

Public attitudes about inflation: a comparative analysis

By Kenneth Scheve of the Bank's International Economic Analysis Division.⁽¹⁾

This article analyses public opinion in advanced economies to assess what individual citizens think about inflation. Opinion surveys suggest that the general public is inflation averse, but that there is significant variation across countries and over time. Evidence is presented that average inflation aversion is sensitive to factors affecting the expected costs of inflation.

Introduction

This article examines public opinion in advanced economies to assess what the general public thinks about inflation. Are individual citizens concerned about inflation? How important a public policy issue do they think it is? What influences their opinions about inflation? Does opinion about inflation vary across countries and, if so, what accounts for this variation? The opinion surveys examined in this article suggest that the public is generally inflation averse, but that there is significant variation across different countries. Evidence is presented that average inflation aversion is sensitive to factors affecting the expected costs of inflation for individual countries at particular times.

What does the public think about inflation?

A large body of public opinion research has shown that across a diverse array of countries, individual citizens generally have a strong aversion to inflation.⁽²⁾ Evidence supporting this characterisation has generally relied on fairly straightforward questions asking individuals to indicate how concerned they are about rising prices or how important they think inflation is as a public policy issue.

Although the wording of the question influences the exact pattern of individual responses, answers generally suggest high levels of concern about inflation. For example, survey respondents in the United Kingdom

have been asked the following question about the rising price of consumption goods:

How concerned are you about the rising price of food and other consumer goods?

Per cent

	1992	1994	1996
Great deal	47	37	34
Fair amount	39	46	44
Not much	13	17	20
Not at all	1	1	2

Source: British Household Panel Study.

Between 75% and 90% of respondents say that they are a 'great deal' or a 'fair amount' concerned about rising prices. The annual inflation rates (RPIX) in the United Kingdom for 1992, 1994 and 1996 were 3.7%, 2.5% and 3.1% respectively. Thus the surveys show that levels of concern about inflation are high, even when inflation is relatively low.⁽³⁾

Rephrasing the question so that individuals are faced with a simple choice between whether price stability is a very important issue or not does little to change the picture of a generally inflation-averse public. When asked this type of question, typically 75% to 95% of respondents give the 'very important' answer.⁽⁴⁾

Public concern about inflation is also evident in the impact that changes in inflation have on the popularity of incumbent governments. Time series analyses have shown that higher inflation rates are associated with lower government approval ratings and reduced vote

(1) Kenneth Scheve is assistant professor of political science at Yale University, and visited the Bank from September 2000 to July 2001.

(2) See, for example, Alt (1979), Anderson (1995), Hibbs (1987), Lewis-Beck (1988), Sekhon (1999) and Shiller (1997).

(3) The views of UK respondents to questions about the government's inflation target also show concern about low levels of inflation. The Bank's inflation attitudes survey reports that when asked whether the 2.5% inflation target is too high, too low, or about right, most respondents give the 'about right' response. But among those giving a dissenting view, more than three times as many choose 'too high' as 'too low'. See Bank of England (2001).

(4) See, for example, UK responses to the 1988 Eurobarometer survey.

intentions for incumbent political parties.⁽¹⁾ Although this effect varies in magnitude across different countries and different time periods, the sensitivity of government popularity is evident across a wide variety of countries. This relationship indicates a demand for low inflation among the general public. Individuals value strong economic performance in general and low inflation in particular, and evaluate governments partly based on these outcomes.⁽²⁾

The intensity of the public's inflation aversion is evident in the proportions indicating concern about inflation. Another indicator can be constructed by asking respondents how important they think price stability is relative to other public policy issues. For example, in a 1995 survey a sample of US respondents was asked: 'Do you agree that preventing high inflation is an important national priority, as important as preventing drug abuse or preventing deterioration in the quality of our schools?' The results revealed that 84% of respondents agreed with this statement.⁽³⁾

Generally, survey evidence suggests a very clear characterisation of public opinion about inflation. Overwhelming majorities are concerned about inflation and rank price stability among the most important public policy issues.

Why do people dislike inflation?

The reasons why people generally dislike inflation are diverse. There is substantial variation in the theories of inflation that individuals construct and therefore in their perceptions of the consequences of inflation for their economic welfare. Importantly, individuals do not typically construct sophisticated explanations for why inflation occurs and for what its impact is likely to be. Nevertheless, many of the concerns of the general public are related to the costs of inflation that are highlighted in economists' models. Moreover, inflation is a salient public policy issue in most countries, and individuals are able to collect relevant information about prices through their consumption of economic news as well as via their daily activities as consumers and workers. This information allows them to develop general opinions

about the costs and benefits of inflation that, while not necessarily the product of complex economic theories, may summarise and depend on many of the same factors identified in economic models.⁽⁴⁾ This section briefly summarises the main sources of public concern about inflation, and how these concerns relate to the costs of inflation emphasised by economists.

Studies of public opinion suggest that individuals' main concern about inflation is that they believe that it harms their standard of living.⁽⁵⁾ Robert Shiller (1997) provides the most extensive recent evidence based on surveys conducted in the United States, Germany and Brazil. He finds that respondents are chiefly concerned that their incomes will not keep pace with inflation. Economists often label this perception the 'inflation fallacy', because there is little reason to think that wages and prices do not move together resulting in no change in real incomes. Public opinion scholars have noted that this view may in part be the result of the tendency of individuals to attribute increases in their nominal wages to their own skills and effort rather than reflecting simple changes in price levels. Shiller probes respondents' reasons for thinking that inflation hurts their real incomes and finds further evidence to support this argument. Individuals do not have clear ideas about how their wages are determined that correspond with market-driven models. Consequently, they do not necessarily believe that their wages and other sources of income will adjust to inflation, and at the very least are uncertain about such adjustments.

