FACULTY OF ECONOMICS AND BUSINESS ADMINISTRATION

DEPARTMENT OF ECONOMICS
ADVANCED DATA SCIENCE RESEARCH GROUP

NBB conference 2022
'Household Heterogeneity and Policy Relevance'

The Consumption Response to Labour Income Changes

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BNP PARIBAS FORTIS

Motivation

–Recent economics crises highlight that many household are ill-equipped to withstand even modest amounts of income volatility (Narayan et al., 2020).

–The standard measure of the consumption response (ΔC) to income shocks (ΔI) is the marginal propensity to consume:

$$MPC = \Delta C / \Delta I$$

–The marginal propensity to consume is strongly heterogeneous with respect to

- –different types shocks
- –different types of consumption
- –household characteristics (Bernardini et al., 2020)

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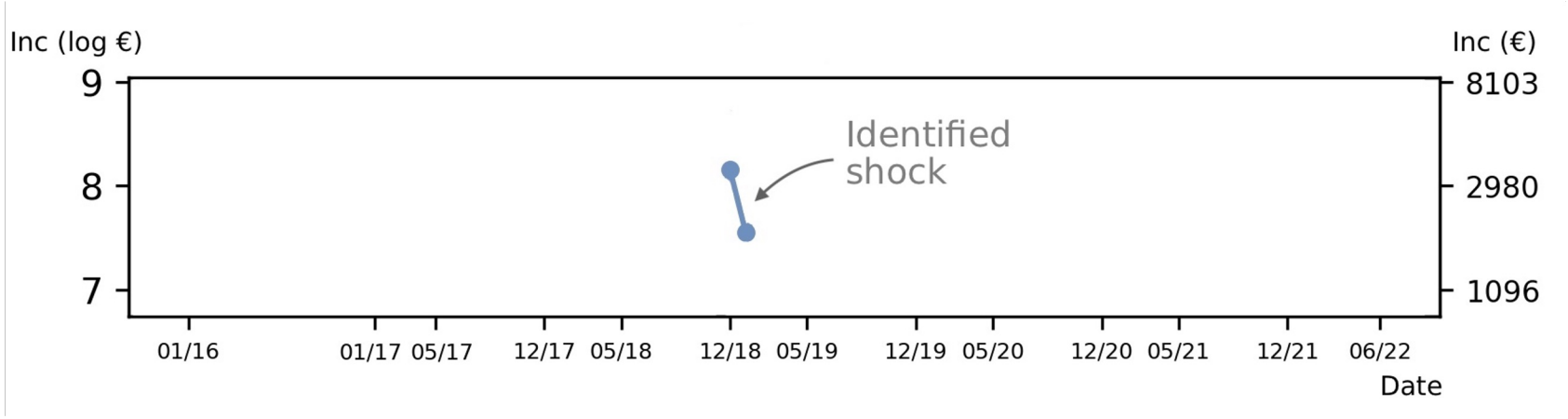

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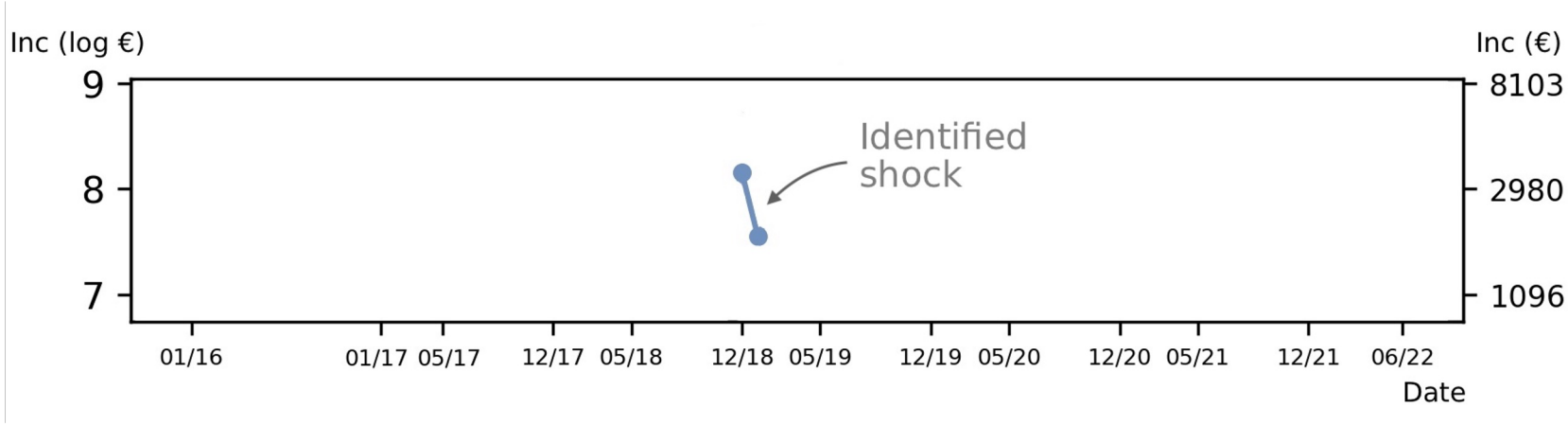

–Broad range of MPC results spanning orders of magnitude, even for similar types of specific shocks, should make us cautious. (Havranek and Sokolova, 2020)

–They all highlight that MPC is very heterogeneous. (Jappelli and Pistaferri, 2020)

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Motivation

- MPC is heterogeneous with respect to, amongst others:
  - Liquid wealth (Ganong et al. 2020; Jappelli and Pistaferri, 2020; Kaplan et al. 2014)
  - Perception of the (un)expectedness of the shock (Jappelli and Pistaferri, 2010)
  - Myopia (Kőszegi and Rabin, 2009; Ganong and Noel, 2019)
  - Age (Jappelli and Pistaferri, 2020)
  - Sign and magnitude of the shock (Christelis et al. 2019)

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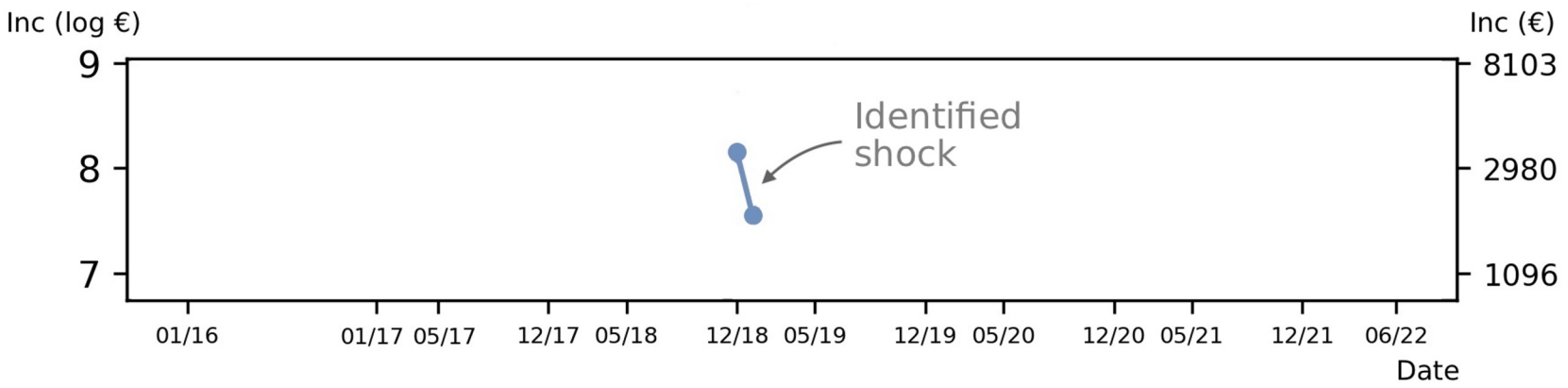

