Consumption effects of job loss expectations - new evidence for the euro area

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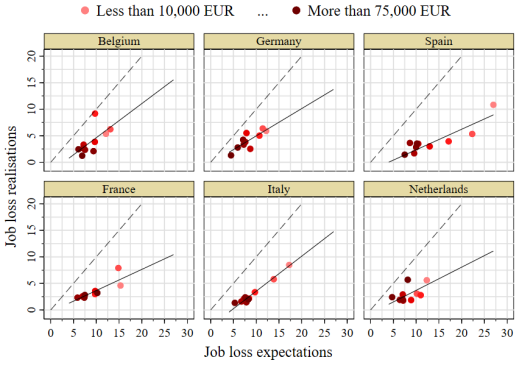
Introduction

Motivation

Figure 1: Probability and expectations of job loss by income bracket



Note: The markers show average quarterly job loss expectations and realisations for ten different income brackets for each country. The brackets are not equally spaced but ordered by increasing intensity of red. The solid lines show weighted linear regression slopes by country and the dashed lines mark the 45-degree line of accurate expectations. Source: CES data.

- Workers have private information about their job risk
  - Job loss expectations are correlated with realisations
  - Considerable heterogeneity of beliefs and realisations
- Permanent Income Hypothesis (PIH):
  - Expected job loss should have no behavioural response
  - Unexpected job loss should be associated with consumption drop
  - Unrealised expected job loss?

▸ alternative measure ▸ unconditional

Research question

How does consumption react to non-realised job loss expectations?

Previous literature:

- Consumption reaction to persistent income shock (see Meghir and Pistaferri (2011) for an overview)
- Exploit timing variation: consumption drops in advance of predictable job loss (e.g. Hendren (2017))
- Predictive value of survey expectations for product and labour markets (Manski and Straub (2000); Enders *et al.* (2022))
- Mixed results of consumption reaction to unexpected job loss exploiting elicited job loss expectations (Stephens (2004); Pettinicchi and Vellekoop (2019))

This paper:

1. Consumption drops after unexpected displacement: confirms PIH
2. Effect is stronger if job loss is expected to be more persistent or if workers are hand-to-mouth
3. Consumption does not react if expected displacement is not realised

Data

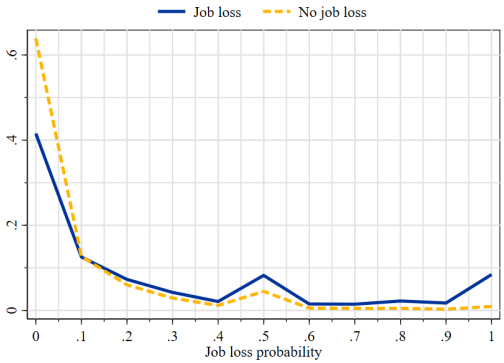
ECB's Consumer Expectations Survey (CES)

- Mixed frequency online panel with 15,000 rotating monthly respondents
- Quarterly data on labour market situation and expectation:
  - 6 euro area countries (DE, FR, ES, IT, BE, NL)
  - Labour income available from October 2020 to January 2023
- Sample selection:
  - Prime-aged workers (25-59) to ensure labour market attachment and avoid education or retirement effects
- Labour market status and consumption behaviour also elicited quarterly:
  - Job loss: respondents who are employed in quarter t and either unemployed or inactive in quarter t+1
- Job loss expectations elicited quarterly from employed respondents:
  - "What do you think is the percent chance that you will lose your current job during the next 3 months?"

▸ details

Job loss expectations

Figure 2: Histogram of job loss expectations



Note: The lines show the distribution (shares) of job loss expectations aggregated into 11 bins by displacement status in t+1.
Source: CES data.

- Job loss expectations are right skewed
  - More than 40% of respondents expect a zero probability of job loss
- Workers who will lose their job have higher job loss expectations
  - Their job loss expectations are significantly less frequently at zero
  - Around 10% expected an (almost) certain job loss

▸ distribution ▸ further descriptives ▸ regression

Empirical approach

Permanent income hypothesis

- Lifetime utility maximisation given a standard budget constraint:

$$max_{\{c_{t+s}\}_{s=0}^{T-t}} E_t \sum_{s=0}^{T-t} \beta^s u\left(c_{t+s}\right) \quad \text{subject to:} \quad a_{t+1} = \left(y_t - c_t + a_t\right)(1+r) \;\forall t < T \text{ and } a_{T+1} = 0$$

- Assuming quadratic utility and $\beta(1+r) = 1$ gives the Euler equation: $c_t = E_t(c_{t+1})$
- Solving the budget constraint forward gives the **permanent income hypothesis (PIH)**:

$$c_t = \frac{r}{1+r}\left(1 - \frac{1}{(1+r)^{T-t}}\right)^{-1}\left[a_t + \sum_{s=0}^{T-t} \frac{E_t(y_{t+s})}{(1+r)^s}\right]$$

- First differencing gives:

$$\Delta c_t = \frac{r}{1+r}\left(1 - \frac{1}{(1+r)^{T-t}}\right)^{-1}\left[\left(y_{t+1} - E_t(y_{t+1})\right) + \sum_{s=0}^{T-t} \frac{E_{t+1}(y_{t+s}) - E_t(y_{t+s})}{(1+r)^{s-1}}\right]$$

