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Why Do People Dislike Inflation?

Robert J. Shiller

1.1 Introduction

The purpose of this study is to try to understand, using public survey methods, why people are so concerned and dismayed by inflation, the increase in the price level, and decline in value of money. Studying public attitudes toward inflation may help government policymakers better understand the reasons that they should (or should not) be very concerned with controlling inflation, and may help the policymakers better understand issues concerning exchange rate policies. A study of public attitudes toward inflation may also help us learn whether differences across countries in attitudes toward or understandings of inflation might explain any differences across countries in inflationary outcomes.

With the help of several students, I designed the surveys reported here to discover in some detail what people see as the origins of inflation and what real problems people see inflation as causing. Discovering this means asking a lot of questions, to find out what things people associate with inflation, what theories they have about the mechanism of inflation, what their information

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sets regarding inflation are, and what their preferences are with regard to inflationary outcomes. One thing stressed in this study is learning the kinds of models of inflation that people have, ideas people have as to the causes of inflation and the mechanisms whereby inflation has its effects. We shall see from the results that people have definite opinions about the mechanisms and consequences of inflation, and that these opinions differ across countries, between generations in both the United States and Germany, and, even more strikingly, between the general public and economists.

This paper begins with a characterization of the problem of defining popular understandings of inflation. The first steps in this study, section 1.3, consisted of informal interviews with people, attempting to learn directly from them what they thought about inflation. Following these interviews, questionnaires A, B, and C were designed, to be distributed to large groups of people to allow some quantitative measure of the attitudes we thought we discerned in the informal interviews (section 1.4). Questionnaire A was short, asking people to write short answers in their own words. Questionnaire B was used to compare a random sample of people in the United States with professional economists, and questionnaire C was used for intergenerational and international comparisons. In section 1.5, the answers written by the respondents on questionnaire A are described. In section 1.6, the results about public concerns with inflation from questionnaires B and C are presented. The issues studied are the importance of inflation for the standard of living, why people think inflation affects their standard of living, other concerns besides the standard of living, psychological effects of inflation, concerns that opportunists use inflation to exploit others, morale issues, concerns about political and economic chaos caused by inflation, and concerns about national prestige and prestige of the currency. Differences are found across generations and across countries and between economists and noneconomists in some very basic assumptions about inflation. In section 1.7, further analyzing questionnaire B and C results, I discuss some general notions about the origins of public opinions about inflation and reasons why such opinions differ across groups of people. International as well as intergenerational differences in information about inflation are documented. Evidence is given of the importance of perceptions that expert opinion supports the public's concern with inflation, and of public beliefs that there is a social contract in which a commitment to fighting inflation is a requirement of all public figures. In section 1.8, I conclude, offering broad interpretations of the results. The appendix discusses sample design and survey methods.

1.2 Defining the Problem: The Study of Inflation in Popular Culture

The word "inflation" appears to be the most commonly used economic term among the general public. Table 1.1, column 1, shows how often the word has been used, in comparison with other economic terms, based on a computer search of news stories in the ALLNWS (all news) section of the Nexis system,

Table 1.1 **Number of Stories That Use Various Economic Terms on Nexis
General News Search Facility, Level 1**

	ALLNWS	CURNWS (last 2 years)
Inflation	872,004	255,987
Unemployment	602,885	161,939
Productivity	376,775	103,507
Infrastructure	331,888	148,354
Economic growth	322,888	106,354
Poverty	316,995	114,190
Monopoly	231,370	72,103
Price index	179,911	50,278
Communism	150,000	35,139
Price increase	147,877	35,115
Money supply	104,498	24,005
Diversification	89,034	21,300
Consumer price index	74,054	21,096
Trade barriers	59,101	18,053
Risk management	46,979	19,646
Price level	38,086	8,130
National debt	37,771	11,818
Job opportunities	36,816	12,129
Industrial policy	24,316	5,433
Technological innovation	15,971	4,638
Public investment	15,946	5,137
Real interest rate	15,447	3,710
International competitiveness	15,170	3,949
Public goods	12,998	4,586
Economic efficiency	11,741	2,962
Deflation	11,584	3,141
Indexation	10,550	2,564
Productive capacity	9,263	1,988
Income distribution	7,884	2,171
Human capital	7,102	2,604
Price gouging	6,427	1,850
False advertising	6,219	1,851
Cost of living allowance	4,595	762
Market incentives	4,037	1,270
Index bonds	3,398	869
Externality	2,985	1,169
Potential output	1,353	449
American Economic Association	1,289	324
Game theory	1,292	551
Economics profession	1,136	271
National economic strategy	810	99
Real business cycle(s)	127	55
Indexed annuity	59	23

Source: Compiled by the author using the Nexis on-line service.

an electronic search system for English-language news publications (and including some broadcasts) around the world. The word "inflation" appeared in 872,004 stories, far outnumbering the stories containing any other economic term.¹ Only "unemployment" comes even close, with 602,885 stories. The term "inflation" even outranks the word "sex," for which Nexis ALLNWS produced only 662,920 stories.

At this time of relatively low inflation among most of the major countries of the world, "inflation" still appears to be the most commonly used economic term. The Nexis system, in its current news section CURNWS which covers the last two years only, still produced more stories using the word "inflation" than using any other economic term; see table 1.1, column 2.

Because the word "inflation" is so much a part of everyday lives, it has many associations and connotations to ordinary people. Moreover, because shopping, and thereby noticing prices, is an everyday activity for ordinary people, thinking about prices is also a major part of people's thinking, and the subject of inflation is one of great personal interest for most people.

Inflation, when it is substantial or shows the risk of becoming substantial, is clearly perceived as a national problem of enormous proportions. This fact is also evident in the constant attention that inflation is given in the media and in the fundamental role it plays in many political elections. News about inflation seems to have serious consequences for approval ratings of presidents and for outcomes of elections.² Public-opinion polls have shown that inflation (or something like inflation) has often been viewed as the most important national problem.³

The great public concern with inflation has certainly had an impact on the economics profession. We must ask whether the extent of public concern with inflation really makes sense, or whether the economics profession has been influenced from without into devoting too much attention to inflation.

Studying so complex a public concept as inflation will not be easy. To attempt to learn about it at some depth, I have followed here a sequential proce-

1. The coverage of the Nexis ALLNWS section gradually tapers off as one goes back in time; many publications are indexed back to the early 1970s. A search for the word "inflation" as an indicator of public interest in consumer price inflation carries some risk: the word has other uses as well. However, a sampling of the stories turned up by Nexis shows that the great majority of the stories using the word "inflation" are talking about the phenomenon of aggregate price increase. In a sample of one hundred stories, ninety-four referred to the phenomenon of aggregate price increase. Two referred to specific price inflation, such as land price inflation, but these stories also referred to aggregate inflation. Five of the one hundred referred to figures "adjusted for inflation," but did not specifically say anything about the phenomenon of inflation. One of the one hundred referred to the inflation of automobile air bags.

2. See Cartwright and DeLorme 1985; Parker 1986; Golden and Poterba 1980; Cuzan and Bundrick 1992; and Fair 1978, 1994.

3. The Gallup Poll has asked in the United States since 1935 "What do you think is the most important problem facing this country [or this section of the country] today?" Those citing inflation or the high cost of living as the most important problem have usually represented a significant percentage of respondents. The percentage was usually over 50% from 1973 to 1981, when inflation was higher than it is today.

ture, involving first informal conversations with people, allowing me and my students to use our judgment as much as possible, and then a questionnaire survey.

1.3 First Steps of This Study

I asked student research assistants to interview random people in the United States and Germany informally, with a list of suggested interview questions, and to give me their impressions; I interviewed some people as well. I then discussed with these students what people seemed to be saying.

When asked why they dislike inflation, people often protest that they are not experts, and they need to be prodded to respond. When they do respond, it is often with what seem to be incompletely thought-out ideas and vague associations about inflation, yet a conviction that inflation is important. Most people seemed to be vulnerable to fundamental confusions about inflation, and in spite of their convictions as to the importance of inflation, seemed not to have given really serious thought to it.

Several students came back to me independently of each other and told me, as a result of their interviews, that it was very easy to see why people dislike inflation: people think inflation erodes their standard of living. For example, my student Michael Krause, who interviewed in Germany, wrote:

If you ask people in conversation why they think that people dislike inflation, everybody says it is because of the increase in the cost of living, the fall in real income. This is particularly relevant for those who live from pensions or social security transfers, where inflation corrections lag behind (at least when the inflation rate has unexpectedly increased). Several times I indicated that nominal incomes would be adjusted to inflation. It was said that it was uncertain that an adjustment would take place, or when it will take place, at least there is uncertainty about whether this adjustment would be sufficient.

Conducting these interviews inclined us to a hypothesis that the main issue for the public with regard to inflation is just that people do not see the connection between inflation and increases in income that might be associated with it. We must try to understand why people would think that there might be little connection between the inflation rate and the changes in their own income. Simple reflection on the mechanism of inflation suggests that there are likely to be many people who benefit from it, rather than harmed by it, but no one reported hearing an interviewee volunteer that he or she benefited from inflation. There is something of a puzzle here why the answers should so uniformly assume that inflation is harmful to the respondent.

Many other issues were also raised regarding inflation, issues that seemed to suggest concerns along very different lines. Some of these appear potentially very important too, even if people did not bring them up first in our conversations. These other concerns will be described below in the answers to

various questions. They may even turn out to be the most important issues for policymakers' trying to decide whether or how much to fight inflation.

1.4 Questionnaire Design

To give quantitative force to our impressions about what people thought, various of their ideas were put into questionnaires, to be distributed to large samples of people who could indicate the extent of their agreement with these ideas.

I decided to use three questionnaires because there were too many questions to expect any one respondent to answer them all with patience and thoughtfulness. Separating the questions into three questionnaires also gave us some opportunity to avoid suggesting ideas that might bias answers elsewhere in the same questionnaire.

Questionnaire A is very short and emphasizes open-ended questions where respondents are given space to write a paragraph to answer. The questionnaire, distributed to a random sample of people in the United States, is so short that it occupies both sides of a single sheet of paper; the text of this questionnaire is reproduced in section 1.5. We felt that people could not be expected to write thoughtful answers if the questionnaire were too long. By omitting from this questionnaire many of our other questions that we could not pose without putting ideas into their heads, we got some fairly pure responses. The disadvantage of this questionnaire is that, by not putting ideas into respondents' heads, we cannot influence what people will choose to talk about in their answers, and we may not learn what we want to learn from them.

Questionnaire B is longer, six pages, three sheets on both sides, with multiple-choice questions aimed at basic concepts and theories about inflation. This questionnaire was distributed both to a random sample in the United States and to economists, whose professional opinions were to be contrasted with those of the public.

Questionnaire C is another six-page questionnaire with multiple-choice questions. It contains questions to elicit intergenerational and international differences in attitudes toward inflation, and in public knowledge and popular ideas about inflation. Questionnaire C is the only one translated into foreign languages. It was distributed in the United States in English, in Germany in German, and in Brazil (with E-mail via Bras-net) in Portuguese.

Germany was selected because of its reputation as a country with extreme inflation aversion and low historical inflation rates. Brazil was selected as a country that has had a history of very high inflation and continues to have very high (by U.S. standards) inflation. The questionnaires included an age question; we tabulate results separately here for older people in the United States and Germany. There is a popular theory that those who experienced the troubles in Germany around World War II, or who were closer to the German hy-

perinflation of the early 1920s, are more troubled by inflation, and with these results we can confirm whether this is so.

Results from all of the questionnaires should be interpreted with some caution. There may be problems with translation; some of the words may be more loaded with meanings, or have different connotations, in the different languages. Although we used the back-translation method to produce nearly identical questionnaires in English and German, there are still potential problems.⁴ Moreover, apart from the translation problem, the questions often have multiple interpretations, as indicated by some of the comments written on the questionnaires. One should be cautious in interpreting apparent public agreement with a statement made on the questionnaire; people might agree to a lot of things that are not really in their own minds, if in reading them they merely like the sound of them.

There are also issues of selection bias in our answers: we have responses only from those who chose to answer. The selection-bias issues are perhaps most important with questions about how important inflation is (people who think inflation is important are more likely to fill out the questionnaire) and with questions about the extent of public information (people who know more about inflation are more likely to fill out the questionnaire). Selection bias is likely to be most extreme with our Brazil results, since the Brazil survey was conducted using E-mail, whose users tend to be young and, presumably, sophisticated; often they are students and faculty currently living outside of Brazil. Time and budget constraints prevented our doing a mail survey to a random sample in Brazil; it was decided to accept the higher risk of selection bias rather than have no results from Brazil at all. I will indicate the places where I am particularly concerned with issues of interpretation and of selection bias, but the reader is encouraged to keep these issues in mind at all times in judging the results.

The standard errors of the sample proportions should also be kept in mind, so that small differences in answers are not overinterpreted. Recall that the standard error for a sample proportion equal to 0.5 is, with one hundred observations, 0.050, and with fifty observations, 0.071; the standard error for a sample proportion equal to 0.9 or 0.1 is, with one hundred observations, 0.030, and with fifty observations, 0.042. Sample size here is generally clearly adequate for broad statements about proportions, though we should not make much of a difference, for example, between proportions of 0.5 in one sample and 0.6 in another.

4. The questionnaire was first written in English. When translating it into German, if difficulties in conveying the precise meaning with similar wordings arose, the question was rewritten in German, and then back-translated into English. The process was iterated until we felt we had identical questionnaires in the two languages. The attentive reader may discern some subtle word oddities in the English versions of the questions that arose in this way. The Portuguese version was produced directly from the English questionnaire, without back-translation.

1.5 Results with the Short Open-Ended Questionnaire (Questionnaire A)

Text of Questionnaire A, with Results of 120 Questionnaires in Brackets

Questionnaire: Opinions on Inflation

This is a questionnaire about your views on inflation. By inflation, we mean a steady increase of the average of all prices, and thus of the price level.

A1. Do you think that controlling inflation should be a high priority for the US government and its agencies?

[Circle one number]

- | | | |
|--------------------------|-------|---------|
| 1. Yes, strongly agree | [59%] | [n=118] |
| 2. Yes, agree somewhat | [33%] | |
| 3. Neutral or no opinion | [1%] | |
| 4. No, disagree somewhat | [4%] | |
| 5. No, strongly disagree | [3%] | |

A2. Do you find, when you hear or see news stories about inflation, that you personally find these stories interesting?