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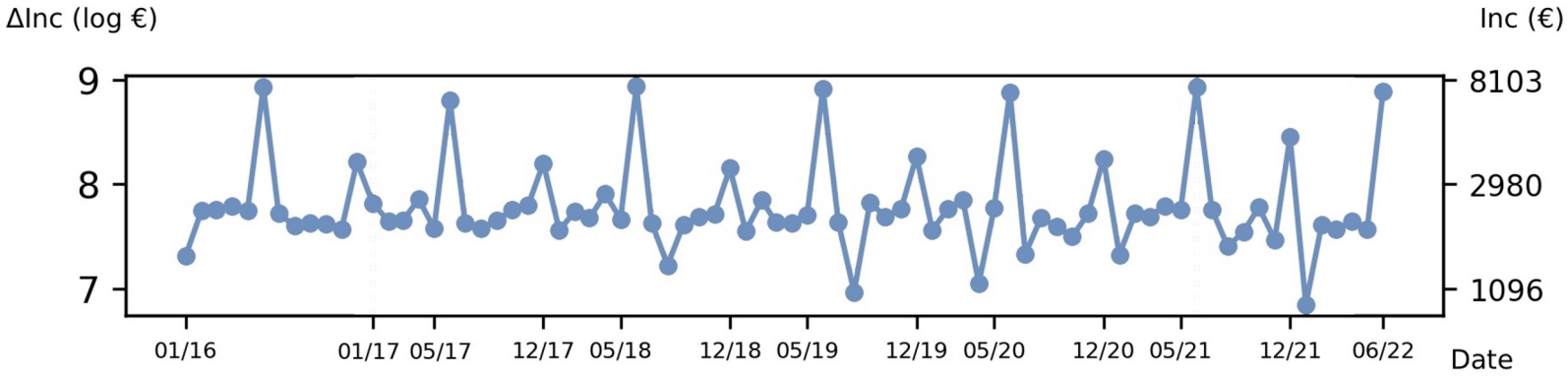

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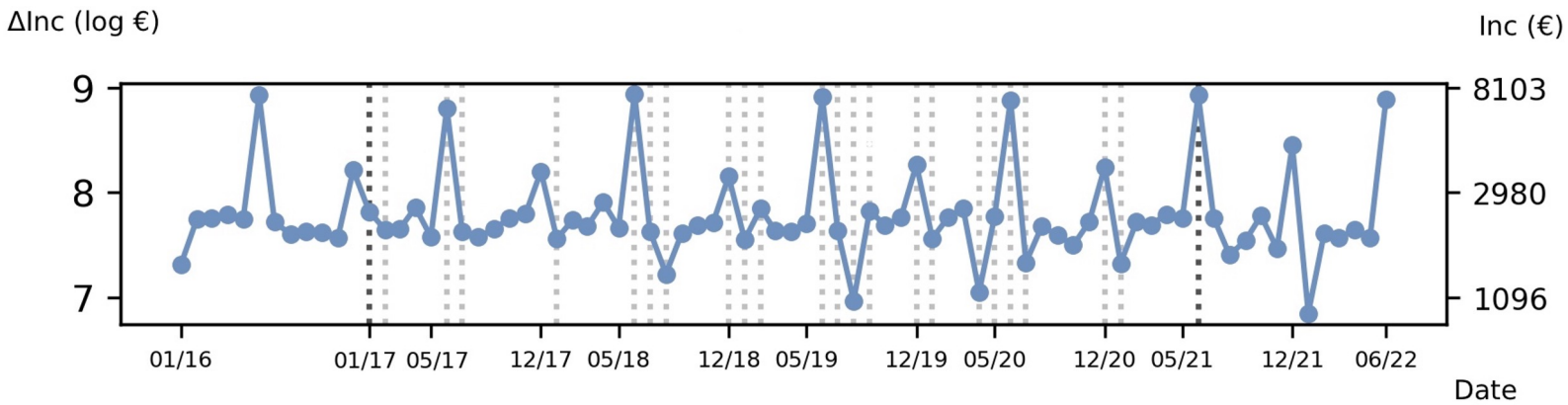
–Uses labelled bank transaction data to study all monthly labour income and consumption changes of workers and employees.

–Employs a data driven approach to classify a wide range of possible income shocks (indexation, flexible working schedules, policy interventions, …).



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–Uses labelled bank transaction data to study all monthly labour income and consumption changes of workers and employees.

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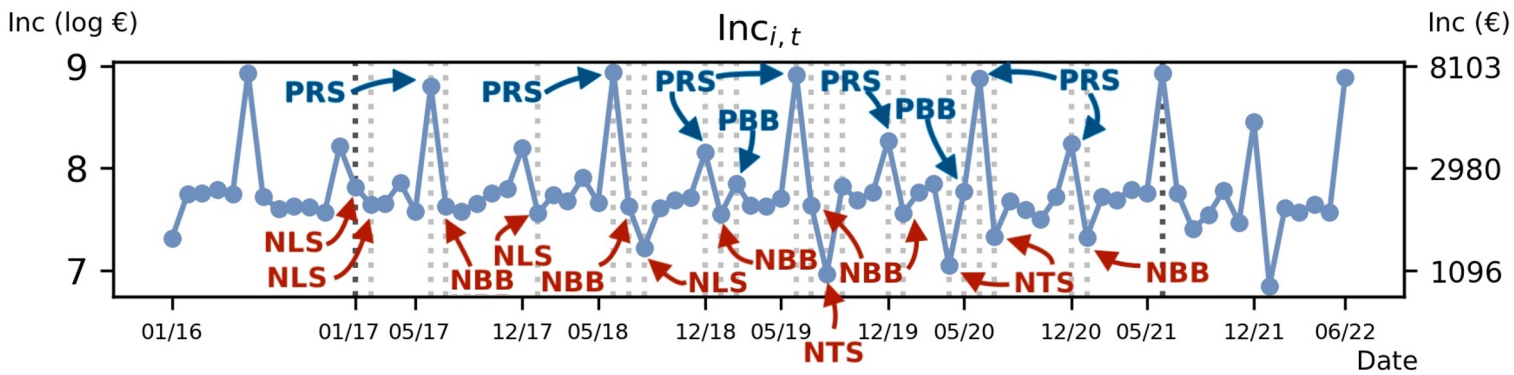

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–Constructs a labour income shock classification and identification framework.

