People’s Understanding of Inflation

NBER “Inflation in the COVID Era & Beyond” Conference

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(Bocconi)  (Harvard)  (Harvard)
Research question: How do people understand inflation?

Inflation is a complex phenomenon.

How do people perceive its causes, consequences, & trade-offs?

What policies do they support to fight inflation?

We run a new survey inspired by the macroeconomics literature to probe people’s understanding.
New survey building on the macro literature

**Background and economic characteristics of the household**

- Employment, education, family situation, political views, media exposure, financial assets

**Understanding of inflation**

- Conditional correlations between inflation and unemployment: what happens to inflation and unemployment after an increase in: interest rates? Government spending? Oil prices? Productivity? Wages?
  - Causes: what are the main causes of inflation?
  - Distributional impacts: which groups have lost more from inflation?
  - Consequences: what are the major consequences of inflation on the US economy?

- Conjoint experiment: preferences over inflation and unemployment
  - Information about true inflation and unemployment before preference elicitation
  - No information

**Perceptions and expectations about inflation and unemployment**

- 50%

**Conjoint experiment: preferences over inflation and unemployment**

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**Perceived tradeoffs between inflation and stabilization**

- Do you think it is necessary to induce a slowdown in economic activity to combat inflation?
- Is inflation an unfortunate byproduct of economic development?

**Policy views**

- Priority of inflation over other economic and social objectives of US policy
- Policy tools to combat inflation: how should the Government and the Federal Reserve combat inflation?
- Tools to combat the distributional impacts of inflation: do you support redistributive policies in times of inflation?

**Information on the tradeoffs between inflation and unemployment**

- Information on the tradeoffs between inflation and unemployment
- No information

**Quota-related questions and screening of inattentive respondents**

- Age, gender, income, race, living in the US, and questions detecting careless answers

**Understanding of inflation**

- Information about true inflation and unemployment before preference elicitation
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**Perceptions and expectations about inflation and unemployment**

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**Conjoint experiment: preferences over inflation and unemployment**

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- Priority of inflation over other economic and social objectives of US policy
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## Sample

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<tr>
<th>Targeted quotas</th>
<th>Survey</th>
<th>US population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>0.48</td>
<td>0.49</td>
</tr>
<tr>
<td>Female</td>
<td>0.51</td>
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</tr>
<tr>
<td>18-29 years old</td>
<td>0.23</td>
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<tr>
<td>30-39 years old</td>
<td>0.20</td>
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<td>40-49 years old</td>
<td>0.19</td>
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<td>50-59 years old</td>
<td>0.19</td>
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<td>60-69 years old</td>
<td>0.18</td>
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</tr>
<tr>
<td>$0-$19,999</td>
<td>0.14</td>
<td>0.13</td>
</tr>
<tr>
<td>$20,000-$39,999</td>
<td>0.16</td>
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</tr>
<tr>
<td>$40,000-$69,999</td>
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</tr>
<tr>
<td>$70,000-$99,999</td>
<td>0.15</td>
<td>0.15</td>
</tr>
<tr>
<td>$100,000-$124,999</td>
<td>0.09</td>
<td>0.09</td>
</tr>
<tr>
<td>$125,000+</td>
<td>0.26</td>
<td>0.26</td>
</tr>
<tr>
<td>White</td>
<td>0.68</td>
<td>0.6</td>
</tr>
<tr>
<td>African-American/Black</td>
<td>0.13</td>
<td>0.13</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>0.10</td>
<td>0.19</td>
</tr>
<tr>
<td>Asian/Asian-American</td>
<td>0.04</td>
<td>0.06</td>
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**Sample size**: 2264
Plan for this talk

1. Understanding of Inflation
2. Policy views
Understanding of Inflation
"Correct" share is 12% for interest rate shock, 13% for government debt/spending shock, 42% for oil shock, 28% for wages shock.
# The causes of inflation

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<td>production (43%), actions by the Federal Reserve (31%), politics and</td>
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<td>rates, and managing inflation expectations);</td>
<td>politicians (22%), actions by firms and businesses (15%), changes in</td>
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<td>• increases in the costs of production (i.e., cost-push shocks);</td>
<td>the labor market (13%), households spending more (10%).</td>
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How we ask about the causes of inflation

Open-ended question on the causes of inflation
In your opinion, what are the primary causes of inflation?

