: “The really crucial point for us now is, however, the link between inflation and unemployment. It may well be no accident that for some years now we have had some of the highest rates of inflation in the EEC countries; and the highest rate of unemployment” (*IT*, 05/08/75). Similarly, in 1977 Cosgrave stated: “Inflation does not create employment, it destroys it” (*IT*, 05/23/77). The unit-cost-push view of inflation which Cosgrave’s government embraced provided further underpinning for the idea that high inflation and negative output gaps go hand in hand.

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during the 1970s. But many explanations for the Great Inflation can account for the key data combinations that emerged, whereupon the criterion for discriminating between rival hypotheses should, I argue, instead be their consistency with the factual record regarding what views of the economy guided policy decisions.

On a closely related point, it is not plausible that 1970s Irish policymakers accepted high inflation out of a sacrifice-ratio calculation (either one derived from a long-run vertical or nonvertical Phillips curve). Such a calculation implies that policymakers see inflation as a policy *choice*, i.e. as a monetary phenomenon, which they did not. In fact, in keeping with its nonmonetary view of inflation, the Central Bank of Ireland stated in 1974 that the achievement of low inflation via monetary policy was *infeasible*: “The power of any individual country to control inflation is limited even when both fiscal and monetary policies are concentrated on this objective” (*CBIQ*, Spring ’74, p. 23).

Regarding Switzerland, the Chief Economist of the SNB stated categorically in 1980: “The Swiss never believed in a Phillips-type trade-off between inflation and unemployment” (Schiltknecht, 1980, p. 3).

### **5.3 Inflation was regarded as costly**

Taylor (1992, p. 14) suggests that failure by 1970s policymakers to appreciate the costs of inflation—especially the corrosive effect of inflation on potential output—may explain why they allowed high inflation to occur. But both Irish and Swiss policymakers in the 1970s repeatedly stressed the large real costs of inflation. For example, Ireland’s Finance Minister George Colley said in 1970 that the “price of unchecked inflation is likely to be slower and more expensive growth” (*IP*, 09/22/70) while in 1971 Colley referred to the “horror of unchecked inflation” (quoted in *IBR*, 06/71, p. 10). Similarly, in 1971 Swiss National Bank President Stopper said that unless inflation was cured it would “put in motion insidious changes in the structure of the economy and in the basis of society and property” (*NZZ*, 04/03/71, *a.t.*), while his successor argued that “price stability is an important condition for obtaining steady economic growth” (Leutwiler, 1978, p. 10).

And high inflation conditions produced severe political costs. The *Irish Independent* noted that both polling data and the 1973 election outcome confirmed that the “big issue of the election is prices... NOT national security... but PRICES” (*IIND*, 03/02/73). In fact, high inflation was seen as a major reason for the defeats of the incumbent governments in both the 1973 and 1977 elections in Ireland. And as we have seen, between elections, Irish Governments devoted considerable effort to devising ways to fight inflation. High inflation outcomes in Ireland over this period reflect not the absence of major efforts to fight inflation but the fact that those efforts were concentrated on the nonmonetary side, and so were ineffective.

#### **5.4 Nonmonetary views prolonged misguided exchange rate policies**

The evidence provided here provides strong support for the position of Romer (2005) that appeal to the breakdown of Bretton Woods is not a satisfactory explanation for why small industrial countries, such as Ireland and Switzerland, experienced the Great Inflation. It is unsatisfactory because it does not explain why Ireland repeatedly rejected the opportunity to grasp greater monetary policy independence from the United Kingdom, and why its policymakers thought they could lower inflation in the absence of monetary policy autonomy. The answer lies in their nonmonetary views of inflation, which gave Irish policymakers the false belief that incomes policy could manipulate CPI inflation in the presence of an exchange rate link. Similarly, Switzerland's policymakers in 1970–72 attributed inflation to nonmonetary factors, and so they did not appreciate the urgent need for greater exchange-rate flexibility accompanied by monetary tightening. Nonmonetary views of inflation are a special case of flawed ideas on the part of policymakers, which Romer argues is the key problem during the 1970s.