- Hence, current consumption growth is. . .
  - . . . affected by the currently realised income shock
  - . . . affected by the change of expectations about future income

A simple transition model

- We take a standard income process of the form $w_t = p_t + \epsilon_t$ with $p_t = p_{t-1} + \eta_t$, where ϵ_t and η_t are independent, mean-zero transitory and persistent income shocks, respectively.
- If we denote firing probability f_t, matching probability m_t and replacement rate $x \in [0, 1]$, then:

$$V_t^e = w_t + \beta \left[(1 - f_{t+1}) V_{t+1}^e + f_{t+1} V_{t+1}^u \right] \quad \forall t < T \text{ and } w_t \text{ for } t = T$$

$$V_t^u = x w_t + \beta \left[(1 - m_{t+1}) V_{t+1}^u + m_{t+1} V_{t+1}^e \right] \quad \forall t < T \text{ and } x w_t \text{ for } t = T$$

- We denote $\hat{f}_{t+1} \in \{0, 1\}$ **the realisation of the displacement shock** in $t + 1$ and assume no effect of $\hat{f}_{t+1}$ on future expectations, i.e., $\forall \tau > t + 1$: $f' = E_{t+1}(f_\tau) = E_t(f_\tau)$ and $m' = E_{t+1}(m_\tau) = E_t(m_\tau)$, then the average consumption change of employed is proportional to the error in job loss expectations (shocks cancel out):

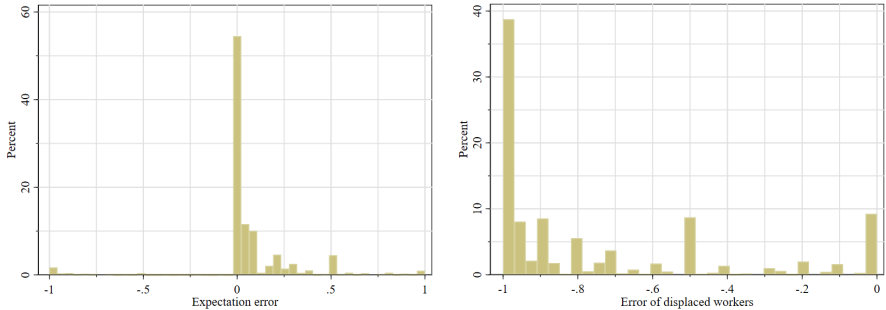
$$\Delta c_t = \frac{r}{1+r} \left(1 - \frac{1}{(1+r)^{T-t}} \right)^{-1} \frac{1 - (\beta (1 - f' - m'))^{T-t}}{1 - \beta (1 - f' - m')} \left(E_t(f_{t+1}) - \hat{f}_{t+1} \right) (1 - x) p_t$$

- If realisation of job loss shock $\hat{f}_{t+1} = 1$, consumption will drop if job loss was partially unexpected
- Effect is decreasing in (perceived) transition rates (m',f') and increasing in age ($T - t$)

Empirical approach

- Define expectation "error" of individual *i* at time *t* (Stephens (2004)):

$$ExpError_{it} = E_t\left[P\left(jobloss_{it+1}\right)\right] - 1\left(jobloss_{it+1}\right) \in [-1, 1]$$



Note: The figure on the left shows a histogram of the expectation error. The figure on the right shows a histogram only for workers who lost their job in t+1.
Source: CES data.

Empirical approach

- Define expectation "error" of individual i at time t (Stephens (2004)):

$$ExpError_{it} = E_t\left[P\left(jobloss_{it+1}\right)\right] - 1\left(jobloss_{it+1}\right) \in [-1, 1]$$

- Split expectation error into positive and negative expectation component:

$$\Delta c_{it+1} = \alpha + \beta_1 ExpError_{it}^{+} + \beta_2 ExpError_{it}^{-} \{+\beta_3 jobloss_{it+1}\} + \mathbf{X}_{it}\gamma + \varepsilon_{it}$$

where c_{it} is (log) consumption, $\mathbf{X}_{it}$ is a matrix of controls (country, date, sex, tenure, income, education, age group, partnership, HH size, survey rounds), $ExpError_{it}^{+} = max\{ExpError_{it}, 0\} \geq 0$ (unexpected job retainment) and $ExpError_{it}^{-} = max\{ExpError_{it}, 0\} \geq 0$ (unexpected job loss)

- Hence, if $\beta_2 > 0$, then unexpected job loss affects consumption (growth)
- If an additional dummy for job loss is added, then this captures the pure expectation effect

Consumption in the CES

	No job loss	Job loss	Total
Food consumption	6068.0	5169.3	6030.6
	(3386.0)	(3378.7)	(3390.4)
Total consumption	19026.4	15501.8	18878.8
	(12022.5)	(10905.0)	(11998.4)
Savings	5237.6	4702.1	5214.5
	(8009.2)	(7854.3)	(8003.2)
Food consumption growth	0.00308	-0.0160	0.00236
	(0.409)	(0.474)	(0.412)
Total consumption growth	-0.00363	-0.0383	-0.00494
	(0.418)	(0.494)	(0.421)
Savings growth	0.00426	-0.0241	0.00323
	(1.161)	(1.520)	(1.176)

Note: Average annualised consumption and savings of households by displacement status of respondent in t + 1 weighted by population weights. All growth variables are defined as logarithmic growth between t and t + 1. Quarterly savings have been annualised and log-normally imputed from 11 brackets. Total and food consumption growth are trimmed at their country-specific 2 and 98 percentiles. Standard deviations in brackets. Source: CES data.