–Finds a much stronger reaction to positive recurrent shocks and level shifts than to transient shocks. Negative transient and recurrent shocks are smoothed. Strongest response in semi-durable and durable consumption for all shocks.

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Data

- We leverage an anonymized bank dataset from BNP Paribas Fortis (BNPPF)
  - BNPPF is active in all regions of Belgium and has ~30% of the market.
  - Individual transactions, monthly balances and non-identifying demographics.
  - Every transaction is enriched with a label indicating economic use e.g. labour income, groceries and apparel.
  - Consumption is subdivided according to its durability type via UN's COICOP
    - Non-durable (e.g. food, utilities)
    - Semi-durables (e.g. apparel, toaster)
    - Durables (e.g. fridge, car)
    - Services (e.g. musea, public transport)

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Sample selection

- Select active clients, i.e. with labour income and regular consumption.
- Keep clients with both minimum income (€600) and minimum non-durable consumption (€150) in *every month* (Storms et al, 2009).
  - Removes inactive clients, i.e., another main bank.
  - Active accounts can include shared accounts of families.
- Final samples has 45 578 individuals observed monthly from 01/2016 to 06/2022.

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Income process

–Changes in log labour income (ΔInc) are decomposed in a stable (ΔS) and transient (Δv) component similar to Blundell et al. (2008) and Jappelli and Pistaferri (2010).

$$\Delta \mathrm{Inc}_{i,t}$$

$$\Delta S_{i,t} \qquad \Delta \nu_{i,t}$$

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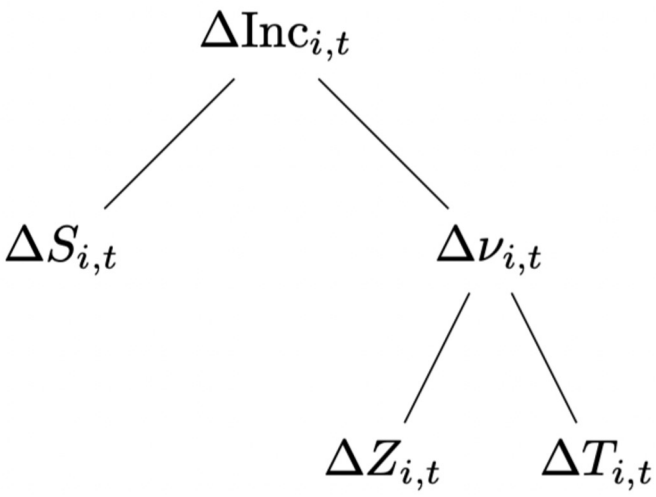

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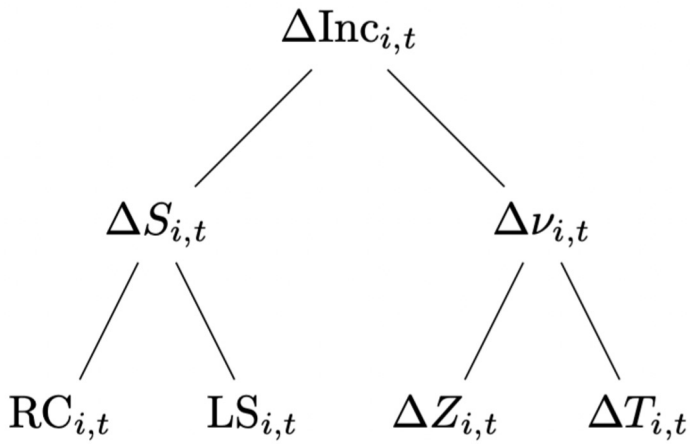
–Recurrent income changes (RC) are disentangled from level shifts (LS) in the stable component.



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–Following Ganong et al (2020), transient component is further subdivided in a typical (ΔZ) and atypical (ΔT) part.

–Recurrent income changes (RC) are disentangled from level shifts (LS) in the stable component.

$$\Delta \mathrm{Inc}_{i,t} = RC_{i,t} + LS_{i,t} + \Delta Z_{,it} + \Delta T_{i,t}$$

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Shock classification

–Previous work has focused on large, identifiable and atypical income changes.

–Assumption: The distribution of *typical* income changes has a negligible overlap with the distribution of *atypical* income changes.

–This allows us to differentiate between typical and atypical income changes:

$$m_{i,t} = \mathrm{Inc}_{i,t} - \mathrm{Inc}_{i,t-1}$$

$$\Delta Z_{i,t} = m_{i,t} \quad \text{if} \quad |m_{i,t}| < \kappa_{i,t}^{\mathrm{MoM}} = c^{\mathrm{MoM}} \sigma_{i,t}$$

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Typical and atypical shocks

–Given this threshold, we can we subdivide income changes $m_{i,t}$ in typical changes (ΔZ) and atypical changes (ΔT)

$\lvert m_{i,t} \rvert \leq \kappa_{i,t}^{\text{MoM}}$	$m_{i,t} > \kappa_{i,t}^{\text{MoM}}$	$m_{i,t} < -\kappa_{i,t}^{\text{MoM}}$
No Income Shock (*NIS*)	Positive Atypical Change	Negative atypical change

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Recurrency and permanency

- Further subdividing atypical changes requires an additional reference point.
  - People's act as if their financial horizon is 1 year. Benartzi and Thaler (1995)
  - Most employment related events have a yearly frequency.
- An atypical change in income is a
  - *level shock** if it has not reverted next year and has not reverted next month
  - *recurrent shock* if it has not reverted next year and has reverted next month
  - *transient shock* if it has reverted next year

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  - *transient shock* if it has reverted next year

*If not preceded by a permanent or recurrent shocks of the opposite sign.

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Classification of income changes

–Full classification scheme (for a positive income change)

		Is *next year*'s income substantially lower than the income of this month?	
		Yes $y_{i,t+12} < \kappa^{PT}_{i,t+12}$	No $y_{i,t+12} \geq \kappa^{PT}_{i,t+12}$
Is *next month*'s income substantially lower than the income of this month?	Yes $m_{i,t+1} < -\kappa^{MoM}_{i,t}$	Positive transient shock (***PTS***)	Positive recurrent shock (***PRS***)
	No $m_{i,t+1} \geq -\kappa^{MoM}_{i,t}$	Positive transient shock (***PTS***)	Positive level shock (***PLS***) (if not preceded by negative recurrent or transient) / Positive bounce back (***PBB***) (if preceded by negative recurrent or transient)

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Shock identification

–Assuming that log labour income has locally constant mean c with variance ζ^2 ,

$$\mathrm{Inc}_{i,t-s} \sim N(c_i, \zeta_i^2) \quad \text{for} \quad s = 0, \ldots, L-1$$

we want to estimate the variance σ of the month on month (MoM) changes.