#### **5.5 Monetary targeting was the only game in town**

Proponents of the nonmonetary approach to inflation control in the 1970s often were highly critical of monetarism and monetary targeting. Many advocates of inflation targeting today are critical of aspects of monetarism, especially of monetary targeting. But it does not follow that inflation-targeting advocates should sympathize with the 1970s critics of monetarism. The major 1970s critics of monetarism had attitudes to inflation control that are anathema to today's inflation-targeting advocates. And the major advocates of monetary targeting had views on the role of monetary policy that have been inherited by supporters of inflation targeting. In the 1970s, for advocates of an inflation-oriented monetary policy, monetary targeting was “the only game in town.”

The records of both Ireland and Switzerland underscore this point. Governor Whitaker of the Central Bank of Ireland was, like many economists today, critical of monetarist ideas. But the *specifics* of his criticism of monetarism establish Whitaker's views as out of today's mainstream. In particular, as we have seen, Whitaker aligned himself with the Hicks critique of monetarism (*CBIQ*, Winter '75a and '75b). And Hicks' critique was notable for what it did *not* say. Hicks did *not* emphasize, as critics of monetarism typically do today, the obstacles to relying on monetary aggregates in controlling aggregate demand. Rather, Hicks focused on the nature of price adjustment, and

suggested that demand policies were the wrong way to fight contemporary inflation, which was cost-push and insensitive to aggregate demand. By implication, this position is as negative about central bank inflation targeting as it is about monetary targeting.

Symmetrically, one key comment on the Swiss record was notable for what it did not say. Leading monetarist and Swiss national Karl Brunner (1982, p. 133) expressed the judgment: “The experience of the Swiss National Bank indicates, moreover, that even in the context of substantially larger unpredictable short-run behavior of the [M1] multiplier the Central Bank can still execute an effective anti-inflationary monetary policy.” Brunner did not claim that financial changes pose no problems for monetary targeting. His statement acknowledges effects of these changes on the M1 multiplier, and does not claim that attempting to stabilize M1 growth or base money growth is necessarily a desirable policy response to these changes. Brunner’s criterion for success was instead the maintenance of “an effective anti-inflationary monetary policy.” Likewise, when Brunner did criticize the SNB in 1978 for breaching its monetary targets, it was because the nature of the breach—one creating domestic monetary stimulus to promote exchange-rate stability—was putting “the National Bank on an inflationary course” (*NZZ*, 09/23/78, *a.t.*), and so going against the principle of an anti-inflationary monetary policy.

Inflation targeting has superseded monetary targeting as the means of putting an anti-inflationary monetary policy into practice; but a monetary view of the inflation process underlies both approaches. This is a major reason for supporting Bernanke, Laubach, Mishkin, and Posen’s (1999, Ch. 4) characterization of SNB policy in the 1970s as “a precursor to inflation targeting.”<sup>39</sup> It also supports a recent discussion by a SNB board member (Hildebrand, 2004), who noted the continuity of Swiss monetary policy since the 1970s, notwithstanding the SNB’s move in the last decade to inflation targeting.

## **5.6 Price-level shocks and inflation were distinct**

The events studied in this paper provide an experiment that validates a key aspect of the monetary as opposed to the nonmonetary view of inflation. This is the distinction between price-level shifts (or *Teuerungen* in the nomenclature of Swiss policy debates)

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<sup>39</sup> The SNB did not publish the inflation targets implied by its monetary targets (see e.g. Dueker and Fischer, 1996, p. 90), and so lacked a property of German monetary targeting stressed by Bernanke, Laubach, Mishkin, and Posen (1999). But official statements that low inflation was the aim of Swiss monetary targeting were plentiful from an early stage, such as Schiltknecht’s (1976, p. 5) observation that “[the] fight against inflation ranks high in Swiss economic policy.”

and inflation. As defined in Section 2.1, the monetary view of inflation differs from the nonmonetary one not only in claiming that excess demand does matter for inflation, but also that price-level shifts *only* matter for inflation beyond the initial period to the extent that they set off movements in excess demand—that is, to the extent they are accommodated by monetary policy. It might be argued in defense of the nonmonetary view that the price-level/inflation distinction is too strong—that indexation or other mechanisms produce an automatic link between cost-push shocks and future inflation, even holding the output gap constant. In that case, direct actions on prices such as those tried in Ireland in the 1970s might have some merit as an anti-inflation measure.