- 12 spending categories elicited quarterly
- Annualised in real January 2020 euros, trimmed at 99% percentile
- Large measurement uncertainty, but consistent development around job loss
- Baseline: total consumption excluding only housing

▸ consumption details ▸ consumption and job loss

Results

Main results

	(1)	(2)	(3)	(4)	(5)
Expectations error	0.0156				
	(0.0123)				
Positive errors		-0.0238	-0.0227		-0.0339
		(0.0145)	(0.0145)		(0.8962)
Negative errors		0.0655**	0.0972*		0.1259**
		(0.0216)	(0.0414)		(0.0417)
Displacement			0.0289	-0.0415*	
			(0.0329)	(0.0175)	
High pos. errors					0.0087
					(0.8936)
Low neg. errors					-0.0878
					(0.0470)
Country FE	Yes	Yes	Yes	Yes	Yes
Date FE	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes
N	36564	36564	36564	36564	36564
Unique N	9463	9463	9463	9463	9463
N displaced	1112	1112	1112	1112	1112
Neg. error	-0.81	-0.81	-0.81	-0.81	-0.81
R2	0.01	0.01	0.01	0.01	0.01

Note: The table depicts the results of an OLS regression. The dependent variable is the logarithmic growth of total consumption in euros between t and t + 1. Robust standard errors clustered on individual level in parenthesis. "High pos. errors" ("Low neg. errors") denotes the coefficient of an interaction term of above (below) median non-negative (negative) expectation errors. "Neg. error" is the average of the negative values of the expectation error. Stars denote significance levels of two-sided t-tests. * p < 0.1, ** p < 0.05, *** p < 0.01

- Expectation error positive but highly non-linear
- Unlike previous research, significant effect of unexpected job loss
  - Consumption drops after unexpected job loss: PIH holds
  - Large effect: 0.07 log points if fully unexpected job loss
- No effect of positive errors
  - Consumption unchanged if job unexpectedly retained
  - Different, less persistent shock

▸ food ▸ robustness

Heterogeneity: Perceived unemployment rate

	Food	Total
Low perceived UE × Positive errors	-0.0090	-0.0241
	(0.0195)	(0.0220)
High perceived UE × Positive errors	0.0020	-0.0220
	(0.0202)	(0.0192)
Low perceived UE × Negative errors	0.0411	0.0186
	(0.0299)	(0.0293)
High perceived UE × Negative errors	0.0485	0.1191***
	(0.0319)	(0.0314)
Country FE	Yes	Yes
Date FE	Yes	Yes
Controls	Yes	Yes
N	37303	36564
Unique N	9559	9463
N displaced	1123	1112
Neg. error	-0.82	-0.81
P value	0.86	0.02
R2	0.01	0.01

Note: The table depicts the results of an OLS regression. The dependent variable is the logarithmic growth of food consumption (column 1) and of total consumption (column 2) in euros between t and t + 1. "Low (high) perceived UE" are workers with below (above) median unemployment rate perceptions in their country. Robust standard errors clustered on individual level in parenthesis. "Neg. error" is the average of the negative values of the expectation error. Stars denote significance levels of two-sided t-tests. * p < 0.1, ** p < 0.05, *** p < 0.01

- PIH predicts stronger reaction to more persistent income shock:
  - Job finding expectation lower if longer unemployment duration
  - Perceived unemployment rate (UE) as proxy for duration
- Consumption drop is stronger for workers who perceive the unemployment rate to be higher
- The same is true for older workers: high persistence and/or short horizon
  - age

Heterogeneity: Wealth level

	Food	Total
HtM × Positive errors	-0.0032	-0.0295
	(0.0192)	(0.0197)
No HtM × Positive errors	-0.0051	-0.0184
	(0.0193)	(0.0198)
HtM × Negative errors	0.0471	0.0852**
	(0.0305)	(0.0305)
No HtM × Negative errors	0.0421	0.0477
	(0.0316)	(0.0303)
Country FE	Yes	Yes
Date FE	Yes	Yes
Controls	Yes	Yes
N	37303	36564
Unique N	9559	9463
N displaced	1123	1112
Neg. error	-0.82	-0.81
P value	0.91	0.38
R2	0.01	0.01

Note: The table depicts the results of an OLS regression. The dependent variable is the logarithmic growth of food consumption (column 1) and of total consumption (column 2) in euros between t and t+1. Households with net liquid financial wealth levels below half their monthly income are classified as "hand-to-mouth" (HtM), while households above this limit are not (no HtM). Robust standard errors clustered on individual level in parenthesis. "Neg. error" is the average of the negative values of the expectation error. Stars denote significance levels of two-sided t-tests. * p < 0.1, ** p < 0.05, *** p < 0.01