$$m_{i,t} = \mathrm{Inc}_{i,t} - \mathrm{Inc}_{i,t-1} \sim N(0, \sigma_i^2)$$

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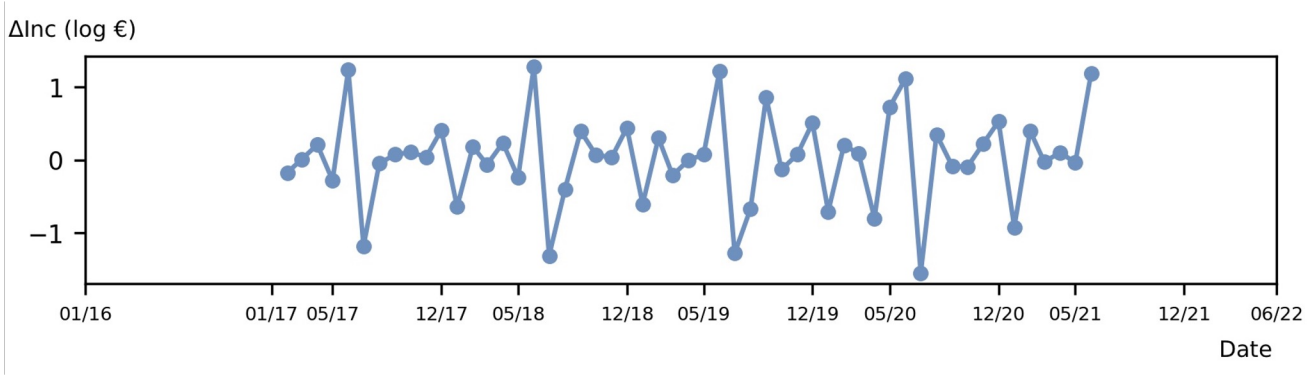
Shock identification - defining a threshold (I)

- Every year, on average, a Belgian labour income time series contains at least
  - 1 level shift (indexation, promotion),
  - 2 positive recurrent shocks (holiday pay, end-of-year bonus).



- We address these issues with
  - demedianing the time series,
  - using an outlier robust MAD estimator with moving window of 12 months.

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Shock identification - defining a threshold (II)

–In formulas

$$\overline{\text{Inc}}_{i,t} = \text{median}(\text{Inc}_{i,t-1}, \ldots, \text{Inc}_{i,t-6})$$

$$\hat{\sigma}_{i,t} = \max\left\{\sqrt{2}\text{mad}(\text{Inc}_{i,t-12} - \overline{\text{Inc}}_{i,t-12}, \ldots, \text{Inc}_{i,t-1} - \overline{\text{Inc}}_{i,t-1}); \varepsilon\right\}$$

–We safeguard for individuals with low income volatility by setting ε to 0.5%.

–The threshold for identifying an atypical shock is then given by:

$$\kappa_{i,t}^{\text{MoM}} = c^{\text{MoM}}\hat{\sigma}_{it,}.$$

–Where c^{MoM}, inspired by one-sided tests, is set to 1,645.

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Shock identification - defining a threshold (III)

–The year on year income change determines transiency.

–Due to longer horizon, year on year changes are sensitive to income shifts.

–Controls for level shifts by subtracting the running median of labour income

$$\kappa^{\mathrm{NT}}_{i,t+12} = c^{\mathrm{YoY}}\hat{\sigma}_{i,t} + \left(\overline{\mathrm{Inc}}_{i,t+12} - \overline{\mathrm{Inc}}_{i,t}\right)$$

$$\kappa^{\mathrm{PT}}_{i,t+12} = -c^{\mathrm{YoY}}\hat{\sigma}_{i,t} + \left(\overline{\mathrm{Inc}}_{i,t+12} - \overline{\mathrm{Inc}}_{i,t}\right)$$

–Where c^{YoY}, similar to c^{MoM}, is set to 1,645.

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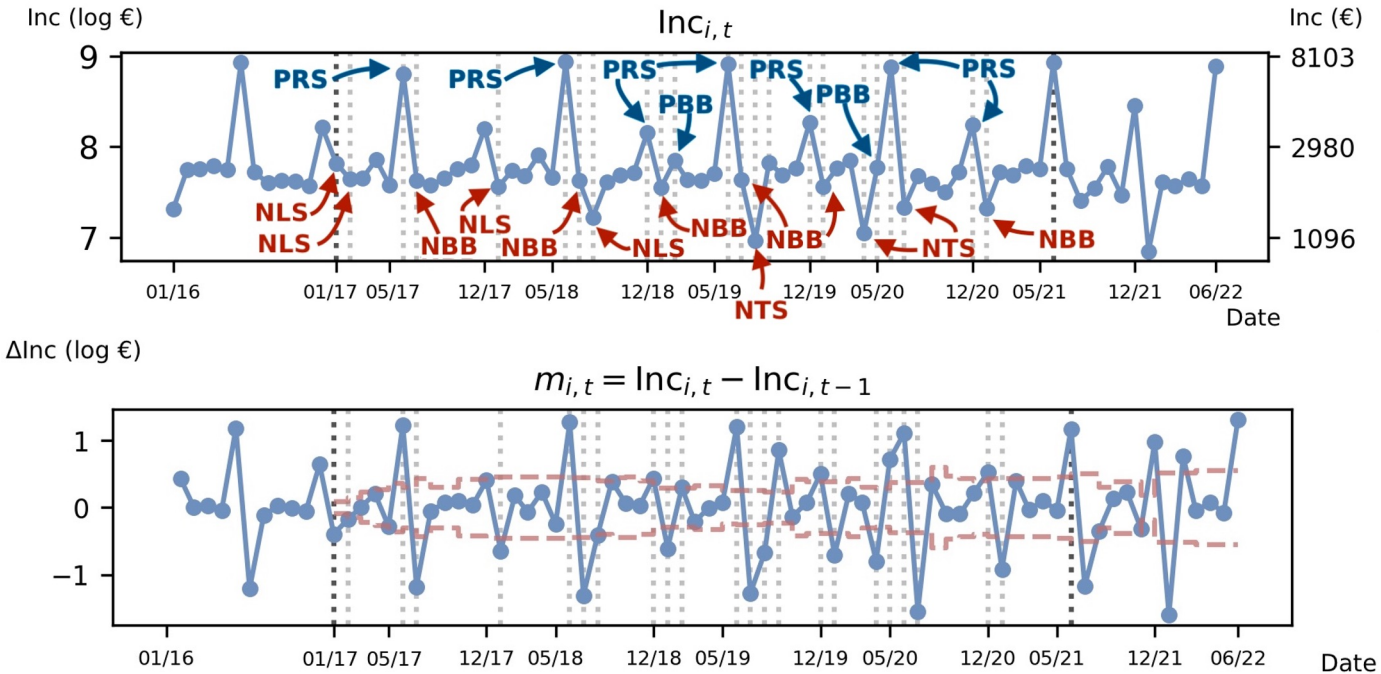
Shock identification in practice



Shock classification applied the labour income process of a random client. The top row is the labour income time series with annotated shocks and below is the month on month changes with shock threshold boundary in red and the year on year changes with shock threshold boundary in red. In each row the black dotted grey lines indicate the start and of the period for which we can identify shocks and the vertical dotted grey lines indicate identified shocks.