[Circle one number]

- | | | |
|------------------------------|-------|---------|
| 1. Yes, very interesting | [47%] | [n=119] |
| 2. Yes, somewhat interesting | [42%] | |
| 3. No or no opinion | [11%] | |

A3. Some people think that news about inflation is boring technical stuff, that they can't relate to. Can you explain to them why they should find it interesting?

[space for answer]

A4. Do you have worries that if inflation rises too high, then something really bad might happen?

[Circle one number]

- | | | |
|---------------------|-------|---------|
| 1. Yes, very much | [47%] | [n=118] |
| 2. Yes, somewhat | [43%] | |
| 3. No or no opinion | [10%] | |

A5. If you answered yes to the above, what are you worried might happen?

[space for answer]

A6. When inflation gets very high, what do you think is the reason?

[space for answer]

A7. When you go to the store and see that prices are higher, do you sometimes feel a little angry at someone?

[Circle one number]

- | | | |
|-------------------|-------|---------|
| 1. Yes, often | [38%] | [n=120] |
| 2. Yes, sometimes | [48%] | |
| 3. Never | [15%] | |

A8. [If you said yes above] Who do you tend to feel angry at and why?

[space for answer]

A9. Think about how much your income (measured in dollars per month) went up (or down) in the past five years. What do you think are the most important factors that account for the change in your income? (Please try to list all the relevant factors that apply to you):

[space for answer]

- | | | |
|-------------------|-------|--------|
| Income went 1. up | [53%] | |
| 2. down | [47%] | [n=94] |

A10. Try to imagine how things would be different if the United States had experienced higher inflation over the last five years, so that prices of things you buy had risen to higher levels than we actually see today. How different do you think your income (the total dollars you earn in a month) would be now, in comparison with your actual income now, if we had had the higher inflation?

[Circle one number]

[n=114]

- | | |
|--------------------------------------------------------------|-------|
| 1. My income (in dollars per month) would be lower. | [28%] |
| 2. My income (in dollars per month) would be about the same. | [35%] |
| 3. My income (in dollars per month) would be higher. | [31%] |
| 4. No opinion | [6%] |

Thank you very much. Please return this questionnaire to Prof. Robert Shiller, Cowles Foundation for Research in Economics, Yale University, Box 208281, New Haven, CT 06520-8281

Reference Number _____

The short open-ended questionnaire distributed only in the United States seems to have succeeded in encouraging participants to give their concerns about inflation without imposing much structure on their answers; people often wrote a lot. Often there were substantial essays crammed onto the page, and reading responses does seem to convey a picture of how people think about inflation. The answers to multiple-choice questions are tabulated in the questionnaire, but the written answers, which can only be described incompletely here, are perhaps more significant.

The results appear to confirm that most people think that inflation is an important national policy issue: 92% strongly agreed or agreed somewhat in question A1. Moreover, people report that they are interested in news reports on inflation: 89% chose “very interesting” or “somewhat interesting” (question A2). Of course, these results must be discounted somewhat, since there is

likely a selection bias at work here: people who are more interested in inflation are more likely to fill out the questionnaire.

What is perhaps most significant are the reasons people give for being interested in inflation news, question A3. They seem most often to be saying that they are interested in inflation because they think it hurts their standard of living, although they were usually not completely clear. I divided the answers (from the 105 people who answered this question) into five categories: (1) those who seemed to be trying to say directly that inflation hurts their standard of living (33%), (2) those who referred to the fact that inflation lowers the buying power of the dollar (responding essentially with the definition of inflation; 23%), (3) those who said just that inflation is something one must know for planning and budget purposes (8%), (4) those who said that inflation hurts the economy in general (10%), and (5) those who stated only that inflation was important without giving reasons or who wrote something that was tangential to the question (26%).

Here are some excerpts from answers to question A3 that I categorized as asserting that inflation hurts people's standard of living, category 1.

It affects their life and lifestyle.

Inflation governs the way we live. It's simple: raise the prices, get less for your money.

Every individual is personally affected in his lifestyle, comfort, health, etc., by whatever is happening about inflation. How can they not be interesting?

Inflation can rob a person of income.

Their saving for retirement and college fund for their children will be evaporated when they need them the most.

Inflation has a strong impact on an individual's pocketbook and on one's standard of living.

As a retired senior citizen, inflation has most definitely lowered my purchasing power.

It affects everyone's standard of living and their lives.

Because it is directly related to their income.

Because it affects the wages they receive and the price they pay for houses, cars, groceries and everything else they buy. In short, it affects their standard of living.

Our very being depends on this.

Right now it is killing US.

Here are some excerpts from answers to question A3 that I put in category 2, as asserting little more than that inflation lowers the buying power of the dollar.

Inflation reflects everyday prices of all goods, services, and products.

I have a simple statement: inflation is directly related to your pocketbook.

Although these answers are sometimes perhaps nothing more than re-statements of the definition of inflation, it would seem that these statements, entered in answer to a question why inflation news is interesting, suggest that the respondent feels that inflation erodes his or her income. That this is the meaning of these statements is suggested by the answers in category 1 that include sentences like these as well.

It is possible, on the other hand, that not all of the category 2 answers imply that the standard of living is generally eroded by inflation, only that one must be knowledgeable about it to live within a budget. There were a few answers that seemed to say that knowing the inflation rate is helpful in planning, category 3. Here are some excerpts from these answers to question A3.

Inflation rate is a gauge to measure the value of today's dollar against its value in time to come, and also, the true return on investments. It is necessary knowledge in future planning.

Inflation is the barometer for your pocketbook. Certainly, it is important in gauging your spending. I would explain that inflation or deflation affects your spending and savings directly. Therefore, you should know the inflation rate at all times.

People need to learn fast due to economic world change rapidly and it is the most keen fact that influences their own life. Just makes it easier to understand.

Here are some answers to question A3 that I categorized as suggesting systemic problems of inflation, more than just the direct effect of higher prices on their ability to buy, category 4.

It is an indicator of future events to occur economically.

The stability of the economy is important, as it facilitates one's ability to buy and save. A stable economy encourages investment and growth.

There were, however, few such answers.

The impression that people are worried about the effects of inflation on their standard of living is further supported by their responses to questions A4 and A5. In answering question A4, whether they are worried that something really bad might happen if inflation rises too high, 90% said "yes, very much" or "yes, somewhat." What is striking is the dramatic nature of some of the answers to the following question about just what might happen. The most common answers concerned fears of depression and/or a dramatic drop in overall standard of living.

That I, and millions like me, will be forced into poverty—perhaps not like the "great depression," but close.

If inflation rises too high, more people will be forced to seek assistance, e.g., welfare, food stamps, charity, etc.

We wouldn't be able to afford anything. Our wages wouldn't be high enough.

I will not be able to live within my weekly paycheck.

There will be more homeless and starving people.

A few reported fears of political instability.

1. Political nightmare, 2. riot, 3. big incidents.

Hyperinflation can cause governments to fall and individuals' savings may be lost causing chaos throughout the land.

A few reported general fears of damage to the economy.

High inflation affects all aspects of business and investing. It is unhealthy for business, failures will result.

If too high the economy would collapse.

A financial collapse, followed by a depression.

A few seemed to refer to the effects on their pension checks or other investments.

I will not have enough money to manage my older years independently.

Buying power in retirement might be significantly reduced at a point where a relatively fixed income would occur.

People on fixed incomes would be hard pressed to meet mortgage payments or car payments or even rent.

A few spoke of changes in the income distribution.

Increase in people with high levels of income. Decrease in number of people in middle-class levels of income. Increase in number of people in poverty levels of income.

That the gap between the rich and the poor will become so great that there will no longer be a middle income group or even the potential of one.

Answers to question A6, asking people to list the causes of inflation, reveal that people haven't any clear sense what is causing inflation; there are very many different factors that they think might be responsible. The most common cause cited was greed. The word "greed" or "greedy" was volunteered by 17 (16%) of the respondents. There were also a lot of nonspecific references to the government as a cause (16 respondents). The next most commonly mentioned cause was that people borrow or spend too much (11), and after that the Federal Reserve and interest rates (10), big business and corporate profits (9), followed by the money-supply increase (8), government deficit (7), politicians in general (5), high demand (4), and welfare (3). Causes cited by 1 or 2 respondents each included cost increases, lack of price controls or regulation, the dollar decline, unemployment, lack of saving by the public, hoarding of goods, the shrinking middle class, the rest of the world, shortages, labor unions, management caving in to wage demands, taxes too high, fraud and corruption, over-

confidence in the continuing inflation, balance of payments, corporate executives overpaid, Republicans in power, and just plain stupidity.⁵

While people appear to be in great disagreement why inflation occurs, they do tend nonetheless to be angry at someone when they see prices rise: in answer to question A7, 38% reported feeling angry often, and an additional 48% reported feeling angry sometimes. There was little agreement on the answer to question A8, on who they are angry at. The government was mentioned by 18 respondents, manufacturers by 15, store owners by 6, business in general by 6, wholesalers by 4, executives by 3, the U.S. Congress by 3, and greedy people by 3. Also mentioned were institutions, economists, retailers, distributors, middlemen, conglomerates, the president of the United States, the Democratic Party, big-money people, store employees (for wage demands), "my employer" (for not increasing my salary), and myself (for being ignorant of matters).

Question A9, in which the respondent is asked to list all relevant factors in explaining how his or her income changed in the last five years, was inspired by Katona's report (1975, 140) that people tend to see the causes of their income increases in personal terms, rather than as due to inflation: "survey respondents with gains in income were asked the puzzling question, 'How come that you make more than five years ago?' In reply most people spoke of their own accomplishments and progress. Only a very small proportion of people referred to inflation." Question A9 was included to see if we could confirm his report, but we were operating under a handicap in doing so at the end of this questionnaire: the question is asked following eight questions about inflation, which surely ought to put the idea of inflation in people's minds. Still, only 16 of 47 who wrote an answer, 34%, mentioned inflation, which seems an important omission in a five-year period when prices went up 13%. Of course, it is probably true that for most people the most important factor accounting for income change in this interval was not inflation, and the tendency for most people to omit it as among the leading factors might be forgiven.

What is more striking are the answers to the hypothetical in question A10, about what would have happened to incomes had there been more inflation. People seem to have no idea: answers are about equally distributed among the three possibilities, income would be lower, about the same, or higher. From the answers to this question, it would appear that there is practically no recognition of a response of income to inflation, and thus there would appear to be a strong presumption that inflation hurts real incomes.

It is worthwhile noting what was *not* mentioned, or only rarely mentioned, on a questionnaire that gave plenty of space for people to write open-ended answers. Not a single respondent volunteered anywhere on the questionnaire that he or she benefited from inflation. There was little mention of nominal contracts; only four respondents mentioned these. There was little mention of the fact that inflation redistributes income from creditors to debtors; only one

5. Katona (1975) also concluded that the public has no clear ideas as to the causes of inflation.

respondent clearly stated this. Not a single respondent clearly mentioned the inconveniences created by inflation, such as making more trips to the bank.

1.6 Public Concerns with Inflation: Results from Questionnaires B and C

1.6.1 Confirmation of Importance of Inflation and Its Effects on Standards of Living

Answers to some of the questions on questionnaire B (distributed to randomly selected people in the United States and to economists) and questionnaire C (distributed to randomly selected people in the United States and Germany, and via E-mail in Brazil) confirm the central importance in public perceptions of inflation and of the standard-of-living concern. These closed-end questionnaires give more precise description of our conclusions, since the wording of the answers is the same for everyone, and allows accurate comparisons across groups.

The respondents in all three countries, and among both the younger and the older in the United States and Germany, were very concerned with inflation.⁶

C1. Do you agree with the following statement? "The control of inflation is one of the most important missions of US [German, Brazilian] economic policy."

	1	2	3	4	5	
	Fully agree		Undecided		Completely disagree	
US all	56%	28%	7%	7%	2%	n=123
Born < 1940	69%	13%	11%	4%	2%	n=45
Born > 1950	44%	38%	2%	13%	2%	n=45
Germany all	76%	18%	5%	1%	0%	n=174
Born < 1940	90%	8%	1%	1%	0%	n=77
Born > 1950	51%	40%	7%	2%	0%	n=55
Brazil	56%	32%	2%	4%	7%	n=57

Concern with inflation is high everywhere. The Germans tend to agree with this statement more often than the others, but it is striking that no group of respondents chose 1 or 2 less than 80% of the time.⁷ The older people (born

6. Words in brackets in the questions shown here are the word corresponding to the country of the respondent.

7. The breakdown of categories by birth year was chosen so that the older group would be people who clearly experienced World War II and the post-World War II inflation in Germany.

before 1940) were more likely to agree fully than the younger people (born in 1950 or later). The differences between German and U.S. respondents are much stronger for the older group than for the younger group; this is a pattern that recurs in answers to other questions below. Note that our Brazilian sample of E-mail users is approximately comparable in age to our younger group: 91% of our Brazilian respondents were born in 1950 or later. There is not a large difference between the Brazilians and the younger German or U.S. respondents in answers to this question.

Another way to gauge public concern with inflation, and to see whether there are international differences in this concern, is to ask people whether they would accept inflation if it were necessary in order to curb unemployment, that is, to ask them how they would choose between two points on a Phillips curve. The question presumes the existence of a Phillips curve trade-off, and so is asking directly about preferences with regard to inflation and unemployment.

C8. Imagine that you faced a choice for the United States [Germany, Brazil] between the following two extreme possibilities, which would you choose?

1. The US [Germany, Brazil] would have in the next 10 years an inflation rate of only 2% a year, but an unemployment rate of 9%, thus about 12 million [3.5 million, 6 million] unemployed.

2. The US [Germany, Brazil] would have in the next ten years an inflation rate of 10% a month, but an unemployment rate of only 3%, thus about 4 million [1.2 million, 2 million] unemployed.