For each item listed below, please tell us whether or not you think it is an important cause of inflation

<table>
<thead>
<tr>
<th>Government spending, debt and taxation</th>
<th>Actions by the Federal Reserve</th>
<th>Increases in the costs of production</th>
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<th>Households spending more</th>
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<tr>
<td>Income tax cuts</td>
<td>Interest rate cuts</td>
<td>Oil price increases</td>
<td>Wage increases due to labor rights or unionization</td>
<td>Due to expected price increases in the future</td>
<td>Higher prices due to higher expectations</td>
<td></td>
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<td>Increase in government debt for foreign assistance</td>
<td>Increases in interest rates</td>
<td>Energy price increases</td>
<td>Wage increases due to labor shortages</td>
<td>Due to optimism about the economy</td>
<td>Higher prices to increase profits, even if costs have not increased</td>
<td></td>
</tr>
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<td>Debt-financed increase in spending (defense/infrastructure)</td>
<td>Increases in money supply</td>
<td>Large-scale disruptions in other countries (wars or disasters)</td>
<td>Workers asking for wage increases after increases in the cost of living</td>
<td>Lack of competition and the rise of big firms without competitors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debt-financed increase in spending (Covid stimulus)</td>
<td>Failure to take appropriate action</td>
<td>Disruptions in international supply chains</td>
<td>Cost increases induced by the Pandemic</td>
<td></td>
<td></td>
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<tr>
<td>Debt-financed increase in spending (social programs)</td>
<td>Unclear announcements about future intentions</td>
<td></td>
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From the previous list, please select the 2 most important causes of inflation

For each item listed below, please tell us whether or not you think it is an important cause of inflation
(Each respondent was displayed the lists of items pertaining to the top 2 causes of inflation selected above)

From the previous list, what is the most important cause of inflation?
(This question was asked for each list pertaining to one of the top 2 causes of inflation selected above)
Top 2 perceived broad causes of inflation

- Increases in the costs of production
- Actions by firms and businesses
- Households spending more
- Politicians and political interests
- Changes in the labor market
- Action by the Federal Reserve
- Government spending, debt, and taxation

By income

By age
Perceived top detailed causes of inflation

**Debt-financed:**
- Increases in social security
- Increases in assistance for tough times
- Increases in spending for infr. and defense
- Increases in foreign assistance
- Income tax cuts

**Actions by Federal Reserve**
- Unclear announcements
- Wrong actions
- Increases in money supply
- Decreases in interest rates
- Decreases in interest rates

**Increases in costs caused by**
- The pandemic
- Supply chain disruptions
- Disruptions in other countries
- Increases in energy prices
- Increases in oil prices

**Households spending more**
- Optimism
- Increases in inflation expectations

**Changes in the labor market**
- Wage-price spirals
- Labor shortages
- Wage increases due to unions

**Actions by firms**
- Decrease in competition
- Increases in prices to increase profits
- Increases in prices due to expectations
Our results on the perceived causes of inflation

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**Relevant heterogeneity**

- Republicans:
  * more likely to think some groups lose from inflation (high-income people, people with savings in cash, people with flexible-rate mortgages, big firms).
- High-income respondents:
  * systematically perceive more adverse impacts across different groups.
- Fox News viewers:
  * less likely to perceive adverse distributional impacts (even conditional on political leaning).
% who believes these groups lose from inflation

By income
Low income
Middle income
High income

By age
65+ years old
30-65 years old
18-30 years old

By employment
Retirees
Employed
Unemployed

By savings
No savings
Financial assets
Cash

By debt type
Low debt
Flex r mortgage
Fixed r mortgage
Credit card debt

By firm type
Large companies
Small companies

• Democrat • Republican

› By income › By age
Findings: the distributional impacts of inflation

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The consequences of inflation

