

## **Public demand for low inflation**

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## **Abstract**

In this paper, survey data from 20 advanced economies are used to examine individual preferences about macroeconomic priorities. The analysis gives rise to three key findings. First, the distributive consequences of inflation and unemployment are key determinants of how individuals weigh different economic objectives. New evidence is provided that nominal asset owners are relatively more inflation averse, consistent with their exposure to unanticipated inflation. Second, the findings also suggest that economic context has a substantial impact on the public's economic objectives in a way broadly consistent with the specification of utility/loss functions in the theoretical political economy literature. Third, the results suggest that there is significant cross-country variation in inflation aversion, controlling for economic context and individual attributes and that some of this variation can be accounted for by national-level factors affecting the aggregate costs of inflation and unemployment. Cross-country variation in inflation aversion, controlling for economic context has significant implications for both optimal monetary policy making and for models of alternative institutional frameworks for policy-making.

Key words: Inflation aversion, macroeconomic priorities, political economy.

JEL classification: E60, E61.

## Summary

This paper examines public opinion in advanced economies to assess the determinants of the macroeconomic priorities of individual citizens. Are views about macroeconomic policy objectives similar across different individuals or are there important divisions? Does opinion vary across countries, and, if so, what accounts for this variation? This paper uses survey data from 20 advanced economies to address these questions and presents three main empirical findings.

First, the distributive consequences of inflation and unemployment are key determinants of how individuals weigh different economic objectives. The basis of distributive conflict over macroeconomic priorities is in part grounded in the differential effect of macroeconomic performance on outcomes in the labour market. As suggested in previous research, those individuals more exposed to unemployment are less likely to place priority on low inflation. The existing literature, however, has failed to investigate empirically one of the key theoretical mechanisms through which macroeconomic performance generates distributive conflict: the ownership of nominal assets and liabilities. The analysis in this paper makes such an assessment and finds a robust connection between nominal asset ownership and macroeconomic priorities. Owners of nominal assets are more inflation averse, consistent with their exposure to unanticipated inflation.

Second, the findings also suggest that economic context has a substantial impact on the public's economic objectives in a way broadly consistent with the specification of utility/loss functions in the theoretical political economy literature. Rising and more volatile inflation is more costly, and the public places greater emphasis on low inflation as prices increase more rapidly. Similarly, as unemployment rises relative to the level consistent with stable inflation (NAIRU), reducing unemployment becomes a greater priority. These results are generally consistent with findings in the public opinion literature, though this study extends those results by relying on comparable data from 20 advanced economies.

Third, the findings in this paper suggest that there is significant cross-country variation in inflation aversion, controlling for economic context and individual attributes, and that some of this variation can be accounted for by national-level factors that affect the aggregate costs of inflation and unemployment. The empirical estimates in this paper suggest that the demand for government

revenue and the size and structure of the financial sector partially explain cross-country variation in inflation aversion, controlling for economic context and the individual characteristics of survey respondents. The negative correlation between the demand for government revenue and inflation aversion is consistent with the idea that if, for whatever reason, the inflation tax is less distortionary than alternative forms of additional taxation, individuals in countries with higher revenue needs may assess inflation to be less costly than in countries with lower revenue demands. The positive correlation between the extent of employment in the financial sector and inflation aversion is consistent with the argument that the financial sector, particularly firms engaged in traditional commercial lending with typically long-term assets and short-term liabilities, has a strong preference for price stability.

Overall, the findings in this paper suggest a number of questions for future research. A direct extension is to investigate the degree to which inflation aversion in particular countries changes over time. The results in the paper may also be useful in future investigations of the effect of monetary institutions on economic outcomes. Evaluating the effect of these institutions depends first on specifying preferences. This paper provides substantial evidence that there is sufficient variation in public macroeconomic priorities across countries that the specification of preferences may be substantially improved by understanding the relative inflation aversion of citizens. Future studies of why countries adopt the monetary institutions that they do may also be informed by the results in the paper. The role of distributive conflict among groups in society is central to the literature on this question. The findings in this paper suggest that those distributive conflicts are evident in the electorate, as well as among firms in various sectors of the economy.

## 1 Introduction

Since the breakdown of the Bretton Woods system, there has been substantial variation in the institutions that countries adopt for monetary policy making.<sup>(1)</sup> A key feature of this variation is differences in the use of inflation, monetary, and exchange rate targets as well as in the degree of flexibility for such arrangements. Countries also differ in the extent to which they delegate the operation of monetary policy to independent central banks, and variation is evident in how transparent central bank policy-making is to politicians, firms, and the general public.

Each dimension of institutional design may have a substantial impact on future economic performance. For example, increasing central bank independence is thought to reduce average inflation rates and diminish inflation volatility.<sup>(2)</sup> Each dimension of institutional design also has important implications for how democratic economic policy-making is. For example, with independence, the control of monetary policy becomes the responsibility of an unelected agency with varying degrees of accountability to national parliaments. In short, the selection of an institutional framework for monetary policy making clearly has important economic and political consequences.

Given the importance of these choices, not surprisingly a large literature has developed to examine questions such as: What explains the choice of the monetary institutions that countries adopt? What are the effects of these institutions on the politics of economic policy-making and on economic performance? Under what conditions might those effects vary? How democratic are different types of monetary regimes?<sup>(3)</sup> Although the literature generally recognises that different groups in society may have different preferences about macroeconomic objectives and that there may be variation in these preferences across countries, the investigation of these research questions has largely taken place without reference to what the public thinks about economic

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(1) See Mahadeva and Sterne (2000) for a comprehensive review of the variation in monetary policy frameworks around the world.

(2) Key theoretical contributions on this point include, among others, Rogoff (1985), Lohmann (1992), and Walsh (1995). For analysis of the empirical relationship, see Alesina and Summers (1993), Cukierman (1992), and especially Franzese (1999). Note that the expected negative relationship between central bank independence and average inflation is not evident in a number of empirical studies of low-income, developing countries. See Cukierman, Webb and Neyapti (1992), Cukierman, Edwards and Tabellini (1992), and Campillo and Miron (1997) for more discussion on the relationship between independence and average inflation in developing countries.

(3) See, for example, Bernhard (1998), Bernhard and Leblang (1999), Broz (2000), Cukierman (1992), Fischer (1995), Franzese (1999), Freeman (2000), Frieden (1991, 2001), Iversen (1999), Keefer and Stasavage (2000a, 2000b), Posen (1995), and Schamis and Way (2000).

policy objectives. When the preferences of citizens have been included in this research, those preferences are usually assumed rather than grounded in empirical evidence. What are the macroeconomic priorities of individual citizens? Are views about macroeconomic priorities similar across different individuals or are there important divisions? Does opinion vary across countries and, if so, what accounts for this variation? This paper uses survey data from 20 advanced economies to address these questions. There are three main empirical results.

First, the distributive consequences of inflation and unemployment are key determinants of how individuals weigh different economic objectives. The basis of distributive conflict over macroeconomic priorities emphasised in this paper is in part grounded on the differential effect of macroeconomic performance on outcomes in the labour market. This finding affirms previous research (see, for example, Hibbs (1982, 1987a,b)). The existing literature, however, has failed to empirically investigate one of the key theoretical mechanisms through which macroeconomic performance generates distributive conflict: the ownership of nominal assets and liabilities. The analysis in this paper makes such an assessment and establishes a robust connection between nominal asset ownership and macroeconomic priorities. Owners of nominal assets are more inflation averse consistent with their exposure to unanticipated inflation.

Second, the findings also suggest that economic context has a substantial impact on the public's economic objectives in a way broadly consistent with the specification of utility/loss functions in the theoretical political economy literature. Rising and more volatile inflation is more costly, and the public places greater emphasis on low inflation as prices increase more rapidly. Similarly, as unemployment rises relative to the level consistent with stable inflation (NAIRU), reducing unemployment becomes a greater priority. Moreover, the evidence suggests that the level of unemployment consistent with stable inflation itself affects the opinions of individuals. The higher is this rate of unemployment, the less likely individuals are to place emphasis on price stability. These results are generally consistent with a very large public opinion literature though this study extends those results by relying on comparable data from 20 advanced economies.

Third, the findings in this paper suggest that there is significant cross-country variation in inflation aversion controlling for economic context and individual attributes, and that some of this variation can be accounted for by national-level factors affecting the aggregate costs of inflation and unemployment. The empirical estimates in this paper suggest that the demand for government

revenue and the size and structure of the financial sector partially explain cross-country variation in inflation aversion controlling for economic context and the individual characteristics of survey respondents.

Cross-country variation in inflation aversion controlling for economic context has significant implications for both optimal monetary policy making and for theoretical political economy models of alternative institutional frameworks for policy-making. For example, in standard rational expectations macroeconomic models, optimal policy – whether chosen period by period or by precommitment to an optimal rule – depends on levels of inflation aversion in society. In particular, the optimal policy will stabilise output in response to shocks more aggressively the lower inflation aversion is in society. The cross-country variation in inflation aversion documented in this paper suggests that optimal policy responses will differ across countries simply as a function of preferences. This implies that both prescriptions for policy and explanatory models of variation in macroeconomic outcomes should take into account country differences in inflation aversion.

There are four additional sections to this paper. Section 2 defines public demand for low inflation, proposes a method for measuring this demand, and provides a theoretical framework for explaining variation in the demand for low inflation across individuals and countries. Section 3 presents a detailed study of the determinants of individual inflation aversion in the United Kingdom in 1995. The following section extends this analysis by evaluating individual-level and country-level variation in the demand for low inflation in 20 advanced economies. Section 5 concludes with a brief discussion of the implications of the empirical work for the political economy of macroeconomic policy-making.

## **2 Theoretical framework**

### ***2.1 Defining the demand for low inflation***

The substantial literature on the political economy of macroeconomic policy-making provides a theoretical structure for analysis of variation in the demand for low inflation.<sup>(4)</sup> In these models, voters and policy-makers are assumed to have utility or loss functions that depend on inflation and

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



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 is decreasing in both the inflation rate and the unemployment rate. A common specification is the Barro-Gordon (1983b) loss function:

$$L = a(U_t - kU_t^n)^2 + b(\pi_t)^2 \quad (1)$$

where  $U_t$  is the unemployment rate;  $U_t^n$  is the non-accelerating-inflation rate of unemployment (NAIRU);  $\pi_t$  is the inflation rate;  $a$  and  $b$  indicate the relative weight of the first and second terms in the loss function and are assumed to be strictly greater than zero; and  $k$  indicates the extent of distortions such as unemployment compensation and income taxation that make the NAIRU exceed the efficient rate and is generally assumed to be less than one but greater than or equal to zero. This loss function values price stability and full employment, and the ratio of the parameters  $a$  and  $b$  captures the benefit of employment relative to the cost of higher inflation. These parameters therefore indicate inflation aversion, that is how the individual assesses the relative costs and benefits of inflation and unemployment. The subject of this paper is an empirical investigation into why inflation aversion varies across individuals and countries.<sup>(5)</sup>

Consistent with the general specification of the utility functions in the political economy literature, a large body of public opinion research has shown that individuals dislike unemployment, low growth, and inflation.<sup>(6)</sup> Low unemployment and high growth are measures of real economic activity and so the reasons behind the public's preferences are straightforward: low unemployment and high growth are associated with improvements in their own individual economic welfare as well as the welfare of the country as a whole.<sup>(7)</sup> The source of the public's strong dislike for inflation is less obvious because it is not a measure of real economic activity.