Although confusion about how prices and wages interact certainly seems to play a role in the public's concern about the effects of inflation on standards of living, this concern probably depends also on the actual economic costs of inflation. A substantial literature has demonstrated that inflation can have a significant negative impact on economic growth and welfare.⁽⁶⁾ This literature focuses on two types of costs of inflation when inflation is perfectly anticipated and the economy is fully indexed for changes in the price level. First, shoe-leather costs are the costs of economising on real money balances. In an inflationary environment in which no interest is earned on cash balances, individuals

(1) See, for example, Anderson (1995), Hibbs (1987) and MacKuen, Erikson and Stimson (1992).

(2) This interpretation of the empirical relationship between inflation and government popularity is reinforced by the public's responses to survey questions that ask them directly whether they think price stability is an important responsibility of the government. Typically 80% to 95% of respondents agree that it is. See, for example, UK responses to the International Social Survey Program's question (1985, 1990 and 1996) on this point.

(3) See Shiller (1997).

(4) For more information on low-information rationality in public opinion about the economy, see MacKuen, Erikson and Stimson (1992).

(5) See Alt (1979), Hibbs (1987) and Shiller (1997).

(6) See Bakhshi, Haldane and Hatch (1997), Barro (1995), Briault (1995), Feldstein (1997) and Joyce (1997).

will tend to hold less cash and make more trips to the bank. These trips cost time and effort and reduce economic welfare. The second set of costs is menu costs. Inflation makes it necessary to change price lists more often. From a more general perspective, the costs of indexing all contracts and the tax system might also be considered menu costs.

The magnitude of shoe-leather and menu costs, however, are generally thought to be small compared with the costs associated with inflation when it is imperfectly anticipated and/or the economy is not fully indexed. High inflation generates uncertainty about future inflation that creates costly distortions in the economy.⁽¹⁾ For example, uncertainty makes it more difficult for the price mechanism to work efficiently. Economic agents have greater difficulty in distinguishing between relative or real price changes and nominal or inflationary ones. Inflation uncertainty may have its most significant impact through its negative effect on productive investment. Inflation uncertainty raises the cost of capital and encourages unproductive investment in real assets, such as housing, as a hedge against inflation.

A number of studies have also shown that inflation generates costs because of its interaction with existing economic institutions that are less than perfectly indexed. For example, current tax systems are not fully indexed and effective tax rates are affected by rates of inflation. Feldstein (1997) and Bakhshi, Haldane and Hatch (1997) argue that this generates consumption distortions as inflation reduces the real post-tax return that savers receive, in effect raising the price of delayed consumption. This lowers future consumption from its optimal level, imposing what both studies estimate to be a substantial welfare loss. These analyses also show other costs associated with the interaction between existing tax systems and inflation, such as increasing over-investment in housing by accentuating the negative effects of interest relief on mortgage payments.⁽²⁾

These costs suggest that there may be more to the public's link between inflation and standards of living than confusion about the relationship between prices and wages. In fact, evidence shows that individuals make the connection between inflation and relatively poor real economic performance explicitly. For example, Shiller (1997) finds that individuals associate inflation with economic instability and low growth. A natural explanation for this association is the costs of inflation that economists have emphasised as being important.⁽³⁾ A further factor contributing to the public's association between inflation and lower standards of living is the distributional effects of inflation. Unanticipated inflation redistributes wealth from creditors to debtors and from individuals who receive fixed incomes to those who pay them. These unplanned redistributions from inflation certainly lead to lower standards of living for those individuals exposed to losses.⁽⁴⁾

The belief that inflation has a negative effect on an individual's standard of living is not the only source of the public's inflation aversion. In addition to real income considerations, individuals often cite inconveniences associated with inflation, such as making comparison shopping and planning for the future more difficult. These inconveniences have obvious connections with the costs that economists attribute to uncertainty about future inflation, discussed above. Another source of concern is the perception that inflation provides the opportunity for some economic agents to take advantage of others.⁽⁵⁾ Recall that higher inflation is associated with greater inflation uncertainty. Economic models predict unplanned redistributions of wealth and income from unanticipated inflation. While unplanned redistributions do not indicate that anyone will necessarily be taken advantage of, it seems likely that such redistributions would create such a perception.

Not all of individuals' concerns about inflation are as clearly related to economic considerations. For example, there is some evidence that individuals dislike inflation

(1) See Joyce (1997) for discussion of the relationships between inflation, inflation variability and inflation uncertainty.

(2) The interaction between inflation and the tax system also generates some economic benefits that are discussed below and are accounted for in Feldstein's and Bakhshi, Haldane and Hatch's analyses.

(3) This association also may be influenced by how individuals experience some supply shocks (see Mankiw (1997)). Negative supply shocks result in changes in relative prices, which individuals experience as rising prices that reduce their standards of living. Thus an inflationary environment due to the accommodation of a negative supply shock may also be a period of low growth. Individuals experiencing such periods, for example the 1970s in many oil-importing countries, will reasonably associate inflation with low growth. The association between inflation and economic instability may also be empirically correct as high rates of inflation may be a signal of bad policy generally that leads to poor real economic performance.

(4) These redistributions mean that some individuals benefit from inflation, so that the overall effect of unplanned redistributions on attitudes toward inflation depends on the distribution of winners and losers and how expected gains and losses are weighed in individuals' assessments.