Ireland’s experience is valuable in distinguishing between the two views of inflation behavior. Usually, one would need to estimate a structural model to judge the merits of the alternative positions. Otherwise, it would be difficult to distinguish between lasting effects of price-level shocks on inflation that arise from inflation being cost-push in nature, and those that arise from policy accommodation of cost-push shocks, which would be consistent with a standard monetary view of inflation.<sup>40</sup>

But Ireland’s fixed exchange rate policy over this period makes reduced-form evidence on Irish inflation unusually interesting for distinguishing between the monetary and nonmonetary views of inflation. With the link to U.K. monetary policy implied by the sterling link, it was hard for monetary policy to exploit Ireland-specific price-level shocks. To convert a price-level shock into permanently lower inflation, monetary policy must not only accommodate the shock (i.e. pursue actions that allow the money stock to fall with the price level), but also shift *steady-state* money growth to a permanently lower level.<sup>41</sup> But the fixed exchange rate regime in the 1970s effectively eliminated the Irish authorities’ autonomy with respect to money growth. So if current-period price-level shifts mattered for future inflation in Ireland over this period, it was through cost-push shocks having automatic implications for future inflation—*not* through monetary accommodation.

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<sup>40</sup> For example, Peter Ireland (2006) argues that U.S. monetary policy accommodated price-level shocks during the 1970s.

<sup>41</sup> In interest-rate terms, the policy can be thought of as raising the real interest rate when the price-level shock occurs. According to equation (3), when inflation is a monetary phenomenon, the price-level shock itself will not change the real rate, because next-period ahead expected inflation (which is the inflation term relevant for the real interest rate) is insensitive to the price-level shock. So a tightening of monetary policy has to accompany the price-level shock if permanently lower inflation is to occur.

As noted in Section 3, a major price-level shock specific to Ireland during the 1970s was the fall in the price level in 1975 engineered by the Government's actions on specific prices. One way of allowing for the impact of discrete shifts in the price level on inflation dynamics is to augment an autoregression for inflation with dummy variables for the specific event. For an AR(1) specification, for example, one version of this approach is simply adding a dummy for the 1975 Q3 measures:

$$\pi_t = \rho_0 + \rho_1\pi_{t-1} + d_0D753_t + \varepsilon_t \quad (4)$$

where  $D753_t = 1.0$  for 1975 Q3, 0 otherwise. This manner of modeling the shock, however, is consistent with a nonmonetary, but not a monetary, view of inflation. The reason is that, provided that  $\rho_1 > 0$ , specification (4) implies an impact on future expected inflation rates of the 1975 shock of  $\delta(\pi_{t+k})/\delta(D753_t) = d_0(\rho_1)^k < 0$ , for  $d_0 < 0$  and  $k > 0$ . A dummy for a price-level shock in an autoregression for inflation thus generally means some cost-push effect on ongoing inflation dynamics—the AR terms propagate the effects of the price-level shift into future periods. The specification therefore does not allow for the possibility that in the absence of monetary accommodation, future inflation is insensitive to price level movements today, as in the monetary view. For that, we would instead need a specification like:

$$\pi_t = w_t + d_0D753_t \quad (5)$$

where  $w_t$  is an AR(1) process. Equations (4) and (5) are both special cases of:

$$\pi_t = \rho_0 + \rho_1\pi_{t-1} + d_0D753_t + d_1D753_{t-1} + \varepsilon_t \quad (6)$$

Equation (6) delivers equation (4), and thus cost-push elements in inflation dynamics, via the restriction  $d_1 = 0$ . The monetary view of inflation, meaning that price-level shifts do not affect future inflation in the absence of accommodation, instead implies the common-factor restriction  $d_1 = -\rho_1 d_0$ .<sup>42</sup>

Table 2 presents estimates of equation (6) using quarterly Irish CPI inflation data.<sup>43</sup> Both the full sample and the period up to Ireland's exit from the sterling arrangements in 1979,

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<sup>42</sup> Levin and Piger (2003) nominate several price-level shocks in their sample of countries (which excludes Ireland) and, instead of using dummy variables, adjust their data for these shocks with an interpolation method. Such an adjustment is consistent with the monetary view of inflation.