The reasons why people do not like inflation appear to be diverse. There is substantial variation in

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(5) The loss function in equation (1) is actually symmetric for unemployment with departures from the NAIRU in either direction generating losses. Differences in both directions are weighed equally for the special case in which  $k = 1$ . Consequently, to say individuals like full employment means they like unemployment equal to the NAIRU. For most of theoretical political economy literature  $k$  is less than one and it is accurate to say individuals especially dislike outcomes in which unemployment is high.

(6) See, for example, Alt (1979), Anderson (1995), Di Tella *et al* (2001), Fiorina (1981), Hibbs (1987a,b), Kramer (1971), Lewis-Beck (1988), Powell and Whitten (1993), Tufte (1978), Sekhon (1999), and Shiller (1997).

(7) Some scholars have raised the question of why self-interested citizens should care about unemployment when, for many individuals, the probability of being unemployed is extremely low even in periods of high national unemployment. Responses to this critique emphasise that as long as an individual's probability of being unemployed is increasing in national levels of unemployment, it is reasonable for low unemployment to be a common policy objective shared by most citizens. Others point out that there is considerable public opinion evidence that voters care to some extent about the fortunes of their neighbours, and this concern may also lead them to value low unemployment.

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 to themselves and to the national economy. 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 emphasised in economists' models.<sup>(8)</sup>

Studies of public opinion suggest that individuals' main concern about inflation is that they believe that it harms their standard of living (Alt (1979); Hibbs (1987a,b); and Shiller (1997)). 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 income. 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 income 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 (Bakhshi, Haldane and Hatch (1997); Barro (1995); Briault (1995); Feldstein (1997); and Joyce (1997)). The most important costs associated with inflation are generally thought to take place when it is

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(8) For a more detailed discussion of low-information rationality in public opinion about the economy, see MacKuen, Erikson and Stimson (1992).

imperfectly anticipated and/or the economy is not fully indexed. High inflation generates uncertainty about future inflation, which creates costly distortions in the economy. For example, uncertainty makes it more difficult for the price mechanism to work efficiently. Economic agents have greater difficulty in distinguishing between relative 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, including spending in retirement. This lowers consumption in the future 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.

These costs associated with inflation suggest that there is 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.<sup>(9)</sup> 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 certainly lead to lower standards of living from inflation for those individuals

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(9) 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 incompetent economic management that also leads to poor real economic performance.

exposed to losses.

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 and costs associated with inflation such as making comparison shopping and planning for the future more difficult. There is also some evidence that individuals dislike inflation because they believe it allows some economic agents to take advantage of others. Survey respondents also seem concerned that inflation will weaken the country's currency and thus damage its national prestige (Alt (1979); Hibbs (1987a); and Shiller (1997)).

To summarise, political economy models of macroeconomic policy-making often assume that voters and policy-makers have utility functions decreasing in the inflation rate and unemployment rate. A large public opinion literature has demonstrated empirically that citizens dislike inflation and unemployment although there seems to be variation in why individuals have these preferences, particularly with respect to inflation. It remains an open question whether there is significant variation across individuals and countries in their assessments of the relative costs and benefits of inflation and unemployment and what might account for that variation. The answers to these questions have important implications for how political economists characterise the politics of monetary policy making within countries, how they account for differences in policy-making across countries, how they assess the costs and benefits of various institutional policy frameworks, and how they evaluate the desirability of various policy responses to economic shocks.

## ***2.2 Measuring the demand for low inflation***

The theoretical dependent variable for the study is inflation aversion. To measure this variable, I use responses to survey questions about macroeconomic priorities that are generally of the form of the following item:

What do you think the (NATIONAL) government should give greater priority to, curbing inflation or reducing unemployment?<sup>(10)</sup>

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(10) *Eurobarometer 5.0.*

This question requires respondents to reveal explicitly how important they think low inflation is relative to the problem of unemployment. In this sense, the measure is consistent with the inflation aversion parameters  $a$  and  $b$  specified in equation (1) above. The key criterion in assessing whether this is a good measure of inflation aversion as defined above is if responses to the question will be sensitive to individuals' assessments of the relative costs and benefits of inflation and unemployment. This expectation seems at least *ex ante* reasonable (see Hibbs (1979) for use of a similar measure). Note that consistent with the literature, the objective is to measure preferences about inflation and unemployment. These preferences are of interest for and, in fact, part of the utility functions in standard economic models for which there is no long-run trade-off between inflation and unemployment.

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, as will be done in the analysis below.

There are at least three alternative strategies for measuring the demand for low inflation. The first is to ask individuals survey questions specifically about inflation without reference to other macroeconomic policy objectives. A possible disadvantage of this approach is that there is no budget constraint or price explicit in the question. The survey evidence suggests that most people can be expected to think 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 (see, for example, Hibbs (1982)). 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 *et al* (2001) is to estimate the sensitivity of individuals' reported 'happiness' or 'life satisfaction' to inflation and unemployment. This approach also avoids problems with question wording in surveys and is well suited to producing a single estimate of how inflation and unemployment affect welfare. However, this approach does

not allow analysis of variation in macroeconomic priorities across individuals which is central to this paper. Nonetheless, as Di Tella *et al* indicate, the approaches are complementary.

### 2.3 *What accounts for variation in the demand for low inflation?*

The previous two sections have defined the demand for low inflation and proposed a survey-based measure for this demand. This section discusses the theoretical determinants of inflation aversion. Why does the demand for low inflation vary across individuals and countries? The explanatory framework focuses on those factors that affect the perceived costs of inflation and unemployment at both the individual and national level. Consequently, in this paper, variation among individuals is viewed primarily as a consequence of the distributive effects of inflation and unemployment while variation across countries is thought to be determined by differences in institutions and economic structure that affect the aggregate costs of inflation and unemployment.

*Nominal assets and liabilities.* Unexpected inflation redistributes wealth and income through all nominal assets and liabilities when contracts are less than fully indexed. Debtors and those who pay fixed nominal incomes gain at the expense of creditors and those who receive fixed incomes. These redistributive effects of inflation are likely to affect the macroeconomic priorities of individuals. Specifically, those individuals who own nominal assets and receive fixed incomes are likely to be more inflation averse while those who are debtors and pay fixed incomes are likely to be less so.<sup>(11)</sup>

*Income.* Higher national unemployment typically is not distributed equally across income groups with low-income individuals having a higher probability of unemployment. Moreover, in some countries, periods of high unemployment have been associated with increasing wage and income inequality (Blinder and Esaki (1978), Hibbs (1987b), Hibbs and Dennis (1988)). Consequently, lower-income groups may be relatively more concerned about unemployment generating a positive relationship between income and the demand for low inflation.<sup>(12)</sup>

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(11) Since the welfare of owners of nominal assets and liabilities depends on exposure to unanticipated inflation rather than the level of inflation, the hypothesised relationship here may be based on the perception in an inflationary environment that there are more positive unanticipated shocks to inflation than negative – a perception which while not consistent with rational expectations is nonetheless plausible. Alternatively, individuals may simply be risk averse and the variation of the unanticipated component of inflation may be thought to increase with the level of inflation. In this case, nominal asset holders will be more inflation averse but so might those with nominal liabilities.

(12) Alternative hypotheses about the relationship between income and inflation aversion are prevalent. It may be the case that inflation is correlated with rising/high income inequality as the rich find it easier to protect themselves

*Labour force status.* Variation in the probability of experiencing unemployment may also be described by an individual's labour force status. Those individuals currently unemployed or having past experience with unemployment are quite likely to be relatively more concerned about unemployment and less so about inflation (Alt (1979)).

*Political ideology and partisanship.* The macroeconomic priorities of individuals may also reflect the political coalitions with which they identify. Throughout the world, parties of the left and right have tended to have different preferences about macroeconomic objectives with parties of the right being more inflation averse than parties of the left (Alesina, Roubini and Cohen (1997); Alesina and Rosenthal (1995); Alt (1979, 1985); Hibbs (1987a,b)). Consistent with this literature those individuals who identify themselves as ideological conservatives or as members of right parties may be relatively more inflation averse. The hypothesised relationship must, however, be interpreted with some care. It is unclear to what extent political ideology explains macroeconomic preferences. Ideology and partisanship are sometimes thought to be the result of early socialisation (particularly the influence of parent ideology on children), and thus it would be accurate to say ideology and partisanship explain preferences. Other accounts see these variables as summary statistics for policy preferences or running tallies of political preferences that are constantly updated. From this perspective, it is not clear that any correlation between political ideology and the measure of inflation aversion indicates evidence of an explanation of individual macroeconomic priorities.

In addition to differences in inflation aversion among individuals by ownership of nominal assets and liabilities, income, labour force experiences, and partisanship there may be differences according to various demographic characteristics. This issue is discussed and evaluated in the empirical analyses below. Of course, the individual's formation of macroeconomic priorities is made in the context of the economic and political environment in which he or she lives. This environment includes an array of national-level factors that are likely to affect assessments of the relative costs and benefits of inflation and unemployment. It is these factors which may account for systematic differences across countries in macroeconomic priorities.

*Current economic performance.* How important individuals think low inflation is should vary with 

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against real income declines from inflation than the poor. This argument suggests possibly a negative relationship between income and the demand for low inflation. Alternatively, the relationship may be non-linear with low and high-income individuals being most concerned about inflation with middle-income citizens being most concerned about unemployment (Alt (1979)).

current economic performance. The costs of inflation are increasing in the inflation rate and the costs of unemployment in the unemployment rate, and so public demand for low inflation should increase with rising inflation and decreasing unemployment. The Barro-Gordon loss function in equation (1) suggests that economic context may not be a simple function of current inflation and unemployment. It is possible that it is only departures of unemployment from the NAIRU that are perceived to be losses (this would be true if the parameter  $k=1$ ). This would require individuals to be fairly sophisticated in that their preference for employment and growth is only for those levels consistent with stable inflation. This possibility suggests that one important way of thinking about how economic context may affect the stated macroeconomic priorities of individuals is consideration of the level of unemployment relative to the NAIRU. Barro and Gordon (1983b) and others, however, have typically assumed that because of existing labour market distortions, the NAIRU is above its efficient level and so  $k$  is less than one. They argue that in addition to unemployment relative to the NAIRU, the level of the NAIRU itself may affect the macroeconomic objectives of individuals. When the NAIRU is higher, the costs of unemployment are higher, and so individuals are less likely to place priority on controlling inflation. The relevant economic context in which individuals make their assessments of the costs of inflation and unemployment is then most likely a function of inflation, unemployment, and the NAIRU.