(5) See Shiller (1997).

because they believe it will weaken the country's currency and thus damage its national prestige.⁽¹⁾ Further, some individuals associate inflation with political instability, and seem to believe that the causation runs from inflation to political instability, rather than the reverse.⁽²⁾

This section and the preceding one have summarised a number of important insights of public opinion and economics research about attitudes toward inflation. The key points from this review are that citizens are generally inflation averse and that the sources of their concerns are partly determined by perceptions of inflation's impact on national economic performance and on individual welfare. This discussion raises a number of important empirical questions. Most obviously, public dislike of inflation does not imply that there is not variation across different individuals and countries. In fact, to the extent that the costs of inflation appear to be an important determinant of public opinion about inflation, there are substantial reasons to believe that the assessment of these costs and thus public opinion will vary systematically across individuals and countries. The remainder of this article examines country-level variation in public opinion about inflation.

A cross-country measure of the demand for low inflation

The substantial literature on the political economy of macroeconomic policy-making provides a theoretical structure for analysis of cross-country variation in the demand for low inflation.⁽³⁾ In these models, voters and policy-makers are assumed to have utility or loss functions that depend on inflation and output or unemployment. The exact functional form of the utility or loss functions varies across different contributions to the literature, but the main intuition is that utility or welfare is decreasing in both the inflation rate and the unemployment rate.⁽⁴⁾ Importantly, the utility or loss functions also include parameters that indicate the relative weight of inflation and unemployment in

contributions to utility or losses. These parameters therefore indicate the voter's or policy-maker's inflation aversion, ie how the individual assesses the relative costs and benefits of inflation and unemployment.

To measure inflation aversion across countries, the article uses survey data from 20 advanced economies collected in various years between 1976 and 1997 by the International Social Survey Program and the Eurobarometer. The measure of inflation aversion from these surveys is based on responses to a question about macroeconomic priorities similar to the following Eurobarometer item:

What do you think the 'national' government should give greater priority to, curbing inflation or reducing unemployment?⁽⁵⁾

This question requires respondents to reveal explicitly how important they think low inflation is relative to the problem of unemployment. The key criterion in assessing whether this is a good measure of inflation aversion as defined above is whether responses to the question will be sensitive to individuals' assessments of the relative costs and benefits of inflation and unemployment.⁽⁶⁾ This expectation seems at least *ex ante* reasonable and the empirical work below bears out this assumption. It must be recognised, however, that individual responses to this question depend on the economic context in which the question is asked. Consequently, answers to this question, taken in isolation, can be thought of as eliciting the individual's context-specific demand for low inflation. Just as 'utility' in the theoretical literature depends on current inflation and unemployment rates, answers to this question will depend on the same factors as well. Inflation aversion itself—assessments of the relative costs and benefits of inflation and unemployment—is therefore measured by responses to the question controlling for the current economic context.

There are at least three alternative strategies for measuring the demand for low inflation. The first is to

(1) See Alt (1979), Hibbs (1987) and Shiller (1997).

(2) See Shiller (1997).

(3) Among the many important theoretical contributions in this literature, see Barro and Gordon (1983a, 1983b), Cukierman and Meltzer (1986), Hibbs (1987), Kydland and Prescott (1977), Lohmann (1992), Persson and Tabellini (1990), Rogoff (1985) and Walsh (1995).

(4) The microfoundations for these utility functions as well as the exact functional form are a subject of some debate in the literature. Nevertheless, there is considerable empirical evidence consistent with the main idea that individuals think that unemployment, low growth and inflation are undesirable macroeconomic outcomes. Some of the evidence with respect to inflation is reviewed above.

(5) See the appendix on page 292 for further description of the data sources and methods used to construct the dataset.

(6) Note that although there is no long-run trade-off between inflation and unemployment in standard economic models, individuals' assessments of the relative costs of inflation and unemployment are still a relevant and important feature of the utility functions specified in these models. For example, these preferences influence the determination of optimal disinflation paths and responses to exogenous shocks. See Barro and Gordon (1983b) and Di Tella, MacCulloch and Oswald (2001) for further discussion.

ask individuals survey questions specifically about inflation without reference to other macroeconomic policy objectives. For the analysis in this article, the major disadvantage of this approach is that there is no budget constraint or price explicit in the question. As noted earlier, the evidence suggests that most people can be expected to think that prices should be kept under control even if they disagree strongly about the relative importance of various economic policy objectives. The second approach is to measure the sensitivity of government popularity to inflation performance. While this method avoids problems with question wording in surveys, the relationship between government popularity and inflation depends on each country's political and economic institutions, and this variation makes it extremely difficult to construct comparable measures across countries. The third alternative implemented by Di Tella, MacCulloch and Oswald (2001) is to estimate the sensitivity of individuals' reported 'happiness' or 'life satisfaction' to inflation and unemployment. As previously implemented, this approach yields a single estimate of inflation aversion for a group of countries and it is not clear that single-country estimates using this method would be sufficiently precise to use as the dependent variable in the cross-country analysis in this article. Nonetheless, this method should be considered complementary to the more direct method employed in this article based on answers to the survey question about inflation and unemployment.

Each of the surveys used in this article asks a question having the same structure as the one cited above. The dependent variable in the analysis below, *Inflation Priority*, is the percentage of respondents in each survey indicating that inflation should be given priority. The mean percentage for the 44 surveys is 37.3 with a standard deviation of 11.7. The appendix on page 292 gives details of the data sources and methods used to construct the dataset.