	1	2	
U.S. all	75%	25%	<i>n</i> = 113
Born <			
1940	79%	21%	<i>n</i> = 38
Born ≥			
1950	72%	28%	<i>n</i> = 43
Germany all	72%	28%	<i>n</i> = 153
Born <			
1940	66%	34%	<i>n</i> = 65
Born ≥			
1950	84%	16%	<i>n</i> = 49
Brazil	54%	46%	<i>n</i> = 50

The results show that most people in all countries would choose low inflation even if it meant that millions more people would be unemployed. The Brazilians more often choose 2 than people in other countries, possibly since having lived through it they have learned ways of enduring it, and possibly since Brazil does not have as developed a social safety net for the unemployed. But there

and the younger group would be people who are clearly postwar and would not remember the inflation. People born in the 1940s were excluded from either group, but included in the figures from the "All" group, along with people who refused to reveal their age on the questionnaire.

is less difference across countries in answers to this question than I expected. There is little difference between the German and U.S. respondents overall, and so the popular theory that Germans have a greater distaste for inflation is not confirmed here. The difference between the age groups within Germany is much bigger than the difference overall between Germany and the United States. The absence of a large difference between the German and U.S. respondents suggests that the differences between the two countries might be more in their understandings of the unemployment consequences of inflation, rather than differences in pure preferences regarding inflation.

While the general public appears to dislike inflation everywhere, results from questionnaire B show that economists do not generally agree.

B1. Do you agree that preventing high inflation is an important national priority, as important as preventing drug abuse or preventing deterioration in the quality of our schools?

	1 Fully agree	2	3 Undecided	4	5 Completely disagree	
U.S. all	52%	32%	4%	8%	4%	n = 117
Economists	18%	28%	11%	26%	18%	n = 80

The fraction of our U.S. respondents who fully agreed was nearly three times as high as the fraction of economists who fully agreed. This question also shows some indication of the magnitude of the public concern with inflation; with about half of the public choosing 1, one might say that the problem of high inflation appears to be viewed by the public (though not by economists) as on par with the drug problem or the problems of our schools.

In confirming that people think that inflation is a very important issue, it is helpful to see whether people see the inflation process, the surprise in inflation, as causing a problem, or the effects of the new price level itself. One way of giving information on this is to ask people if they would like to go back to earlier prices if they could.

B18. Do you agree with the following statement? "If the government were to make a mistake next year, such as printing too much money, and created prices that are 20% higher than they are today, I think that they should try to reverse their mistake, and bring prices back down where they are today."

	1 Fully agree	2	3 Undecided	4	5 Completely disagree	
U.S. all	46%	22%	22%	4%	6%	n = 113
Economists	0%	3%	5%	28%	64%	n = 76

There is here a very sharp difference between the economists' answers and the public's: the public seems to be at odds with the fundamental economists' notion that we should accept base drift in the price level.

Why is there such a difference between the economics profession and the general public about the importance of inflation or price level changes? The general public in the United States clearly thinks differently from professional economists about the costs of inflation, and are far more likely to think of inflation as lowering standard of living.

B9. Which of the following comes closer to your biggest gripe about inflation:

1. Inflation causes a lot of inconveniences: I find it harder to comparison shop, I feel I have to avoid holding too much cash, etc.
2. Inflation hurts my real buying power, it makes me poorer.
3. Other _____

	1	2	3	
U.S. all	7%	77%	15%	<i>n</i> =110
Economists	49%	12%	40%	<i>n</i> =78

Over six times as many in the general public chose 2, that inflation hurts real buying power, indicating that economists think in very different terms about inflation. One may conjecture that the favored answer from economists here reflects concerns about the process of inflation, the frictions that accompany it, rather than the change in the price level itself, while the favored answer from the general public would reflect suffering caused by the new higher price level in the face of fixed nominal incomes.

Consistent with this popular impression that inflation hurts standard of living, the general public tends to see inflation as hurting most people, while economists see about 50% as being hurt (50% would be the fraction hurt if inflation caused a random redistribution of income among people).⁸

B5. What percent of the population do you think is hurt when there is sudden, unexpected, high inflation?

_____%		
U.S. all	69% (mean)	<i>n</i> =108
Economists	48%	<i>n</i> =73

The majority among the general public in all the countries studied here except Brazil fully agree that high inflation can reduce the growth and economic progress of a country.

C11. Do you agree with the following statement? "Inflation rates over 30% to 40% a year can reduce the growth and economic progress of a country, especially in comparison with countries where inflation is under 5% a year."

8. Katona (1975) tabulated a similar question to the general public.

	1	2	3	4	5	
	Fully agree		Undecided		Completely disagree	
U.S. all	57%	30%	7%	3%	3%	n=122
Born						
<1940	67%	24%	7%	0%	2%	n=45
Born						
≥1950	48%	34%	9%	5%	5%	n=44
Germany all	69%	19%	9%	1%	1%	n=173
Born						
<1940	78%	11%	9%	0%	3%	n=76
Born						
≥1950	60%	33%	5%	2%	0%	n=55
Brazil	40%	28%	12%	9%	11%	n=57

Note that the opinion that inflation harms economic growth is weakest among the Brazilians, but even among the Brazilians, 68% chose either 1 or 2.⁹ Full agreement with this statement is a little higher for the German than the U.S. respondents, and higher for older people in both countries.

1.6.2 Why Do People Think Inflation Hurts Their Standard of Living?

To understand why the general public thinks inflation hurts their standard of living, let us first recognize that we cannot get a good understanding until we learn what people think causes inflation. Inflation is best regarded as an endogenous variable, which reflects a number of causal forces just as does the standard of living, and so we may not view inflation as itself the ultimate cause of anything.

We saw from our questionnaire A results that people cite a wide variety of causes of inflation, no single cause. Although the disagreement about the causes of inflation seemed to be so high that it is difficult to make any general statement about what people are thinking, the public often seemed ready to put down inflation as caused by bad behaviors, motivated by greed or other low impulse. Respondents described inflation as caused by big businesses pursuing profits, the Fed erroneously increasing the money supply, people borrowing or spending too much, the politicians letting the government deficit get out of hand. If there is any common story about causes of inflation among many of these people, it would seem to be that the causes are tied up with people's

9. In a pilot study for this paper, as part of another survey of a random sample of U.S. institutional money managers in the spring of 1995, I asked: "What effect do you think a strongly and steadily inflationary national policy would have on long-run economic growth? Please answer by writing in the change in the growth rate of U.S. Gross Domestic Product (GDP) that would accrue if we allowed the consumer price index inflation rate to rise above 10% and left it above 10% for a long time. If you think that real economic growth would be x% less per year, write -x%. If you think that real income growth would be x% more per year, write +x%. If you think that there would be no change, write 0: Change in annual real GDP growth rate: _____%" There were seventy-five respondents to this question; the median answer was -2%. Thus, this sample of people expected that inflation can have very serious impact on growth.

acting badly. There is a tone of moral indignation when people tell of businesses trying too hard to pursue profits, the Fed behaving stupidly, people trying to live above their means, or politicians trying too hard to get reelected. It is important to realize this, since some economists have speculated that when people speak of inflation they mean nothing more than the decline of the standard of living itself, such as might have been caused by a negative technology shock or an oil price increase. I should admit, though, that my conclusion about the nature of these causes is due to my rather subjective interpretation of written answers.

But, if we accept this interpretation of the public's ideas about causes of inflation, why do people think that inflationary shocks from these causes hurt their standard of living? Perhaps their thinking arises from an observed correlation, that inflation tends to come at times when other factors are harming their standard of living, and so people are influenced by the perceived correlation between inflation and their problems. The oil price shocks of 1973 and 1979 apparently precipitated both inflation and recession and occurred when the up-trend of productivity was ending in many countries, yet people may not remember the oil price shock as a cause, thinking instead of the inflation. The German hyperinflation of the early 1920s, an event widely alleged to have shaped German public opinion regarding inflation, occurred at a time of heavy reparation payments, as the German government resorted to inflationary finance to make the reparation payments, and Germans may have confused the lowered standard of living due to the export of real resources as reparations with a consequence of inflation itself.

But any such impressions as to correlations between inflation and other economic variables would not translate well into impressions of causality from inflation to the other variables were there not some kind of model, some kind of story, that inclines people to see inflation as causing declines in living standards. Some clues as to the nature of such popular stories or, let us say, popular models of the economy, emerged from our discussions with people, and led us to formulate questions about them.

An important factor that emerged from our conversations is that most people seem to fail to think of the models that come naturally to economists about the competitive pressures that shape their wages and salaries; they tend to see any feedback of inflation on wages and salaries as working through the goodwill (or lack thereof) of their employer. This was confirmed by the answers to question B12.

B12. Please evaluate which of the following theories about the effects of general inflation on wages or salary relates to your own experience and your own job:
[Circle one number]

1. The price increase will create extra profits for my employer who can now sell output for more; there will be no effect on my pay. My employer will see no reason to raise my pay.

2. Competition among employers will cause my pay to be bid up. I could get outside offers from other employers, and so, to keep me, my employer will have to raise my pay too.
3. A sense of fairness and proper behavior will cause my employer to raise my pay.
4. None of the above or no opinion.

	1	2	3	4	
U.S. all	26%	11%	21%	43%	<i>n</i> = 112
Economists	4%	60%	11%	25%	<i>n</i> = 75

Only 11% of the U.S. respondents chose 2, that, in effect, market forces will cause a raise in pay, while 60% of the economists chose this.

People do not tend to see inflation as a process that naturally tends to affect wages and salaries as well as goods prices. In one of our conversations, a respondent said she always had deep worries about real income after hearing some long-term projection of prices. I thought that economists probably have a very different perspective on the significance of such long-term projections, and the comparison of the public with economists on question B6 bears this out.

B6. Do you agree with the following statement? "When I see projections about how many times more a college education will cost, or how many times more the costs of living will be in coming decades, I feel a sense of uneasiness; these inflation projections really make me worry that my own income will not rise as much as such costs will."

	1 Fully agree	2	3 Undecided	4	5 Completely disagree	
U.S. all	66%	20%	7%	6%	1%	<i>n</i> = 116
Economists	5%	15%	9%	30%	41%	<i>n</i> = 80

It is hard to imagine a more striking difference between two groups of respondents than we observe here: only 5% of the economists agreed fully with this statement, while 66% of the U.S. respondents did.

The tendency of economists to see a much more tenuous connection between inflation and the development of real wages led me to suppose that economists would tend much more than the public to agree in question B7.

B7. Do you agree with the following statement? "Inflation is a sort of units of measurement thing and little more: the dollar is a yardstick by which we measure value, and the length of this yardstick (value of the dollar) is changing through time. All we have to do is make sure we are taking full account of the length of the yardstick, and inflation will have little effect on us."

	1 Fully agree	2	3 Undecided	4	5 Completely disagree	
U.S. all	12%	8%	32%	20%	27%	<i>n</i> = 114
Economists	23%	28%	6%	27%	15%	<i>n</i> = 78

Over half the economists chose 1 or 2 here, while only 20% of the public did.

A similar question was asked on questionnaire C, to allow international comparisons of the notion that inflation is expected to be corrected.

C5. Do you agree with the following statement? "It makes no sense to pay attention to the development of the inflation rate, because a pretty accurate inflation correction in my income is to be expected anyway."

	1	2	3	4	5	
	Fully agree		Undecided		Completely disagree	
U.S. all	2%	1%	3%	30%	65%	n = 122
Born						
<1940	5%	0%	5%	30%	61%	n = 44
Born						
≥1950	0%	2%	2%	20%	75%	n = 44
Germany all	5%	4%	11%	11%	69%	n = 169
Born						
<1940	7%	5%	14%	7%	68%	n = 74
Born						
≥1950	2%	0%	9%	13%	76%	n = 54
Brazil	0%	0%	5%	25%	70%	n = 57

There is a striking tendency to disagree that inflation corrections can be expected in all countries sampled.

People tend to think that their income may not be corrected for inflation, at least for many years.

C6. Imagine that next year the inflation rate unexpectedly doubles. How long would it probably take, in these times, before your income is increased enough so that you can afford the same things as you do today? In other words, how long will it be before a full inflation correction in your income has taken place? [Please mark only one answer.]

- 1 ____ Up to a month
- 2 ____ Until the next negotiation with my employer within a year
- 3 ____ Several years
- 4 ____ Never will be restored
- 5 ____ Do not know

	1	2	3	4	5	
U.S. all	0%	7%	39%	42%	11%	n = 123
Born						
<1940	0%	2%	36%	48%	14%	n = 44
Born						
≥1950	0%	11%	44%	33%	11%	n = 45
Germany all	0%	8%	40%	40%	12%	n = 171
Born						
<1940	0%	8%	41%	35%	16%	n = 74
Born						
≥1950	0%	5%	40%	42%	13%	n = 55
Brazil	2%	19%	17%	28%	34%	n = 53

Over three-quarters of respondents in all groups in both the United States and Germany chose 3 or 4, that it will take years for real income to be restored or that it will never be restored. Even in Brazil, with its indexation, 45% chose 3 or 4.

Of course, the hypothetical question asked here—concerning a sudden change in the inflation rate—raises difficult intertemporal issues that a careful answerer might find challenging. In fact, the inflation rate is changing all the time, and it would seem that there must be times when there is no inflation but wages are increasing to catch up to past inflation, so that wages may be increasing because of inflation even when there is no inflation. The public probably lacks the quantitative skills to model the response of their pay to inflation, which economists might cast in terms of distributed lags or the like. There may be little to be gained by trying different versions of this question, with different hypothetical time paths of inflation, since the public cannot easily answer any such questions, beyond just giving some vague impressions that the pay will substantially fall behind.

The notion that wages lag behind prices is very old: as early as 1895 it was stated that “the prices of what wage earners have to buy respond far more promptly to changes in the quantity of money than do wages—the prices at which labor is sold. Hence, whenever money is getting better, though nominal wages may tend to decrease, wage earners are constantly getting more goods in exchange for the money they actually get for their labor; and whenever money is getting poorer, though nominal wages may tend to increase, wage earners are constantly getting less of the necessities and comforts of life in return for the wages they receive.”¹⁰ General Domingo Perón, the Argentinean populist dictator, had a colorful way of describing this hypothesis: “Until now, prices have gone up on the elevator, and wages have had to use the stairs” (quoted in Cavallo 1983, 318). (He sought to reverse the situation.)