*Inflationary finance.* As discussed above, the costs of inflation literature focuses substantial attention on the effects of the interaction between inflation and the tax system on welfare. This 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 less distortionary than other forms of taxation. Inflation is still costly, and these costs will limit the extent to which it should be used as a source of revenue. Nonetheless, there are potential benefits to inflation given that existing tax structures are distortionary. 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 expenditures and total government debt. This suggests that individuals in countries with higher government expenditures and debt are likely to be, all else equal, less inflation averse.



*Openness.* 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 (Frieden (1991, 2001); Lane (1995); and Romer (1993)). 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 this analysis. If so, individuals in more open economies may be more inflation averse.

*Financial sector.* 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 (Posen (1995)). The claim is that the financial sector, particularly firms engaged in traditional commercial lending with typically long-term assets and short-term liabilities, 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.

*Historical economic performance.* Two contradictory arguments are made with respect to the impact of national historical economic performance on mass attitudes about inflation. The most common argument is that in those countries that have experienced significant inflationary periods, individuals are more concerned about the potential of rising prices to foster economic and political instability. In such countries, there is expected to be generally greater demand for low inflation. This effect is largely a perceptual difference among countries rather than an objective factor based on the relative costs of inflation and unemployment.<sup>(13)</sup> The alternative argument is that in countries that have had significant inflation in the past, ways of reducing the costs associated with rising prices have been developed, and thus individuals in those countries are generally less concerned about it.<sup>(14)</sup>

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(13) More generally, differences in public information sets in particular countries may lead individuals to have different priorities. Historical economic performance is just one possible source of variation in public information. The media, professional economists, and political elites may also have an effect.

(14) This list does not exhaust the national-level factors that may affect inflation aversion. One interesting extension which is left for future research is how particular combinations of wage bargaining institutions and monetary policy

In summary, the observation that citizens generally dislike inflation and unemployment does not imply that their assessments of the relative importance of these objectives do not vary in important ways. There are substantial theoretical reasons to think that the costs of inflation and unemployment differ across countries and individuals and thus systematically affect the public's macroeconomic priorities.

### **3 Public demand for low inflation in the United Kingdom**

To test systematically these hypotheses, I begin with a detailed study of individual variation in the demand for low inflation in the United Kingdom (UK) in 1995. This analysis holds constant the national-level factors that affect inflation aversion and allows for examination of the individual-level determinants of macroeconomic priorities. The UK analysis takes advantage of a unique survey dataset that provides measures of both individuals' inflation aversion and their exposure to inflation and unemployment including ownership of nominal assets and liabilities. The key question to be evaluated is whether the distributive effects of macroeconomic outcomes systematically affect the macroeconomic priorities of individual citizens.

#### **3.1 Data and econometric model**

The data for this analysis come from the *British Household Panel Survey* (BHPS) (2001). This study is a nationally representative sample of more than 5,000 households and nearly 9,000 individuals surveyed annually from 1991 to the present. I use information from the 1995 cross-section (Wave 5) of this panel that queried respondents both on their macroeconomic priorities and on detailed information about their assets and liabilities.

The measure of public demand for low inflation is based on responses to a survey question similar to the one discussed in Section 2.2. The exact wording is: 'If the government had to choose between keeping down inflation or keeping down unemployment, to which do you think it should give the highest priority?' I constructed the variable *Inflation Priority* equal to 1 if the respondent gave the 'inflation' response and 0 if he or she gave the 'unemployment' response. Inflation aversion is thus increasing in the *Inflation Priority* variable.

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institutions may condition opinion formation about macroeconomic priorities.

The theoretical discussion hypothesises that because unexpected inflation redistributes wealth and income through nominal assets and liabilities, individuals who own nominal assets are likely to be more inflation averse and debtors less so. To test this hypothesis, I constructed a measure of each respondent's ownership of nominal assets and a measure of his or her nominal liabilities. The BHPS asks individuals to report how much they have in their savings accounts and how much they have in other investments.<sup>(15)</sup> The variable *Logged Nominal Assets* is equal to the natural log of the sum of each respondent's total savings and investments plus one. Although one of the key strengths of this dataset is that it collects detailed information about asset ownership, it should be recognised that the investment component of this measure includes some investment categories that are not nominal and whose real value is unlikely to change with unanticipated inflation.<sup>(16)</sup> Nevertheless, the *Logged Nominal Assets* variable broadly captures ownership of nominal assets and thus is hypothesised to be positively correlated with the dependent variable *Inflation Priority*. BHPS also queries respondents about their debts. The variable *Logged Nominal Liabilities* is equal to the natural log of the sum of each respondent's total non-mortgage debts and total mortgages on property plus one. Since the real value of these liabilities decreases with unexpected inflation, the measure is hypothesised to be, all else equal, negatively correlated with *Inflation Priority*.

The theoretical discussion also suggests that inflation aversion is likely to be a function of employment risks as measured by income and past labour market experience. The variable *Logged Income* is set equal to the natural log of annual household income plus one.<sup>(17)</sup> Because low-income individuals are generally thought to have a higher probability of unemployment and because high unemployment has been associated with increasing wage inequality in some countries, I hypothesise that *Logged Income* will be positively correlated with inflation aversion. The variable *Weeks Unemployed* is equal to the number of weeks the respondent was unemployed in the year leading up to the interview from September 1994 to September 1995. This variable measures the individual's exposure to unemployment based on his or her recent labour force status. Consequently, I expect *Weeks Unemployed* to be, controlling for other factors, negatively associated with the dependent variable *Inflation Priority*.

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(15) The BHPS collects the savings information in two different variables, one for individuals who are regular savers and one for individuals who do not currently save but nonetheless have savings accounts. The information in these variables was combined to calculate a savings variable for each respondent.

(16) For investments, individuals were asked whether they held investments in national savings certificates, premium bonds, unit trusts, personal equity plans, equity shares, insurance bonds, or other financial investments.

(17) Annual household income is a variable calculated by the BHPS to include income from all sources in the year from September 1994 to September 1995. The BHPS does impute some data in constructing this variable.

In addition to differences in inflation aversion among individuals by ownership of nominal assets and liabilities, income, and labour force experiences, there may be differences according to various demographic characteristics. To allow for this possibility, I constructed variables identifying each respondent's age, sex, and educational attainment. The variable *Age* equals the respondent's age in years. *Gender* is a dichotomous variable equal to 1 for females and 0 for males. *Education* is a categorical variable ranging from 1 to 4 indicating increasing educational attainment.<sup>(18)</sup> Differences in inflation aversion according to these demographic characteristics are likely a function of distributive effects not captured by the measures of nominal assets and liabilities, income, and labour market experiences used in the analysis and of systematic differences in how various types of individuals perceive the relative costs of inflation and unemployment. For example, older individuals are more likely to have significant nominal assets and/or to rely on fixed incomes. These differences may not be perfectly captured by the other measures. Moreover, individuals who have lived during periods of significant, disruptive episodes of inflation are more likely to believe that low inflation is a critical policy objective than those who have not. Similarly, women have more volatile employment experiences than men controlling for skill and experience in many countries. These differences may lead to variation in preferences about macroeconomic priorities with women being less inflation averse than men. Education is a common measure of both labour market skills and cognitive abilities. To the extent that it is a skill measure, it likely has effects on inflation aversion similar to those of income.

Finally, the theoretical discussion suggested that macroeconomic priorities may depend on the political coalitions with which individuals identify. To test this, I constructed a dichotomous variable equal to 1 if the respondent supported the Conservative party (the party in government in 1995) and equal to 0 otherwise. This variable is hypothesised to be positively correlated with the dependent variable *Inflation Priority* consistent with the literature on partisan patterns of economic policy-making (Alesina (1987); Alesina and Rosenthal (1995); Alesina, Roubini and Cohen (1997); and Hibbs (1987a,b)).

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(18) For example, category 1 corresponds to no qualifications or still in school and no qualifications, and category 4 includes teaching qualification, first degree, or higher degree. Since these categories are not necessarily equal interval, dichotomous variables were constructed for each to test for problems with this assumption in the analysis.

**Table A: Summary statistics: UK data.** These summary statistics are multiple-imputation estimates based on 10 imputed datasets.

Variable	Mean	Standard Error
<i>Inflation Priority</i>	0.332	0.471
<i>Logged Nominal Assets</i>	5.457	3.854
<i>Logged Nominal Liabilities</i>	6.045	4.753
<i>Logged Income</i>	9.730	0.900
<i>Weeks Unemployed</i>	2.056	8.829
<i>Age</i>	43.931	18.495
<i>Gender</i>	0.540	0.498
<i>Education</i>	2.290	0.994
<i>Conservative Party ID</i>	0.253	0.434
Observations	8,827	

Table A reports the summary statistics of the inflation aversion measure and the explanatory variables. These estimates and all the statistical analyses in this paper rely on multiple imputation to deal with missing data problems.<sup>(19)</sup>

The empirical work aims to see how various factors affect perceptions of the impact of inflation and unemployment on welfare and thus the probability that an individual places priority on price stability. The dependent variable *Inflation Priority* equals 1 when a respondent gives the ‘inflation’ response and 0 for the ‘unemployment’ response. Then

$E(\text{Inflation Priority}_i) = Pr(\text{Inflation Priority} = 1 | \pi_i) = \pi_i$  where  $i$  indexes each individual observation and  $\pi_i$  equals the probability that an individual gives the ‘inflation’ response. I model the variation in  $\pi_i$  according to the logistic form with  $\pi_i = 1/(1 + \exp(-x_i\beta))$ . In this expression,  $x_i$  is a vector of individual explanatory variables hypothesised to affect the probability of placing priority on inflation and  $\beta$  is a vector of effect parameters. I estimate these effect parameters using logit regressions.