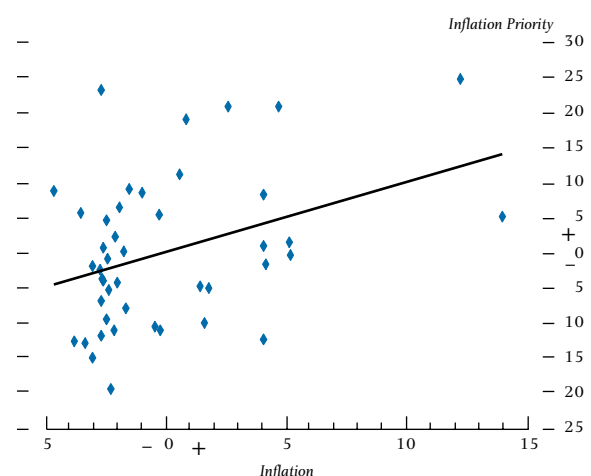
Explaining variation in the demand for low inflation

This section evaluates some factors that may affect the public's macroeconomic priorities. The general framework used in this section for explaining variation in the demand for low inflation is that average public inflation aversion depends on the relative costs of inflation and unemployment.

The starting-point for this analysis is examination of the impact of economic context on responses to the *Inflation Priority* question. The costs of inflation are increasing in the inflation rate, suggesting a positive relationship between actual inflation rates and the *Inflation Priority* dependent variable. Similarly, the costs of unemployment decrease with robust real economic activity and so economic expansions are likely to increase the percentage of respondents placing priority on reducing inflation. To test these hypotheses, the *Inflation Priority* measure in each of the 44 surveys is regressed on annual inflation rates and the estimated output gap for each country in the year in which the survey took place. The *Inflation* measure is the annual percentage change in the consumer price index.⁽¹⁾ The *Output Gap* variable is constructed by the OECD and is equal to the percentage difference between actual GDP in constant prices and estimated potential output. Consequently, as this measure increases, real economic activity is stronger so the expected costs of unemployment to the average individual are lower. This suggests a positive relationship between this measure of real economic activity and *Inflation Priority*. The parameter estimates from this regression are reported in the appendix. The key results of this analysis can be seen by examining Charts 1 and 2.

Chart 1 is a partial regression of *Inflation Priority* on *Inflation*. The variable plotted on the vertical axis is the part of *Inflation Priority* not explained by the variable *Output Gap*. The variable plotted on the horizontal axis is that part of the *Inflation* measure orthogonal to—ie

Chart 1
Inflation Priority higher with increased inflation rates



Notes: The variable plotted on the vertical axis is the part of *Inflation Priority* not explained by the variable *Output Gap*. The variable plotted on the horizontal axis is that part of the *Inflation* measure orthogonal to *Output Gap*. The partial regression line has an estimated slope of 0.992 with a standard error of 0.405. *Inflation Priority* is higher with increased inflation rates.

(1) Taken from the World Bank's *Global Development Finance & World Development Indicators*.

not correlated with—the *Output Gap* variable. This comparison assesses the marginal effect of annual inflation rates on *Inflation Priority* controlling for the estimated *Output Gap*. The chart indicates a positive relationship between the two variables. The estimated slope of the ordinary least squares regression line through these points is 0.992 with a standard error of 0.405. This indicates that, holding the *Output Gap* variable constant, the percentage of respondents placing priority on ‘reducing inflation’ increases by about 1 percentage point for a 1 percentage point increase in the inflation rate. This effect is statistically significant and is substantively important as well, given that the standard deviation of the *Inflation Priority* variable in this sample is 11.7 percentage points. As expected, the public’s response to the survey question depends on the economic context in which it is asked. The costs of inflation increase with higher inflation rates, and concern among citizens about inflation increases accordingly.

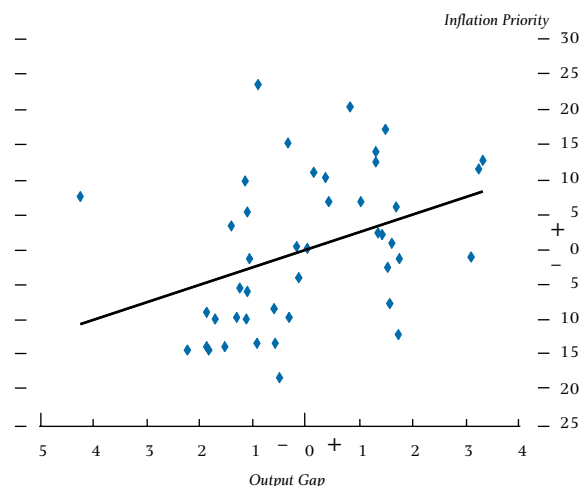
Chart 2 is a partial regression of *Inflation Priority* on *Output Gap*. This chart again evaluates marginal relationships. Controlling for the inflation rate, how do current levels of real economic activity affect individuals’ macroeconomic priorities? Chart 2 also indicates a positive relationship and the estimated slope of the regression line is 2.521 with a standard error of 1.027. An increase of 1 percentage point in the difference between actual and potential output is, all else equal, associated with an increase of about 2.5 percentage

points in the *Inflation Priority* measure. This result is consistent with the idea that as actual output exceeds potential, times are good. The perceived costs of unemployment are likely to be lower, so individuals are more likely to place emphasis on price stability.

But variation in levels of unemployment across countries is not simply the result of being in different stages of the economic cycle. Unemployment also varies because of more fundamental structural factors. So individuals’ macroeconomic priorities may depend not only on the extent to which actual output exceeds potential but also on the level of structural unemployment. This level of unemployment is called the non-accelerating inflation rate of unemployment (NAIRU) and has been recognised in the theoretical political economy literature as a relevant consideration in the assessment of the macroeconomic priorities of individual citizens and policy-makers.⁽¹⁾ Responses to the inflation priority question are sensitive to the relative costs of inflation and unemployment. The costs of unemployment are, of course, greater when the NAIRU is higher and so this is likely to be a consideration as individuals set their macroeconomic objectives.