Whether this wage-lag hypothesis is valid was the subject of discussion of many economists in the early to midpart of this century; the outcome of the discussion was essentially that there was no evidence for the hypothesis. Claims for evidence in support of the wage-lag hypothesis were vigorously challenged by Alchian and Kessel (1960) and Cargill (1969). Bach and Stephenson (1974) found that periods of higher inflation in 1950–71 tended to be periods when wages as a share of national income *rose*, rather than fell. Of course, the general public cannot be expected to know of this research.

Most professional economists today are probably well aware from experience that it is difficult to estimate the lag of incomes on prices from the data, and are likely to imagine that actual relations are complicated and elusive. Economists are familiar with long time-series plots showing the consumer price index and other nominal series marching up through the years in seeming tandem. We are accustomed to expecting that, over long time periods of substantial inflation as economists define it, other things equal, any nominal series

10. John De Witt Warner, *Sound Currency*, October 1, 1895.

would move overall pretty much like the aggregate price level. The general public has not had much experience of studying time-series economic data.

One notion that we thought that we discerned among some of the people we talked with is some idea that people will always be behind when there is inflation, because their wages are fair only in the time of the year when their wages are set, and that they will fall behind within the year. We had great difficulty in formalizing this into a question that people would understand, but did include the following on questionnaire B:

B13. Think about times when your income for next year is decided by your employer (or your last employer, if you are no longer employed). Which of the following do you think is closer to what your employer does:

1. "I think that my employer has in mind, to the extent that fairness is a consideration, making my wage higher at the beginning than would seem fair and equitable, in comparison with prices and other people's wages, to allow for the fact that prices and other people's wages will rise through the year due to inflation, in order that my wage is still reasonably fair and equitable later in the year."
2. "I think that my employer has in mind, to the extent that fairness is a consideration, making my wage fair and equitable at the beginning of the year, despite the fact that inflation will make it compare somewhat unfavorably later in the year."
3. Neither or no opinion.

	1	2	3	
U.S. all	12%	26%	62%	<i>n</i> = 110
Economists	14%	30%	55%	<i>n</i> = 76

Most of the responses were "neither or no opinion," but there is a suggestion that our impressions from our conversations were right, since of those who did answer the question, most chose 2 over 1, meaning that they think that they have a fair wage only at the time of the year when wages are set. The implication is that higher inflation means real wages will be on average less fair.

1.6.3 It's Not Just Standard of Living: Other Important Concerns about Inflation

The results until now suggest that the public is concerned with inflation primarily because of its presumed effect on their standard of living, and that this concern is substantially due to ill-conceived ideas of the lagged effects of inflation on wages and salaries. But there appear to be many more concerns than just such effects of inflation on real income.

That there are other important concerns is shown by the answer to question B2, which immediately followed question B1 about whether preventing inflation is as important a national priority as preventing drug abuse or preventing deterioration in the quality of our schools.

B2. (If you circled 1 or 2 in the preceding question) Would you still agree if the type of inflation being prevented caused incomes to rise at the same rate as prices, so that the inflation would have no effect on living standards?

1. Yes, I would still agree in the preceding question.
2. No, I would disagree in the preceding question.

	1	2	
U.S. all	65%	35%	n=98
Economists	63%	37%	n=38

Most of the public, and the economists, agree that preventing inflation would still be such an important national priority.

It is interesting, too, that when presented with a similar pair of questions about unemployment, we get analogous responses.

B3. Do you agree that preventing economic recessions (times of high unemployment and low sales for business) is an important national priority, as important as preventing drug abuse or preventing deterioration in the quality of our schools?

	1	2	3	4	5	
	Fully agree		Undecided		Completely disagree	
U.S. all	55%	25%	8%	8%	4%	n=114
Economists	38%	38%	8%	15%	3%	n=80

B4. (If you circled 1 or 2 in the preceding question) Would you still agree if you were told that the method of preventing economic recessions had an absolutely equal impact on economic booms (times with lots of job opportunities, and lots of sales for firms), preventing really good times just as much as it prevented really bad times?

1. Yes, I would still agree in the preceding question.
2. No, I would disagree in the preceding question.

	1	2	
U.S. all	83%	17%	n=92
Economists	84%	16%	n=56

We had conjectured that most public desire for economic stabilization policy was formed from an impression that such policy can promote a higher average level of income, and we thought that most of the public would not agree on B4. However, both economists and the general public are generally supportive of stabilization policy that is just that, preventing really good times just as much as really bad times.

Answers to another question reveal that a substantial minority of the public (though not economists) would like to see inflation contained even if it meant a major reduction in economic growth.

B11. Do you agree with the following statement? "Keeping inflation low is so high a priority that I would not like to see a national policy that caused the infla-

tion rate to double from where it is today even if that policy were sure to double the real (inflation-corrected) growth rate of the economy.”

	1	2	3	4	5	
	Fully agree		Undecided		Completely disagree	
U.S. all	21%	15%	38%	18%	10%	n=114
Economists	4%	3%	5%	17%	71%	n=79

If there are other concerns about the effects of inflation than just the effects on real incomes, what are they? The other concerns explored here are the psychological effects of inflation, the use of inflation by opportunists to take advantage of others, the moral and morale effects of inflation, the effects of inflation on political stability, and the effects of inflation and currency depreciation on national prestige.

1.6.4 Psychological Effects of Inflation

Shafir, Diamond, and Tversky (1997), based on experimental evidence of various sorts, found that people seemed to base their sense of satisfaction in their earnings partly on nominal earnings, rather than just on real earnings. This is a form of “money illusion.” I tried to replicate their results in a very unobtrusive way, that of merely asking people directly about the Shafir-Diamond-Tversky premise. If people answered as if they were unaware of such an effect, it would not be evidence contrary to their premise; such feelings may be subconscious or difficult to express. However, people (excluding economists) did not report that they were unaware of such feelings.

B17. Do you agree with the following statement? “I think that if my pay went up I would feel more satisfaction in my job, more sense of fulfillment, even if prices went up just as much.”

	1	2	3	4	5	
	Fully agree		Undecided		Completely disagree	
U.S. all	28%	21%	11%	14%	27%	n=112
Economists	0%	8%	3%	13%	77%	n=79

The public’s answers here are spread all over the range from 1 to 5, but one might say that the fact that about half of the U.S. sample picked 1 or 2 reveals some perceived benefits of inflation, rather than costs.¹¹ But connected with this feeling there may be some perception that the apparent satisfaction is illusory or the result of tricks. “Inflation is like a narcotic. For a while it puts us in a high mood, glorifies the world, and helps us forget our problems, but an awakening follows inevitably” (Karl Schiller, 1970).¹² This leads us to consider

11. Consistent with this interpretation of the answers to B17, it has been found that consumption expenditures respond positively to inflation; see Branson and Klevorick 1969.

12. *Gemeinschaft zum Schutz der deutschen Sparer* 1990, 21, our translation. Schiller was German economics minister, 1967–72, and finance minister, 1971–72, and was architect of the *Stabilitätsgesetz* (stabilization law) 1967.

the possibility that there is some concern among the public that inflation is a sort of deception, or that it facilitates deception by some people.

1.6.5 The Use of Inflation by Opportunists to Exploit Others

Popular discussions suggest that people apparently dislike inflation because it enables people to play tricks on them. "Only a healthy money is an honest money" (Otmar Emminger, 1979).¹³ "In a society that wants to give a lot of room to individual freedom and responsibility, the stability of the value of the currency represents principles and values like security of one's rights, honesty, credibility, and consistency, and so represents what is generally expressed by the word *Währung* (currency)" (Sachverständigenrat, 1967).¹⁴

That inflation gives opportunities for some to take unfair or dishonest advantage of others is clearly a concern in the United States. I tried to ask about such concern in a rather more concrete way than is suggested by the above quotes, asking about specific examples of such bad behavior.

B10. Do you agree with the following statement? "One of the most important things I don't like about inflation is that the confusion caused by price changes enables people to play tricks on me, at my expense. For example, my boss can 'forget' to raise my pay, and, if (s)he does, than I am taking a real pay cut. The government can 'forget' to change the tax brackets, and so I wind up paying higher taxes."

	1	2	3	4	5	
	Fully agree		Undecided		Completely disagree	
U.S. all	51%	21%	11%	11%	6%	n=113
Economists	28%	33%	9%	16%	15%	n=80

This statement apparently struck a sympathetic chord among the public, and moreover the economists tended to agree with it, though less strongly.

1.6.6 Moral or Morale Effects of Inflation

That somehow national morale, or a sense of moral behavior in others, is compromised by inflation seemed to be a factor in our informal discussions with the public. There is also a suggestion of such a factor in the popular press. For example, in the February 1995 *Reader's Digest*, the lead article by Jude Wanniski, reprinted from the *Wall Street Journal* and entitled "You Call This a Good Economy?" was substantially an article about inflation and its relations to morality or morale. *Reader's Digest* is the most widely read magazine in the world, with 28 million copies sold each month, and so the editors appear to

13. Gemeinschaft zum Schutz der deutschen Sparer 1990, 20, our translation. Emminger is the author of many books on the D-Mark and the international monetary system.

14. Ibid. The Sachverständigenrat is a German government-appointed standing blue-ribbon panel that provides advice about major national issues. We did not translate *Währung* here, since we think it has untranslatable connotations. *Währung* is usually translated as "currency," yet the word has connotations of "quality," "value," or "guarantee," not shared by *currency*. The impression that inflation is a thing to be avoided seems to have infiltrated German thinking in subtle ways.

have a good sense about what interests the general public; it is significant that they chose this article as the lead article in the issue, and even to offer, at the end of the article, reprints in bulk. One must try to read this sympathetically, to try to understand why this article was regarded by the editors of *Reader's Digest* as so noteworthy. The tone of the article is inspirational, as if the writer was pointing out some sham or temptation, and exhorting us to keep our senses and values about us.

This article is especially noteworthy to us, since it appears to contain substantially more than just a claim that inflation has caused a decline in our standard of living. The article dwells at some length on prices themselves. One might think that long-run inflation paths would be a boring topic for most people; inflation has to do with changes in units of measurements, a seemingly dry academic topic. Wanniski enlivens the topic by interspersing words with moral tone among recollections about price changes:

In the period between 1950 and 1970 it was the rule—rather than the exception—that an ordinary family, without higher education, could sustain itself decently on the income of a single breadwinner. In 1955, when I was 19 and living in Brooklyn, N.Y., my father, who had a sixth-grade education, maintained our family of five on a wage of \$82 a week as a bookbinder. My mother taught us fairness and compassion; my father, discipline and enterprise.

With my younger brother and sister, we lived in a small apartment in a relatively new building. The monthly rent in 1954 was under \$90, gas and electricity another \$7 to \$10. We had a 1949 Plymouth that my father had bought new for \$1200.

My first good suit, bought for my 1954 high-school graduation, was \$30. In the summer of 1950 I worked as an office boy on Wall Street for 75 cents an hour, the minimum wage. In the summers from 1951 to 1953, I labored in the bindery for \$1 an hour, with time and a half for overtime. . . .

Where did this good economy go? It was inflated away. (49–51)

The story goes on, with many more prices from that time quoted. An economist may ask, what is the point of this personal history and list of prices from the 1950s?

One conceivable exegesis of the long list of prices is the purely economic one that the author is reminding ignorant readers that, if both prices and wages are low, then one's living standard isn't affected by their lowness. This point may well be contained in the passage, but it is clearly not the motivation for including this list of prices. If this were only an article about units of measurement, then it would be no more interesting to readers than an article reminding people about the relation between metric and avoirdupois systems. No, there is something more here.

It is clear that there is a moral tone to this writing; interspersed among the prices are words like "discipline and enterprise." Wanniski does not say he was paid \$1 per hour in the bindery, but that he "labored" for it. Also interspersed

among these prices is perhaps a sense that the family was happy with what it got, that it spent purposefully, buying a suit for a high school graduation, rather than spending money for frivolous purposes. It would appear that the list of individual prices presented in association with such moral judgments is an effective literary device because these individual price changes are tied up with such judgments in people's memories.

It is difficult to capture just what those we talked to seemed to be thinking about morale or morality. The following question was placed on questionnaire C to try to capture some notion of this concern:

C4. Do you agree with the following statement? "When a country has too high an inflation rate, society loses its cohesion and feeling for the common good."

	1	2	3	4	5	
	Fully agree		Undecided		Completely disagree	
U.S. all	44%	21%	19%	12%	3%	n= 122
Born						
<1940	62%	16%	13%	7%	2%	n=45
Born						
≥1950	31%	27%	22%	13%	7%	n=45
Germany all	36%	13%	32%	12%	7%	n= 168
Born						
<1940	49%	15%	24%	8%	4%	n=75
Born						
≥1950	19%	13%	42%	19%	8%	n=53
Brazil	26%	37%	12%	11%	14%	n=57

About half of the older Germans and half of the U.S. respondents fully agreed with this statement, and the overall result from all countries is that very few strongly disagree.¹⁵ The Brazilians are less likely to agree strongly than are the German or the U.S. respondents. One might suppose that the difference arises because Brazilians have experienced high inflation and society did not fall apart. But note that the Brazilians picked 1 about as often as the younger U.S. and German respondents together did; the strong intergenerational differences in answers are the striking result here, not the international differences.

In talking to people about the issues raised by the *Reader's Digest* article, I also got the impression, curiously, that people think that differences in prices between now and long ago are somehow a reflection of a fundamental change in values and the nature of our society, rather than a reflection of purely economic forces. Tied up with this opinion, there seemed to be an odd sense that

15. In the pilot study for this paper, as part of another questionnaire survey I was conducting in the spring of 1995 with institutional investment managers, I asked the following questions about the moral dimension in inflation: "What effect do you think that a strongly and steadily inflationary national policy would have on the nation's feeling of morale and sense of shared social purpose? 1. very harmful 2. mildly harmful 3. neutral 4. mildly beneficial 5. very beneficial." Of the eighty-seven respondents to this question, 77.2% chose 1, 19.3% chose 2, none chose 3, 3.4% chose 4, and none chose 5.

some break with the past occurred, and that in getting here from there was not a continuous path. Odd as this impression seemed, I decided to try to follow up on it with a question.