This analysis is based on three models defined by three alternative sets of explanatory variables included in the vector  $x_i$ . Model 1 includes the measures of nominal assets and liabilities, income, and recent labour market experience only. This specification is the baseline model that tests the main hypothesis that differences among individuals in macroeconomic priorities depend on assessments of the impact of inflation and unemployment on economic welfare. Model 2 adds to

(19) See Appendix B for details about the missing data procedures. The summary statistics reported are unweighted as are the logit estimates in the paper. The weighted and unweighted parameter estimates were substantively similar and thus following Winship and Radbill (1994), I report the unweighted results.

these measures the demographic variables for age, sex, and education. Finally, Model 3 includes the measure for partisanship. Although Model 3 includes all the variables in Model 2, the estimates of the parameters other than the effect of partisanship on inflation aversion should not be interpreted. Since partisanship, particularly as measured in this dataset, is a consequence of the other variables, inclusion of partisanship biases the estimates of the effect of those variables on inflation aversion. Model 3 is estimated solely to evaluate the correlation of partisanship with macroeconomic priorities.

### 3.2 *Empirical results*

The results of the logit regressions are reported in Table B. The estimates across Models 1 through 3 indicate that nominal assets, education, and political conservatism are all significantly positively correlated with inflation aversion for the 1995 UK data. In contrast, the unemployed and women are estimated to be less inflation averse.

The actual coefficient estimates in Table B identify the qualitative effect of the explanatory variables on *Inflation Priority*. However, these coefficients do not answer the key substantive question of how changes in these variables affect the probability that an individual places priority on price stability. To answer this question, I used the estimates of the logit regressions to conduct simulations that calculated the effect on macroeconomic priorities of increasing each explanatory variable, while holding the other variables constant at their sample means.<sup>(20)</sup>

Table C reports the results of this simulation for Models 1 and 2. For Model 1, increasing the variable *Logged Nominal Assets* from one standard deviation below its mean to one standard deviation above, holding fixed all other regressors, increases the probability of placing priority on price stability by 0.057. This estimated change has a standard error of 0.010 and a 90% confidence

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(20) The simulation procedure works as follows. Recognising that the parameters are estimated with uncertainty, I drew 1,000 simulated sets of parameters from their sampling distribution defined as a multivariate normal distribution with mean equal to the maximum-likelihood parameter estimates and variance equal to the variance-covariance matrix of these estimates. For each of the 1,000 simulated sets of coefficients, I then calculated two probabilities. The first is the probability of an ‘inflation’ response to the *Inflation Priority* question when all the variables included in the model are set to their means except the variable of interest which is set to one standard deviation below its mean. The second is the probability of an ‘inflation’ response when the variable of interest is set to one standard deviation above its mean holding all the other variables at their means. The difference between these two estimated probabilities is the estimated difference in the probability of placing priority on price stability for a respondent with a typically low value of the variable of interest and an individual with a typically high value of that variable. I calculated this difference 1,000 times, and then to show the distribution of this difference calculated its mean, standard error, and a 90% confidence interval.

**Table B: Determinants of public demand for low inflation: Models 1-3.** These results are multiple-imputation estimates of logit regression coefficients based on 10 imputed datasets. Each cell reports the coefficient estimate and (in parentheses) its standard error. The dependent variable is *Inflation Priority*. The measure is coded 1 for those individuals giving the ‘inflation’ response and 0 for those giving the ‘unemployment’ response.

Regressor	Model 1	Model 2	Model 3
<i>Logged Nominal Assets</i>	0.033 (0.006)	0.027 (0.007)	0.008 (0.007)
<i>Logged Nominal Liabilities</i>	-0.001 (0.006)	-0.004 (0.006)	-0.008 (0.006)
<i>Logged Income</i>	0.051 (0.032)	0.025 (0.032)	-0.008 (0.032)
<i>Weeks Unemployed</i>	-0.006 (0.003)	-0.008 (0.003)	-0.007 (0.003)
<i>Age</i>		0.001 (0.002)	-0.004 (0.002)
<i>Gender</i>		-0.311 (0.048)	-0.310 (0.049)
<i>Education</i>		0.082 (0.026)	0.063 (0.027)
<i>Conservative Party ID</i>			1.148 (0.055)
<i>Constant</i>	-1.363 (0.297)	-1.120 (0.315)	-0.740 (0.318)
Observations	8,827	8,827	8,827

interval of (0.039, 0.073). The estimate for the impact of *Logged Nominal Assets* for Model 2 is quite similar. There is clear evidence that ownership of nominal assets has a statistically and substantively significant positive effect on inflation aversion among citizens.

The evidence for the effect of nominal liabilities is extremely weak. The estimate for *Logged Nominal Liabilities* in Table C is negative as hypothesised, but the size of the effect is small in magnitude and imprecisely estimated. There is no evidence in this data that debtors have systematically different preferences than the rest of the population about macroeconomic priorities. One possible explanation for the asymmetry in results for nominal assets and liabilities is that the UK mortgage market is dominated by variable rate mortgages and thus debtors may be primarily concerned about increased interest payments that would likely accompany accelerating inflation.

The impact of unemployment risks on preferences is assessed by estimating the effect of the

number of weeks the respondent was unemployed in the previous year and the respondent's logged income on the probability that he or she gave the 'inflation' response. Increasing the *Weeks Unemployed* variable from one standard deviation below its mean to one standard deviation above holding the other regressors constant at their means, decreases this probability by 0.012 on average in the Model 1 simulations and 0.032 in the Model 2 simulations. Both these estimates are fairly precise with relatively small standard errors. Recent labour force experiences have a clear marginal impact on macroeconomic priorities though the size of the effects are not large.

The results for household income are more ambiguous. The estimates in Table C indicate that although household income is correlated positively with the probability of placing priority on price stability, this estimate has a relatively large standard error and is not statistically significant at conventional levels. It is worth noting, however, that the estimates for the impact of income become statistically significant if rather than logged income the non-linear relationship is modelled by including income and the square of income as regressors. Consequently, an alternative interpretation of the results is that the effect of income on inflation aversion in the UK is positive but it is substantively small. More generally, the weeks unemployed and income results are consistent with the hypothesis that those individuals with higher risks of actually experiencing unemployment are generally less inflation averse.

The findings for the demographic characteristics of respondents are also interesting. Once I control for the other determinants of inflation aversion, there is little evidence that a respondent's age is correlated with preferences. There is, however, considerable evidence of differences between men and women. Table C reports the effect of a respondent being female on the probability of giving the 'inflation' response to the *Inflation Priority* question. On average, being female decreases the probability of giving this answer by 0.07. This effect is statistically significant with a standard error of 0.01. All else equal, women are less inflation averse than men. While the result is open to interpretation, it may be a function of differences in labour market risks not measured by the other variables in the model. This interpretation is bolstered by the fact the differences between men and women are greater for those individuals currently in labour market than for the whole sample. The results in Table C also suggests that more educated respondents are marginally more inflation averse. This correlation may indicate differences in labour market risks by skill type.

Finally, the results of the logit regression for Model 3 reported in Table B indicate that support for



**Table C: Estimated effect of increasing explanatory variables on the probability of placing priority on reducing inflation. Using the estimates from Model 1 and Model 2, I simulated the consequences of changing each independent variable from one standard deviation below its mean to one standard deviation above on the probability that the respondent places priority on price stability (except for *Gender*, which is the difference between 0 and 1). The mean effect is reported first, with the standard error of this estimate in parentheses followed by a 90% confidence interval.**

Regressor	Model 1	Model 2
<i>Logged Nominal Assets</i>	0.057 (0.010) [0.039, 0.073]	0.046 (0.011) [0.028, 0.064]
<i>Logged Nominal Liabilities</i>	-0.001 (0.011) [-0.019, 0.018]	-0.008 (0.013) [-0.031, 0.014]
<i>Logged Income</i>	0.020 (0.012) [-0.001, 0.040]	0.010 (0.013) [-0.011, 0.031]
<i>Weeks Unemployed</i>	-0.012 (0.008) [-0.026, -0.002]	-0.032 (0.012) [-0.052, -0.011]
<i>Age</i>		0.008 (0.013) [-0.015, 0.031]
<i>Gender</i>		-0.068 (0.010) [-0.087, -0.052]
<i>Education</i>		0.036 (0.011) [0.018, 0.053]

the Conservative party in 1995 was positively associated, on average, with preferences for price stability. The magnitude of this effect, at least for this 1995 survey, is quite large. Using the same methodology described above, I simulated the difference between an individual who did not support the Conservative party and an individual who did, holding the other variables constant at their means. Support for the Conservatives increases the probability of placing priority on inflation by 0.27 on average with a standard error of 0.01. It is important to keep in mind that the choice of partisan support is almost certainly a function of some of the other variables included in the regression and perhaps may even be a function of macroeconomic priorities, rather than a cause of them (see eg Anderson (1995), Hibbs (1987a,b) and Price and Sanders (1995)).

Overall, this examination of the public demand for low inflation in the UK suggests that the distributive consequences of macroeconomic outcomes clearly play a role in the economic

objectives of individual citizens. Most significantly, previous research has failed to empirically investigate one of the key theoretical mechanisms through which macroeconomic performance generates distributive conflict: the ownership of nominal assets and liabilities. The analysis in this section makes such an assessment and establishes a robust connection between nominal asset ownership and macroeconomic priorities. Individuals differ in their exposure to the effects of inflation and unemployment – through both the assets that they own and their position in the labour market – and their macroeconomic priorities reflect these differences.<sup>(21)</sup>

#### **4 Comparative study of public demand for low inflation**

The previous section examined in detail individual-level variation in inflation aversion in one country at one particular time. This section extends the investigation to a sample of 20 advanced economies in selected years from 1976 through 1997. There are three main results in this section. First, the analysis reinforces the claim in the previous section that individual-level variation in macroeconomic priorities is, in part, explained by differences in the likely impact of inflation and unemployment on individual welfare. Second, the findings also suggest that economic context has a substantial impact on the public's economic objectives in a way broadly consistent with the specification of utility/loss functions in the theoretical political economy literature. Third, the results suggest that there is significant cross-country variation in inflation aversion controlling for economic context and that some of this variation can be accounted for by national-level factors affecting the aggregate costs of inflation and unemployment.

##### ***4.1 Data and econometric model***

The data for the comparative analysis are from five cross-national surveys conducted in 20 advanced economies in various years from 1976 to 1997. The countries represented in the data are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, the United Kingdom, and the United States. Each country is represented in at least one of the five surveys and one country,

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(21) The results reported in this section are robust to including a number of alternative regressors including union membership and public sector employment. It is worth noting that individuals who are members of unions and individuals who are employed in the public sector are, all else equal, less inflation averse. The public sector result is particularly interesting as policy conflict between the public and private sectors has been important in a number of recent studies of the interactions between wage bargaining institutions and macroeconomic policy-making (ie Garrett and Way (1999), Iversen (1999) and Pontusson and Swenson (1996)).

Germany, is included in all five. In total, the dataset has 44 surveys in the 20 countries (see Appendix A for further details about the comparative survey data).

