

**Inflation expectations:  
The role of demographic variables, financial  
literacy, and expectation formation**

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# Background

- The Federal Reserve follows people's inflation expectations because of their assumed effect on household financial decisions, and, indirectly, on actual inflation
- The Michigan Survey of Consumers measures inflation expectations by asking
  - During the next 12 months, do you think that prices in general will go up, or go down, or stay where they are now?
  - By about what percent do you think prices in general will go [up/down] on the average, over the next 12 months?
- Median inflation expectations track subsequent official realizations (Jonung, 1981; Bryan & Venkatu, 2001)

# Demographic differences

- Inflation expectations are higher for respondents who report
  - lower incomes
  - lower levels of education
  - being younger
  - being single
  - being female
  - being from a racial minority
- These differences are not well explained by variations in the prices people pay  
(see Bryan & Venkatu, 2001a; Hobijn & Topa, 2009)

# Financial literacy

- Demographic groups that report higher inflation expectations also tend to have lower financial literacy (Lusardi & Mitchell, 2007)
  - Lower-income groups also have shorter financial planning horizons (Zikmund-Fisher & Parker, 1999)
- Possibly, respondents from demographic backgrounds with lower financial literacy and shorter planning horizons
  - are confused about how to form inflation expectations
  - systematically form their inflation expectations differently

# Qualitative pilot interviews

- Survey designers use qualitative pilot interviews to examine how respondents interpret their survey questions
- Interviewees are asked
  - to read aloud the survey question
  - to “think aloud” while answering the survey question
- Interviewees’ answers suggest whether they understand the question and how they interpret it

# Qualitative pilot interviews

- When answering the Michigan question about expectations for “prices in general”, interviewees thought about
  - The rate of inflation
  - Concerns about how to cover their increasing expenses
  - Prices they pay (especially increasing ones such as gas)
- Interviewees who mentioned personal expenses and prices paid seemed to focus on *increasing prices* rather than *decreasing prices*
  - Doing so may lead to reporting higher inflation expectations

# Increasing prices are salient

- Psychological theories of decision making have suggested that losses loom larger than gains (Kahneman & Tversky, 1979)
  - Because losses are more painful than gains are pleasurable
- Such *loss aversion* may explain increased perceptions of inflation after the change-over to the Euro
  - Europeans may have noticed price increases but not price decreases – especially if they were already suspicious about the Euro causing inflation (Jungermann et al., 2007)

# Hypotheses

Higher inflation expectations are reported by respondents:

1. From specific demographic groups
2. With lower financial literacy
3. Who have shorter planning horizons
4. Who think more of personal expenses and prices paid when answering questions about inflation expectations

# Sample

- MS16 of RAND's American Life Panel (n=299)
- Survey was online from 12/22/07 to 05/20/08
  - With 81.3% of sample responding in first month
- Demographics
  - Age: M=47.4, SD=14.3
  - Gender: 54.4% women
  - Race: 13.4% of minorities
  - Marital status: 29.4% single
  - Education: 40.1% had at most a hs diploma
  - Median Income: \$60-75K  
range [ < \$5K, ≥ \$75K)