- Available liquid wealth to smooth consumption is another factor determining consumption drop
- We define “hand-to-mouth” (HtM) households, but data with caveats
- HtM households reduce consumption more following an unexpected job loss

▸ details

Conclusion

Summary and policy implications

Evidence that PIH holds (asymmetrically)

1. Consumption drops considerably after unexpected job loss, but not vice versa
2. Effect is stronger if higher perceived unemployment rate or age
   - ⇒ Suggests consumption reaction related to re-employment probability
3. Effect is stronger if lower level of liquid wealth
   - ⇒ Supports relevance of liquidity-constrained HtM consumers for consumption

Implications for fiscal and monetary policy

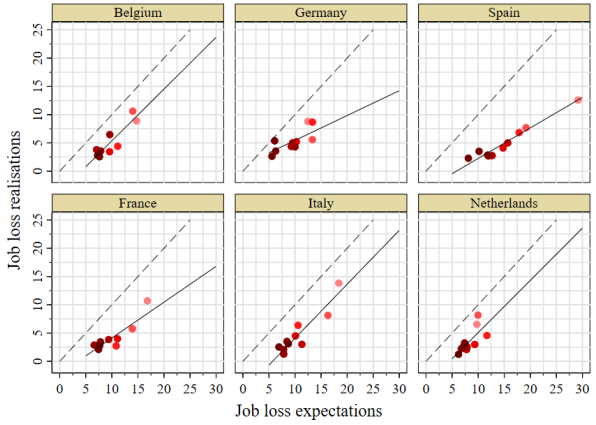
1. Job loss expectations as useful signal of business cycle position
2. Consumption and inflation might react heterogeneously even before labour market is affected
3. Small effect of unexpected job retainment ⇒ reduced effectiveness of job retention schemes?

THANK YOU FOR YOUR ATTENTION!

BACKUP

Alternative measure of income

Back



Note: The markers show average quarterly job loss expectations and realisations for ten income percentiles for each country. The percentiles are based on **net income (i.e. after tax and compulsory deductions) from all sources**, calculated by country and quarter, and ordered by increasing intensity of red. The solid lines show weighted linear regression slopes by country and the dashed lines mark the 45-degree line of accurate expectations. Source: CES data.

ECB's Consumer Expectations Survey (CES) Back

- Mixed frequency online panel since April 2020:
  - Shares similarities with NY Fed's SCE
  - Mix of probabilistic and non-probabilistic sampling
  - Focus areas: inflation; consumption, labour and income; housing market; consumer finance; central bank communication, monetary policy and the general economic outlook
  - Annual modules and ad-hoc modules for research
- Allows for analysis of **individual and country heterogeneity**:
  - 15,000 monthly respondents from six main countries (Germany, France, Spain, Italy, Belgium, Netherlands)
  - Additional 6,000 respondents since 2022 from five countries (Ireland, Greece, Austria, Portugal and Finland)
- Monthly press release with main results
- Main publications for reference: ECB (2021); Georgarakos and Kenny (2022)

Descriptive statistics

▸ Back

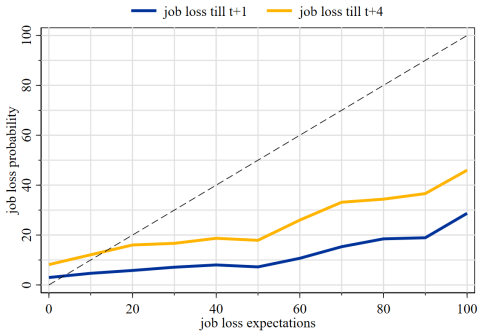
	No job loss	Job loss	Total
Female	0.475	0.568	0.479
	(0.499)	(0.495)	(0.500)
Age	42.99	40.72	42.89
	(9.630)	(10.28)	(9.671)
Number of HH members	2.761	2.845	2.765
	(1.247)	(1.288)	(1.249)
Partner in HH	0.684	0.655	0.683
	(0.465)	(0.475)	(0.465)
Low education level	0.0774	0.133	0.0799
	(0.267)	(0.340)	(0.271)
High education level	0.627	0.565	0.624
	(0.484)	(0.496)	(0.484)
Tenure $<$ 1 year	0.0834	0.321	0.0938
	(0.276)	(0.467)	(0.292)
Job loss expectations	0.0920	0.252	0.0990
	(0.176)	(0.325)	(0.188)
Observations	46760	2056	48816

Note: Average values of employed workers by job loss status in t+1 weighted by population weights. The education level is aggregated into three categories low, medium, and high that represent below upper secondary, upper secondary and tertiary education, respectively. Job loss expectations range from zero to one. Standard deviations in brackets. Source: CES data.

Distribution of job loss expectations

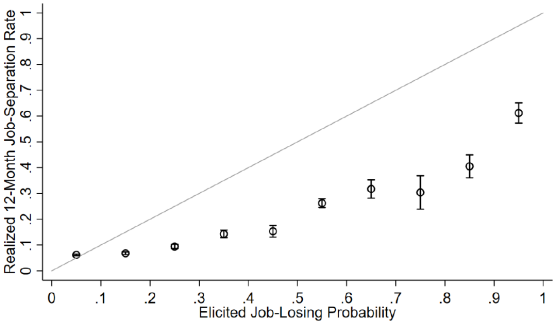
Back

Figure 3: 3-month job loss probability (EA)



Note: 3- and 12-month job loss probability by job loss expectation bin. Source: CES data.