Each of the surveys asks respondents a question equivalent to that discussed in Section 2.2 which requires individuals to reveal their macroeconomic priorities.<sup>(22)</sup> I constructed the dichotomous variable *Inflation Priority* as in the UK analysis in the previous section and thus inflation aversion is again increasing in this measure.

The analysis below investigates the individual and national-level determinants of individual macroeconomic priorities, as measured by the *Inflation Priority* variable, across the 20 advanced economies included in the dataset. To test the various hypotheses about how individual characteristics may affect macroeconomic objectives, I constructed measures that approximate those used in the UK analysis subject to the constraints of the information available in the comparative surveys. One set of hypotheses that cannot be tested in the comparative analysis is the impact of ownership of nominal assets and liabilities on macroeconomic priorities. Detailed information about individual assets and liabilities is not available in the comparative surveys. To test the other individual-level hypotheses, I constructed measures of income, labour force status, age, sex, and education. The variable *Income Quartile* ranges from 1 to 4 and indicates whether the respondent's income is in the first, second, third, or fourth quartile of the income distribution for the respondent's own country. *Unemployed* is a dichotomous variable equal to 1 if the respondent is currently unemployed and is equal to zero otherwise. Although this variable is not as good a measure of exposure to labour market risks as that used in the UK analysis (*Weeks Unemployed*), it does indicate an important difference among respondents in their labour force status that may affect their economic objectives. As before, the variable *Age* equals the respondent's age in years, and *Gender* is a dichotomous variable equal to 1 for females and 0 for males. *Education Years* is an ordered categorical variable with 9 categories corresponding to increasing years of formal education. Finally, two measures were constructed to test the hypothesis that the political coalitions with which individuals identify may affect their macroeconomic priorities. *Political Ideology* is a 10-point measure with 1 indicating the respondent placed themselves at the far left of the Left/Right scale and 10 corresponding to the far right. *Party* is a 5-point scale constructed by first determining what political party the respondent

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(22) The exact question wording for each of the five surveys is reported in Appendix A. That appendix and Appendix B report how the slight variations in the wording of each of the questions across the five surveys was dealt with and how the statistical analyses take into account additional uncertainty generated by these differences.

identifies with and then placing the party on a 5-point Left/Right scale.

The key advantage of the comparative analysis is that it allows the investigation of the extent to which various national-level factors affect the public's macroeconomic priorities. The theoretical discussion emphasised that how important individuals think low inflation is should vary with current economic performance defined by inflation, unemployment, and the NAIRU. The *Inflation* variable is the annual percentage change in the consumer price index as published in the World Bank's *Global Development Finance* and *World Development Indicators*. To examine the impact of unemployment, I constructed two measures. First, the variable *Unemployment Gap* is equal to the difference between current unemployment and the NAIRU as estimated by the OECD. This measures economic activity relative to the level of activity estimated to be consistent with a stable inflation rate. Second, the analysis includes the variable *NAIRU* to examine whether, in addition to unemployment relative to the NAIRU, the level of the NAIRU itself affects individuals' assessments of the costs and benefits of unemployment and thus their economic priorities.<sup>(23)</sup> Although this specification does not follow the functional form of the Barro-Gordon loss function in equation (1), the arguments chosen are directly informed by it. Individual utility is a function of inflation, unemployment relative to the NAIRU, and the NAIRU itself (assuming  $k < 1$ ). The expectation is that the *Inflation* variable will, all else equal, be positively correlated with the dependent variable *Inflation Priority* while *Unemployment Gap* and *NAIRU* will be negatively correlated with *Inflation Priority*.

The theoretical discussion also suggests that the costs and benefits of inflation may vary across countries according to the demand for government revenue. I constructed two indicators of this demand. *Government Spending* is equal to total government expenditures as a per cent of gross domestic product, and *Debt* is equal to total government debt also as a per cent of gross domestic product. Since the hypothesis is that increasing demand for government revenues increases the incentives for inflationary finance, I expect that both these measures will be negatively associated with the *Inflation Priority* variable.

To evaluate the hypothesis that inflation may be more costly in more open economies and thus lead the public to be more inflation averse in countries more exposed to trade, I constructed the variable *Trade Openness* equal to imports plus exports as a percentage of gross domestic product.

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(23) The source for these measures and all the aggregate economic measures described below, unless otherwise stated, is the *OECD Statistical Compendium* (2001).

**Table D: Summary statistics: comparative data.** These summary statistics are multiple-imputation estimates based on 5 imputed datasets.

Variable	Mean	Standard Error
<i>Inflation Priority</i>	0.387	0.487
<i>Income Quartile</i>	2.453	1.106
<i>Unemployed</i>	0.047	0.212
<i>Age</i>	44.620	17.354
<i>Gender</i>	0.512	0.500
<i>Education Years</i>	4.393	2.793
<i>Political Ideology</i>	5.409	2.023
<i>Party</i>	2.906	0.938
Observations	55,194	
<i>Inflation</i>	4.425	4.023
<i>Unemployment Gap</i>	0.727	1.619
<i>NAIRU</i>	8.058	3.756
<i>Government Spending</i>	38.017	7.695
<i>Debt</i>	65.306	24.882
<i>Trade Openness</i>	63.370	30.812
<i>Financial Employment</i>	8.338	2.634
Observations	44	

This variable is hypothesised to be positively correlated with *Inflation Priority*. The theoretical discussion also considered the possibility that the size and structure of the financial sector may influence the public’s perceptions of the relative costs of inflation and unemployment. The variable *Financial Employment* is equal to total employment in the financial sector as a percentage of total civilian employment and broadly measures the size of this sector. I expect that at the margin this variable will be positively associated with the measure of inflation aversion, *Inflation Priority*.

Table D reports the summary statistics for the comparative dataset. As in the UK study, the empirical work aims to see how different factors affect perceptions of the costs and benefits of inflation and unemployment and thus the probability that an individual places priority on price stability or reducing unemployment. Consequently, I again estimate a series of logit regressions to make this evaluation.

The analysis is based on seven models (Models 4-10) defined by seven alternative sets of explanatory variables. Model 4 includes the measures of economic context, *Inflation*, *Unemployment Gap*, and *NAIRU*, as well as the basic set of individual variables replicating key

aspects of the UK study. Models 5 and 6 add to this specification the two different measures of the respondent's political conservatism, *Political Ideology* and *Party* respectively. Model 7 adds to the baseline Model 4 the variables *Debt* and *Government Spending* testing the inflationary finance hypothesis. Models 8 and 9 add to this specification the measures *Trade Openness* and *Financial Employment*. Finally, Model 10 re-estimates the baseline specification, Model 4, with the addition of a dichotomous variable indicating whether the respondent was queried in the 1980s, a similar indicator for the 1990s, and a series of dichotomous variables for each country in the analysis except for the United Kingdom.

## 4.2 Empirical results

The logit regression coefficient estimates for Models 4 through 10 are reported in Tables E, F and G. The results provide further evidence that individual-level variation in macroeconomic priorities is, in part, explained by differences in the likely impact of inflation and unemployment on individual welfare. The findings also suggest that economic context has a substantial impact on the public's economic objectives in a way broadly consistent with the specification of utility/loss functions in the theoretical political economy literature. Rising and more volatile inflation is more costly, and the public places greater emphasis on low inflation as prices increase more rapidly. Similarly, as unemployment rises relative to that level consistent with stable inflation (NAIRU), reducing unemployment becomes a greater priority. Moreover, the evidence suggests that the level of unemployment consistent with stable inflation itself affects the opinions of individuals. The higher is this rate of unemployment, the less likely individuals are to place emphasis on price stability. Finally, the findings indicate that other national-level factors that likely impact the relative costs of inflation and unemployment on national economic welfare also influence macroeconomic priorities.

Table H reports the results of simulations based on the logit regressions evaluating how changes in each of the individual-level explanatory variables affect the probability that the respondent places priority on price stability.<sup>(24)</sup> Using the estimates from Model 4, increasing the *Income Quartile* variable from one standard deviation below its mean to one standard deviation above, increases the probability of placing priority on price stability by 0.038 on average. The estimate is relatively precise with a standard error of 0.004 and is robust across alternative specifications including

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(24) Recall again that the comparative data do not allow testing of the impact of ownership of nominal assets and liabilities on macroeconomic priorities.

adding country and decade indicator variables as in Model 10. It suggests that higher income individuals with fewer risks of actually experiencing unemployment are generally more inflation averse.<sup>(25)</sup> The impact of unemployment risks is also evident in the estimated effect of being unemployed. Again using the estimates from Model 4, the simulations suggest that being unemployed reduced the probability that the respondent placed emphasis on curbing inflation by 0.071 with a standard error of 0.011. This finding is also robust to including different sets of conditioning variables. These results are consistent with the inference made in the UK analysis that labour market risks affect individual macroeconomic priorities. In fact, the evidence in the comparative data is considerably stronger on this point, particularly with respect to the link between income and opinion.

The results for the demographic variables can also be usefully compared with the findings in Section 3. The clearest difference among demographic groups in the UK analysis, controlling for nominal assets and liabilities, income, and labour market experiences, is between men and women. This finding is also evident in the comparative data. The simulations reported in Table H indicate that the difference between men and women in the probability of placing priority on price stability is 0.056 on average with women being less inflation averse (compared to an estimated difference of 0.070 in the UK analysis). This estimate has a relatively small standard error and is consistent across models. The estimate for the impact of age is essentially zero in the UK study but is significantly positive in the comparative data. The positive effect is consistent with expectations if older individuals are more likely to own nominal assets and receive fixed nominal incomes. The fact that the comparative analysis does not control for asset ownership may account for the difference in the estimates. The two sets of analyses also differ for the effect of education. The positive and statistically significant correlation in the UK analysis is not replicated in the comparative study.

The final set of results reported in Table H that merit attention are the estimates for the impact of political identity on macroeconomic priorities. The estimates for both the *Political Ideology* and *Party* measures of political identity suggest that conservatism is positively correlated with greater inflation aversion. Using the logit regression results from Model 5, increasing the *Political Ideology* measure from one standard deviation below its mean to one standard deviation above increases the probability of emphasising reducing inflation by 0.079 on average with a standard

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(25) This result is, of course, also consistent with the related idea that higher income individuals are better able to insure themselves against the risks of unemployment.

**Table E: Determinants of public demand for low inflation: Models 4-6.** These results are multiple-imputation estimates of logit regression coefficients based on 5 imputed datasets. Each cell reports the coefficient estimate and (in parentheses) its standard error. The dependent variable is *Inflation Priority*.