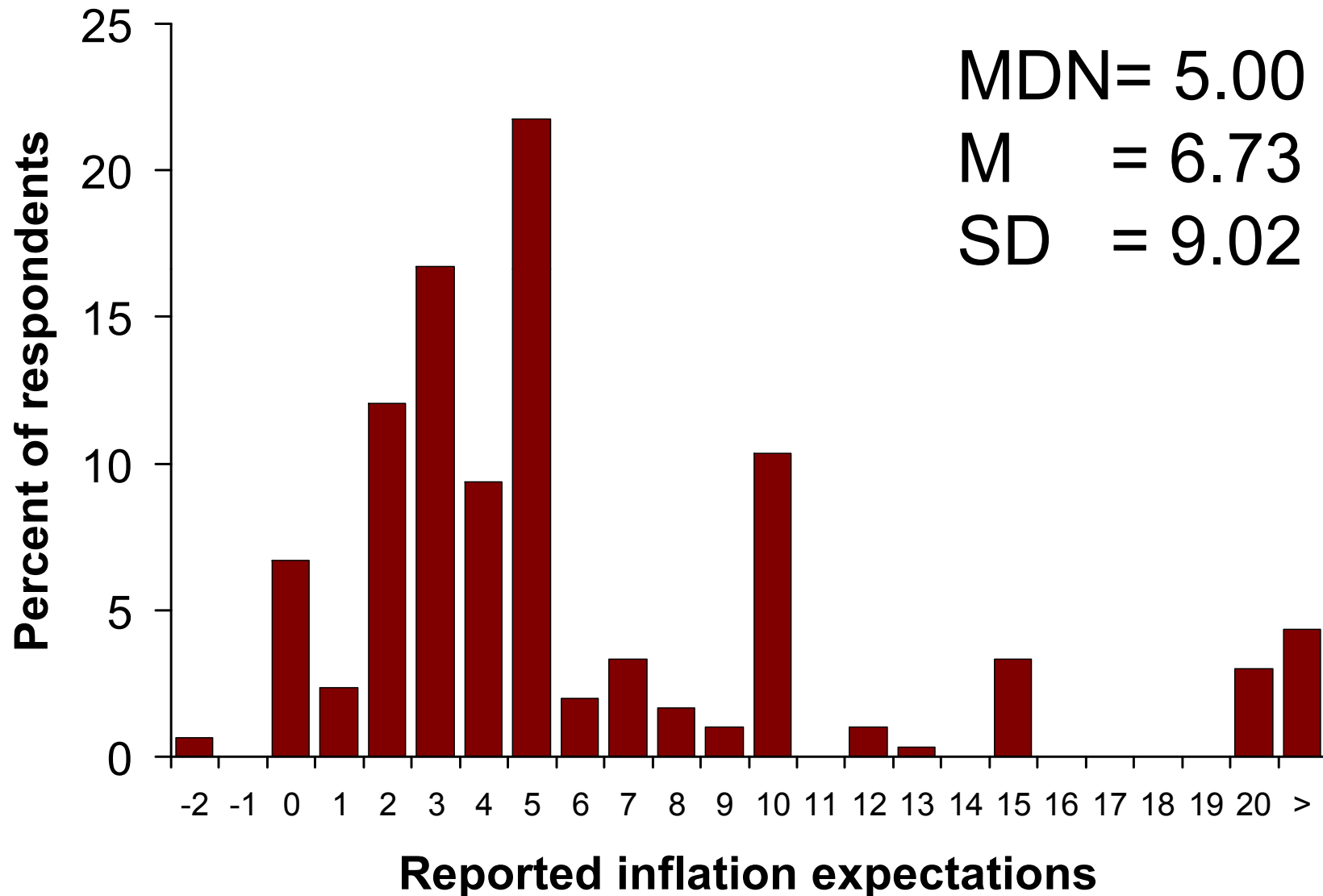
# Inflation expectations

During the next 12 months, do you think that prices in general will go up, or go down, or stay where they are now?