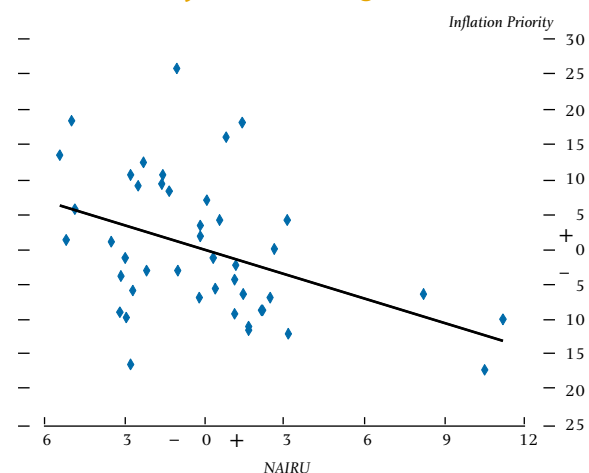
Chart 3 plots *Inflation Priority* against *NAIRU* as estimated by the OECD. It is a partial regression plot for which the conditioning variables are *Inflation* and *Output Gap*. Controlling for these variables, the chart indicates a significant negative relationship between *Inflation Priority* and *NAIRU*. The estimated slope of the

Chart 2
***Inflation Priority* higher as real activity increases**



Notes: The variable plotted on the vertical axis is the part of *Inflation Priority* not explained by the variable *Inflation*. The variable plotted on the horizontal axis is that part of the *Output Gap* variable orthogonal to *Inflation*. The partial regression line has an estimated slope of 2.521 with a standard error of 1.027. *Inflation Priority* is higher as real activity increases.

Chart 3
***Inflation Priority* lower with higher NAIRU**



Notes: The variable plotted on the vertical axis is the part of *Inflation Priority* not explained by the variables *Output Gap* or *Inflation*. The variable plotted on the horizontal axis is that part of the *NAIRU* variable orthogonal to *Output Gap* and *Inflation*. The partial regression line has an estimated slope of -1.176 with a standard error of 0.288. *Inflation Priority* is lower with a higher *NAIRU*.

(1) See Barro and Gordon (1983b).

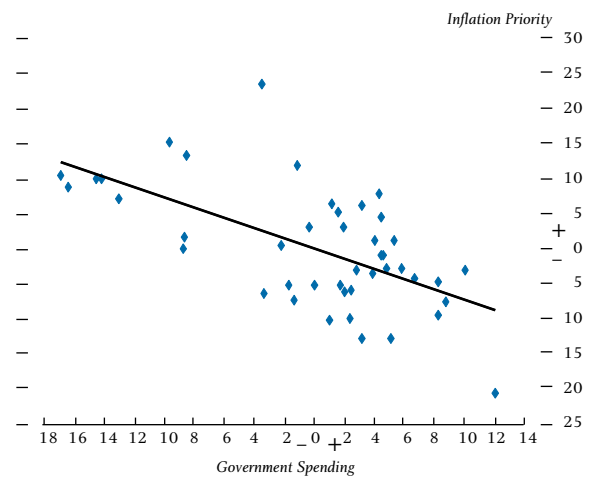
regression line is -1.176 with a standard error of 0.288 . This is a statistically and substantively significant correlation. In evaluations of the relative costs of inflation and unemployment, real activity consistent with stable prices is not the only consideration. Unemployment is costly even if it is structural, and these costs affect assessments of macroeconomic priorities.⁽¹⁾

As discussed above, the costs of inflation literature focuses substantial attention on the effects on welfare of the interaction between inflation and the tax system. The research shows that this interaction can have substantial negative effects. These negative effects are balanced against the recognition that inflationary finance of government expenditures can have some benefits. If non-distortionary lump sum taxes are not available, then raising revenue through the inflation tax may be better than other forms of taxation that distort economic behaviour. Inflation is still costly, and these costs will limit the extent to which it should be used as a source of revenue. How important a consideration this is in evaluating the relative costs of inflation and unemployment is likely to depend on the demand for government revenue.

Suppose this demand is assumed to be exogenous, depending on tastes for public services and current or past military needs. Two reasonable indicators of this demand are total government expenditure as a percentage of gross domestic product, *Government Spending*, and total debt as a percentage of gross domestic product, *Debt*. To test the hypothesis that inflationary finance considerations affect assessments of the relative costs of inflation and unemployment, the *Inflation Priority* measure is regressed on *Inflation*, *Output Gap*, *NAIRU*, *Government Spending*, and *Debt*.

Chart 4 reports the key result for this analysis. The variable plotted on the vertical axis is that part of *Inflation Priority* not explained by *Inflation*, *Output Gap*, *NAIRU*, or *Debt*. The variable plotted on the horizontal axis is that part of *Government Spending* uncorrelated with the same conditioning variables. The chart indicates that, holding these factors constant, there is a negative relationship between *Government Spending* and the *Inflation Priority* measure. The

Chart 4
Inflation Priority decreases with higher government spending



Notes: The variable plotted on the vertical axis is the part of *Inflation Priority* not explained by the variables *Output Gap*, *Inflation*, *NAIRU* or *Debt*. The variable plotted on the horizontal axis is that part of the *Government Spending* variable orthogonal to *Output Gap*, *Inflation*, *NAIRU* and *Debt*. The partial regression line has an estimated slope of -0.730 with a standard error of 0.115 . *Inflation Priority* decreases with higher government spending.

estimated slope of the regression line is -0.730 with a standard error of 0.115 . The correlation is then both substantively and statistically significant. The estimates for the marginal effect of *Debt* are also negative though of smaller magnitude and not statistically significant. Overall, the evidence is consistent with the argument that average inflation aversion is lower in countries that have a greater demand for government revenue, whether it is due to a taste for public services or some other factor.⁽²⁾

Another important difference among countries that may affect public assessments of the relative costs of inflation and unemployment is how open the national economy is to international trade. The general intuition in the literature is that inflation is more costly in more open economies.⁽³⁾ The reasoning on which this hypothesis is based differs across accounts. However, the intuition that higher inflation is correlated with greater uncertainty about future inflation and greater real exchange rate volatility, which is more costly in more open economies, is sufficient for the current analysis.