Regressor	Model 4	Model 5	Model 6
<i>Inflation</i>	0.045 (0.003)	0.042 (0.003)	0.045 (0.003)
<i>Unemployment Gap</i>	-0.163 (0.006)	-0.164 (0.006)	-0.167 (0.006)
<i>NAIRU</i>	-0.053 (0.003)	-0.054 (0.003)	-0.054 (0.003)
<i>Income Quartile</i>	0.073 (0.009)	0.065 (0.009)	0.045 (0.009)
<i>Unemployed</i>	-0.314 (0.048)	-0.295 (0.048)	-0.249 (0.051)
<i>Age</i>	0.005 (0.001)	0.004 (0.001)	0.003 (0.001)
<i>Gender</i>	-0.237 (0.021)	-0.238 (0.020)	-0.242 (0.020)
<i>Education Years</i>	-0.002 (0.004)	-0.002 (0.004)	-0.008 (0.004)
<i>Political Ideology</i>		0.083 (0.006)	
<i>Party</i>			0.312 (0.015)
<i>Constant</i>	-0.388 (0.062)	-0.750 (0.068)	-1.124 (0.079)
Observations	55,194	55,194	55,194

error of 0.005. An equivalent simulation based on Model 6 and the variable *Party* produces an estimate of 0.137 with a standard error of 0.006. As in the UK study, individuals who identify with political conservatism place greater emphasis on price stability. As pointed out in Section 3, this result is consistent with a central assumption in the theoretical and empirical literature on partisan and rational partisan business cycles.

In addition to generalising the main individual-level findings in the UK study, the comparative data allows for examination of how various national-level factors affect the public's macroeconomic priorities. To start, I focus attention on how the current economic context influences opinion. Table I reports simulations of the impact of these measures and the other national-level variables on the probability that an individual respondent places emphasis on price stability based on the logit regression results for the comparative data. Using Model 4, increasing



**Table F: Determinants of public demand for low inflation: Models 7-9.** These results are multiple-imputation estimates of logit regression coefficients based on 5 imputed datasets. Each cell reports the coefficient estimate and (in parentheses) its standard error. The dependent variable is *Inflation Priority*.

Regressor	Model 7	Model 8	Model 9
<i>Inflation</i>	0.040 (0.003)	0.040 (0.003)	0.045 (0.003)
<i>Unemployment Gap</i>	-0.119 (0.007)	-0.119 (0.007)	-0.111 (0.007)
<i>NAIRU</i>	-0.047 (0.003)	-0.047 (0.003)	-0.045 (0.003)
<i>Government Spending</i>	-0.030 (0.001)	-0.029 (0.001)	-0.028 (0.002)
<i>Debt</i>	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)
<i>Trade Openness</i>		-0.000 (0.000)	
<i>Financial Employment</i>			0.022 (0.005)
<i>Income Quartile</i>	0.076 (0.009)	0.076 (0.009)	0.078 (0.009)
<i>Unemployed</i>	-0.288 (0.048)	-0.287 (0.048)	-0.289 (0.048)
<i>Age</i>	0.004 (0.001)	0.004 (0.001)	0.004 (0.001)
<i>Gender</i>	-0.239 (0.021)	-0.239 (0.021)	-0.238 (0.021)
<i>Education Years</i>	-0.009 (0.004)	-0.009 (0.004)	-0.011 (0.004)
<i>Constant</i>	0.801 (0.081)	0.798 (0.080)	0.506 (0.111)
Observations	55,194	55,194	55,194

the *Inflation* measure from one standard deviation below its mean to one standard deviation above, holding the other variables constant, increases the probability that the individual gives the ‘inflation’ response by 0.079 with a standard error of 0.005. The result is robust to a wide array of alternative specifications (see, for example, the logit coefficient estimates for Model 10 that include country and decade indicator variables and are reported in Table G). 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.

**Table G: Determinants of public demand for low inflation: Model 10.** These results are multiple-imputation estimates of logit regression coefficients based on 5 imputed datasets. Each cell reports the coefficient estimate and (in parentheses) its standard error. The dependent variable is *Inflation Priority*.

Regressor	Model 10	Regressor	Model 10
<i>Inflation</i>	0.065 (0.005)	<i>Spain</i>	-0.109 (0.148)
<i>Unemployment Gap</i>	-0.056 (0.010)	<i>France</i>	-0.429 (0.063)
<i>NAIRU</i>	-0.065 (0.012)	<i>Ireland</i>	-0.110 (0.070)
<i>Income Quartile</i>	0.079 (0.009)	<i>Netherlands</i>	-0.457 (0.084)
<i>Unemployed</i>	-0.251 (0.048)	<i>Portugal</i>	-0.798 (0.128)
<i>Age</i>	0.004 (0.001)	<i>Norway</i>	-0.113 (0.088)
<i>Gender</i>	-0.237 (0.021)	<i>Finland</i>	-0.539 (0.106)
<i>Education Years</i>	-0.001 (0.004)	<i>Sweden</i>	-0.816 (0.141)
<i>1980s</i>	0.208 (0.080)	<i>Austria</i>	-0.354 (0.089)
<i>1990s</i>	0.426 (0.084)	<i>Australia</i>	0.316 (0.047)
<i>Belgium</i>	-0.292 (0.078)	<i>USA</i>	0.153 (0.067)
<i>Denmark</i>	-0.150 (0.074)	<i>Canada</i>	0.080 (0.077)
<i>Germany</i>	0.276 (0.051)	<i>Japan</i>	0.221 (0.122)
<i>Greece</i>	-0.283 (0.113)	<i>New Zealand</i>	0.255 (0.089)
<i>Italy</i>	-0.510 (0.059)	<i>Constant</i>	-0.706 (0.110)
Observations	55,194		

Table I also reports the results for similar simulations of the impact of increasing the variable *Unemployment Gap* equal to the difference between the unemployment rate at the time of the survey and the NAIRU on macroeconomic priorities. Increasing this variable substantially decreases the probability that the respondent puts emphasis on price stability (decrease of 0.125 on average with a standard error of 0.004). The magnitude of this effect is marginally larger than the estimate for *Inflation* suggesting that the public may be more sensitive to changes in unemployment than inflation. Although this finding is intuitive and consistent with the specific

**Table H: Estimated effect of increasing individual-level explanatory variables on the probability of placing priority on reducing inflation.** Using the estimates from the logit regressions, I simulated the consequences of changing each independent variable from one standard deviation below its mean to one standard deviation above on the probability that the respondent places priority on price stability (except for *Unemployed* and *Gender*, which are the difference between 0 and 1). The mean effect is reported first, with the standard error of this estimate in parentheses followed by a 90% confidence interval.

Regressor	Change in Probability	Model
<i>Income Quartile</i>	0.038 (0.005) [0.031, 0.046]	Model 4
<i>Unemployed</i>	-0.071 (0.011) [-0.088, -0.053]	Model 4
<i>Age</i>	0.038 (0.005) [0.030, 0.046]	Model 4
<i>Gender</i>	-0.056 (0.005) [-0.064, -0.048]	Model 4
<i>Education Years</i>	-0.002 (0.005) [-0.010, 0.006]	Model 4
<i>Political Ideology</i>	0.079 (0.005) [0.071, 0.087]	Model 5
<i>Party</i>	0.137 (0.006) [0.128, 0.147]	Model 6

formulations of citizen and policy-maker utility functions in much of the theoretical political economy literature, the result is open to at least two interpretations. Most simply, as actual unemployment exceeds the NAIRU, times are bad. The perceived costs of unemployment are likely to be higher so individuals are more likely to place emphasis on reducing unemployment. A more sophisticated interpretation of the result is that the NAIRU depends on the levels of unemployment consistent with stable inflation. Consequently, individuals have little reason to be concerned about inflation as the *Unemployment Gap* increases – particularly when the variable is above zero.<sup>(26)</sup>

The theoretical discussion suggests that individuals’ macroeconomic priorities are likely to

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(26) See Sekhon (1999) for a study that favours the more sophisticated interpretation based on an extensive time series analysis of US data.

depend not only on the extent to which current unemployment exceeds the NAIRU but also on what the level of the NAIRU is. The theoretical political economy literature has recognised this as a relevant consideration in the assessment of macroeconomic priorities because the level of the NAIRU reflects the costs of unemployment to national economic welfare. The estimates reported in Table I are consistent with this hypothesis. Increasing the variable *NAIRU* from one standard deviation below its mean to one standard deviation above, lowers the probability that a respondent gives the ‘inflation’ response to the *Inflation Priority* question by 0.096 on average. This estimate has a relatively small standard error and is robust to the inclusion or exclusion of a wide array of control variables. The magnitude of this effect is a bit larger than the estimate for *Inflation* and a bit smaller than that for *Unemployment Gap*. The result is consistent with the ‘wedge’ commonly assumed in Barro-Gordon models between unemployment and the NAIRU (specifically the assumption that  $k < 1$  in equation (1)).<sup>(27)</sup>

In addition to economic context, this paper argues that other national-level factors that affect the relative costs of inflation and unemployment influence the public’s macroeconomic priorities. One such factor discussed in the theoretical discussion is the demand for government revenue. Table I reports estimates of the impact of the demand for government revenue as measured by the variables *Government Spending* and *Debt* on the public’s macroeconomic priorities. Using the logit regression estimates from Model 7, increasing *Government Spending* by two standard deviations from a base of one standard deviation below the mean, decreases the probability that a respondent places priority on price stability by 0.107 with a standard error of 0.005. The equivalent simulation for the variable *Debt* results in an estimated decrease in the probability that a respondent places priority on price stability of 0.016 with a standard error of 0.006. Although both estimates are in the expected negative direction and statistically significant, the results for the *Government Spending* variable are substantively much larger and, most importantly, much more robust to alternative specifications. Generally though the evidence is consistent with the argument that in those countries with greater revenue requirements, inflation is less costly and individuals are less likely to place emphasis on price stability.<sup>(28)</sup>

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(27) Note that the sensitivity of public opinion to both unemployment relative to the NAIRU and the NAIRU itself may suggest the desire for different policy responses. The costs of unemployment associated with the level of the NAIRU may be best addressed through supply-side labour-market policies rather than macroeconomic policy.

(28) One reason that the debt result may be relatively small in magnitude is that the comparative analysis cannot control for the nominal assets held by individuals. If high levels of national debt mean that citizens hold more nominal assets, then this would attenuate the expected negative effect based on the demand for revenue. The inflationary finance interpretation of the strong correlation between government spending and macroeconomic priorities is made cautiously. It is, of course, possible that individuals in some countries simply have a stronger taste for employment

**Table I: Estimated effect of increasing national-level explanatory variables on the probability of placing priority on reducing inflation.** Using the estimates from the logit regressions, I simulated the consequences of changing each independent variable from one standard deviation below its mean to one standard deviation above on the probability that the respondent places priority on price stability. The mean effect is reported first, with the standard error of this estimate in parentheses followed by a 90% confidence interval.