<sup>43</sup> The dependent variable is the quarterly percentage change in the seasonally adjusted CPI. A non-seasonal quarterly series is available for 1960–2005 from Haver-OECD (downloaded December 2005), while the *IFS Supplements* for 1981 and 1986 provide hard-copy sources for the CPI in 1970–85 with

are considered in the table.<sup>44</sup> The point estimates are supportive of the monetary view of inflation, and test statistics for the implied restriction do not reject it. The alternative restriction that  $d_1 = 0$  is rejected for the full sample, though not for 1960–79. Figure 7 depicts how the monetary restriction delivers the property that price-level shifts wash out of inflation after one period.<sup>45</sup>

The Irish authorities' nonmonetary view of inflation meant that they did not think it was necessary to reduce monetary growth in order to get ongoing inflation benefits from a favorable price-level shock. But the parameter estimates suggest that Irish inflation dynamics instead conformed to the monetary view, so actions to reduce the current price level were of no help in reducing future inflation. The natural experiment of Ireland supports the distinction between inflation and price-level shifts emphasized by the monetary view of inflation and neglected by most 1970s policymakers.

## 6. Conclusion

This paper has examined the inflation record of Ireland and Switzerland during the 1970s, with the aim of using them to distinguish between alternative explanations for the Great Inflation. These two countries' experiences are of particular interest because they represent some of the more extreme inflation experiences. In addition, they pose a challenge to explanations for the Great Inflation that rely on a channel from output gap mismeasurement to policy mistakes to inflation. They also are inconsistent with explanations that appeal to policymaker exploitation of a Phillips curve trade-off.

The two countries' experiences are consistent with the monetary policy neglect hypothesis, in which the key policy mistake is a nonmonetary view of the inflation process. The nonmonetary perspective on inflation dominated Irish policymaking throughout the 1970s, while in Switzerland it was largely discarded after 1973. This key difference goes far in explaining why low inflation was not restored in Ireland until the mid-1980s, a full decade after Switzerland.

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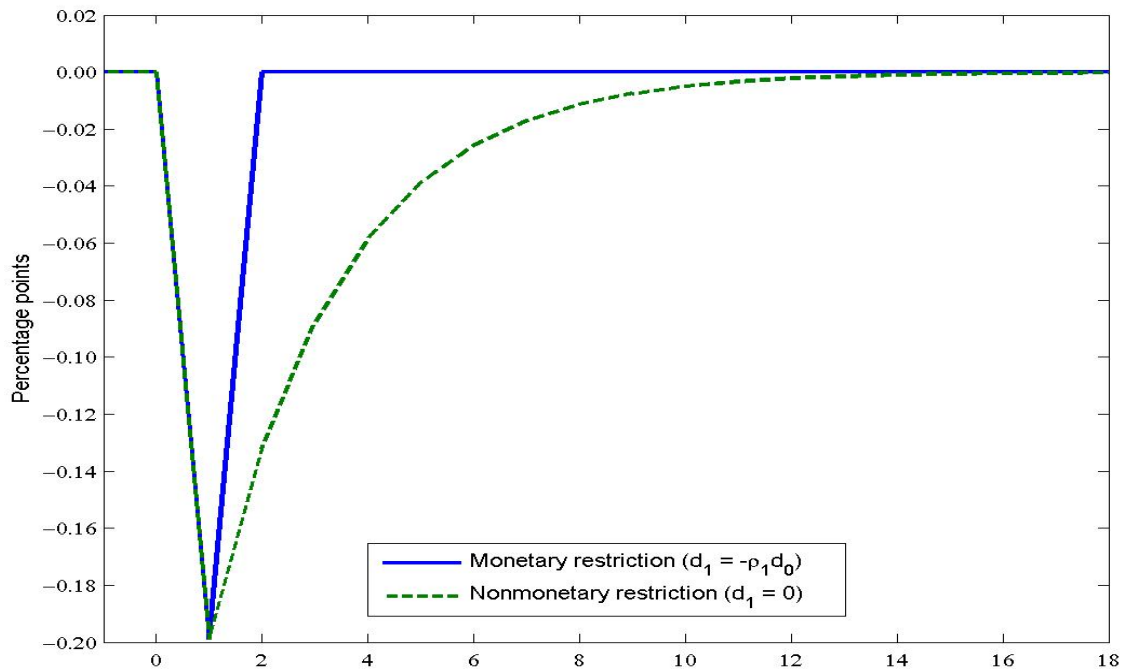
greater decimal precision than the present series. Loss of precision for price indices during high-inflation periods is potentially important (see Kozicki and Hoffman, 2004). Therefore, I used the electronically available series to compute inflation for the last 20 years (ending in 2005 Q3) and before 1970 Q2, but the *Supplements* for the intervening periods. Seasonally adjusted CPI inflation was obtained as the residuals (with mean restored) from a full-sample regression of the non-seasonal series on quarterly dummies.