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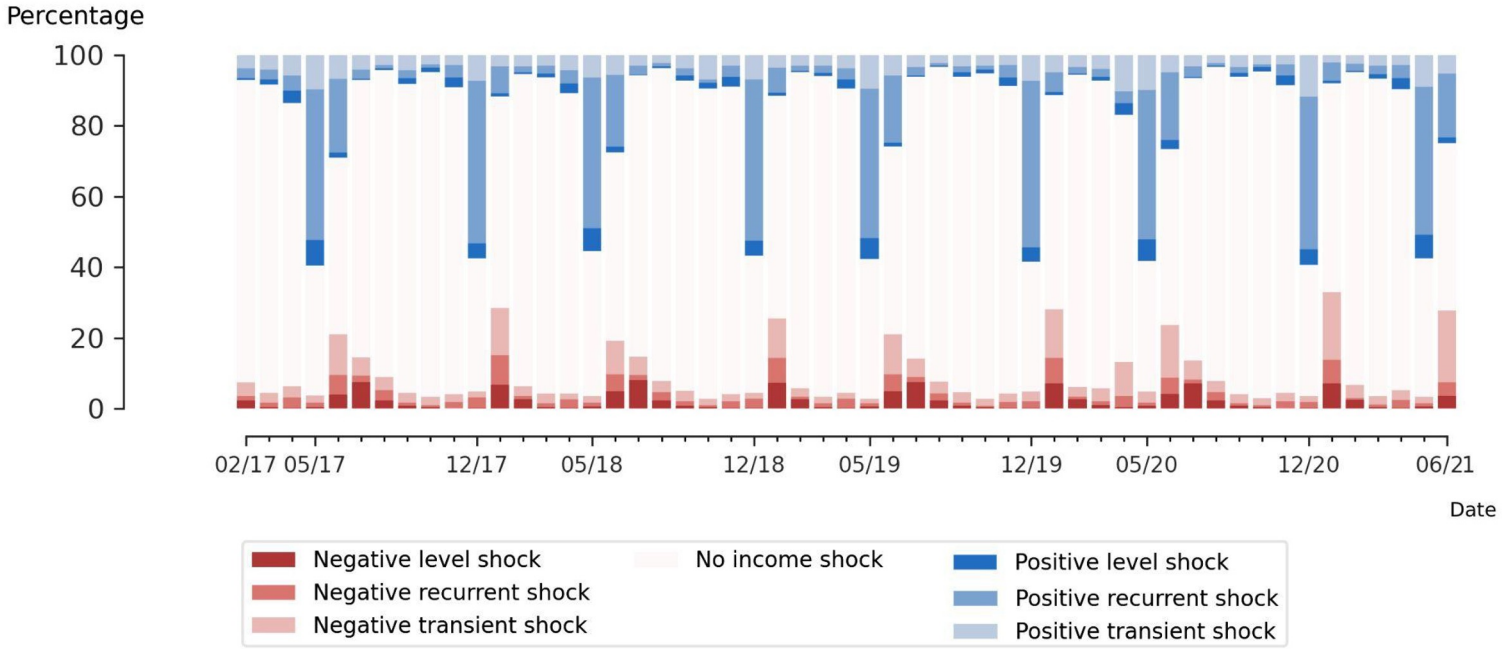
Shock distribution validation (I)

–Most common shocks in Belgian are holiday pay in May (and June) and an end-of-year bonus in December.



Frequency of shocks per month. Red shocks are negative, blue shocks are positive. Darker colours indicate more a higher frequency of recurrency. The shock classification identifies the most common shocks in Belgium.

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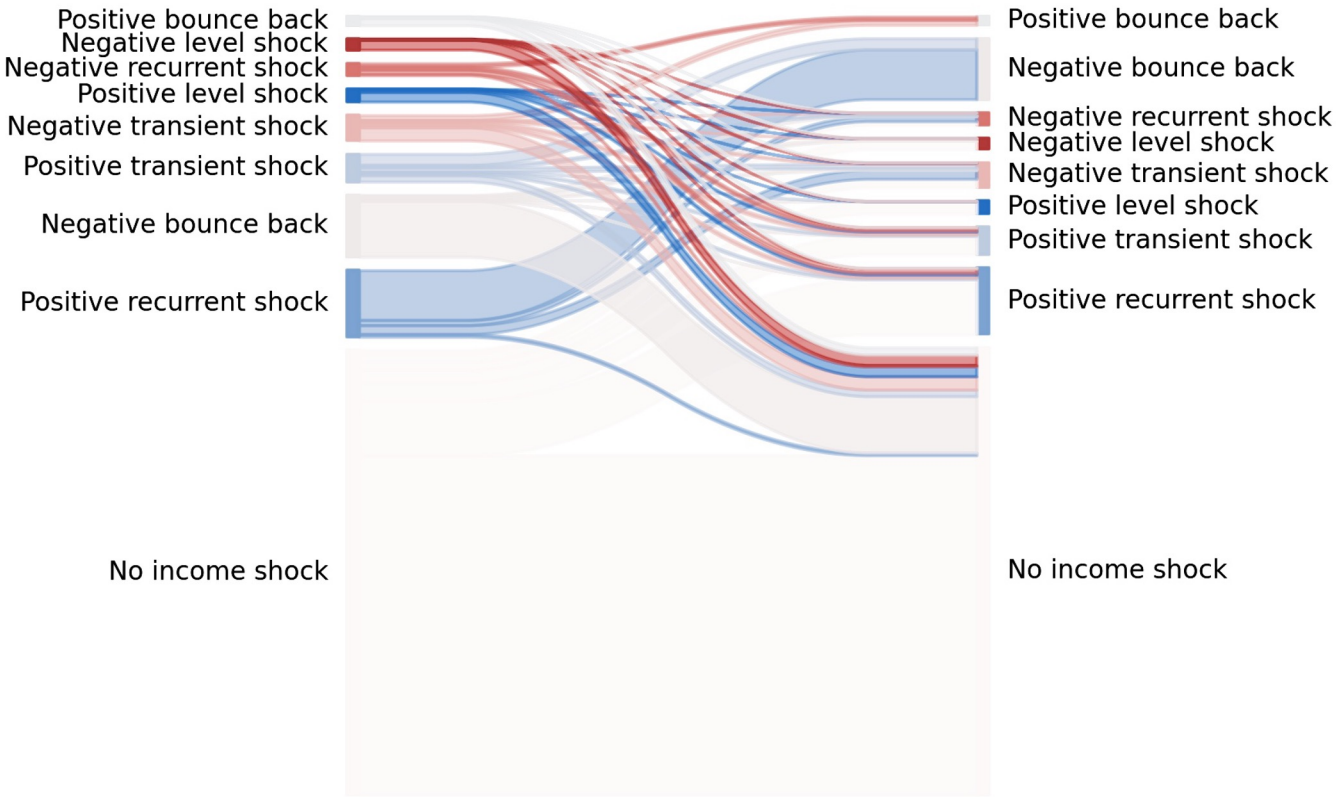
Shock distribution validation (II)

–Most shocks are followed by a typical income change, i.e. No Income Shock (NIS).