Regressor	Change in Probability	Model
<i>Inflation</i>	0.079 (0.005) [0.072, 0.087]	Model 4
<i>Unemployment Gap</i>	-0.125 (0.004) [-0.132, -0.117]	Model 4
<i>NAIRU</i>	-0.096 (0.005) [-0.105, -0.088]	Model 4
<i>Government Spending</i>	-0.107 (0.005) [-0.115, -0.099]	Model 7
<i>Debt</i>	-0.016 (0.006) [-0.026, -0.006]	Model 7
<i>Trade Openness</i>	-0.004 (0.006) [-0.013, 0.005]	Model 8
<i>Financial Employment</i>	0.027 (0.006) [0.018, 0.037]	Model 9

Table I also reports the results of the simulation of the impact of trade openness. The expectation is that inflation is more costly in more open economies, and so individuals will weigh inflation more heavily. The results are not, however, consistent with this hypothesis. The estimated effect of increasing trade openness is slightly negative with a relatively large standard error. This simulation is based on the logit regression results for Model 8, but a number of alternative specifications not reported also suggest that there is little evidence of a positive correlation in this data.<sup>(29)</sup>

The estimates in Table I for the *Financial Employment* measure suggest that a large financial sector is associated with greater inflation aversion. Using the logit regression estimates from Model 9, increasing *Financial Employment* from one standard deviation below its mean to one

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protection and thus prefer higher levels of government spending and are less inflation averse.

(29) In some specifications, the estimates suggest a statistically significant negative effect. Not too much should be made of this as it is sensitive to the choice of conditioning variables and is not expected theoretically.

standard deviation above, increases the probability an individual places emphasis on reducing inflation by 0.027 on average with a standard error of 0.006. Although the magnitude of this effect is somewhat small, it is robust across a wide variety of alternative specifications. The result provides an individual-level mechanism that reinforces Posen's argument that the financial sector, particularly firms in traditional commercial lending, has a strong preference for price stability. It appears that a large financial sector may affect average levels of inflation aversion perhaps directly through individuals employed in the sector and/or indirectly through the sector's influence on the media.

The final set of results that require discussion are those for Model 10 that include the country and time dummy variables reported in Table G. These estimates show that all the main substantive results reported for Model 4 including the effect of economic context and labour market position are robust to including country and time fixed effects. This is also the case for the main findings reported for Models 5 through 9.<sup>(30)</sup>

Of greater substantive interest is that fact that the estimates in Table G demonstrate that even once differences in economic context and the demographic characteristics are controlled for, there is still significant cross-country variation. Since the baseline country respondent is from the UK, the estimates for each country dummy variable indicate mean national differences from the UK. For example, the positive coefficient for Germany of 0.276 with a standard error of 0.051 suggests that Germans are on average more inflation averse than UK respondents. Alternatively, the negative coefficient of -0.816 for Sweden suggests that citizens in Sweden are less so. Only by controlling for economic context are these comparisons of national differences informative. The estimates allow a rough empirical test of whether it is reasonable to assume – as most political economy models do – that inflation aversion is constant across countries. Clearly, it is not and the pattern of the estimates of country dummy variables is broadly consistent with many stylised descriptions of relative inflation aversion in the mass publics of advanced economies. For example, Italy and France on average seem to have lower inflation aversion compared to Germany and the United States. There are, of course, exceptions and many more surveys over different points in the business cycle would be necessary to arrive at a reliable ordering.<sup>(31)</sup> Nonetheless, the results in

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(30) The robustness of the estimates for the national-level variables includes simply running aggregate-level regressions where the dependent variable is the proportion of the sample placing priority on inflation. These regressions with 44 observations yield substantively similar results for the national-level variables reported in this section.

(31) It would also be preferable to have all the surveys from a shorter time frame as inflation aversion may change

Table G suggest that there is significant variation in national inflation aversion controlling for economic context. Inflation aversion controlling for economic context is, in fact, what the parameters  $a$  and  $b$  in the Barro-Gordon loss function (and similar variations) are referring to. Consequently, the cross-country variation documented in Table G suggests that, for example, exchange rate political economy models that include multiple country loss functions should allow for variation in preferences (parameters  $a$  and  $b$  should be indexed by country) as well as variation in industrial structure and economic institutions.

One obvious question raised by the estimates for the country dummy variables is what accounts for these differences. The results in this paper suggest that some of the variation is accounted for by inflationary finance considerations and the size and structure of the financial sector. Some of the variation may also be due to differences in historical macroeconomic performance. Although the ‘historical experience matters’ arguments are often contradictory and ill-defined, it does seem reasonable that national differences in public information sets determined in part by historical economic performance play a role in the formation of macroeconomic priorities. It may be possible in future research with more data to assess explicitly the extent to which differences in average inflation aversion across countries can be tied to historical experiences. The general idea that public information sets account for some of the differences across countries and time not explained by other factors receives some modest support in the logit regression estimates for Model 10. This specification includes a dichotomous variable indicating whether the respondent was queried in the 1980s and a similar indicator for the 1990s. This allows comparison of each decade with the base period of the 1970s. The results indicate that, controlling for other factors including current economic performance, placing priority on price stability is more likely for a respondent queried in the 1980s and 1990s than the 1970s. It is entirely possible that these differences are due to macroeconomic experiences with high and volatile inflation in many of the countries in the sample during the 1970s and early 1980s. These historical experiences may inform current assessments of the costs of inflation and thus the public’s macroeconomic priorities.

## 5 Conclusion

This paper provides new evidence on the determinants of individual macroeconomic priorities based on survey data in 20 advanced economies. There are three main empirical results. First, the

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over time in particular countries. Further analysis, suggests, for example, that average inflation aversion in France in the 1990s is much closer to the mean of all the advanced economies than it was in the 1970s.

distributive consequences of inflation and unemployment are key determinants of how individuals weigh different economic objectives. This paper produces new evidence that nominal asset ownership is a significant basis of distributive conflict about macroeconomic policy. Owners of nominal assets are more inflation averse, consistent with their exposure to unanticipated inflation. Second, the findings suggest that economic performance has a substantial impact on the public's economic objectives in a way broadly consistent with the specification of utility/loss functions in the theoretical political economy literature. Third, the findings in this paper suggest that there is significant cross-country variation in inflation aversion controlling for economic context and individual attributes, and that some of this variation can be accounted for by national-level factors affecting the aggregate costs of inflation and unemployment. The empirical estimates in this paper suggest that the demand for government revenue and the size and structure of the financial sector partially explain cross-country variation in inflation aversion controlling for economic context and the individual characteristics of survey respondents.

The existence of cross-country variation in inflation aversion controlling for economic context has significant implications for both optimal monetary policy making and for models of alternative institutional frameworks for policy-making. As discussed above, in standard rational expectations macroeconomic models, optimal policy depends on levels of inflation aversion in society. Specifically, the optimal policy will stabilise output in response to shocks more aggressively the lower inflation aversion is in society. The cross-country variation in inflation aversion documented in this paper suggests that optimal policy responses will differ across countries simply as a function of preferences. This implies that both prescriptions for policy and explanatory models of variation in macroeconomic outcomes should take into account country differences in inflation aversion.

Overall, the findings in this paper suggest a number of questions for future research. A direct extension planned for this paper is investigating how interactions between wage-bargaining institutions, public employment, and monetary regimes condition the public's macroeconomic priorities. The results in the paper may also be useful in future investigations of the effect of the monetary institutions on economic outcomes. As Posen (1995) and Franzese (1999) have made clear, evaluating the effect of these institutions depends on first specifying preferences. This paper provides substantial evidence that there is sufficient variation in public macroeconomic priorities across countries that the specification of preferences may be substantially improved by accounting



for the relative inflation aversion of citizens. Future studies of why countries adopt the monetary institutions that they do may also be informed by the results in the paper.

## Appendix A: Data sources for comparative analysis

The sources for the survey data used to construct the dependent variable, *Inflation Priority*, for the comparative analysis in Section 4 are reported in Table J. For the Eurobarometer 5.0 (EB 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 was imputed using the procedures described in Appendix B. The question for the Eurobarometer 48.0 (EB 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 (ISSP) studies are 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*.

**Table J: Data summary.**

Country	Year	Source	Country	Year	Source
Australia	1986	ISSP 1985	Ireland	1996	ISSP 1996
Australia	1990	ISSP 1990	Ireland	1997	EB 48.0
Australia	1996	ISSP 1996	Italy	1985	ISSP 1985
Austria	1986	ISSP 1985	Italy	1990	ISSP 1990
Austria	1997	EB 48.0	Italy	1996	ISSP 1996
Belgium	1976	EB 5.0	Italy	1997	EB 48.0
Belgium	1997	EB 48.0	Japan	1996	ISSP 1996
Canada	1996	ISSP 1996	Netherlands	1976	EB 5.0
Denmark	1976	EB 5.0	Netherlands	1997	EB 48.0
Denmark	1997	EB 48.0	New Zealand	1997	ISSP 1996
Finland	1997	EB 48.0	Norway	1990	ISSP 1990
France	1976	EB 5.0	Portugal	1997	EB 48.0
France	1997	EB 48.0	Spain	1996	ISSP 1996
France	1997	ISSP 1996	Spain	1997	EB 48.0
Germany	1976	EB 5.0	Sweden	1997	EB 48.0
Germany	1985	ISSP 1985	UK	1976	EB 5.0
Germany	1990	ISSP 1990	UK	1985	ISSP 1985
Germany	1996	ISSP 1996	UK	1990	ISSP 1990
Germany	1997	EB 48.0	UK	1997	EB 48.0
Greece	1997	EB 48.0	USA	1985	ISSP 1985
Ireland	1976	EB 5.0	USA	1990	ISSP 1990
Ireland	1991	ISSP 1990	USA	1996	ISSP 1996

## Appendix B: Method for missing data

The data constructed for this paper are not fully observed. The sources of missingness range from the refusal of survey respondents to answer particular items in some surveys to some questions not be asked at all in certain surveys. Incomplete data, whatever the source, can create a number of serious problems for making valid statistical inferences. The most general and extensively researched approach for dealing with missing data problems is ‘multiple imputation’. King *et al* (2001), Schafer (1997), and Rubin (1987) describe the advantages of multiple imputation over alternative strategies for addressing missing data problems for survey analyses like those presented in this paper.