Figure 4: 12-month job loss probability (USA)

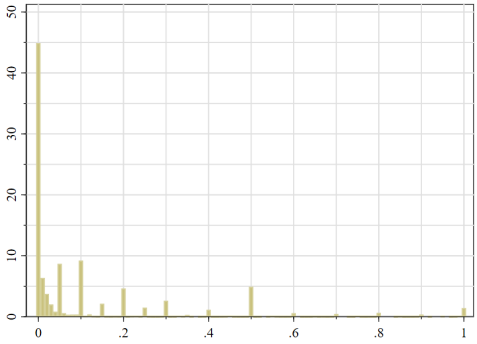


Note: Sample is restricted to employed workers, ages 20-65, with three consecutive follow-up surveys in the SCE. Figures shows the 12-Month E-to-U transition by bins of the elicited beliefs about the probability of job loss. Source: Mueller and Spinnewijn (2021)

Expectations and realisations

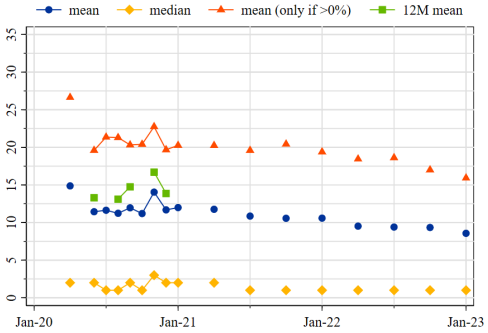
Back

Figure 5: Histogram of job loss probability



Note: Histogram of 3-month job loss expectations.
Source: CES data.

Figure 6: Expected job loss probability



Note:The blue and yellow dots show mean and median of 3-month job loss expectations, respectively. The red dots shows the average for respondents with non-zero expectations. The green dots shows the average of 12-month job loss expectations. Source: CES data.

Job loss expectations are predictive of job loss

Back

$$Jobloss_{it+1} = \Phi(\alpha + \beta Expectations_{it} + \mathbf{X}_{it}\gamma + \mu_{\mathbf{t}} + \varepsilon_{it})$$

	(1) E to Non-E	(2) E to Non-E	(3) E to Non-E	(4) E to UE	(5) E to Non-E until t+4
Job loss expectations	0.1133***	0.0829***	0.0633***	0.0261***	0.1321***
	(0.0051)	(0.0048)	(0.0046)	(0.0021)	(0.0130)
Country FE	Yes	Yes	Yes	Yes	Yes
Date FE	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	Yes	Yes	Yes
Income bracket FE	No	No	Yes	Yes	Yes
N	48816	48816	40813	40543	18335
Unique N	11029	11029	9993	9773	6224
Pseudo R2	0.06	0.11	0.10	0.20	0.09

Note: The table depicts average marginal effects of a Probit estimation. The dependent variable is job loss in the following quarter (model 1-3 and 6), transition to unemployment only (model 4) and job loss in the following year (model 5). Job loss expectations are defined between 0 and 1. All models include controls for date and country effects. Robust standard errors clustered on individual level in parenthesis. Stars denote significance levels of two-sided t-tests. * p < 0.1, ** p < 0.05, *** p < 0.01

- Job loss expectations are predictive of future job loss
- In the model with a full set of controls (model 3) an increase of job loss expectations by one standard deviations (18.8pp) is associated with a 1.2pp higher probability of job loss
- This is smaller than previous estimates, but we have quarterly expectations here (see model 5)

full table ▸ robustness ▸ consistent

Job loss expectations are consistent

Back

$$E(\Delta income_{it+4}) = \alpha + \beta Expectations_{it} + \mathbf{X}_{it}\gamma + \delta_{\mathbf{i}} + \mu_{\mathbf{t}} + \varepsilon_{it}$$

	(1) Exp. income growth bracket	(2) Exp. income growth bracket	(3) Exp. income growth
Job loss expectations	-0.2036***	-0.2841***	-4.0966***
	(0.0381)	(0.0522)	(0.6584)
Person FE	Yes	Yes	Yes
Date FE	Yes	Yes	Yes
Tenure bracket FE	Yes	Yes	Yes
Income bracket FE	Yes	Yes	Yes
N	38688	38688	38688
Unique N	7868	7868	7868
R2	0.40	0.40	0.48

Note: The dependent variable is bracketed 12-month income growth expectation in model (1) and (2) and absolute (non-bracketed) income growth expectations (in pp) in model (3). Robust standard errors clustered on individual level in parenthesis. Stars denote significance levels of two-sided t-tests. * p < 0.1, ** p < 0.05, *** p < 0.01

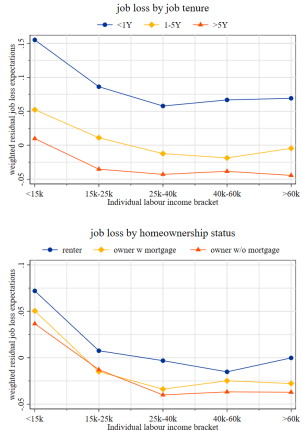
- Higher job loss expectations are negatively correlated with expected income growth
- An increase of job loss expectations by one standard deviation (18.8pp) is associated with an 0.77pp lower expected income growth during the next 12 months (average: 2.7%)

correlations

Job loss expectations are consistent

Back

Figure 7: Residualised job loss expectations



Source: CES data.