Chart 5 evaluates this hypothesis using the standard measure of trade openness of imports plus exports as a percentage of gross domestic product. It is a partial regression conditioning on *Inflation*, *Output Gap*, *NAIRU*, *Government Spending*, and *Debt*. There is no

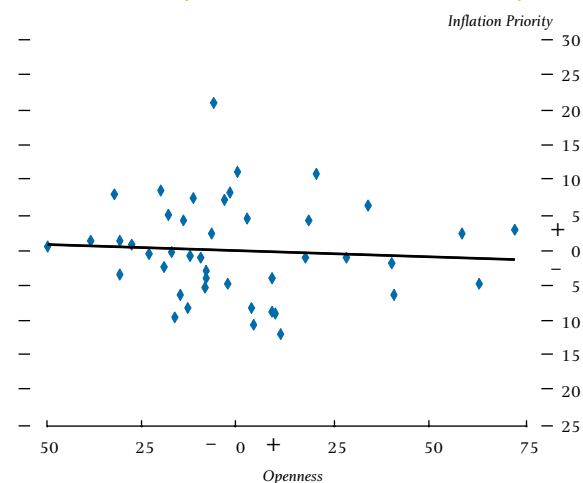
(1) Note that this wedge between actual and potential output is assumed in many of the theoretical models in the political economy literature. See for example Barro and Gordon's discussion of the parameter k in their utility function (1983b).

(2) An alternative interpretation of this correlation is that high levels of government spending may indicate preferences for mitigating adverse outcomes in the labour market. Respondents with such preferences would be more likely to weigh the costs of unemployment heavily in the formation of their macroeconomic priorities.

(3) See for example Frieden (2001), Lane (1995) and Romer (1993).

evidence in this sample that individuals in more open economies are more inflation averse. The estimated slope of the regression line is virtually zero and is not statistically significant. There is in fact no support for the hypothesis in this sample, regardless of the set of conditioning variables chosen.

Chart 5
Inflation Priority not correlated with trade openness

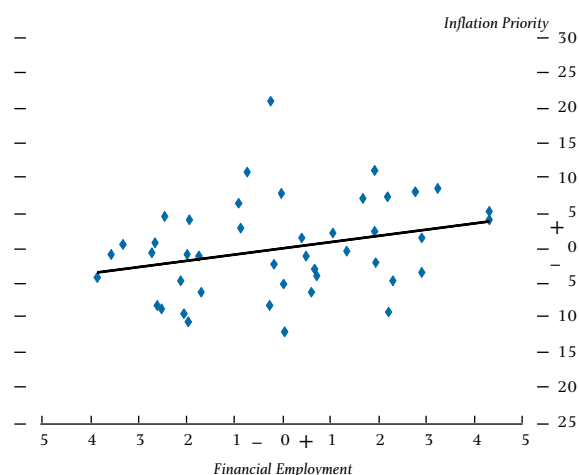


Notes: The variable plotted on the vertical axis is the part of *Inflation Priority* not explained by the variables *Output Gap*, *Inflation*, *NAIRU*, *Debt* or *Government Spending*. The variable plotted on the horizontal axis is that part of the *Openness* variable orthogonal to *Output Gap*, *Inflation*, *NAIRU*, *Debt* and *Government Spending*. The partial regression line has an estimated slope of -0.018 with a standard error of 0.027. *Inflation Priority* is not correlated with trade openness.

Another important argument in the literature on the determinants of inflation outcomes is that the size and structure of the financial sector is an important factor affecting the choice of monetary institutions, policy, and ultimately economic outcomes.⁽¹⁾ The basic idea is that the financial sector, particularly firms engaged in traditional commercial lending, has a strong preference for price stability. Strictly interpreted, this argument might apply only to the distribution of preferences about macroeconomic priorities—ie it implies that the financial sector is more inflation averse than the rest of society. However, a large financial sector might affect average levels of inflation aversion at the margin, both directly through individuals employed in the sector and indirectly through the sector's influence on the media.

Chart 6 evaluates this hypothesis based on a regression of *Inflation Priority* on *Inflation*, *Output Gap*, *NAIRU*, *Government Spending*, *Debt*, and *Financial Employment*. *Financial Employment* measures employment in the financial sector as a percentage of total employment. The partial regression in Chart 6 indicates a positive relationship between *Financial Employment* and *Inflation Priority*. The estimated slope

Chart 6
Inflation Priority increases with greater employment in financial sector



Notes: The variable plotted on the vertical axis is the part of *Inflation Priority* not explained by the variables *Output Gap*, *Inflation*, *NAIRU*, *Debt* or *Government Spending*. The variable plotted on the horizontal axis is that part of the *Financial Employment* variable orthogonal to *Output Gap*, *Inflation*, *NAIRU*, *Debt* and *Government Spending*. The partial regression line has an estimated slope of 0.886 with a standard error of 0.354. *Inflation Priority* increases with greater employment in the financial sector.

of the partial regression line is 0.886 with a standard error of 0.354. This evidence suggests greater inflation aversion in countries with larger financial sectors.