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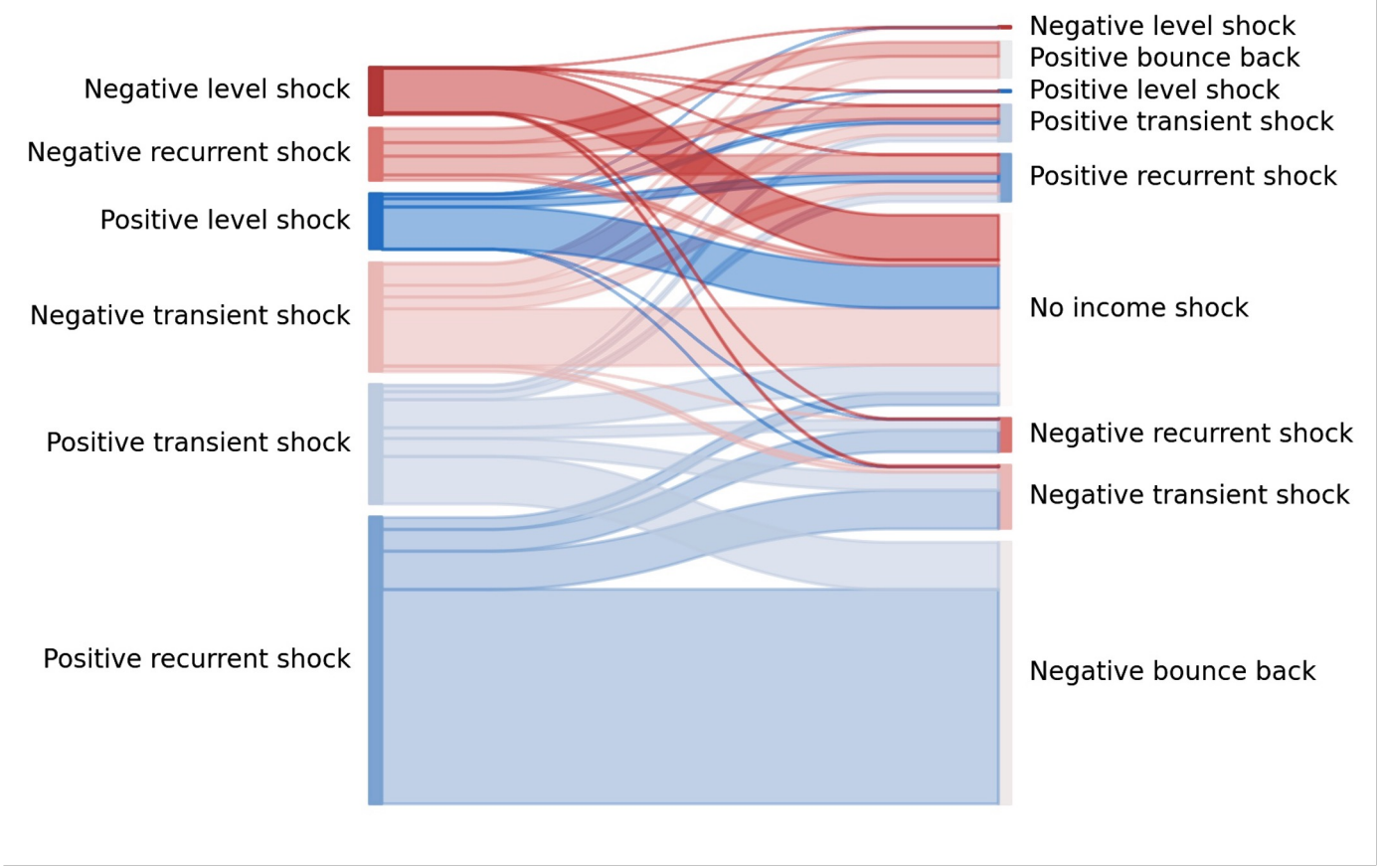

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Regression specification (I)

–Baseline mode

$$\Delta C_{i,t} = \beta \Delta \mathrm{Inc}_{i,t} + \beta' m_{i,t}^{\mathrm{repl}} + \lambda X_{i,t} + \eta_i + \varepsilon_{i,t}$$

–Client fixed effects

–We control for

–replacement income

–demographics (age, gender, civil state and the interaction of gender and civil state).

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Regression specification (II)

–Extended model

$$\Delta C_{i,t} = \Delta \mathrm{Inc}_{i,t} \times \left(\beta + \sum_{\mathrm{shock}} \delta^{\mathrm{shock}} S_{i,t}^{shock}\right) + \beta' m_{i,t}^{\mathrm{repl}} + \lambda X_{i,t} + \eta_i + \varepsilon_{i,t}$$

–Interact income changes with shock dummies.

–Each income change is fully identified as a single type of shock.

–Elasticity for a given *shock* is sum of β and δ^{shock}.

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Regression specification (III)

–Extended model with wealth controls

$$\Delta C_{i,t} = \Delta \mathrm{Inc}_{i,t} \times \left(\beta + \sum_{\mathrm{shock}} \delta^{\mathrm{shock}} S_{i,t}^{shock}\right)$$
$$+ \delta^{\mathrm{W}} + \delta^{\mathrm{W}} \Delta \mathrm{Inc}_{i,t} \times \left(\beta + \sum_{\mathrm{shock}} \delta^{\mathrm{shock}} S_{i,t}^{shock}\right)$$
$$+ \beta' m_{i,t}^{\mathrm{repl}} + \lambda X_{i,t} + \eta_i + \varepsilon_{i,t}$$

–We add a low wealth dummy for people in the lowest quartile of liquid wealth (less than € 4 436).

–Liquid wealth is the sum of current, (pension) savings and investment accounts

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Baseline regression results (I)

- Comparison with Ganong et al. 2020 who uses bank data from JPMorgan Chase between 10/2012 and 04/2018.
- Effect of replacement income is order of magnitude smaller.
- Effects of control variables are always small.

	Ours	Ganong et al. 2020
Dep. Variable	$\Delta C_{i,t}^{\mathrm{ND}}$	$\Delta C_{i,t}^{\mathrm{ND}}$
Estimator	PanelOLS	PanelOLS
Observations	2 158 508	19 728 989
Cov. Est.	Clustered	
R^2	0.0062	0.009
F	2646.4	
P-value (F-stat)	0.0000	
$\Delta \mathrm{Inc}_{i,t}$	0.0908***	0.1200***
	(0.0011)	(0.003)
gender × civil state	−0.0010	
	(0.0038)	
civil state	−0.0021**	
	(0.0020)	
age	0.0009***	
	(0.0001)	
$m_{i,t}^{\mathrm{repl}}$	0.0034***	
	(0.0002)	
Effects	Entity	

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Baseline regression results (II)

–Literature has often focused on non-durable consumption.

–Much stronger consumption response for semi-durable and durable consumption.

–Total consumption also includes services and mixed consumption.