- Job loss expectations residualised for age, country and date effects
- Workers with lower income, tenure and wealth (proxied by homeownership) have higher job loss expectations
- Job loss expectations seem also related to wealth levels (as proxied by housing status)

Full table

Back

	(1) E to Non-E	(2) E to Non-E	(3) E to Non-E	(4) E to UE	(5) E to Non-E until t+4
Job loss expectations	0.1133***	0.0829***	0.0633***	0.0261***	0.1321***
	(0.0051)	(0.0048)	(0.0046)	(0.0021)	(0.0130)
Secondary		-0.0190***	-0.0109*	-0.0001	-0.0310
		(0.0055)	(0.0049)	(0.0023)	(0.0161)
Tertiary		-0.0235***	-0.0108*	-0.0015	-0.0269
		(0.0051)	(0.0046)	(0.0021)	(0.0152)
Female		0.0076**	0.0036	-0.0004	0.0005
		(0.0024)	(0.0024)	(0.0012)	(0.0074)
30-39		-0.0034	-0.0005	0.0016	-0.0131
		(0.0050)	(0.0051)	(0.0019)	(0.0163)
40-49		-0.0153**	-0.0124*	-0.0010	-0.0413*
		(0.0050)	(0.0050)	(0.0019)	(0.0163)
50-59		-0.0054	-0.0053	0.0019	-0.0242
		(0.0052)	(0.0052)	(0.0021)	(0.0168)
Partner in HH		0.0004	0.0023	0.0007	0.0091
		(0.0029)	(0.0029)	(0.0013)	(0.0096)
HH members		0.0034**	0.0020	-0.0001	0.0060
		(0.0012)	(0.0012)	(0.0006)	(0.0041)
Country FE	Yes	Yes	Yes	Yes	Yes
Date FE	Yes	Yes	Yes	Yes	Yes
Tenure bracket FE	No	Yes	Yes	Yes	Yes
Income bracket FE	No	No	Yes	Yes	Yes
N	48816	48816	40813	40543	18335
Unique N	11029	11029	9993	9773	6224
Pseudo R2	0.06	0.11	0.10	0.20	0.09

Note: The table depicts average marginal effects of a Probit estimation. The dependent variable is job loss in the following quarter (model 1-3 and 6), transition to unemployment only (model 4) and job loss in the following year (model 5). Job loss expectations are defined between 0 and 1. All models include controls for date and country effects. Robust standard errors clustered on individual level in parenthesis. Stars denote significance levels of two-sided t-tests. * p < 0.1, ** p < 0.05, *** p < 0.01

Robustness

▸ Back

	(1) E to Non-E	(2) E to Non-E	(3) E to Non-E
Job loss expectations	0.2196***	0.3523***	
	(0.0307)	(0.0478)	
Loss_probability=10			0.0060
			(0.0031)
Loss_probability=20			0.0185***
			(0.0053)
Loss_probability=30			0.0172*
			(0.0068)
Loss_probability=40			0.0155
			(0.0098)
Loss_probability=50			0.0106*
			(0.0046)
Loss_probability=60			0.0303
			(0.0161)
Loss_probability=70			0.0623*
			(0.0249)
Loss_probability=80			0.0619**
			(0.0191)
Loss_probability=90			0.1185***
			(0.0314)
Loss_probability=100			0.1715***
			(0.0201)
Country FE	Yes	No	Yes
Date FE	Yes	Yes	Yes
Tenure bracket FE	Yes	Yes	Yes
Income bracket FE	Yes	Yes	Yes
Other controls	Yes	No	Yes
Person FE	No	Yes	No
N	4373	4373	40813
Unique N	1172	1172	9993
R2	0.03	0.05	
Rho		0.30	
Pseudo R2			0.10

Note: The table depicts in columns 1 and 2 results of an OLS regression. Column 2 includes person-fixed effects and column 1 uses the main regression specification using the same sample. Column 3 shows average marginal effects of a Probit estimation. The dependent variable is job loss in the following quarter. Job loss expectations are defined between 0 and 1 in model (1) and (2), and are put into the closest percentile bin in model (3) (omitted category: Loss_probability=0). Robust standard errors clustered on individual level in parenthesis. "Rho" denotes the between-variance as a share of the total variance. Stars denote significance levels of two-sided t-tests. * p < 0.1, ** p < 0.05, *** p < 0.01

Elicitation of consumption in the CES

Back

- Food, beverages, groceries, tobacco
- Restaurants (including take-out food, delivery), cafes/ canteens
- Housing (including rent, maintenance/repair costs, home owner/renter insurance, but excluding mortgage payments)
- Utilities (including water, sewerage, electricity, gas, heating oil, phone, cable, internet)
- Furnishings (furniture, carpets), household equipment (textiles, appliances, garden tools), small appliances and routine maintenance of the house (cleaning, gardening)
- Debt repayments (instalments in mortgage, consumer loans, car loans, credit cards, student loans, other loans)
- Clothing, footwear
- Health (health insurance, medical products, dental, hospital and paramedical services, medication, personal care products and services)
- Transport (fuel, car maintenance, public transportation fares)
- Travel, recreation, entertainment and culture
- Childcare and education (including tuition fees for child and adult education, costs of after school activities, but excluding instalments on student loans)
- Other expenditures not mentioned above