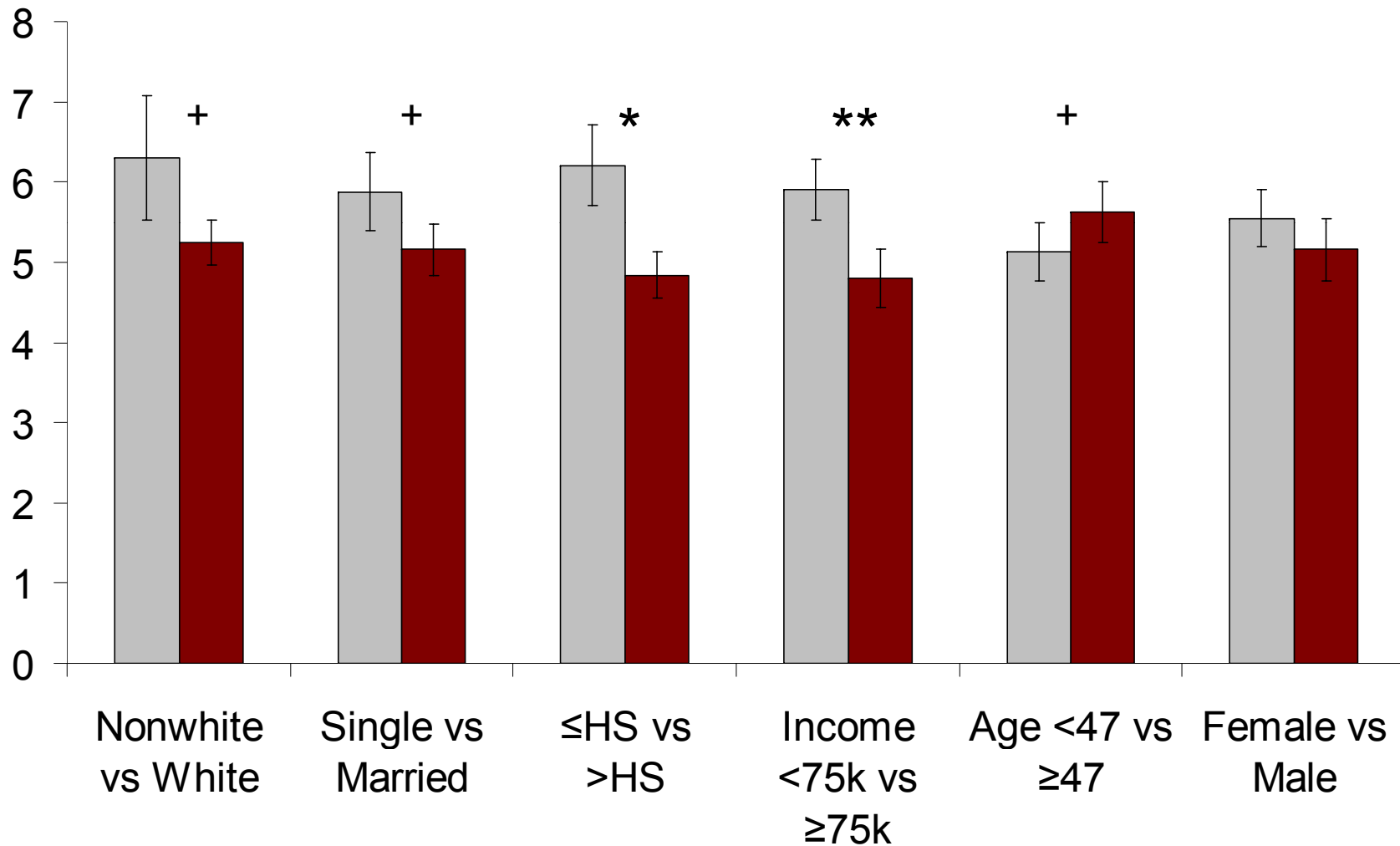
*[follow up if response is “up” or “down”]*

By about what percent do you think prices in general will go [up/down] on the average, over the next 12 months?