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| **Most-studied consequences:**  
  - shoe-leather costs;  
  - resource misallocation. | **Top 5 most-perceived consequences:**  
  - complexity in economic decisions (85%), shoe-leather costs (80%), decreased trust in government (70%), lower GDP growth (70%), uncertainty for households (70%). |
| **Less-studied consequences:**  
  - uncertainty and unpredictability;  
  - decision-making complexity;  
  - broader social and economic costs (decreases in trust in government, social cohesion, the value of the dollar, national prestige, GDP growth, and increases in inequality). | **Relevant heterogeneity**  
  - Republicans:  
    * perceive more adverse effects for households and businesses, and broader economic costs;  
    * perceive less increases in inequality.  
  - High-income respondents:  
    * perceive more increases in inequality and a decrease in trust for government. |
Perceived importance of consequences of inflation

**Political & social costs**
- Decrease trust in government
- Decreases social cohesion
- Increases inequality
- Decreases national prestige

**Efficiency & economic costs**
- Decreases value of the dollar
- Slows down GDP growth
- Increases resource misallocation
- Makes firms decisions more difficult
- Makes setting prices harder
- Forces households to have cash

**Cognitive costs**
- Increases hh uncertainty
- Makes hh decisions more complicated

By income  By age
Top perceived consequence of inflation

Political & social costs
- Decrease trust in government
- Decreases social cohesion
- Increases inequality
- Decreases national prestige

Efficiency & economic costs
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By income

By age
# Findings: the perceived consequences of inflation

## Economics Literature

- **Most-studied consequences:**
  - shoe-leather costs;
  - resource misallocation.

- **Less-studied consequences:**
  - uncertainty and unpredictability;
  - decision-making complexity;
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## Our Findings

- **Top 5 most-perceived consequences:**
  - complexity in economic decisions (85%), shoe-leather costs (80%), decreased trust in government (70%), lower GDP growth (70%), uncertainty for households (70%).

- **Relevant heterogeneity**
  - **Republicans:**
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### The trade-offs related to inflation

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| - Equilibrium relation between inflation and economic activity formalized by the New-Keynesian Phillips Curve. In equilibrium, inflation determined by:  
  * inflation expectations;  
  * economic slack (e.g. output gap, gap between current and potential level of unemployment);  
  * cost-push shocks. | - Few respondents believe that inflation happens more often in booms than in recessions (30%), that it might be a side effect of positive economic developments (32%), or that it can be associated with a good economy (10%).  
- Few respondents believe policies designed to reduce unemployment increase inflation (35%). |
| **Policy tradeoffs** | **Perceived policy tradeoffs** |
| - When confronted with high inflation, policymakers can:  
  * induce a slowdown in economic activity (e.g., increase interest rates, announce future increases in interest rates, decrease spending/debt, increase taxes);  
  * manage inflation expectations. | - A minority of respondents believe it is necessary for policy makers to induce slow downs in economic activity to decrease inflation (30-40%).  
- A majority of respondents (62%) believe it is necessary to reduce government debt to reduce inflation. |
| - Supply side interventions in response to adverse supply shocks less studied in this context. | **Relevant heterogeneity** |
| | - Republicans.  
  * less likely to think inflation can be a side effect of positive economic development.  
- NYT readers and CNN viewers (opposite for Fox News viewers):  
  * more likely to consider inflation a potential by-product of a good economy. |
Perceived trade-offs related to inflation

- Inflation happens more often in booms
- Inflation is often a sign of a good economy
- Policies to reduce unemployment may increase inflation
- Inflation is a side effect of positive economic developments

To reduce inflation, it is necessary to

- Increase unemployment
- Reduce debt
- Reduce growth
- Reduce spending

By income  By age
Findings: perceived trade-offs related to inflation

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Policy views
Description of conjoint experiment

Each respondent saw 5 questions describing two scenarios characterized by a pair of values of inflation and unemployment. Respondents were then asked which of the scenarios they would prefer.