	(1)	(2)	(3)	(4)
Dep. Variable	$\Delta C_{i,t}^{ND}$	$\Delta C_{i,t}^{SD}$	$\Delta C_{i,t}^{D}$	$\Delta C_{i,t}^{total}$
Estimator	PanelOLS	PanelOLS	PanelOLS	PanelOLS
Observations	2 158 508	2 158 508	2 158 508	2 158 508
Cov. Est.	Clustered	Clustered	Clustered	Clustered
R^2	0.0062	0.0038	0.0010	0.0041
F	2646.4	1599.0	417.10	1741.1
P-value (F-stat)	0.0000	0.0000	0.0000	0.0000
$\Delta \text{Inc}_{i,t}$	0.0908***	0.4033***	0.2219***	0.0956***
	(0.0011)	(0.0056)	(0.0061)	(0.0014)
Controls	Yes	Yes	Yes	Yes
Effects	Entity	Entity	Entity	Entity

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Extended regression results (I)

- Asymmetry, individuals react stronger to positive shocks than to negative shocks.
- Stronger reaction to positive recurrent and level shocks than to transient shocks.
- Negative transient and recurrent shocks are smoothed.
- People reduce non durable consumption when confronted with negative level shocks.

	(1)
Dep. Variable	$\Delta C_{i,t}^{ND}$
Estimator	PanelOLS
Observations	2 158 508
Cov. Est.	Clustered
R^2	0.0073
F	1411.6
P-value (F-stat)	0.0000
$\Delta \text{Inc}_{i,t}$	0.0937***
	(0.0019)
Positive level shock$\times\Delta\text{Inc}_{i,t}$	0.0101**
	(0.0041)
Positive recurrent shock$\times\Delta\text{Inc}_{i,t}$	0.0485***
	(0.0025)
Positive transient shock$\times\Delta\text{Inc}_{i,t}$	−0.0291***
	(0.0030)
Negative level shock$\times\Delta\text{Inc}_{i,t}$	0.0416***
	(0.0046)
Negative recurrent shock$\times\Delta\text{Inc}_{i,t}$	−0.0511***
	(0.0040)
Negative transient shock$\times\Delta\text{Inc}_{i,t}$	−0.0564***
	(0.0028)
Controls	Yes
Effects	Entity

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Extended regression results (II)

- Much stronger consumption response for semi-durable and durable consumption *especially for positive recurrent shocks and level shocks*.

- Individuals smooth negative transient and recurrent shocks *for all durability types.*

- Semi-durable consumption is almost completely smoothed.

	(1)	(2)	(3)	(4)
Dep. Variable	$\Delta C^{ND}_{i,t}$	$\Delta C^{SD}_{i,t}$	$\Delta C^{D}_{i,t}$	$\Delta C^{total}_{i,t}$
Estimator	PanelOLS	PanelOLS	PanelOLS	PanelOLS
Observations	2 158 508	2 158 508	2 158 508	2 158 508
Cov. Est.	Clustered	Clustered	Clustered	Clustered
R^2	0.0073	0.0053	0.0012	0.0049
F	1411.6	1019.5	239.29	939.24
P-value (F-stat)	0.0000	0.0000	0.0000	0.0000
$\Delta \text{Inc}_{i,t}$	0.0937***	0.3703***	0.2061***	0.0949***
	(0.0019)	(0.0108)	(0.0120)	(0.0025)
Positive level shock$\times\Delta\text{Inc}_{i,t}$	0.0101**	0.2630***	0.1306***	0.0215***
	(0.0041)	(0.0240)	(0.0269)	(0.0056)
Positive recurrent shock$\times\Delta\text{Inc}_{i,t}$	0.0485***	0.4194***	0.1913***	0.0632***
	(0.0025)	(0.0145)	(0.0157)	(0.0033)
Positive transient shock$\times\Delta\text{Inc}_{i,t}$	−0.0291***	0.0311*	−0.0066	−0.0167***
	(0.0030)	(0.0169)	(0.0191)	(0.0041)
Negative level shock$\times\Delta\text{Inc}_{i,t}$	0.0416***	−0.1832***	−0.0555*	−0.0004
	(0.0046)	(0.0246)	(0.0286)	(0.0059)
Negative recurrent shock$\times\Delta\text{Inc}_{i,t}$	−0.0511***	−0.3176***	−0.1122***	−0.0361***
	(0.0040)	(0.0215)	(0.0245)	(0.0053)
Negative transient shock$\times\Delta\text{Inc}_{i,t}$	−0.0564***	−0.3355***	−0.1556***	−0.0651***
	(0.0028)	(0.0152)	(0.0169)	(0.0036)
Controls	Yes	Yes	Yes	Yes
Effects	Entity	Entity	Entity	Entity

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Extended regression results (III)

- Low wealth individuals react more to all shocks for all durability types.

- Very strong consumption response to positive recurrent shocks of 0.97 for semi-durable and 0.5 for durable consumption.

	(1)	(2)	(3)	(4)
Dep. Variable	$\Delta C_{i,t}^{ND}$	$\Delta C_{i,t}^{SD}$	$\Delta C_{i,t}^{D}$	$\Delta C_{i,t}^{total}$
Estimator	PanelOLS	PanelOLS	PanelOLS	PanelOLS
Observations	2 158 508	2 158 508	2 158 508	2 158 508
Cov. Est.	Clustered	Clustered	Clustered	Clustered
R^2	0.0076	0.0054	0.0013	0.0050
F	849.40	608.48	142.35	559.99
P-value (F-stat)	0.0000	0.0000	0.0000	0.0000
$\Delta \text{Inc}_{i,t}$	0.0819***	0.3241***	0.1869***	0.0852***
	(0.0022)	(0.0125)	(0.0142)	(0.0031)
$\Delta \text{Inc}_{i,t} \times$Positive level shock	0.0118**	0.2307***	0.1299***	0.0211***
	(0.0047)	(0.0281)	(0.0318)	(0.0067)
$\Delta \text{Inc}_{i,t} \times$Positive recurrent shock	0.0444***	0.4024***	0.1757***	0.0589***
	(0.0029)	(0.0167)	(0.0185)	(0.0040)
$\Delta \text{Inc}_{i,t} \times$Positive transient shock	−0.0271***	0.0365*	−0.0135	−0.0148***
	(0.0034)	(0.0190)	(0.0220)	(0.0048)
$\Delta \text{Inc}_{i,t} \times$Negative level shock	0.0425***	−0.1868***	−0.0722**	−0.0021
	(0.0053)	(0.0283)	(0.0334)	(0.0071)
$\Delta \text{Inc}_{i,t} \times$Negative recurrent shock	−0.0427***	−0.2976***	−0.0965***	−0.0372***
	(0.0046)	(0.0247)	(0.0284)	(0.0064)
$\Delta \text{Inc}_{i,t} \times$Negative transient shock	−0.0495***	−0.3151***	−0.1456***	−0.0621***
	(0.0032)	(0.0176)	(0.0202)	(0.0043)
$S_{i,t}^{\text{low wealth}}$	−0.0066***	−0.0266***	−0.0145**	−0.0046***
	(0.0010)	(0.0052)	(0.0057)	(0.0012)
$\Delta \text{Inc}_{i,t} \times S_{i,t}^{\text{low wealth}}$	0.0459***	0.1807***	0.0748***	0.0380***
	(0.0044)	(0.0245)	(0.0259)	(0.0052)
$\Delta \text{Inc}_{i,t} \times S_{i,t}^{\text{low wealth}} \times$Positive level shock	−0.0065	0.1277**	0.0030	0.0017
	(0.0094)	(0.0537)	(0.0590)	(0.0116)
$\Delta \text{Inc}_{i,t} \times S_{i,t}^{\text{low wealth}} \times$Positive recurrent shock	0.0178***	0.0735**	0.0648*	0.0185***
	(0.0058)	(0.0329)	(0.0341)	(0.0069)
$\Delta \text{Inc}_{i,t} \times S_{i,t}^{\text{low wealth}} \times$Positive transient shock	0.0030	0.0257	0.0570	0.0021
	(0.0072)	(0.0412)	(0.0435)	(0.0088)
$\Delta \text{Inc}_{i,t} \times S_{i,t}^{\text{low wealth}} \times$Negative level shock	−0.0016	0.0234	0.0715	0.0087
	(0.0103)	(0.0564)	(0.0638)	(0.0125)
$\Delta \text{Inc}_{i,t} \times S_{i,t}^{\text{low wealth}} \times$Negative recurrent shock	−0.0313***	−0.0684	−0.0590	0.0079
	(0.0092)	(0.0494)	(0.0554)	(0.0108)
$\Delta \text{Inc}_{i,t} \times S_{i,t}^{\text{low wealth}} \times$Negative transient shock	−0.0266***	−0.0786**	−0.0389	−0.0113
	(0.0062)	(0.0342)	(0.0362)	(0.0075)
Controls	Yes	Yes	Yes	Yes
Effects	Entity	Entity	Entity	Entity