# Inflation expectations



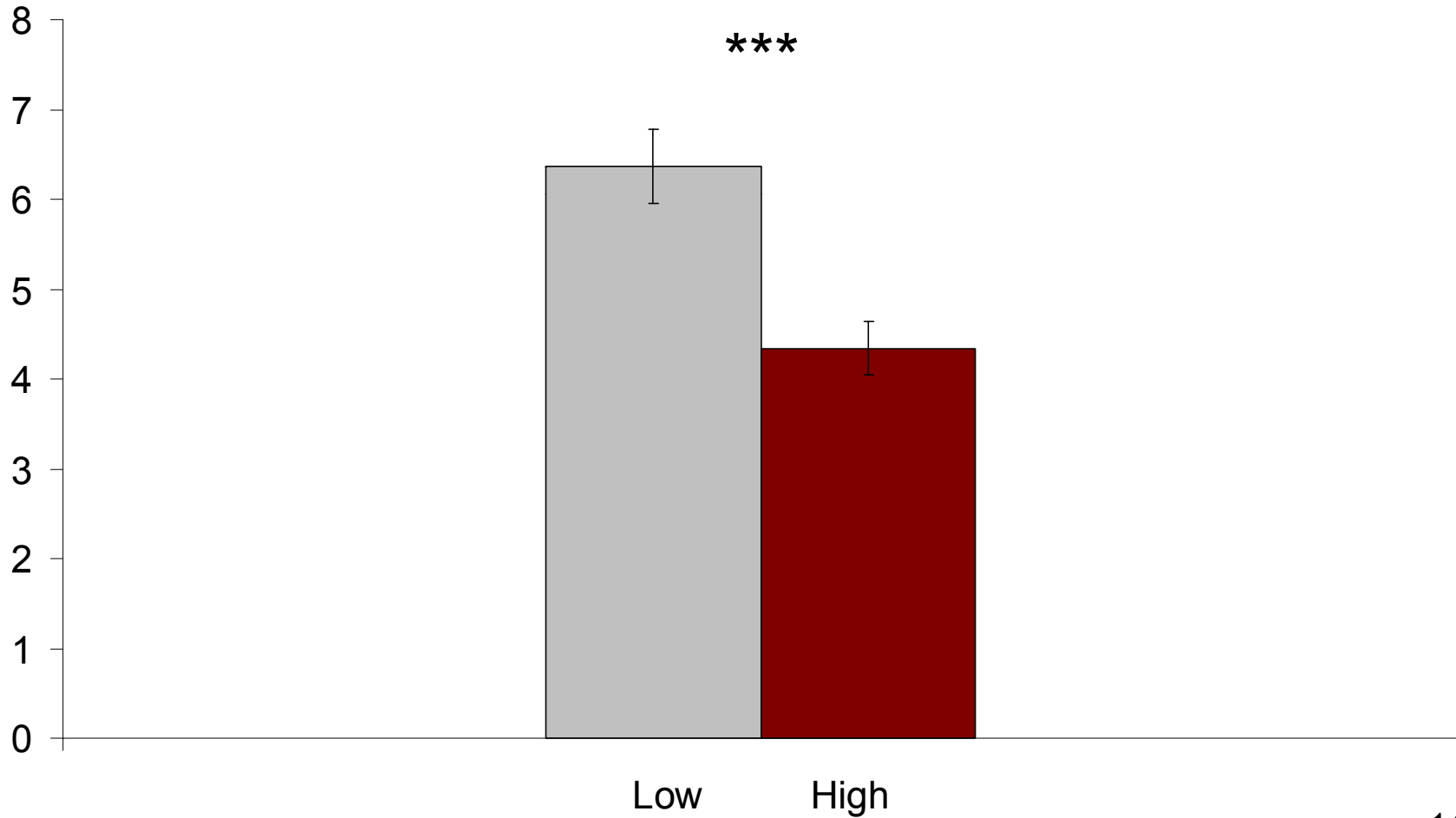
# Mean inflation expectations by demographic group



Note: Mann-Whitney test +  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$