Values of inflation randomly picked in [0,16], values of unemployment in [2,16]
Estimation from a conjoint experiment

Denote by $p$ a pair of two economies $e$ and $e'$. We then run the following regression:

$$Y_{e,p,i} = \psi_i + \beta_1 \Delta(\pi)_{e,e',p} + \beta_2 \Delta(u)_{e,e',p} + \epsilon_{e,p,i}$$

where $Y_{e,p,i}$ is an indicator variable equal to 1 if economy $e$ in pair $p$ was chosen by individual $i$, $\Delta(\pi)_{e,e',p}$ ($\Delta(u)_{e,e',p}$) is the difference in inflation (unemployment) between $e$ and $e'$ in $p$, and $\psi_i$ are individual fixed effects.

For each subgroup, we plot $\lambda = \frac{\beta_1}{\beta_2}$ which is the marginal rate of substitution between inflation and unemployment under a linearity assumption for preferences.
Implicit weight on inflation from conjoint experiment
Most important policy priority

Economic issues
- Inflation
- Financial stability
- National defense
- Economic growth
- Low unemployment

Social issues
- Inflation
- Healthcare
- Education
- Civil rights
- Abortion
- Gun rights

* Democrat  * Republican

Inflation ranked highest regardless of (randomized) order of the sections
Policy views: Monetary, Fiscal, and Other Policies

Monetary policy

- Increase interest rate
- Decrease interest rate
- Decrease money supply
- Announce future plans for interest rate

Reductions in government debt financed by

- Increasing taxes on high income
- Increasing taxes on high and middle income
- Reducing spending on social programs

Other policies

- Tighten antitrust regulation
- Increase taxes on high income to fund transfers
- Increase corporate taxes
- Freeze prices of essentials
- Regulate wage growth
- Restrict imports

○ Democrat ○ Republican

› By income  › By age  › Open-ended answers
Policies to combat redistributive consequences of inflation

- Increase minimum wage
- Increase vouchers for mid income
- Increase vouchers for low income
- Increase food stamps
- Increase low income transfers

By income

By age

Democrat • Republican
Information treatment

Inflation is the **rate of increase in prices** over a given period of time, meaning you have to spend more money to buy the same things.

**Cutting down** on how much money is floating around might cool off inflation, but...

Here's the tricky part: reducing inflation can be like walking a tightrope

... this is not without its pains, affecting jobs and economic vibrancy.

Importantly, **policies** that are, in principle, good, such as those that reduce unemployment and increase economic activity, might, paradoxically, increase inflation too.

**Tax cuts** are another example of a policy that can put more cash in your pocket and that can stimulate economic activity.

But if lots of people start spending more, demand outstrips supply, and that might also result in inflation.
First stage: shifting perceptions of trade-offs

Inflation happens more often in booms
Inflation is often a sign of a good economy
Inflation is a side effect of positive economic developments
Policies to reduce unemployment may increase inflation

To reduce inflation, it is necessary to
Reduce unemployment
Reduce debt
Reduce growth
Reduce spending

- Republican
- Democrat
Second stage: shifting policy preferences

**Monetary policy**
- Increase interest rate
- Decrease interest rate
- Decrease money supply
- Announce future plans for interest rate

**Reductions in government debt financed by**
- Increasing taxes on high income
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*Full sample*
Main perceived causes: government actions, esp. foreign assistance (war) and rise in production costs due to COVID, oil prices, and supply chain disruptions.

Key consequence: complicates household decision making

Perceived distributional impacts: low-income people will lose more than high-income ones. Uniform perceived impacts by age.

Significant partisan gaps in most perceptions; News source matters too (Fox News vs. CNN/New York Times/NPR)

Lack of perceived trade-offs: inflation unambiguously “bad” and policymakers not perceived to face stark trade-offs to manage inflation.