B14. Do you agree with the following statement? "The fact that prices are nearly three times as high as they were twenty years ago is due to a fundamental change in the nature of the economy, not due to the gradual accumulation over the years of the annual inflation, inflation which has generally been far below ten percent a year."

	1	2	3	4	5	
	Fully agree		Undecided		Completely disagree	
U.S. all	21%	21%	23%	21%	15%	n=110
Economists	5%	1%	0%	12%	82%	n=77

A substantial minority of the public circled 1 or 2, confirming at least that the statement sounds right to a lot of people, but the economists did not, and feedback suggested that the economists were perplexed by the question.

1.6.7 Political and Economic Chaos Caused by Inflation

Reading the popular literature suggests that there is widespread concern that the effects of inflation may be so severe as to cause a breakdown in the political and economic conditions in a country. It is easy to find quotes supporting this idea; there are very many. The following 1919 passage from Keynes is so widely cited as almost to be a cliché:

Lenin is said to have declared that the best way to destroy the capitalist system was to debauch the currency. By a continuing process of inflation, governments can confiscate, secretly and unobserved, an important part of the wealth of their citizens. By this method they not only confiscate, but they confiscate *arbitrarily*; and, while the process impoverishes many, it actually enriches some. The sight of this arbitrary rearrangement of riches strikes not only at security, but at confidence in the equity of the existing distribution of wealth. Those to whom the system brings windfalls beyond their deserts and even beyond their expectations and desires, become "profiteers," who are the object of hatred of the bourgeoisie, whom the inflationism has impoverished, not less than of the proletariat. As the inflation proceeds and the real value of the currency fluctuates wildly from month to month, all permanent relations between debtors and creditors, which form the ultimate foundation of capitalism, become so utterly disordered as to be almost meaningless, and the process of wealth-getting degenerates into a gamble and a lottery.¹⁶

Similar themes can be found more recently.

16. Keynes [1919] 1979, 147–48. Subsequent commentary on this passage has raised questions whether Lenin ever said this.

Unstable money destroys the public-spirited and social foundation of every free state's order. (Ludwig Erhard, 1955)¹⁷

Without good money, there is no healthy economy and no healthy social conditions. (Karl Blessing, 1957)¹⁸

Freedom of the individual, which we all idealize, can only be assured through good money. (Fritz Butschkau, 1968)¹⁹

The consequences of the international [inflationary] spiral go far beyond economics: they include a sharpening of social divisions and a shaking of values, as inflation rewards speculators while penalizing thrift. The ultimate threat is that inflation will eventually weaken confidence in democratic governments and institutions and prepare the way for sharp violent shifts to the radical right or left. (*Reader's Digest* [condensed from *Time*], July 1974, 50)

Helmut Kohl, the German chancellor, has quite recently, in the context of the debate over European Economic and Monetary Union, made the effects of inflation on democracy an important part of his message to the public: "From bitter historical experience, we know how quickly inflation destroys confidence in the reliability of political institutions and ends up endangering democracy."²⁰ Kohl argued that we should not let the current atmosphere of cooperation in Europe encourage complacency, and argued against those who say that his concerns are exaggerated: "To anyone who says this is inadmissible histrionics, I ask this question: Who among us five years ago would have believed that the Balkans would have fallen so rapidly into fratricidal war, to ethnic hounding, to rape, murder and death?"²¹

To try to test whether the public is indeed concerned that inflation can cause economic and political chaos, the following question was included in questionnaire C:

C3. Do you agree with the following statement? "If inflation in a country rises out of control it can lead to economic and political chaos."

	1	2	3	4	5	
	Fully agree		Undecided		Completely disagree	
U.S. all	74%	17%	3%	2%	3%	n=123
Born						
<1940	84%	11%	0%	2%	2%	n=45
Born						
≥1950	71%	20%	2%	0%	7%	n=45

17. Gemeinschaft zum Schutz der deutschen Sparer 1990, 21, our translation. Starting as German economics minister in 1948, Erhard became known as the "father of the German economic miracle." He was West German chancellor 1963–66.

18. *Ibid.*, our translation. Blessing was president of the Deutsche Bundesbank.

19. *Ibid.*, 20, our translation. Butschkau was a German bank president (Deutscher Sparkassen- und Giroverband).

20. Quoted in Alan Cowell, "Kohl Casts Europe's Economic Union as War and Peace Issue," *New York Times*, October 17, 1995, A10, col. 1.

21. Quoted in *ibid.*

	1 Fully agree	2	3 Undecided	4	5 Completely disagree	
Germany all	77%	18%	3%	2%	0%	n=173
Born						
<1940	89%	8%	3%	0%	0%	n=76
Born						
≥1950	69%	27%	2%	2%	0%	n=55
Brazil	41%	31%	7%	14%	7%	n=58

There is a lot of agreement with this statement, suggesting that this concern about inflation is a major one. It is perhaps surprising that there is not much difference between the United States and Germany on answers here. When comparing the United States and Germany, the difference is more intergenerational than international. Only the Brazilians did not fully agree in the majority with this statement, presumably reflecting the fact that the Brazilians have had a lot of inflation and have not experienced economic and political chaos. Even so, a majority of Brazilians chose 1 or 2.

To further consolidate our understanding of the public support of the proposition that inflation causes economic and political chaos, it is useful to confirm whether the public really thinks that the line of causality runs only from inflation to chaos, and not the other way around.

C12. Do you agree with the following statement? "Political instability in a country will likely have a very high inflation rate as a consequence."

	1 Fully agree	2	3 Undecided	4	5 Completely disagree	
U.S. all	26%	30%	34%	5%	5%	n=122
Born						
<1940	36%	27%	30%	2%	5%	n=44
Born						
≥1950	23%	30%	34%	9%	5%	n=44
Germany all	39%	27%	26%	4%	4%	n=171
Born						
<1940	53%	19%	24%	1%	3%	n=75
Born						
≥1950	20%	47%	25%	4%	4%	n=55
Brazil	21%	25%	23%	14%	18%	n=57

The impression that such reverse causality is a factor is less strong, and only about half of the older Germans are in full agreement. Still, the majority of people in the United States and Germany choose either 1 or 2 here.

1.6.8 Concerns for Prestige and the Currency

National prestige is presumably an important factor in its own right, and the general public appears to be concerned that we must keep inflation low in order to preserve such prestige: "The inflation rate has proven to be the best indicator

for the ability of a country, not to postpone or cover up its problems, but to solve them" (Sachverständigenrat, 1981, in *Gemeinschaft zum Schutz der deutschen Sparer* 1990, 22).

Inflation is by definition a depreciation of the currency against the consumer market basket; it may also be associated, if the inflation is high, with a depreciation of the currency against other nations' currencies. The decline in value of the currency seems to raise other emotional issues. "Nothing is quite so striking a symbol of national prestige as a currency."²² Another example, from Germany:

Until today, the history of Germany after the war is a history in which the D-mark is of great importance. This is valid for the rise of the German currency from the child of the occupation to a world star as well as for the German fears that are associated with the coming European currency. For this Germany, there is much truth in what the great economist Schumpeter wrote, namely, that there is reflected in the monetary situation of a nation everything that this nation wants, does, suffers, and is, and that at the same time the currency of a nation has a substantial influence on its economic affairs and on its fate altogether. . . . Before the federal republic was founded, before there was a national flag, the really leading philosophy of life was predetermined by [Ludwig] Erhard's economic and monetary reform, by the D-Mark.²³

It is common in Germany to refer to countries whose exchange rate has been declining as *Weichwährungsländer* (soft-currency countries). Now, there are certainly potentially many ways to group or describe countries: one could refer to less-developed countries, or high-population-growth countries, or many other categorizations. To an economist, referring to countries in this manner is not natural unless one is referring to their exchange rates. But, apparently, the word is commonplace and used in much broader contexts. Thus, in a sense the German language itself has changed to incorporate certain assumptions about the correlates of weak exchange rates. To compare with English-speaking countries, I did a Nexis search on the term "soft-currency country" or "soft-currency countries" on CURNWS (25 August 1995). Only twenty-two entries were found, and in about two-thirds of these, the stories were also connected in one way or another to either Germany or Switzerland, suggesting that use of this term may have crept into English from the German sources. Thus, the term "soft-currency countries" does not appear to have the significance in English that *Weichwährungsländer* does in German.

This concern with prestige was confirmed by results from questionnaire C.

C13. Do you agree with the following statement? "When a country has too high an inflation rate, it can lose international prestige."

22. Karen Pennar, "Is the Nation State Obsolete in a Global Economy?" *Business Week*, July 17, 1995, 80.

23. Jürgen Jeske, *Frankfurter Allgemeine Zeitung*, July 1, 1995, 1, our translation.

	1	2	3	4	5	
	Fully agree		Undecided		Completely disagree	
U.S. all	46%	36%	10%	5%	3%	n=121
Born						
<1940	56%	35%	5%	0%	5%	n=43
Born						
≥1950	36%	36%	16%	7%	5%	n=44
Germany all	51%	29%	13%	6%	1%	n=171
Born						
<1940	62%	21%	12%	5%	0%	n=76
Born						
≥1950	36%	42%	15%	7%	0%	n=55
Brazil	54%	21%	12%	7%	5%	n=57

There appears to be a strong belief that such prestige loss is at stake with high inflation. Again it is the older respondents from the United States and Germany who are more likely to fully agree.²⁴

In writing this question, we were concerned that international differences in concerns with prestige might have more to do with the consequences of loss of prestige than with the association of prestige with inflation, and so the following question was added to the questionnaire immediately after the above:

C14. Do you agree with the following statement? "Even if a country loses prestige because of high inflation, it doesn't matter. There are no really serious consequences to such a loss of prestige."

	1	2	3	4	5	
	Fully agree		Undecided		Completely disagree	
U.S. all	2%	6%	10%	39%	44%	n=122
Born						
<1940	5%	7%	9%	23%	57%	n=44
Born						
≥1950	0%	7%	11%	45%	36%	n=44
Germany all	8%	12%	21%	21%	37%	n=169
Born						
<1940	11%	12%	23%	12%	42%	n=74
Born						
≥1950	4%	7%	11%	38%	40%	n=55
Brazil	5%	9%	7%	16%	63%	n=57

Very few agreed with this statement, and moreover, no large international differences were found in opinions on the seriousness of loss of prestige: people in all countries tend to think that maintaining national prestige is important.

24. I asked the institutional investors, as part of the above-mentioned pilot-study questionnaire: "What effect do you think that a strongly and steadily inflationary national policy would have on U.S. international prestige? 1. very harmful 2. mildly harmful 3. neutral 4. mildly beneficial 5. very beneficial." Of the eighty-eight responses to this question, 85.2% chose 1, 10.2% chose 2, 1.1% chose 3, 1.1% chose 4, and 2.3% chose 5.

Contrary to expectations, it was the Germans who appeared most likely to agree.

This line of questioning was then rephrased in terms of the value of the currency rather than of the inflation rate.

C17. Do you agree with the following statement? "It is too bad, when the exchange rate of the dollar [D-Mark, Real], the value of the dollar [D-Mark, Real] in comparison with currencies of other countries, falls. Therefore, an important symbol of our economic strength is weakened."

	1	2	3	4	5	
	Fully agree		Undecided		Completely disagree	
U.S. all	50%	23%	15%	6%	6%	n=122
Born						
<1940	59%	23%	14%	2%	2%	n=44
Born						
≥1950	41%	27%	11%	11%	9%	n=44
Germany all	47%	18%	16%	13%	6%	n=173
Born						
<1940	52%	16%	18%	8%	6%	n=77
Born						
≥1950	40%	22%	15%	18%	5%	n=55
Brazil	12%	25%	16%	16%	32%	n=57

About half the people in the United States and Germany are in full agreement with this statement. Presumably Brazilians, who have seen their currency fall so much and a recent renaming of their currency, have lost such hopes for prestige of their currency.

1.6.9 Opinions about Simple Theories of Inflation and Its Consequences

Opinions about the costs of inflation may differ among groups due to differences of opinion about some very simple economic relations that usually are not discussed. I first tried to see whether the public agrees with conventional economic reasoning as regards the effects of inflation on the exchange rate and on inflation rates, and to compare their answers with those of economists.

B15. If the price level goes up a lot more in the United States than it does in other countries, then the dollar will tend to:

[Circle one number]

1. Go up in value abroad (foreigners will have to pay more of their money if they want to exchange their money for a dollar)
2. Stay the same
3. Go down in value abroad (foreigners will have to pay less of their money if they want to exchange their money for a dollar)
4. No opinion

	1	2	3	4	
U.S. all	30%	5%	55%	9%	n=110
Economists	4%	0%	92%	4%	n=78

B16. If the inflation rate goes up, then interest rates will tend to:
 [Circle one number]

1. go up
2. stay the same
3. go down
4. No opinion

	1	2	3	4	
U.S. all	72%	4%	21%	3%	n=112
Economists	97%	1%	0%	1%	n=79

It appears here that the public and economists are in general agreement on both of these basic theoretical models. The public usually answers correctly (to question B15) about the effects of inflation on the exchange rate, though their answers to this question are wrong about a third of the time. Perhaps more people would have answered correctly if the question had explained the situation a little more or if the question were put in the context of a particular situation. The public does even better on the effects of inflation on interest rates, answering correctly (to question B16) nearly three-quarters of the time. This theory is very important in judging the impact of inflation on our standard of living, since it is consistent with the view that people living off their savings invested in short-term debt are not necessarily harmed by inflation. (Question C11B [see section 1.7.1] draws out whether the public is aware of this line of reasoning.)

It is not clear from the public's partial success in answering what the effects of inflation are on the exchange rate whether people can carry this line of reasoning much further. It is plausible that they would be influenced by a theory that price inflation in our own country harms our competitiveness abroad, and indeed we heard such theories in our conversations before writing the questionnaire. A question that tried to see how often such a theory about inflation and competitiveness is held was included on questionnaire C.

C16. Do you agree with the following statement? "One reason the US [Germany, Brazil] loses from inflation is that the goods that we sell abroad get ever more expensive, therefore our exports fall and jobs get lost."