# Mean inflation expectations by low vs. high financial literacy



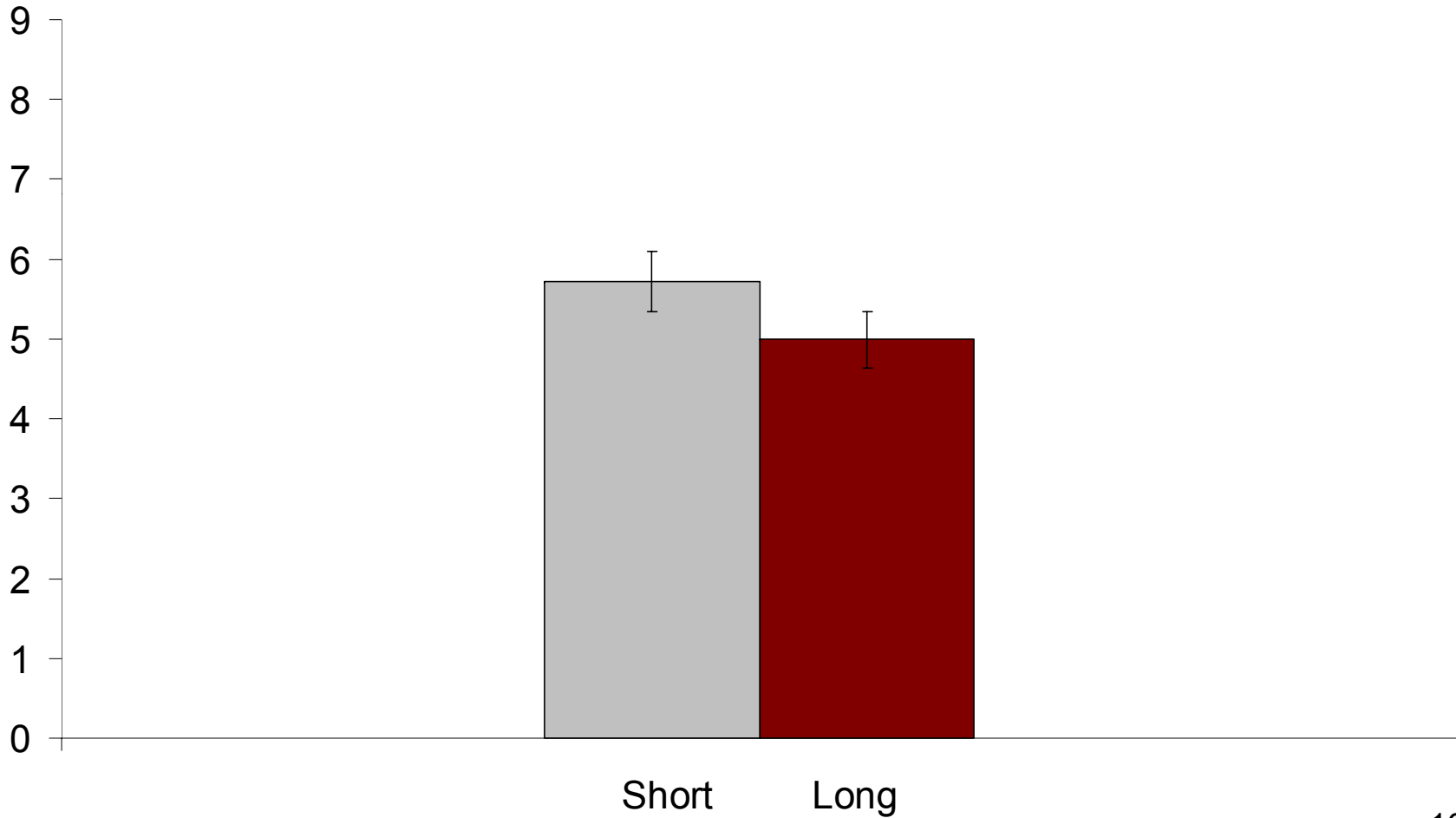
# Planning horizon

In deciding how much of their [family] income to spend, people are likely to think about different financial planning periods.

In planning your [family's] spending, which of the following time periods is most important to you [and your husband/wife/partner, where applicable]?