Information experiment explaining trade-offs does not shift views
Conclusion: Summary of Key Findings (II)

**Inflation is top priority:** conjoint experiment reveals weight on inflation $\approx 2$ times weight on unemployment.

**Policy views:**

- Little support for standard monetary tightening measures (consistent with belief contraction not necessary)

- Preference for rate *cuts* to fight inflation (consistent with misperception that rate increases lead to higher inflation).

- Support for policies targeting companies (anti-trust, corporate tax increases), government debt reductions (esp. progressively with taxes on high-incomes).

- Strong support for policies to help households cope with inflation.
THANK YOU!

SOCIAL ECONOMICS LAB
## Sample: non-targeted characteristics

<table>
<thead>
<tr>
<th>Non-targeted characteristics</th>
<th>Sample 2016</th>
<th>Sample 2020</th>
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</thead>
<tbody>
<tr>
<td>Married</td>
<td>0.46</td>
<td>0.52</td>
</tr>
<tr>
<td>Single</td>
<td>0.37</td>
<td>0.35</td>
</tr>
<tr>
<td>Separated/Divorced</td>
<td>0.13</td>
<td>0.12</td>
</tr>
<tr>
<td>Widowed</td>
<td>0.04</td>
<td>0.02</td>
</tr>
<tr>
<td>Has children</td>
<td>0.59</td>
<td>0.40</td>
</tr>
<tr>
<td>Less than 4-year college</td>
<td>0.62</td>
<td>0.64</td>
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<tr>
<td>4-year college/Master’s</td>
<td>0.34</td>
<td>0.32</td>
</tr>
<tr>
<td>Professional degree</td>
<td>0.04</td>
<td>0.03</td>
</tr>
<tr>
<td>Employed</td>
<td>0.66</td>
<td>0.70</td>
</tr>
<tr>
<td>Unemployed</td>
<td>0.10</td>
<td>0.03</td>
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<tr>
<td>Republican</td>
<td>0.28</td>
<td>0.26</td>
</tr>
<tr>
<td>Democrat</td>
<td>0.36</td>
<td>0.25</td>
</tr>
<tr>
<td>Independent &amp; others</td>
<td>0.36</td>
<td>0.47</td>
</tr>
<tr>
<td>Voted in 2020 presidential election</td>
<td>0.74</td>
<td>0.61</td>
</tr>
<tr>
<td>Voted for Biden in 2020 presidential election</td>
<td>0.47</td>
<td>0.51</td>
</tr>
<tr>
<td>Voted for Trump in 2020 presidential election</td>
<td>0.43</td>
<td>0.47</td>
</tr>
</tbody>
</table>

Sample size 2264
Sample: Cleaning procedure

We collected 3,055 responses in total. We drop those providing age or gender information inaccurately relative to the information provided to the survey company (359).

We drop respondents giving the same number as answer to all perception/expectations questions.

We drop respondents providing bot-like or nonsensical answers to the open-ended questions.

We drop respondents saying that they want to both increase and decrease interest rate to combat inflation.
Inflation and unemployment responses to shocks: by income

- **Interest rate**
  - Unemployment increases
  - Inflation increases

- **Gvt. debt for low-income support**
  - Unemployment increases
  - Inflation increases

- **Oil prices**
  - Unemployment increases
  - Inflation increases

- **Technology (TFP)**
  - Unemployment increases
  - Inflation increases

- **Wages due to labor laws**
  - Unemployment increases
  - Inflation increases

- Income < $40k Income > $125k

› Back
Inflation and unemployment responses to shocks: by age

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- 18-29 years
- 30-49 years
- 50-69 years

› Back
# Inflation and unemployment responses to shocks: comparison with?