<sup>44</sup> Estimates that include a linear trend term deliver similar test results to those reported.

<sup>45</sup> The figure uses  $\rho_1 = 0.664$  and  $d_0 = -0.199$ .

Table 2. Price-level shocks and Irish inflation dynamics		
Specification: $\pi_t = \rho_0 + \rho_1\pi_{t-1} + d_0D753_t + d_1D753_{t-1}$		
	Sample Period 1960 Q3–1979 Q1	Sample Period 1960 Q3–2005 Q3
Constant	0.036 (0.011)	0.024 (0.006)
$\pi_{t-1}$	0.620 (0.099)	0.664 (0.058)
$D753_t$	-0.200 (0.062)	-0.199 (0.054)
$D753_{t-1}$	0.103 (0.061)	0.116 (0.053)
$R^2$	0.377	0.434
SEE	0.0603	0.0526
Test for restriction $d_1 = 0$	$\chi^2(1) = 2.817$ [ $p$ value = 0.09]	$\chi^2(1) = 4.774$ [ $p$ value = 0.03]
Test for restriction $d_1 = -\rho_1 d_0$	$\chi^2(1) = 0.077$ [ $p$ value = 0.78]	$\chi^2(1) = 0.061$ [ $p$ value = 0.80]

Note:  $\pi_t$  is quarterly inflation rate in annualized units. Standard errors in parentheses.



**Figure 7. Effect of 1975 price shock on inflation under alternative restrictions**



## **Appendix A. Abbreviations for periodicals cited in text**

### **1. Ireland**

*CBIA*—Central Bank of Ireland Annual Report; *CBIQ*—Central Bank of Ireland Quarterly Bulletin; *IBR*—Irish Banking Review (Dublin); *IIND*—Irish Independent (Dublin); *IP*—Irish Press (Dublin); *IT*—Irish Times (Dublin); *SI*—Sunday Independent (Dublin).

### **2. Switzerland**

*NZZ*—*Neue Zürcher Zeitung* (Zurich); *SNBA*—Swiss National Bank Annual Report (*Geschäftsbericht der Schweizerischen Nationalbank*); *SNBM*—SNB Monthly Report (*Monatsbericht*); *UBSA*—Union Bank of Switzerland Economic Survey of Switzerland (annual).

### **3. Periodicals from other countries**

*AUP*—*Auszüge aus Pressartikeln* (Deutsche Bundesbank, Frankfurt); *BUL*—*The Bulletin* (Australia); *CSM*—*Christian Science Monitor* (Boston); *CT*—*Chicago Tribune*; *FT*—*Financial Times* (London); *FZ*—*Frankfurter Zeitung* (Frankfurt); *NYT*—*New York Times*; *SCMP*—*South China Morning Post* (Hong Kong); *SMH*—*Sydney Morning Herald* (Sydney).

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