These analyses have suggested that public opinion about macroeconomic policy appears to be influenced by factors that affect the relative costs of inflation and unemployment. This section has evaluated a number of such factors, although the review is certainly not exhaustive. It may be possible to explain some of the remaining variation by including additional factors that affect the costs of inflation and unemployment across countries. Alternatively, this variation in inflation aversion may be due to various factors unique to specific countries over particular time periods. For example, a common argument is that historical experiences of extraordinary periods of inflation, and possibly subsequent political instability, may significantly influence public perceptions of the costs of inflation. This argument is often applied to explain the stylised characterisation of the German public as particularly inflation averse.

Another factor not accounted for in this analysis that may affect the public's assessment is the impact of the media and political elites. The media and elites influence the information sets on which individuals base their opinions about macroeconomic priorities. This may have a systematic impact on opinions if there are important differences across countries or over time. For

(1) See Posen (1995).

example, there is some evidence in this dataset that individuals in advanced economies have become more inflation averse over time, which is consistent with the view that elites have placed greater emphasis on the costs of inflation and the benefits of price stability in recent years.

Conclusion

This article has examined public opinion about inflation in advanced economies. Evidence presented in this study as well as in previous research suggests that the public is generally inflation averse. Overwhelming majorities are concerned about rising prices, and this

concern is evident even in low-inflation environments. The sources of individuals' distaste for inflation are diverse. Nonetheless, it seems clear that these concerns are influenced by the costs of inflation to individuals personally and to the national economy as a whole.

This characterisation of the public as generally inflation averse does not imply that there is not interesting variation across different countries. This article has presented evidence that inflation aversion varies across countries, and that a significant proportion of this variation is accounted for by factors influencing the costs of inflation to each country's economy.

Appendix

Data

The survey data used to construct the dependent variable, *Inflation Priority*, come from the following sources:

Country	Year	Source
Australia	1986	ISSP ⁽¹⁾ 1985
Australia	1990	ISSP 1990
Australia	1996	ISSP 1996
Austria	1986	ISSP 1985
Austria	1997	Eurobarometer 48.0
Belgium	1976	Eurobarometer 5.0
Belgium	1997	Eurobarometer 48.0
Canada	1996	ISSP 1996
Denmark	1976	Eurobarometer 5.0
Denmark	1997	Eurobarometer 48.0
Finland	1997	Eurobarometer 48.0
France	1976	Eurobarometer 5.0
France	1997	Eurobarometer 48.0
France	1997	ISSP 1996
Germany	1976	Eurobarometer 5.0
Germany	1985	ISSP 1985
Germany	1990	ISSP 1990
Germany	1996	ISSP 1996
Germany	1997	Eurobarometer 48.0
Greece	1997	Eurobarometer 48.0
Ireland	1976	Eurobarometer 5.0
Ireland	1991	ISSP 1990
Ireland	1996	ISSP 1996
Ireland	1997	Eurobarometer 48.0
Italy	1985	ISSP 1985
Italy	1990	ISSP 1990
Italy	1996	ISSP 1996
Italy	1997	Eurobarometer 48.0
Japan	1996	ISSP 1996
The Netherlands	1976	Eurobarometer 5.0
The Netherlands	1997	Eurobarometer 48.0
New Zealand	1997	ISSP 1996
Norway	1990	ISSP 1990
Portugal	1997	Eurobarometer 48.0
Spain	1996	ISSP 1996
Spain	1997	Eurobarometer 48.0
Sweden	1997	Eurobarometer 48.0
United Kingdom	1976	Eurobarometer 5.0
United Kingdom	1985	ISSP 1985
United Kingdom	1990	ISSP 1990
United Kingdom	1997	Eurobarometer 48.0
United States	1985	ISSP 1985
United States	1990	ISSP 1990
United States	1996	ISSP 1996

For the Eurobarometer 5.0 data, the English version of the question is: 'What do you think the 'national' government should give greater priority to, curbing inflation or reducing unemployment?'. Individuals were coded 1 if they gave the 'inflation' response and 0 if they gave the 'unemployment' response. Missing data were imputed using the EMis algorithm described in King, Honaker, Joseph and Scheve (2001). The dependent variable, *Inflation Priority*, is the percentage of respondents for each country survey giving the 'inflation' response corrected for missing data.

The question for the Eurobarometer 48.0 data differed in the responses coded. The English version of the

question is: 'Do you think the 'national' government should give higher priority to reducing inflation or higher priority to reducing unemployment?'. Answers were coded on a 5-point scale ranging from 'a lot higher priority on reducing unemployment' to 'a lot higher priority on reducing inflation'. This scale was collapsed to a dichotomy, with 'inflation' answers coded a 1 and 'unemployment' answers coded a 0. The dependent variable, *Inflation Priority*, was coded using the same imputation and coding rules described above.

Finally, data from all three International Social Survey Program studies were based on responses to the question: 'If the government had to choose between keeping down inflation or keeping down unemployment to which do you think it should give highest priority?'. Again, responses indicating 'inflation' were coded 1 and those indicating 'unemployment' were code 0, and the same procedures described above were used to construct the dependent variable *Inflation Priority*.

Regression results

Variable	Model 1	Model 2	Model 3
<i>Inflation</i>	0.992 (0.405)	0.740 (0.366)	0.726 (0.351)
<i>Output Gap</i>	2.521 (1.027)	2.157 (0.895)	1.481 (0.791)
<i>NAIRU</i>		-1.176 (0.288)	-0.959 (0.284)
<i>Government Spending</i>			-0.730 (0.115)
<i>Debt</i>			-0.056 (0.043)
Constant	33.954 (2.262)	44.404 (3.441)	73.870 (5.124)
R-squared	0.26	0.40	0.66
S.E.R.	10.26	9.41	7.24
Number of observations	44.00	44.00	44.00

Note: The table reports OLS regression estimates of *Inflation Priority* regressed on various independent variables. Each cell reports the coefficient estimate and, in parentheses, its standard error (White robust standard errors).