- **Question**: "During <last month>, how much did your household spend on the goods and services listed below?"
- Open-ended entry into interface and summary screen with possibility to review all entries
- The food consumption data in the CES are broadly comparable to the same data in the EU SILC survey at country level, in spite of some differences in survey methodologies

Results: Food consumption

Back

	(1)	(2)	(3)
Expectations error	0.0175		
	(0.0120)		
Positive errors		-0.0040	-0.0041
		(0.0141)	(0.0141)
Negative errors		0.0445*	0.0398
		(0.0221)	(0.0435)
Displacement			-0.0043
			(0.0343)
Country FE	Yes	Yes	Yes
Date FE	Yes	Yes	Yes
Controls	Yes	Yes	Yes
N	37303	37303	37303
Unique N	9559	9559	9559
N displaced	1123	1123	1123
Neg. error	-0.82	-0.82	-0.82
R2	0.01	0.01	0.01

Note: The table depicts the results of an OLS regression. The dependent variable is the logarithmic growth of food consumption in euros between t and t + 1. Robust standard errors clustered on individual level in parenthesis. "Neg. error" is the average of the negative values of the expectation error. Stars denote significance levels of two-sided t-tests. * p < 0.1, ** p < 0.05, *** p < 0.01

- Food consumption as baseline to previous literature (incl. restaurants and canteens)
- Overall expectations error positive but not significantly related to change in food consumption
- Effect seems to be highly non-linear
- Unexpected job loss associated with decrease in food consumption in line with PIH
- Part of this effect explained by displacement itself, but to a much smaller extent than in previous literature

Robustness to different sets of controls

Back

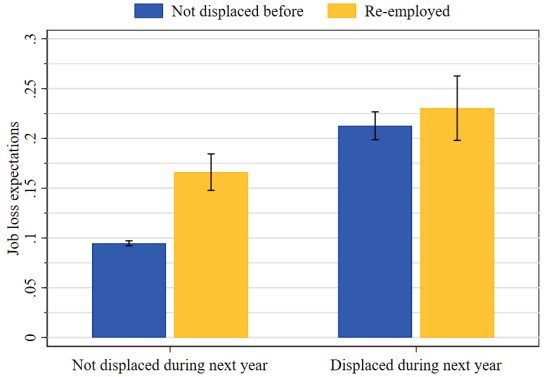
	Food				Total			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Baseline	No controls	HH controls	Lags	Baseline	No controls	HH controls	Lags
Positive errors	-0.0041	0.0001	0.0005	-0.0138	-0.0227	-0.0162	-0.0164	-0.0264
	(0.0141)	(0.0133)	(0.0133)	(0.0165)	(0.0145)	(0.0138)	(0.0138)	(0.0167)
Negative errors	0.0398	0.0454	0.0445	0.0203	0.0972*	0.1044*	0.1017*	0.1025
	(0.0435)	(0.0437)	(0.0437)	(0.0553)	(0.0414)	(0.0412)	(0.0412)	(0.0568)
Displacement	-0.0043	0.0059	0.0056	-0.0376	0.0289	0.0384	0.0367	0.0699
	(0.0343)	(0.0342)	(0.0342)	(0.0450)	(0.0329)	(0.0325)	(0.0325)	(0.0442)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Date FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HH controls	Yes	No	Yes	Yes	Yes	No	Yes	Yes
Lagged consumption	No	No	No	Yes	No	No	No	Yes
Other controls	Yes	No	No	Yes	Yes	No	No	Yes
N	37303	37303	37303	28018	36564	36564	36564	27245
Unique N	9559	9559	9559	7390	9463	9463	9463	7340
N displaced	1123	1123	1123	575	1112	1112	1112	563
Neg. error	-0.82	-0.82	-0.82	-0.84	-0.81	-0.81	-0.81	-0.83
R2	0.01	0.01	0.01	0.23	0.01	0.01	0.01	0.05

Note: The table depicts the results of an OLS regression. The dependent variable is the logarithmic growth of food consumption (columns 1-4) and of total consumption (columns 5-8) in euros between t and t+1. Household controls ("HH controls") include only partnership status and household size. Lagged consumption ("Lags") includes food consumption and lagged food consumption growth (from t-1 to t). Robust standard errors clustered on individual level in parenthesis. "Neg. error" is the average of the negative values of the expectation error. Stars denote significance levels of two-sided t-tests. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Re-employed with higher job loss expectations

Back

Figure 8: Job loss expectations by displacement status

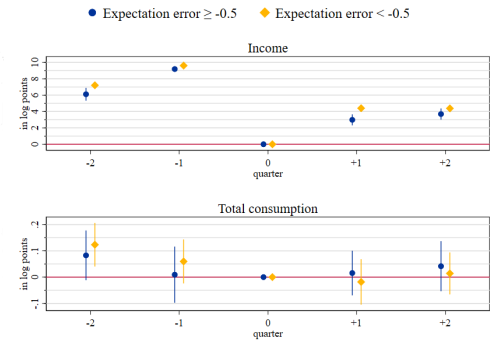


Note: Average job loss expectations by displacement status. Workers who have not reported a displacement before in blue and workers who reported a displacement before and are currently employed in yellow. The left set of bars show workers who did not report a non-employment during the next four quarters, the right set of bars show workers who did. Confidence bars show 95\% standard errors bands.
Source: CES data.