- Same question repeated for saving
- Response options ranged from next day (=1) to longer than 10 years (=9)
- The 2-item scale showed good reliability
  - Cronbach's alpha = .74

# Mean inflation expectations by short vs. long horizon



# Forming expectations

- What did you think [the previous question] was asking about the most?
  - the prices of things you usually spend money on
  - the prices of things Americans usually spend money on
  - annual raise in salary
  - the prices of one or more specific things
  - the U.S. inflation rate
  - seasonal changes in prices
  - changes in the cost of living for the next year
  - how your life will be different next year
  - how to pay for loans or other debts next year
  - how to cover expenses next year
- Please rate how much you thought of each of these things when trying to come up with an answer (1=not at all, 7=very much)

# Forming expectations

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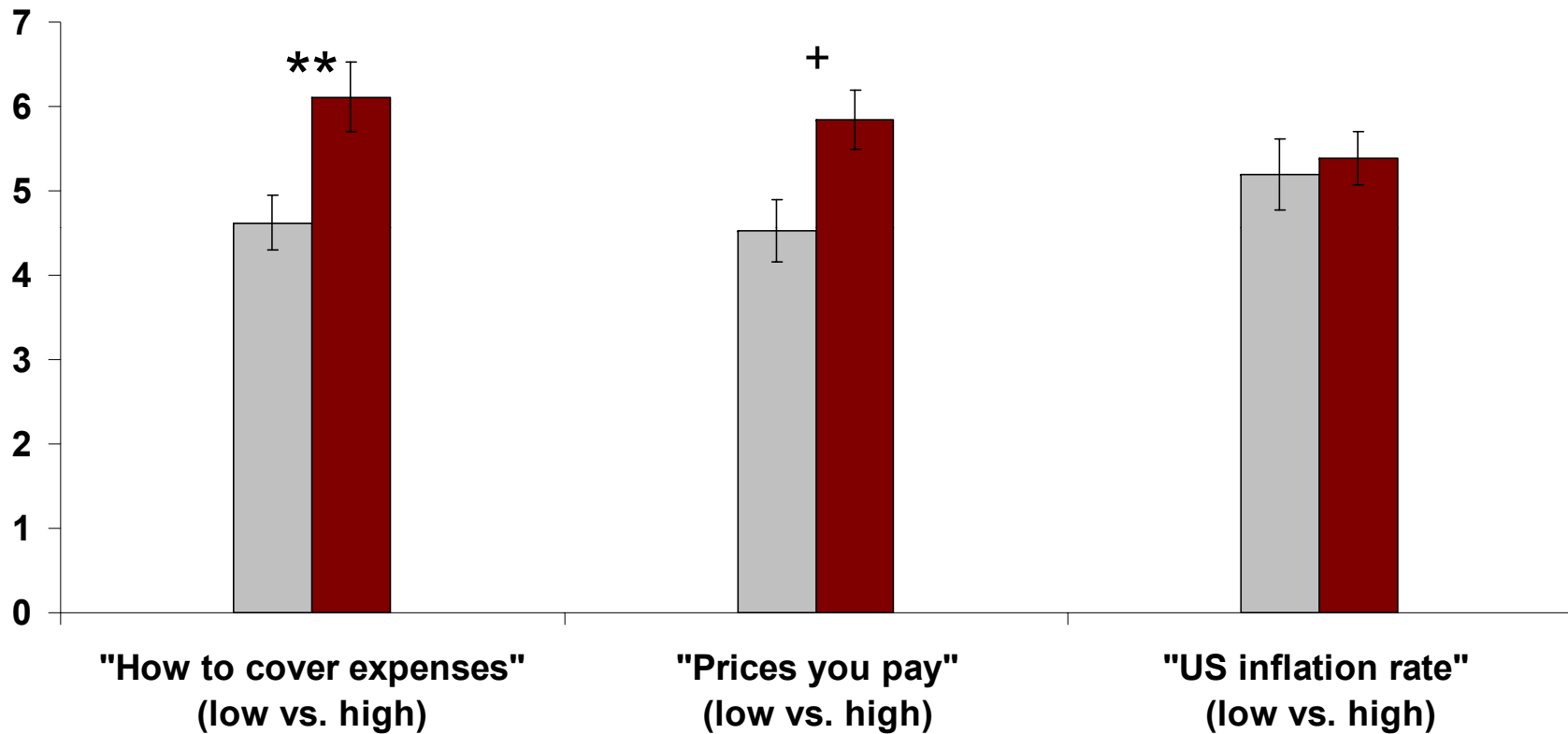
<b>Topic</b>	<b>% Who said inflation question asked about it</b>	<b>Mean (SD) rating of how much they thought about it</b>
Prices Americans pay	39.5	5.33 (1.80)
Prices you pay	21.4	5.70 (1.62)
Cost of living	17.1	4.86 (1.86)
US inflation rate	15.1	4.61 (1.97)
Specific prices	1.7	3.81 (2.13)
How to cover expenses	1.0	3.66 (2.24)
Annual raises	.7	3.13 (1.96)
How your life will change	.3	3.72 (2.05)
Seasonal price changes	.3	2.57 (1.71)
How to pay for debts	.0	2.99 (2.13)