Variable	Model 4	Model 5
<i>Inflation</i>	0.720 (0.327)	1.030 (0.353)
<i>Output Gap</i>	1.539 (0.814)	1.286 (0.808)
<i>NAIRU</i>	-0.955 (0.295)	-0.894 (0.248)
<i>Government Spending</i>	-0.694 (0.116)	-0.678 (0.118)
<i>Debt</i>	-0.055 (0.045)	-0.049 (0.044)
<i>Openness</i>	-0.018 (0.027)	
<i>Financial Employment</i>		0.886 (0.354)
Constant	73.613 (5.161)	62.061 (7.074)
R-squared	0.66	0.69
S.E.R.	7.32	7.04
Number of observations	44.00	44.00

Note: The table reports OLS regression estimates of *Inflation Priority* regressed on various independent variables. Each cell reports the coefficient estimate and, in parentheses, its standard error (White robust standard errors).

(1) International Social Survey Program.

References

- Alt, J (1979)**, *The politics of economic decline*, Cambridge, UK: Cambridge University Press.
- Anderson, C (1995)**, *Blaming the government*, London, UK: M E Sharpe.
- Bakhshi, H, Haldane, A and Hatch, N (1997)**, 'Quantifying some benefits of price stability', *Bank of England Quarterly Bulletin*, August, pages 274–84.
- Bank of England (2001)**, 'The Bank of England inflation attitudes survey', *Bank of England Quarterly Bulletin*, Summer, pages 164–68.
- Barro, R (1995)**, 'Inflation and economic growth', *Bank of England Quarterly Bulletin*, May, pages 166–76.
- Barro, R and Gordon, D (1983a)**, 'Rules, discretion, and reputation in a model of monetary policy', *Journal of Monetary Economics*, Vol. 12, pages 101–22.
- Barro, R and Gordon, D (1983b)**, 'A positive theory of monetary policy in a natural rate model', *Journal of Political Economy*, Vol. 31, pages 589–610.
- Briault, C (1995)**, 'The costs of inflation', *Bank of England Quarterly Bulletin*, February, pages 33–45.
- Cukierman, A and Meltzer, A (1986)**, 'A positive theory of discretionary policy, the cost of democratic government, and the benefits of a constitution', *Economic Inquiry*, Vol. 24, pages 367–88.
- Di Tella, R, MacCulloch, R and Oswald, A (2001)**, 'Preferences over inflation and unemployment: evidence from surveys of happiness', *American Economic Review*, Vol. 91, No. 1, pages 335–41.
- Feldstein, M (1997)**, 'The costs and benefits of going from low inflation to price stability', in Romer, C and Romer, D (eds), *Reducing inflation: motivation and strategy*, Chicago, IL: University of Chicago Press.
- Frieden, J (2001)**, 'Sectoral interests and European monetary integration: an empirical assessment', Harvard University working paper.
- Hibbs, D (1987)**, *The political economy of industrial democracies*, Cambridge, MA: Harvard University Press.
- Joyce, M (1997)**, 'Inflation and inflation uncertainty', *Bank of England Quarterly Bulletin*, August, pages 285–91.
- King, G, Honaker, J, Joseph, A and Scheve, K (2001)**, 'Analyzing incomplete political science data: an alternative algorithm for multiple imputation', *American Political Science Review*, Vol. 95, No. 1 (March), pages 49–70.
- Kydland, F and Prescott, E (1977)**, *Journal of Political Economy*, Vol. 85, pages 473–90.
- Lane, P (1995)**, 'Inflation in open economies', Columbia University working paper.
- Lewis-Beck, M (1988)**, *Economics and elections*, Ann Arbor, MI: University of Michigan Press.
- Lohmann, S (1992)**, 'Optimal commitment in monetary policy: credibility versus flexibility', *American Economic Review*, Vol. 85, pages 273–86.

MacKuen, M, Erikson, R and Stimson, J (1992), 'Peasants or bankers? The American electorate and the US economy', *American Political Science Review*, Vol. 86, No. 3, pages 597–611.

Mankiw, N G (1997), 'Comment on "Why do people dislike inflation?"', in Romer, C and Romer, D (eds), *Reducing inflation: motivation and strategy*, Chicago, IL: University of Chicago Press.

Persson, T and Tabellini, G (1990), *Macroeconomic policy, credibility, and politics*, Chur, Switzerland: Harwood Academic Publishers.

Posen, A (1995), 'Declarations are not enough: financial sector sources of central bank independence', in Bernanke, B and Rotemberg, J (eds), *NBER Macroeconomics Annual 1995*, Cambridge, MA: The MIT Press.

Rogoff, K (1985), 'The optimal degree of commitment to an intermediate monetary target', *Quarterly Journal of Economics*, Vol. 100, pages 1,169–90.

Romer, D (1993), 'Openness and inflation: theory and evidence', *Quarterly Journal of Economics*, Vol. 107, No. 4, pages 869–903.

Sekhon, J (1999), *The economic sophistication of American politics: American public opinion and monetary policy, 1973–93*, PhD Dissertation, Cornell University.

Shiller, R (1997), 'Why do people dislike inflation?', in Romer, C and Romer, D (eds), *Reducing inflation: motivation and strategy*, Chicago, IL: University of Chicago Press.

Walsh, C (1995), 'Optimal contracts for central bankers', *American Economic Review*, Vol. 85, pages 150–67.