	1 Fully agree	2	3 Undecided	4	5 Completely disagree	
U.S. all	42%	30%	15%	7%	6%	n=122
Born <1940	48%	27%	16%	5%	5%	n=44

	1	2	3	4	5	
	Fully agree		Undecided		Completely disagree	
Born						
≥1950	30%	34%	16%	9%	11%	n=44
Germany all	58%	16%	13%	5%	8%	n=169
Born						
<1940	68%	12%	11%	3%	7%	n=76
Born						
≥1950	40%	25%	21%	8%	8%	n=53
Brazil	5%	15%	16%	9%	55%	n=55

Now, it is apparent the theory does indeed have some sway over people's thinking, at least outside of Brazil. This is an important result, indicating that even though most people are aware of the effect of inflation on the exchange rates, they do not put this awareness together with a theory about international competitiveness, and are likely to want to oppose inflation for a reason that most economists would probably consider very strange. Of course, the public in Germany may be thinking about exchange rate restrictions within the European Economic and Monetary Union, and all respondents may be thinking about some very short-run effects on exchange rates that might be resisted by central banks. Brazilian respondents were relatively more successful in giving what I consider the correct answer, and this could be either because Brazil has experienced such enormous price-level movements that people must have learned that the exchange rate adjusts, or because of the bias of our E-mail sample in Brazil toward more sophisticated people.

Another popular theory about the behavior of inflation that could well have an important role in public thinking, and concerns, about inflation news is a sort of foot-in-the-door theory: if inflation ever gets started, then there is a risk of explosive inflation. Such a theory is described in popular accounts; for example, "with inflation, one can make no easy compromise—if one extends her a finger, she quickly grabs the whole hand (and if one flirts with her, one will end up married to her)" (Otmar Emminger, 1979, in *Gemeinschaft zum Schutz der deutschen Sparer* 1990, 21). Belief in such a theory would create a reason for extreme vigilance regarding inflation, and so I included a question about it.

C2. Do you agree with the following statement? "If the inflation rate is ever allowed to get above some threshold, it can happen that it gets out of control and prices rise faster and faster."

	1	2	3	4	5	
	Fully agree		Undecided		Completely disagree	
U.S. all	53%	31%	9%	5%	2%	n=124
Born						
<1940	58%	33%	4%	2%	2%	n=45
Born						
≥1950	44%	24%	20%	7%	4%	n=45

	1	2	3	4	5	
	Fully agree		Undecided		Completely disagree	
Germany all	69%	18%	9%	1%	3%	n=171
Born						
<1940	77%	16%	7%	0%	0%	n=74
Born						
≥1950	56%	21%	15%	2%	5%	n=55
Brazil	49%	33%	4%	9%	5%	n=57

This foot-in-the-door theory is popular in all countries. Germans, especially the older Germans, are more likely to agree fully with the statement.

In talking with our subjects before writing the questionnaires, another view was noted that seems very strange to economists, but that was held with some conviction: people seemed to be saying that there is a potential for a serious problem with inflation, even if it is steady, because eventually the currency will become worthless. It seemed that they were thinking that the exponential decay function $y = e^{-x}$ actually hits the x-axis at some point, rather than being asymptotic to it, or as if they did not understand that the units of measurement, the number of zeros that we put on prices, really do not have any significance. I tried to capture this view in a question, to present both to the general public and to economists.

B19. Do you agree with the following statement? "We can live with moderate, steady inflation for a while, but sooner or later there has to be an alarming problem with steady inflation: if the inflation continues long enough then eventually the dollar will be practically worthless."

	1	2	3	4	5	
	Fully agree		Undecided		Completely disagree	
U.S. all	44%	20%	15%	14%	7%	n=110
Economists	0%	3%	10%	16%	71%	n=73

None of the economists agreed fully with this bizarre statement, which provoked annoyed comments from some of them on the questionnaire, but nearly half of the public did.²⁵

I sought to find, finally, some sense that there are different impressions as to the validity of the Phillips curve over wide ranges of inflation rates, thinking that in Brazil, at least, the higher inflation might be associated with a view that there are benefits to such inflation.

C7. A number of countries have had inflation rates over 10% a month (that means approximately a tripling of prices in a year). Do you agree with the following

25. Perhaps the question is not worded clearly enough to reveal the misconception that I thought was at work in people's thinking, but I felt that if the statement were made with mathematical precision then people would not react to it with their accustomed patterns of thought, and might accept it as a logical challenge instead. It is in practice difficult to document the nature of common mental confusions, and this question is only a weak attempt at doing so.

statement? "One can say that these countries in a certain sense have been lucky despite the inflation, because with the high inflation there were probably also more jobs."

	1	2	3	4	5	
	Fully agree		Undecided		Completely disagree	
U.S. all	2%	0%	14%	25%	60%	n=124
Born						
<1940	4%	0%	18%	11%	67%	n=45
Born						
≥1950	0%	0%	13%	31%	56%	n=45
Germany all	1%	6%	27%	11%	54%	n=171
Born						
<1940	3%	5%	32%	15%	45%	n=74
Born						
≥1950	0%	2%	20%	2%	76%	n=55
Brazil	0%	2%	16%	19%	63%	n=57

The answers to this question did not come as I had expected. It was in fact the older Germans, not the Brazilians, who least disagreed.

1.7 Causes of Differing Public Attitudes toward Inflation

1.7.1 Differing Public Information Sets

An impression how and why opinions differ across countries or across groups can be produced by our exploring what information people have in the various countries, and the differences across countries in terms of information sets. For example, the anti-inflation bias in Germany is thought by many to be a result of people there remembering the hyperinflation in the 1920s, or remembering the high inflation immediately following World War II. People in other countries, if they do not know of such events, are not likely to reach the same opinions about what may happen in the future. For other examples, differences in opinions about inflation may come about because of different prominence in people's memories of such facts as the effects of inflation on debts. We attempted to find out what people hear about inflation by running the following battery of questions in questionnaire C:

The following are questions for which you should indicate how often you have heard the statement approximately. This is not a question about whether the statement is true or false, but only how familiar such a statement seems to you.

C11A. "An important reason for Hitler's rise to power was the extremely high inflation in Germany in the 1920s."

I have heard this:	1. Often	2. Sometimes	3. Never	
U.S. all	22%	33%	45%	n=121
Born <1940	25%	34%	41%	n=44
Born ≥1950	16%	28%	56%	n=43
Germany all	44%	41%	15%	n=170
Born <1940	50%	36%	14%	n=74
Born ≥1950	39%	44%	17%	n=54
Brazil	34%	45%	21%	n=56

C11B. "High inflation is unfair for many people since their savings lose value because the interest rates are not really high enough to compensate for the inflation."

I have heard this:	1. Often	2. Sometimes	3. Never	
U.S. all	51%	36%	13%	n=122
Born <1940	57%	36%	7%	n=44
Born ≥1950	41%	34%	25%	n=44
Germany all	62%	28%	9%	n=169
Born <1940	66%	26%	8%	n=74
Born ≥1950	52%	35%	13%	n=54
Brazil	45%	39%	16%	n=56

C11C. "People who are in debt, for example when they buy a house, have an advantage when the inflation rate increases, because the real value of their debt falls."

I have heard this:	1. Often	2. Sometimes	3. Never	
U.S. all	21%	43%	35%	n=122
Born <1940	23%	48%	30%	n=44
Born ≥1950	18%	45%	36%	n=44
Germany all	33%	40%	28%	n=169
Born <1940	38%	38%	23%	n=73
Born ≥1950	20%	43%	37%	n=54
Brazil	26%	37%	37%	n=54

C11D. "Working people often find it hard to make ends meet because of inflation."

I have heard this:	1. Often	2. Sometimes	3. Never	
U.S. all	70%	26%	4%	n=122
Born <1940	75%	20%	5%	n=44
Born ≥1950	61%	32%	7%	n=44
Germany all	49%	36%	15%	n=168
Born <1940	58%	34%	8%	n=74
Born ≥1950	37%	39%	24%	n=54
Brazil	91%	9%	0%	n=56

C11E. "Retired people can't afford to buy so much because of inflation, because their pensions do not keep up with inflation."

I have heard this:	1. Often	2. Sometimes	3. Never	
U.S. all	83%	15%	2%	n=122
Born <1940	93%	5%	2%	n=44
Born ≥1950	66%	30%	5%	n=44
Germany all	58%	27%	15%	n=169
Born <1940	71%	19%	11%	n=75
Born ≥1950	39%	37%	24%	n=54
Brazil	89%	9%	2%	n=56

C11F. Remarkable stories about life in times of very high inflation are told. For example, people are said to have tried to spend their money as fast as possible, and stores are said to have raised prices extremely often.

I have heard this:	1. Often	2. Sometimes	3. Never	
U.S. all	22%	33%	45%	n=121
Born <1940	34%	32%	34%	n=44
Born ≥1950	11%	34%	55%	n=44
Germany all	44%	28%	28%	n=172
Born <1940	40%	36%	23%	n=77
Born ≥1950	39%	24%	37%	n=54
Brazil	75%	21%	4%	n=56

C11G. "Chile has had lower inflation in the last decade than Argentina has."

I have heard this:	1. Often	2. Sometimes	3. Never	
U.S. all	0%	11%	89%	n=119
Born <1940	0%	18%	82%	n=45
Born ≥1950	0%	5%	95%	n=43
Germany all	2%	12%	86%	n=164
Born <1940	4%	18%	78%	n=72
Born ≥1950	0%	4%	96%	n=53
Brazil	22%	33%	44%	n=54

Reading these responses, one is led to suspect that people interpreted very loosely what it means to hear these statements; the frequencies reporting hearing some statements seem high for the general population. Still, comparing answers in this battery of questions across countries and age groups, we learn various things. Overall, the statements people reported hearing most often are those about the difficulty of living with inflation, C11B, C11D, and C11E.

Comparing C11B with C11C, we see that people in all countries apparently hear more about negative effects on creditors than about positive effects on debtors, although most people in all countries claim to have heard at least sometimes that debtors can be made better off by inflation. This result confirms the impression from our personal interviews, and from the responses to open-

ended questions on questionnaire A, that the awareness of potential advantages of inflation to debtors are not so strongly recognized.

Results for C11A and C11F show that there are important international differences in hearing about some famous hyperinflation episodes. The statement C11G was included just to give a suggestion to what extent news about inflation is transmitted regionally, to what extent people hear more about countries that are near neighbors rather than distant neighbors: Chile has had dramatically less inflation in the last decade than Argentina has; it has escaped the hyperinflation experience of Argentina. If people in Latin American countries tend to hear about the inflation experience of other Latin American countries rather than that of European countries, then this would create some tendency for similar opinions across Latin American countries, and hence perhaps similar inflation experience. This hypothesis appears to be born out; 55% of the Brazilian respondents reported hearing this fact about Chile and Argentina at least sometimes, compared with only 11% of the U.S. respondents and 14% of the Germans. (Unfortunately, this result might be compromised by selection bias, as E-mail respondents may be more knowledgeable.)

Most people in all countries and age groups, except for the younger U.S. respondents, say they have heard at least sometimes that high inflation was an important reason for Hitler's rise to power. It seems a little surprising to me that so many people report hearing this. Perhaps people are thinking back on vague recollections about some chaos in the Weimar Republic leading to Hitler's power, and thinking that it is plausible that inflation played some role in it.

Economic commentators often attach credence to the notion that living through the German hyperinflation in 1923, or having closely associated with people who did, accounts for the national aversion to inflation in Germany today, and that therefore older people in Germany are more conservative regarding inflation. If this is the case, then one might expect that Germans will gradually forget their aversion to inflation, and return to more normal inflation behavior in the future.

Why should living through the inflation of 1923, or remembering talking to people who did, make such an impression? Brazilians today have lived through hyperinflation, but we have seen above that they are less worried about the consequences of inflation. The answer may lie in the differences in the Brazilian experience, and differences in what people remember. The critical differences are that in Germany in 1923 the inflation got further out of control than did the more recent Brazilian inflations, and that the loss of control in Germany then coincided with real political chaos, and with Hitler's initial efforts to control Germany.

A fact that is probably little known to young people today, even in Germany, is that the final collapse of the mark in 1923, when the mark's inflation reached astronomical levels (inflation of 35,874.9% in November 1923 alone, for an annual rate that month of $4.69 \times 10^{28}\%$), came in the same month as Hitler's Beer Hall Putsch, his Nazi Party's armed attempt to overthrow the German

government.²⁶ This failed putsch resulted in Hitler's imprisonment, at which time he wrote *Mein Kampf*, setting forth an inspirational plan for Germany's future, suggesting plans for world domination. Another coincidence that probably few remember today: the Kapp Putsch, which resulted in Berlin's temporary capture in March 1919 by the Freikorps, occurred immediately after a sudden, temporary burst of inflation: prices rose 34.2% in February 1919 (annual rate of 3,297.8%), and 56.4% in January 1919 (annual rate of 21,358.5%) though prices increased only 1.4% in March itself.²⁷

Most people in Germany today probably do not clearly remember these events; this lack of attention may be because their memory is blurred by the more dramatic events that followed (the Nazi seizure of power and World War II). However, to someone living through these historical events in sequence, to whom the association of the 1923 putsch and the Kapp Putsch with the hyperinflation would be obvious, these putsches may have been remembered as vivid evidence of the potential effects of inflation. Our single question, C11A, about the inflation of the 1920s does not confirm a huge intergenerational difference in Germany in terms of information about hyperinflation. Perhaps what persists is a memory, that older Germans shared a strong conviction produced by experience that inflation may breed political chaos, even though their reasons for believing this are now largely forgotten.

What tends to be remembered from generation to generation may be a combination of stories of vivid events and impressions of conventional wisdom, and not complicated arguments for inferring causality. Stories about vivid events are much easier to remember and natural to transmit to others.

We find indeed that hearing such vivid stories (question C11F) about life in times of high inflation is reported most often by Brazilians, not surprising since their hyperinflation is so recent, and, less obviously, more often by Germans than by the U.S. respondents. We are a little surprised that the older Germans do not report hearing such stories significantly more often than do the younger Germans, suggesting that perhaps such stories, to the extent that they are still told, are part of a national culture in Germany that circulates through all age groups.