The approach has several variations but always involves three main steps. First, some algorithm is used to impute values for the missing data. In this step,  $m$  ( $m > 1$ ) ‘complete’ datasets are created consisting of all the observed data and imputations for the missing values. The second step simply involves analysing each of the  $m$  datasets using standard complete-data statistical methods. The final step combines the parameter estimates and variances from the  $m$  complete-data analyses to form a single set of parameter estimates and variances. Importantly, this step systematically accounts for variation across the  $m$  analyses due to missing data in addition to ordinary sample variation.

For the UK analysis in Section 3, the first step in the multiple-imputation procedures was to create imputations in the missing data cells for all the variables used in the analysis. The variables in the imputation model included all those used in our analysis as well as additional information from the survey determined to be helpful in predicting the missing data. Altogether I imputed 10 complete individual-level datasets for the 1995 UK survey data. The exact imputation algorithm used is known by the acronym ‘EMis’ because to generate imputations it combines a well-known Expectation Maximisation missing data algorithm with a round of importance sampling. King *et al* (2001) provide a complete explanation of the use of this algorithm for missing data problems. The imputation model was multivariate normal with a slight ridge prior.<sup>(32)</sup> The final datasets contain completed observations equal to the actual number of individuals in the survey. Also, all datasets

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(32) The imputation procedures were implemented using *Amelia: A Program for Missing Data* (Honaker *et al* (2000)).

contain the same non-imputed information; they differ only in the imputations for missing data.

The second step in the multiple-imputation analysis was to run the various logit models separately on each of the 10 final datasets. The last multiple-imputation step was to combine the 10 sets of estimation results for each specification to obtain a single set of estimated parameter means and variances. The single set of estimated means is simply the arithmetic average of the 10 different estimation results. The single set of estimated variances is more complicated than a simple average because, as mentioned above, these variances account for both the ordinary within-sample variation and the between-sample variation due to missing data. See King *et al* (2001) and Schafer (1997) for a complete description of these variances.

The imputation procedures for the comparative analysis in Section 4 are basically the same as those described for the UK study with a few important exceptions. First, at the imputation stage, 5 rather than 10 imputed datasets were generated. Second, the imputation procedures were more central to the analysis because some variables for particular surveys were completely missing. In fact some of the analyses in the paper would be impossible without the imputation methodology. For example, some surveys collected the information necessary to form the variable *Political Ideology* while other surveys collected the data necessary to construct the alternative measure of political identity, *Party*, while still others elicited both sets of information. Without the imputation methodology, significant portions of the comparative dataset would have been eliminated in some of the analyses discarding far more information than what was actually missing. It is worth pointing out again that multiple imputation accounts for the additional uncertainty created by the missing information in the dataset. Diagnostics suggest that the relative increase in variance due to non-response is substantially higher for the comparative analysis than for the UK analysis. This is as expected particularly for those analyses employing variables like *Political Ideology* and *Party* with relatively high missingness. Finally, the imputation model included two very similar measures of inflation aversion. In addition to *Inflation Priority*, a 3-category ordinal variable was included that accounted for the fact that the question wording in 1 of the 5 surveys discussed in Appendix A allowed for a neutral response. In constructing *Inflation Priority*, these neutral responses were coded missing, but then imputed in the imputation stage of the analysis.<sup>(33)</sup> All the

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(33) See King *et al* (2001) and Schafer (1997) for discussion of why it is optimal to impute the dependent variable as well as the independent variables. The key intuition is that the goal of the imputation is to preserve the observed distribution of the data. The imputations do this in a way that allows all of the existing information in the observed dataset to be included in standard statistical analyses. The imputations themselves add no new information.

results reported are robust to using either the *Inflation Priority* variable or the 3-category ordinal variable to measure inflation aversion.

## References

- Alesina, A (1987)**, 'Macroeconomic policy in a two-party system as a repeated game', *Quarterly Journal of Economics*, Vol. 102, pages 651-78.
- Alesina, A and Rosenthal, H (1995)**, *Partisan politics, divided government and the economy*, Cambridge, UK: Cambridge University Press.
- Alesina, A, Roubini, N and Cohen, G (1997)**, *Political cycles and the macroeconomy*, Cambridge, MA: The MIT Press.
- Alesina, A and Summers, L (1993)**, 'Central bank independence and macroeconomic performance', *Journal of Money, Credit, and Banking*, Vol. 25, pages 151-62.
- Alt, J (1979)**, *The politics of economic decline*, Cambridge, UK: Cambridge University Press.
- Alt, J (1985)**, 'Political parties, world demand, and unemployment: domestic and international sources of economic activity', *American Political Science Review*, Vol. 79, pages 1,016-40.
- 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.
- 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.
- Bernhard, W (1998)**, 'A political explanation of variations in central bank independence', *American Political Science Review*, Vol. 92, pages 311-28.
- Bernhard, W and Leblang, D (1999)**, 'Democratic institutions and exchange rate commitments', *International Organization*, Vol. 53, pages 71-97.
- Blinder, A and Esaki, H (1978)**, 'Macroeconomic activity and income distribution in the postwar United States', *Review of Economics and Statistics*, Vol. 60, pages 604-9.
- Briault, C (1995)**, 'The costs of inflation', *Bank of England Quarterly Bulletin*, February, pages 33-45.
- Broz, L (2000)**, 'Political system transparency and monetary commitment regimes', paper delivered at the 2000 Annual Meeting of the American Political Science Association.

**Campillo, M and Miron, J (1997)**, 'Why does inflation differ across countries', in Romer, C and Romer, D (eds), *Reducing inflation: motivation and strategy*, Chicago, IL: University of Chicago Press.

**Cukierman, A (1992)**, *Central bank strategy, credibility, and independence: theory and evidence*, Cambridge, MA: The MIT Press.

**Cukierman, A, Edwards, S and Tabellini, G (1992)**, 'Seignorage and political instability', *American Economic Review*, Vol. 82, pages 537-55.

**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.

**Cukierman, A, Webb, S and Neyapti, B (1992)**, 'Measuring the independence of central banks and its effect on policy outcomes', *World Bank Economic Review*, Vol. 6, pages 353-98.

**Di Tella, R, MacCulloch, R and Oswald, A (2001)**, 'Preferences over inflation and unemployment: evidence from surveys of happiness', *American Economic Review*, Vol. 91, 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.

**Fiorina, M (1981)**, *Retrospective voting in American national elections*, New Haven, CT: Yale University Press.

**Fischer, S (1995)**, 'The unending search for monetary salvation', in Bernanke, B and Rotemberg, J (eds) *NBER Macroeconomics Annual 1995*, Cambridge, MA: The MIT Press.

**Franzese, R (1999)**, 'Partially independent central banks, politically responsive governments, and inflation', *American Journal of Political Science*, Vol. 43, pages 681-706.

**Freeman, J (2000)**, 'Competing commitments: technocracy and democracy in the design of monetary institutions', *University of Minnesota Working Paper*.

**Frieden, J (1991)**, 'Invested interests: the politics of national economic policies in a world of global finance', *International Organization*, Vol. 45, pages 425-51.

**Frieden, J (2001)**, 'Sectoral interests and European monetary integration: an empirical assessment', *Harvard University Working Paper*.

**Garrett, G, and Way, C (1999)**, 'Public sector unions, corporatism, and macroeconomic performance', *Comparative Political Studies*, Vol. 32, pages 411-34.

**Hibbs, D (1979)**, 'The mass public and macroeconomic performance: the dynamics of public opinion toward unemployment and inflation', *American Journal of Political Science*, Vol. 23, pages 705-31.



**Hibbs, D (1982)**, 'On the demand for economic outcomes: macroeconomic performance and mass political support in the United States, Great Britain, and Germany', *Journal of Politics*, Vol. 44, pages 426-62.

**Hibbs, D (1987a)**, *The political economy of industrial democracies*, Cambridge, MA: Harvard University Press.

**Hibbs, D (1987b)**, *The American political economy*, Cambridge, MA: Harvard University Press.

**Hibbs, D and Dennis, C (1988)**, 'Income distribution in the United States', *The American Political Science Review*, Vol. 82, pages 467-90.

**Honaker, J, Joseph A, King, G and Scheve, K (2000)**, *Amelia: a program for missing data*, Gauss version 2.0, Cambridge, MA: Harvard University.

**Iversen, T (1999)**, *Contested institutions: the politics of macroeconomics and wage bargaining in advanced democracies*, New York, NY: Cambridge University Press.

**Joyce, M (1997)**, 'Inflation and inflation uncertainty', *Bank of England Quarterly Bulletin*, August, pages 285-91.

**Keefer, P and Stasavage, D (2000a)**, 'Bureaucratic delegation and political institutions: when are independent central banks irrelevant?', *World Bank Policy Research Working Paper no. 2356*.

**Keefer, P and Stasavage, D (2000b)**, 'Checks and balances, private information, and the credibility of monetary commitments', paper presented at the 2000 Annual Meeting of the American Political Science Association.

**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, pages 49-70.

**Kramer, G (1971)**, 'Short-term fluctuations in U.S. voting behavior: 1896-1964', *American Political Science Review*, Vol. 65, pages 131-43.

**Kydland, F, and Prescott, E (1977)**, 'Rules rather than discretion: the inconsistency of optimal plans', *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, pages 597-611.

**Mahadeva, L and Sterne, G (2000)**, *Monetary policy frameworks in a global context*, London: Routledge Press.

- 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.
- Pontusson, J, and Swenson, P (1996)**, ‘Labor markets, production strategies, and wage bargaining institutions’, *Comparative Political Studies*, Vol. 29, pages 223-51.
- 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.
- Powell, G B and Whitten, G (1993)**, ‘A cross-national analysis of economic voting: taking account of political context’, *American Journal of Political Science*, Vol. 37, pages 391-414.
- Price, S and Sanders, D (1995)**, ‘Economic expectations and voting intentions in the UK, 1979-87: a pooled cross-section approach’, *Political Studies*, Vol. 43, pages 451-71.
- 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, pages 869-903.
- Rubin, D B (1987)**, *Multiple imputation for nonresponse in surveys*, New York, NY: J. Wiley & Sons.
- Schafer, J L (1997)**, *Analysis of incomplete multivariate data*, London, UK: Chapman & Hall.
- Schamis, H and Way, C (2000)**, ‘The politics of exchange rate-based stabilization’, *Cornell University Working Paper*.
- Sekhon, J (1999)**, *The economic sophistication of American politics: American Public Opinion and Monetary Policy, 1973-1993*, Ph.D. 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.
- Tufte, E (1978)**, *Political control of the economy*, Princeton, NJ: Princeton University Press.
- Walsh, C (1995)**, ‘Optimal contracts for central bankers’, *American Economic Review*, Vol. 85, pages 150-67.
- Winship, C and Radbill, L (1994)**, ‘Sampling weights and regression analysis’, *Sociological Methods and Research*, Vol. 23, pages 230-58.