# Factor analysis

Topic	Personal finances	Prices paid	General indicators
Prices Americans pay	-.06	.79	-.05
<b>Prices you pay</b>	.23	<b>.82</b>	.13
Cost of living	.28	.05	.68
<b>US inflation rate</b>	.00	.04	<b>.81</b>
Specific prices	.13	.30	.39
<b>How to cover expenses</b>	<b>.88</b>	.09	.14
Annual raises	.50	.08	.25
How your life will change	.79	.13	.16
Seasonal price changes	.28	-.04	.60
How to pay for debts	.84	-.01	.14

Note: Highest factor loading on each factor is presented in red

# Mean inflation expectations by topics considered



# Regression ( $\beta$ ) predicting inflation expectations

	Model 1 ( $R^2=.05$ )	Model 2 ( $R^2=.10$ )	Model 3 ( $R^2=.15$ )
Financial literacy	-	-	-.25***
Financial confidence	-	-	.02
Thoughts of “expenses”	-	.12*	.14*
Thoughts of “prices you pay”	-	.16*	.13*
Thoughts of “U.S. inflation rate”	-	.02	.03
Planning horizon	-	-.04	.00
Nonwhite (vs. white)	.09	.11 <sup>+</sup>	.07
Single (vs. married)	.04	.05	.06
Low education (vs. high)	.12*	.08	.01
Low income (vs. high)	.08	.05	.02
Female (vs. male)	.06	.05	.00
Age	.11 <sup>+</sup>	.13*	.12*

# Conclusions

- Higher inflation expectations are given by respondents who
  - Come from specific demographic backgrounds
  - Have lower financial literacy
  - Are more concerned about prices and personal finances (vs. inflation rate), when formulating their answer
- Demographic differences in inflation expectations may to some extent reflect variations in how inflation expectations are formed as well as financial literacy
- In times of higher inflation, these demographic differences may have been even more pronounced (VanderKlaauw et al., 2008)
- Education about inflation may especially benefit demographic groups with low financial literacy

# Possible implications for survey design

- We took the inflation expectations question from the Michigan survey of consumers, asking for expectations for “prices in general”
  - which may have led respondents to think more about “expenses” and “prices” and less about “inflation” which increases inflation expectations
- We could instead have asked directly about expectations for the “inflation rate” which
  - evokes more thoughts about “inflation” rather than of “expenses” and “prices”
  - is related to lower inflation expectations
  - results in less disagreement between respondents, in terms of variance and IQR

(See Bruine de Bruin et al., in preparation)

# Relevant references

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