1.7.2 Influence of Media and Professionals

An important transmitter of public attitudes toward inflation is found in society and the media. The real reasons for public concern with inflation may have largely to do with how opinion leaders treat the issue. Columnists, politicians,

26. German wholesale price data, from the Statistisches Reichsamts: see Cagan 1956, 102-3.

27. The communist Spartacist Revolt in Berlin in January 1919 also came at a time of high inflation, 6.9% in January 1919 (annual rate of 134.6%), a rate that must have appeared high by comparison with inflation rates in Germany during World War I. There are of course other times when high inflation corresponded to revolutions. For example, Chile had a dramatic increase in inflation in 1973 (to over fourfold price increase in the year) when General Augusto Pinochet Ugarte overthrew the Marxist government of Salvador Allende Gossens, leading to over fifteen years of military government.

and other public figures have learned that the word “inflation” is already loaded with associations and assumptions, and they may reinforce these associations and assumptions by trying to exploit them to make their own words have more effect. According to the German economist Günter Schmolders (1969, 202, our translation):

In the case of a developed, high inflation, one has to consider the phenomenon of social infection, beyond mere individual motivations. This is because inflations are in the first place social processes. The individual reactions of economic agents will be guided by group interactions, because people watch each other's behavior and to a certain extent control each other. In this context the behavior of the press is of particular importance because it is a sociological group that reacts to crises and the associated events in a pointed manner and that can propagate its opinions effectively through the appropriate media. Part of the atmosphere of the crisis of 1966/67 probably has not just economic origins but also political and journalistic origins. Frequently, the way events are reported creates an artificial reality that becomes real through social-psychological feedback processes. This is a phenomenon that is made very clear by the Anglo-Saxon expression “self-fulfilling prophecy.”

As with any phenomenon that is widely discussed publicly, inflation is likely to be associated with the sort of herd effects described by Bikhchandani, Hirshleifer, and Welch (1992) or Banerjee (1992). People have learned through experience to imitate others when in doubt, particularly those who are perceived as experts, since other people's actions may well be based on some information. The problem with such behavior is that information cascades can get started: people may be imitating others who are in turn imitating others who are imitating others. The overall results of such information cascades may be a sense of public opinion, of received wisdom, that may in fact have little basis.

The fact that so many of the differences we see in answers to our question are intergenerational rather than international suggests that the influence of the media is very large. There appears to be a culture of opinions about inflation that is shared by people in the same generation in both the United States and Germany, yet one must doubt that there has been much direct communication between people in the United States and people in Germany. The communications are probably mostly managed by the media. Because these media have been so important in reporting current events, older people in the United States today may be influenced by events in Germany before 1950 more than are younger Germans; this is supported by the results from question C11F, though not those from C11A.

The people who manage the mass communications media must be aware of the abiding public interest in inflation, and at the same time they are, in writing the usual news stories about current events, probably not themselves interested in obtaining a deep understanding of the phenomenon. The incentives these

people are under, therefore, is to give publicity to economists who repeat conventional wisdom regarding inflation; since media people are often pretty well aware of opinions expressed in news media in other countries, they may tend to promote a world as well as a national culture regarding inflation. The outcome of this media process is that the general public seems to have the impression that the experts are confirming their impressions as to the importance of inflation.

In this connection, it is very significant that the results from questionnaire B show that much of the public thinks that the media attention given to inflation is at the urging of economists, a far higher proportion than of economists who themselves think so.

B8. Which is the better explanation why inflation is reported so regularly in the news:

1. Economists tell reporters that the monthly inflation numbers are very important news, and so reporters feel that they ought to give the inflation numbers a lot of coverage.
2. The general public is regularly interested in inflation news, and reporters cover inflation to boost the number of viewers or readers.
3. Neither or no opinion

	1	2	3	
U.S. all	39%	30%	31%	<i>n</i> = 110
Economists	18%	56%	26%	<i>n</i> = 77

About twice as many from the public chose 1; it appears that the public imagines that expert opinion shapes media attention to inflation more than the economists themselves think it does.

1.7.3 Perceptions of the Social Contract

It appears likely that the public perceives to some extent a sort of social contract that governments must resist inflation, a contract that we are all born into, and that we as individuals cannot change, any more than we can change the constitution. To the extent that there is such a public perception, anyone who takes public office must feel that he or she is in a position of public trust, and is under pressure to live up to public expectations. Those in public office may choose political battles, on issues that matter a lot to them, and they may try to fight popular misconceptions, but are not likely to have the time or energy to fight the public impressions on such long-debated background issues as basic policy toward inflation. I sought to determine whether there is any agreement that such a social contract exists.

C15. Do you agree with the following statement? "Despite some opinion differences, US [German, Brazilian] politicians have always promised to keep inflation

down. Especially for this reason, politicians today are morally obligated to be against inflation.”

	1	2	3	4	5	
	Fully agree		Undecided		Completely disagree	
U.S. all	27%	26%	17%	19%	12%	n=121
Born						
<1940	48%	14%	16%	11%	11%	n=44
Born						
≥1950	14%	35%	12%	28%	12%	n=43
Germany all	65%	19%	10%	4%	2%	n=171
Born						
<1940	82%	9%	8%	1%	0%	n=76
Born						
≥1950	41%	28%	15%	9%	7%	n=54
Brazil	34%	16%	23%	9%	18%	n=56

Here we see some striking differences between Germany and the other countries, which would work in the direction of preserving low inflation policy there even if there were no differences in understandings of the mechanism of inflation. This question reflects the biggest difference, in all our questionnaire results, between the German and U.S. respondents overall in the proportion who fully agree. We also see here the sharpest difference between *younger* German and U.S. respondents; 41% of the younger Germans fully agree, compared with only 14% of the younger U.S. respondents.

The results from this question suggest that perceptions of the social contract contain the most important differences between Germans and people in other countries, rather than differences in tastes, opinions, or information sets. Because the differences extend to the younger generation, they appear likely to be important for a long time. More research should be done to consolidate our understanding of the international differences in social contract.

1.8 Summary and Interpretation of the Results

To summarize the main perceived costs of inflation briefly, the concerns people mention first regarding inflation are that it hurts their standard of living, and a popular model they have that makes such an effect plausible apparently has some badly behaving or greedy people causing prices to increase, increases that are not met with wage increases. This might be called a bad-actor–sticky-wage model. That people think wages are sticky is particularly supported by the results for questions C5, C6, B6, and B12 (section 1.6.2). There also appear to be popular notions that inflation harms the standard of living by inhibiting economic growth, through some unspecified systemic factors (question C11, section 1.6.1). Other concerns are that inflation makes us feel good (question B17, section 1.6.4), but ultimately deceives us, or allows opportunistic people

to deceive us (question B10, section 1.6.5), that the social atmosphere created by inflation is selfish and harmful to national morale (question C4, section 1.6.6), that high inflation can cause political chaos or anarchy (question C3, section 1.6.7), and that inflation and decline of currency value are harmful to national prestige (questions C13 and C17, section 1.6.8).

The list of concerns that noneconomists aired to us in conversation, in their answers to the open-ended questionnaire A, and in their choice of answers on the other questionnaires sound very different from the list of real effects of inflation that Fischer and Modigliani (1978) gave in their treatise on the costs of inflation. Fischer and Modigliani divided the costs of inflation into six categories: (1) those that would persist even in a fully indexed economy, (2) those due to nominal government institutions, (3) those due to nominal private institutions and habits, (4) those due to existing nominal contracts, (5) those due to effects of uncertainty about future inflation, and (6) those due to government endeavors to suppress inflation. The effects listed under category 1 are the "shoe-leather" or "trips to the bank" costs produced when people try to economize on currency and the "menu costs," the cost of changing prices, such as printing new menus. Question B9 (section 1.6.1) asked about these costs, the inconveniences of inflation, versus the effects of inflation on the standard of living, both of economists and the general public, and there was a striking difference in the answers; the public was much more fixated on the supposed direct effects of inflation on the standard of living, and relatively indifferent to the inconveniences of inflation. In noneconomists' answers to the open-ended questionnaire, there were hardly any references (only four people) to the effects of the nominal institutions, habits, or contracts referred to by Fischer and Modigliani under their causes 2 through 4, nor was there any mention of the effects of uncertainty about future inflation or about effects of governments' efforts to suppress inflation.

The different sound of the complaints does not necessarily mean, however, that the concerns expressed by the general public are entirely orthogonal to those of economists. Some of the public's concerns are surely caused by their experience with nominal contracts. Some (seven people) did mention at their own initiative on questionnaire A that their retirement income was being eroded by inflation, and moreover, most were aware that this was an effect when asked directly about it (question C11E, section 1.7.1). The vast numbers of nominal contracts that we have today were made in a sense of trust that the government would not allow massive inflation, and these concerns are shared by economists and the public.

The issues of inflation-generated opportunities for deception (question B10, section 1.6.5), and the effects of inflation on national cohesion and international prestige (questions C4, section 1.6.6; C13, section 1.6.8) are curious for economists, and do not appear on the Fischer-Modigliani list. Perhaps it is here that we should listen carefully to what the public is telling us. A feeling that opportunities for profit through deception are being willingly created by an

inflationary policy, possibly to the benefit of certain interest groups, might well promote a feeling of relative detachment from society and a tendency toward less concern for others, especially since inflation is a real concern and object of interest for most people. Moreover, we should also listen to concerns about national prestige, given the attachment in modern culture of prestige to countries with low inflation and strong exchange rates. People's concern for their national prestige is tied up with their feelings of self-esteem, and their trust in their national institutions.

In answering questions about what is really important and what our national leaders really ought to pay attention to, people may tend to rely on some deep intuition derived from life's experiences. The word "intuition" may be wrong here; perhaps what I mean with regard to inflation is that they have dim memories of having concluded that highly inflationary times were times when there was arbitrary injustice, arbitrary redistributions, and social bitterness, and they have memories of social situations in which morale and a sense of cooperation was lost.

Those who implement national policy toward inflation have to sort out which concerns they share with the public and which they do not. They need not share all of these concerns, however, to share a conviction that inflation is to be avoided. There will probably always be a communications gap between economists and the public, at least because professional economists devote their time to studying economic phenomena such as inflation, and earn their keep by being ahead of the public in knowledge and theories about economic phenomena. But there appears to be rather more of a gap than most of us would have expected. The public's models of the economy are fundamentally different from those of economists (recall, for example, questions B12, section 1.6.2; B14, section 1.6.6; and B19, section 1.6.9). The communications gap is all the wider because many people think that the prominence given inflation in the news is due to the economists, while economists often feel differently (question B8, section 1.7.2).

The German respondents are, as hypothesized, rather different from the U.S. respondents in a number of attitudes toward inflation. The Germans tend more often to believe that there is a sort of social contract that authorities must resist inflation (question C15, section 1.7.3), and the German respondents are more often concerned that their policymakers deal with inflation (question C1, section 1.6.1). Moreover, there are important differences between German and U.S. respondents in terms of their reported information sets (questions C11A through C11D, section 1.7.1). All of these differences extended to the younger German and U.S. respondents as well as the older. The Germans seem to show a greater tendency to believe models that imply a high cost to inflation (recall, particularly, questions C2, section 1.6.9; and C11, section 1.6.1). In most of our other questions, though, there were not great differences between German and U.S. respondents, and the differences were often very small when comparisons were made between younger people in Germany and the United States.

For example, Germans do not make notably different decisions than do the U.S. respondents when asked to choose between high inflation and high unemployment (recall question C8, section 1.6.1).

The study also appears to confirm (subject to considerations of the weaknesses of the E-mail sampling method used in Brazil) the hypothesis that the Brazilians have somewhat different opinions about inflation than either German or U.S. respondents. This difference appears to make it more likely that politicians or monetary authorities might find it in their political interest to be tolerant of inflation. If one seeks to explain why inflation is persistently higher in Brazil than in Germany, one might say that the Brazilians are less likely to think that inflation will cause economic and political chaos (question C3, section 1.6.7), less likely to think that inflation will be harmful to economic growth (C11, section 1.6.1), less likely to think that inflation will harm their international competitiveness (C16, section 1.6.9), less likely to think that a decline in the exchange rate harms their international prestige (C17, section 1.6.8), and more likely to choose high inflation if that will reduce unemployment (C8, section 1.6.1). Despite these differences, it is also striking that the Brazilians often did not answer much differently than the young people in either the United States or Germany.

What should we make of the similarity internationally on answers to many questions? In part, the similarity probably reflects the pervasiveness of a sort of world culture; opinion leaders in each country read what people in other countries are saying, and convey the ideas to people in their own countries. On the other hand, the survey results may in many cases underestimate the extent of international differences. The differences reported here may not be very small when compared with differences commonly observed in questionnaire surveys of attitudes on national issues; there seems often to be substantial noise in answers on difficult questions (see Converse 1970, for example), which may dilute actual differences in attitudes in the survey results. Possibly, the international differences would have been bigger if the survey had been directed at opinion leaders or knowledgeable people, rather than a random sample.

This study confirms that the high concern with inflation in both Germany and the United States is in large measure a phenomenon confined to people born before 1940. A striking finding of this study is that intergenerational differences are usually of more importance than international differences (on questions that are not about information, that is, excluding questions C11A through C11G, and looking only at the United States and Germany, where we have intergenerational results). Within Germany and the United States the differences between the younger and older people on attitudes toward inflation tend to be bigger than the differences between the two countries overall.

Since the results reported in this paper were all collected at the same time, fall 1995, there is no way to discern whether the intergenerational differences are due to the age of the respondent (perhaps all people get more concerned with inflation as they age) or to the birth cohort of the respondent (perhaps

living through events of the first part of this century inspires more concern with inflation). My interpretation is that the intergenerational differences are due mostly to the birth cohort differences. It would seem that opinions about the mechanism and costs of inflation, or the social contract regarding inflation, are complex phenomena that must have been formed by shared experiences within birth cohorts, and are not due to the aging process itself. That opinions about economic matters are mostly cohort-specific rather than age-specific is supported by the work of Inglehart (1985), who concludes that one's basic values throughout life reflect the conditions that prevailed in one's preadult years. Inglehart has collected data on economic opinions, including opinions on inflation, for over twenty years; see also Inglehart and Abramson (1994).

If the relatively low level of concern of younger people can be expected to remain the same through time, then the public concern with inflation in both Germany and the United States might be expected to decline in coming decades for demographic reasons. The people in our sample born before 1940 are now at least fifty-six years old; those in public life are probably at the peak of their influence or of declining influence. Their ability to prevent a resurgence of inflation must be waning. People who must evaluate the long-term outlook for inflation (such as those investing in long-term bonds) should bear this in mind, before concluding (as many seem to have concluded) that we are entering a new regime of steady low inflation in coming decades.