Consumption and expectations

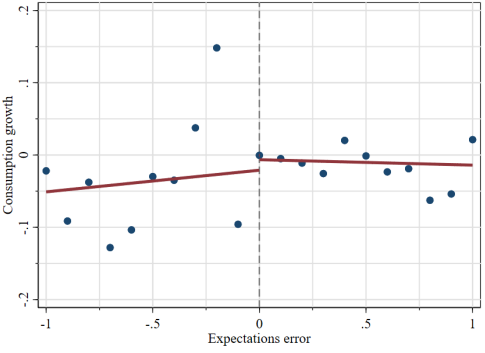
Back

Figure 9: Histogram of job loss probability



Note: The figure shows the quarterly average personal net income and household consumption (excl. housing) relative to their displacement quarter ($t = 0$) in logarithmic terms. Estimates are weighted by population weights and the bars depict standard errors at a 95% confidence level clustered on individual level. Source: CES data.

Figure 10: Consumption growth by expectation error



Note:The figure shows the weighted average of logarithmic consumption growth by 21 bins of expectation errors (from -1 to 1 in steps of .1). The regression lines exclude zero and allow for a discontinuity at zero. Source: CES data.

Results by Stephens (2004)

Back

	All Observations			All Observations		
Independent Variable	(1)	(2)	(3)	(1)	(2)	(3)
Change in annual food needs	1.06**	1.07**	1.07**	.160***	.162***	.162***
	(.42)	(.42)	(.42)	(.053)	(.053)	(.053)
Age	59.8	58.3	58.4	.003	.002	.002
	(49.6)	(49.4)	(49.4)	(.003)	(.003)	(.003)
Expectations error	645*	—	—	.091***	—	—
	(355)			(.029)		
Positive error values	—	130	80.7	—	.016	.010
		(694)	(699)		(.044)	(.044)
Negative error values	—	1260***	41.0	—	.180***	.014
		(368)	(606)		(.047)	(.111)
Displaced	—	—	−1050*	—	—	−.143*
			(553)			(.087)

Note: The first set of three models show the effect for a food consumption change in USD levels. The second set of three models show the effect for logarithmic food consumption growth.
Source: Stephens (2004)

Heterogeneity: Age group

▸ Back

	Food	Total
Low age × Positive errors	0.0101	-0.0164
	(0.0205)	(0.0207)
High age × Positive errors	-0.0196	-0.0327
	(0.0170)	(0.0179)
Low age × Negative errors	-0.0071	0.0543
	(0.0306)	(0.0309)
High age × Negative errors	0.1144***	0.0800**
	(0.0301)	(0.0287)
Country FE	Yes	Yes
Date FE	Yes	Yes
Controls	Yes	Yes
N	37303	36564
Unique N	9559	9463
N displaced	1123	1112
Neg. error	-0.82	-0.81
P value	0.00	0.54
R2	0.01	0.01

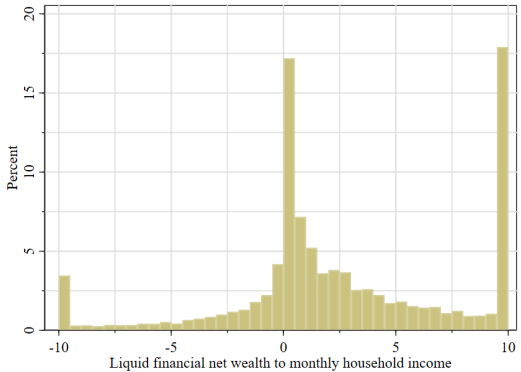
Note: The table depicts the results of an OLS regression. The dependent variable is the logarithmic growth of food consumption (column 1) and of total consumption (column 2) in euros between t and t+1. Workers aged 25 to 44 are classified as "low age" and workers aged 45 to 59 as "high age". Robust standard errors clustered on individual level in parenthesis. "Neg. error" is the average of the negative values of the expectation error. Stars denote significance levels of two-sided t-tests. * p < 0.1, ** p < 0.05, *** p < 0.01

- The same is true for age heterogeneity
- Older workers have less chance to smoothen their income shock in case of displacement
- We confirm that the effect is larger for workers above the median age

Distribution of liquid wealth relative to monthly income

Back

Figure 11: Histogram of net liquid financial wealth



Note: Histogram of net liquid financial wealth in November 2021 relative to monthly household income at the time of the first survey of the household. The distribution is winsorised at -10 and 10. Source: CES data.

- Household income is taken from background survey elicited at time of survey entry
- We use liquid financial net wealth from annual household finance module (December 2021)
- Main (strong) caveat: wealth not measured at time of income and job loss
- "Hand-to-mouth" (HtM) households are defined as having less than half of monthly household income as net liquid wealth

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