<table>
<thead>
<tr>
<th></th>
<th>Decreases</th>
<th>Stays the same</th>
<th>Increases</th>
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<tbody>
<tr>
<td><strong>Increase in oil prices</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Inflation</td>
<td>21%</td>
<td>9%</td>
<td>71%</td>
</tr>
<tr>
<td>?</td>
<td>21%</td>
<td>9%</td>
<td>71%</td>
</tr>
<tr>
<td>Our estimate</td>
<td>7%</td>
<td>12%</td>
<td>81%</td>
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<tr>
<td>Unemployment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>?</td>
<td>25%</td>
<td>14%</td>
<td>62%</td>
</tr>
<tr>
<td>Our estimate</td>
<td>13%</td>
<td>43%</td>
<td>44%</td>
</tr>
<tr>
<td><strong>Increase in interest rate</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation</td>
<td>30%</td>
<td>13%</td>
<td>55%</td>
</tr>
<tr>
<td>?</td>
<td>30%</td>
<td>13%</td>
<td>55%</td>
</tr>
<tr>
<td>Our estimate</td>
<td>27%</td>
<td>16%</td>
<td>57%</td>
</tr>
<tr>
<td>Unemployment</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>?</td>
<td>33%</td>
<td>16%</td>
<td>51%</td>
</tr>
<tr>
<td>Our estimate</td>
<td>17%</td>
<td>39%</td>
<td>44%</td>
</tr>
<tr>
<td><strong>Increase in government spending</strong></td>
<td></td>
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</tr>
<tr>
<td>Inflation</td>
<td>29%</td>
<td>16%</td>
<td>55%</td>
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<tr>
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- Increases in the costs of production
- Actions by firms and businesses
- Households spending more
- Politicians and political interests
- Changes in the labor market
- Action by the Federal Reserve
- Government spending, debt, and taxation

• Income <$40k • Income >$125k

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Perceived top detailed causes of inflation: by income

**Debt-financed:**
- Increases in social security
- Increases in assistance for tough times
- Increases in spending for infr. and defense
- Increases in foreign assistance
- Income tax cuts

**Actions by Federal Reserve**
- Unclear announcements
- Wrong actions
- Increases in money supply
- Increases in interest rates
- Decreases in interest rates

**Increases in costs caused by**
- The pandemic
- Supply chain disruptions
- Disruptions in other countries
- Increases in energy prices
- Increases in oil prices

**Households spending more**
- Optimism
- Increases in inflation expectations

**Changes in the labor market**
- Wage-price spirals
- Labor shortages
- Wage increases due to unions

**Actions by firms**
- Decrease in competition
- Increases in prices to increase profits
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› Back
Who loses from inflation, by income

By income
- Low income
- Middle income
- High income

By age
- 65+ years old
- 30-65 years old
- 18-30 years old

By employment
- Retirees
- Employed
- Unemployed

By savings
- No savings
- Financial assets
- Cash

By debt type
- Low debt
- Flex r mortgage
- Fixed r mortgage
- Credit card debt

By firm type
- Large companies
- Small companies

* Income <$40k  * Income >$125k

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Consequences of inflation: by income

**Political & social costs**
- Decrease trust in government
- Decreases social cohesion
- Increases inequality
- Decreases national prestige

**Efficiency & economic costs**
- Decreases value of the dollar
- Slows down GDP growth
- Increases resource misallocation
- Makes firms decisions more difficult
- Makes setting prices harder
- Forces households to have cash

**Cognitive costs**
- Increases hh uncertainty
- Makes hh decisions more complicated

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Do people perceived any trade-offs related to inflation, by income

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Most important policy priority, by income
Most important policy priority, by age

Economic issues
- Inflation
- Financial stability
- National defense
- Economic growth
- Low unemployment

Social issues
- Inflation
- Healthcare
- Education
- Civil rights
- Abortion
- Gun rights

18-29 years • 30-49 years • 50-69 years

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Policy views: Monetary, Fiscal, and Other Policies: by income

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18-29 years   30-49 years   50-69 years
Most important policy from open-ended questions

- Protectionist policies
- Price caps
- Expansionary monetary policy
- Contractionary monetary policy
- Reduce immigration
- Help low income
- Fighting greedflation
- Stimulate the economy
- Contractionary fiscal policy
- Change President

• Democrat • Republican

▶ Back
Policies to combat redistributive consequences of inflation: by income

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