Appendix

Sample Design

For the United States, we purchased three lists of four hundred names and addresses from Survey Sampling, Inc., Fairfield, Connecticut, a company that specializes in producing high-quality random samples. Each of the three lists was drawn at random from the white pages of all phone books in the United States. Such a sampling method oversamples males, since married couples usually list only the husband's name. However, a letter accompanying the questionnaires invites the recipient to pass the questionnaire to someone else, and this should tend to offset the tendency to oversample males. We ask respondents to indicate their sex; see table 1A.1.

For Germany, we purchased our list of names from the Stuttgart firm Schober GmbH, which specializes in producing random samples. We used a method of defining the sample that seemed to us as closely comparable as possible to that which we used in the United States. Schober had the names categorized by sex and predicted income levels. We had them select approximately 120 females and 280 males from each of their three predicted income groups, low, middle, and high, distributed according to the proportions they

Table 1A.1 Breakdown of Responses by Sex and Age

Questionnaire	Number Mailed	Usable Responses			Decade of Birth 19__								
					Male	Female	<10	10s	20s	30s	40s	50s	60s
A U.S. all	400	120	—	—	—	—	—	—	—	—	—	—	—
B U.S. all	400	118	84	29	4	7	8	16	24	34	16	3	
B economists	200	80	67	8	0	1	4	5	20	19	28	0	
C U.S. all	400	124	89	29	1	8	11	25	31	25	17	3	
C Germany	437	176	128	42	3	8	29	40	37	27	20	8	
C Brazil	—	59	42	15	0	0	1	0	4	12	28	12	

have in their lists in each of these three income groups, from North Rhine–Westphalia. Within each of these six income–sex groups, they chose a random sample from listed names in telephone directories. We chose fewer females than males because fewer female names are listed in telephone directories, and those that are listed may be unrepresentative of all females, tending to be single or elderly women. As in the U.S. surveys, the second letter accompanying the questionnaire invites anyone in the household to fill out the questionnaire, and so we might expect to see more females answering than our sample proportions would indicate. We chose North Rhine–Westphalia as representative of Germany; it is the most populous *Land* in Germany and includes a mixture of both major urban and rural areas. It includes the cities of Bonn, Düsseldorf, Münster, and Cologne.

For Brazil, we E-mailed questionnaire C, translated into Portuguese, to the Brazil node of Bras-net, a network for Brazilian nationals. Bras-net, a free service managed by São Paulo State University, has about five thousand subscribers who use the service to receive information (such as a daily survey of Brazilian newspapers), and to chat with each other about Brazilian topics. Many of the subscribers live outside Brazil. By E-mailing only to the Brazil node, we hoped to get mainly people living in Brazil, though certainly many who had their E-mail forwarded from Brazil also received our questionnaire. Those who use E-mail are not a random sample of Brazilians; this sampling technique was undertaken because of budget and time constraints, given that the only alternative was to omit Brazil from the study altogether. The letter accompanying the questionnaire was different from those sent in the United States and Germany, based on our sense that a request for help via E-mail should be different to succeed well. The letter was less formal, less like the dignified letter that would accompany a professional survey, evoking instead the camaraderie of network users. This letter also referred directly to the fact that international comparisons were being made, while the letter accompanying the United States and German questionnaires suggested this only by mention of both Yale University and the Institut für Weltwirtschaft. It was felt that, with a questionnaire E-mailed from the United States to Brazil, it would

be better if we told them what we were after, to be sure that they didn't have the misconception that we wanted them to try to give American answers.

For economists, two hundred copies of questionnaire B were distributed by stuffing faculty mailboxes in U.S. economics departments at Boston University, Columbia University, Northwestern University, Harvard University, Princeton University, University of California at Berkeley, and Yale University. Again, the accompanying letter to economists was different from the others. The letter explained this project, that questions were intended to capture the thoughts of noneconomists, and apologized that some questions might appear ill-posed or unusual to professional economists.

Survey Method

Our method of handling the survey for random samples of the population in the United States and Germany followed fairly closely that recommended by Dillman (1978). An initial mailing was made to about four hundred people for each questionnaire country.²⁸ Included with the questionnaire was a short letter, indicating that inflation was an important public policy issue, and telling respondents that their cooperation in the survey would help policymakers frame national policy. We might have preferred not to put the idea in their heads that inflation is an important national policy issue, but we felt it was necessary to refer to this in order to get a good response on our survey. Those who conduct surveys have found that a good response rate depends on an apparent social purpose for the questionnaire; most people are very skeptical of questionnaires and inclined to suspect a concealed profit motive for the questionnaire. We tried to write the letter in such a way that there was no suggestion why the inflation rate should be an important national policy issue. A week after the questionnaire and letter were mailed, a postcard was sent out to all, reminding them of the importance of the study.

On the back page of each questionnaire we wrote a number indicating the respondent, and so we were able to compile a list of people who had responded. Three weeks after the first mailing, a second letter, similar to the first, was mailed to those who had not yet responded, accompanied by a replacement questionnaire, in case they had lost the first.

In the United States, 8% of the twelve hundred letters sent out in the first mailing were returned for insufficient or incorrect address or deceased. Since we received 362 usable responses (see table 1A.1), this works out to be a response rate from the good addresses of about a third. The response rate in Germany was somewhat higher: of the 437 letters mailed, we received usable responses from 176, or 40%, and the actual response rate would be somewhat

28. In fact, 382 letters were sent out in the first mailing. When an error was discovered in the address list they gave us, oversampling by 55 low-income females, we were given a new sample of 55 respondents, and letters were sent to these; no second mailing went to the 55 low-income females.

higher if it were figured from the base of correct addresses. (We are lacking a count of the letters returned in Germany for insufficient or incorrect address or deceased.)

The methods used for Brazil and for economists were more simple. For economists, the questionnaire and letter were sent only once, by asking colleagues in the eight universities to stuff mailboxes of professors at the economics departments. Each department was sent twenty-five questionnaires, with the request that these be distributed first and, if there are not enough professors in residence, the remainder to advanced graduate students. Presumably, there was little involvement of graduate students in the survey, since most of these departments have twenty-five professors or more. The response rate from economists was 40%. For Brazil, an E-mail message was sent three times, with a letter in the second and third times telling how many responses were received to date and appealing for more responses to make the sample more informative. The responses amount to about 1% of the subscribers to Bras-net; however, this figure should not be interpreted as a response rate, since we have no information on how many of the subscribers were logged on or read the E-mail message.

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Comment N. Gregory Mankiw

I very much enjoyed reading this paper. The more I reflect on it, however, the less clear I am about *why* I enjoyed reading it. Robert Shiller's surveys produced many intriguing results, but I am not at all sure in what direction they should push either economic theory or economic policy.

Taken as a whole, the results lead to three broad conclusions: (1) People widely believe what might be called the inflation fallacy—the view that inflation per se erodes living standards. (2) People have largely similar views of inflation in different countries with substantially different inflation experiences. People of different ages also have largely similar views of inflation. Although the paper does report some significant differences among the groups,

most of these differences are small. Put simply, people are people. (3) Economists aren't people. To be more precise, economists view inflation very differently than laymen do. Certainly, the differences between economists and laymen are far larger than the differences among Americans, Germans, and Brazilians.

In my comments, I want to focus on the inflation fallacy. When you ask laymen about the effects of inflation, they say inflation makes them poorer. That is perhaps the principal finding of this paper. It is tempting for economists to snicker at this answer. Such a reaction gives us a sense of superiority, and it offers an opportunity to reciprocate the low regard in which much of the public holds the economics profession.

But is the public's view of inflation as fallacious as it first seems? I am not so sure. I suspect that an important difference between economists and laymen is that, to some extent, we speak different languages. When we economists hear the term "inflation," we naturally start thinking about helicopters dropping money over the countryside. We imagine a continuing change in the unit of account that alters all nominal magnitudes proportionately.

By contrast, the public has not been brainwashed into thinking that inflation is always and everywhere a monetary phenomenon. Let me try to translate the issue, as seen by the public, into a language that economists understand. Consider this question: "A shock hits the economy. One result of the shock is a higher cost of living, as measured by the consumer price index. What is the likely effect of this shock on your standard of living?" Put in this way, the issue goes beyond inflation as merely a change in the units of measurement. In particular, one is naturally drawn to think about different kinds of shocks that might cause inflation. As every well-trained undergraduate knows, inflation is sometimes and in some places a supply-shock phenomenon. And, of course, inflationary supply shocks can also lower living standards.

To judge whether this is a plausible view for laymen to hold, I ran a simple regression aimed at summarizing the public's common experience with inflation. I regressed the percentage change in nominal GDP (a broad measure of nominal income) on the percentage change in the GDP deflator (a broad measure of the price level). The data were annual from 1959 to 1994. If inflation were driven solely by monetary shocks and if money were neutral, the coefficient in this regression would be 1. If monetary shocks cause real output and prices to move in the same direction, the coefficient would tend to be greater than 1. In fact, the coefficient was 0.64 (with a standard error of 0.14). That is, when inflation is high, growth in nominal income is also high, but not by enough to compensate fully for the change in prices. Shocks to aggregate supply seem a natural explanation for this result.

To the extent that supply shocks are the cause of inflation, it is easier to see why people talk about "greed" as the underlying problem. When the oil-producing countries cartelize in the form of OPEC, or when workers exert market power through an aggressive union, they induce a shock to aggregate

supply that raises prices and reduces other peoples' living standards. If these actors were less greedy, or less successful at satisfying their greed, inflation would be lower, and real incomes would be higher.

It is also possible that such supply shocks lead to persistent, monetary inflation. In the 1970s, for example, the central bank accommodated adverse supply shocks and allowed them to become built into inflation expectations. One can explain such accommodation of supply shocks with the Barro-Gordon model of monetary policy. For example, suppose that an increase in union power raises the natural rate of unemployment. For quadratic preferences over inflation and unemployment, the central bank now has more incentive to produce price surprises, so the equilibrium inflation rate rises. In this case, it might seem natural for laymen to associate inflation and reduced living standards, for they arise from the same underlying shock.

Another way in which such an association might arise is by shocks to general governmental competence. Bad policymakers tend to produce a variety of bad policies, with inflation being only one of the consequences. That is probably why inflation reduces people's sense of national prestige. Inflation is a sign that the country is poorly run.

In all of these examples, inflation arises from some adverse shock that has real (as well as possible monetary) implications. We monetary economists may be tempted to say that this is not really inflation. By "inflation," we mean rising prices resulting from persistent monetary growth. But this definition, while natural from our standpoint, does not correspond to the layman's definition. Without the benefit of training in classical monetary theory, the layman defines inflation to be increases in prices, regardless of the cause.

When I was an undergraduate, I spent two summers working as an intern in the Congressional Budget Office. During the second summer, in 1980, I was assigned to a group called the Inflation Impact Unit. One might expect that such a group would have something to do with monetary policy, but that was not the case at all. Our charge was to prepare Inflation Impact Statements, which were modeled loosely on Environmental Impact Statements. These statements evaluated how pending legislation, such as regulatory reform of the trucking industry, would affect the inflation rate. Although monetary economists may view such an approach as peculiar, it makes more sense from the perspective of laymen, which in this case means Congress. To make this CBO unit more intelligible to monetary economists (but less intelligible to Congress), it should have been called the "aggregate-supply impact unit."

So far I have suggested that the great disparity between economists and the public arises partly from differing interpretation of the term "inflation." But this is probably not the only source of the disparity. Years of studying economics does produce a somewhat better understanding of the economy. To some extent, therefore, the public's perceptions about inflation must be attributable to ignorance about economics in general and monetary economics in particular.

If ignorance is in fact pervasive, how should that fact alter economic theory and policymaking? The most optimistic answer is not at all. Since people cannot influence the inflation rate, ignorance about the causes of inflation may be a reasonable strategy in the presence of information costs. (Dr. Watson once expressed surprise that Sherlock Holmes did not know that the earth revolved around the sun, rather than the other way around. Holmes explained that he had little use for this knowledge and, thus, chose to keep his limited mental faculties free for more practical information.) None of the survey evidence presented in this paper indicates that ignorance about monetary economics leads to mistakes in private decision making. It is possible, therefore, that this ignorance should not affect the models we build or the policy advice we give.

One might argue that ignorance about inflation supports Alan Blinder's view (espoused in his book *Hard Heads, Soft Hearts*) that policymakers should not give much weight to the public's fervent distaste for inflation. Scientists, rather than public perception, determine public policy toward approval of new drugs and standards for food safety. For the same reason, perhaps economists' views on inflation should be given greater weight in determining monetary policy. Because most economists view inflation as more benign than the public does, policy need not take as hard a line against inflation as it otherwise might.

One can also make the opposite argument. Because people do not understand inflation, inflation may induce people to make mistakes in personal financial planning, which in turn makes inflation more costly than economists usually suppose. There are fragments of evidence that misunderstanding of inflation has real effects. Modigliani and Cohn (1979) argued a while ago that the stock market confuses real and nominal interest rates when discounting future cash flows. In a more recent paper (1995), Canner, Weil, and I showed that popular advice about portfolio allocation is more easily explained with the distribution of nominal, rather than real, returns. The tax system is, without doubt, an important institution that fails to account for inflation. If the accountants and tax lawyers who write the tax rules get confused by inflation, how likely is it that everyone else in the economy somehow manages to get things straight?

Recently, I had the pleasure of being a member of a Harvard University faculty committee that was reconsidering the faculty pension plan. When discussing the effects of inflation with other committee members (who were not economists), I came to appreciate two facts. First, they all thought that inflation was terribly important to take into account. Second, most of them had no idea *how* to take it into account. Presumably, the general public is not much better at this than the Harvard faculty.

The implication for policy, therefore, may be that inflation is undesirable precisely because it is misunderstood. Zero inflation is the right rate because then people do not have to think about inflation. As Sherlock Holmes was well aware, thinking time is a scarce resource. A policy of price stability is desirable

because it diverts our thoughts from monetary economics toward art, science, and other socially useful activities.

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