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Conclusion

- We constructed a framework that can identify and classify income changes.
- MPC is heterogeneous with respect to both the shock and consumption durability type.
- People have a strong consumption reaction towards positive recurrent shocks and level shocks and strongly mooth negative transient and recurrent shocks.
- Consumption response for durable consumption and semi-durable consumption is respectively 2 and 4 times as high as non-durable consumption.

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References

–Benartzi, S. and R. H. Thaler (1995). Myopic loss aversion and the equity premium puzzle. The quarterly journal of Economics 110(1), 73–92.

–Bernardini, M., S. D. Schryder, and G. Peersman (2020, may). Heterogeneous government spending multipliers in the era surrounding the great recession. The Review of Economics and Statistics 102(2), 304–322.

–Blundell, R., L. Pistaferri, and I. Preston (2008, nov). Consumption inequality and partial insurance. American Economic Review 98(5), 1887–1921

–Christelis, D., D. Georgarakos, T. Jappelli, L. Pistaferri, and M. van Rooij (2019, 05). Asymmetric Consumption Effects of Transitory Income Shocks*. The Economic Journal 129(622), 2322–2341

–Ganong, P. and P. Noel (2019, July). Consumer spending during unemployment: Positive and normative implications. American Economic Review 109(7), 2383–2424.

–Ganong, P., D. Jones, P. Noel, F. Greig, D. Farrell, and C. Wheat (2020, jul). Wealth, race, and consumption smoothing of typical income shocks. Technical report.

–Havranek, T. and A. Sokolova (2020, January). Do consumers really follow a rule of thumb? Three thousand estimates from 144 studies say “probably not”. Review of Economic Dynamics 35, 97–122.

–Jappelli, T. and L. Pistaferri (2020, nov). Reported MPC and unobserved heterogeneity. American Economic Journal: Economic Policy 12(4), 275–297.

–Kaplan, G., G. L. Violante, and J. Weidner (2014, April). The wealthy hand-to-mouth. Working Paper 20073, National Bureau of Economic Research.

–Kőszegi, B. and M. Rabin (2009, June). Reference-dependent consumption plans. American Economic Review 99(3), 909–36.

–Narayan, A., A. Cojocaru, S. Agrawal, T. Bundervoet, M. Davalos, N. Garcia, C. Lakner, D. G. Mahler, V. M. Talledo, A. Ten, and N. Yonzan (2022, jan). COVID-19 and Economic Inequality: Short-Term Impacts with Long-Term Consequences. The World Bank.

–Storms, B., K. r. Van den Bosch, and .-v. Cantillon, Bea (2009). Wat heeft een gezin minimaal nodig? : een budgetstandaard voor Vlaanderen. Leuven : Acco.

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Appendix
Shock summary statistics

	Frequency	$\overline{\text{Inc}}$	$\overline{\Delta\text{Inc}}$	$\overline{\Delta C}^{\text{ND}}$	$\overline{\Delta C}^{\text{D}}$	$\overline{\Delta C}^{\text{SD}}$	$\overline{\Delta C}^{\text{total}}$
Panel A: in euro							
NIS	66.07	3924.49	8.86	4.53	−3.56	−5.40	−17.45
PLS	1.94	5666.94	2070.21	68.04	25.11	23.14	284.61
PRS	10.07	6172.81	2669.04	107.05	16.67	31.68	350.85
PTS	4.10	6781.44	3157.23	59.20	16.15	16.66	291.25
NLS	1.66	3582.20	−2287.92	−90.40	−14.10	−21.11	−184.46
NRS	1.81	3150.10	−2473.65	−26.95	−3.18	−10.86	−158.68
NTS	3.76	2889.47	−2618.53	−34.10	2.81	−6.51	−168.45
Panel B: in log							
NIS	66.07	8.15	0.00	0.00	−0.02	−0.09	0.00
PLS	1.94	8.53	0.46	0.07	0.17	0.27	0.06
PRS	10.07	8.61	0.56	0.11	0.27	0.47	0.11
PTS	4.10	8.58	0.52	0.05	0.13	0.20	0.05
NLS	1.66	8.07	−0.49	−0.09	−0.09	−0.20	−0.06
NRS	1.81	7.90	−0.57	−0.02	−0.07	−0.10	−0.04
NTS	3.76	7.78	−0.64	−0.03	−0.05	−0.09	−0.03

Mean income, mean change in income and mean change in consumption per durability type for every type of shock in euro (top) and log (bottom).

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Appendix
Sample summary statistics

–Our sample contains mostly married (civil state = 1) men (gender = 0).

–Shared accounts have a primary holder. In married couple this is most often the man.

	mean	median	std
Gender	0.26	0.00	0.44
Civil state	0.66	1.00	0.47
$\text{Inc}_{i,t}$	4219.24	3659.18	3779.22
$W_{i,t}$	34 571.06	15 801.26	81 844.72
$\Delta\text{Inc}_{i,t}$	23.19	0.00	4435.44
C^{ND}	1016.66	920.49	1825.03
C^{SD}	221.34	140.00	345.86
C^{D}	384.49	70.00	2263.98
C^{total}	3378.37	2443.12	11 274.01

Mean, median and standard deviation of the dependent and independent variables for our entire sample.

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Appendix
Representativeness labour income definition

Decile	Percentile	Statbel	Our results
1		543.00	567.61
2		1227.67	1287.33
3		1470.00	1667.23
4		1771.08	1895.45
5		2122.92	2166.65
6		2563.58	2532.32
7		3126.00	3076.98
8		4008.75	3912.22
9		5651.75	5403.65
	91	5901.67	5664.68
	92	6180.00	5974.14
	93	6493.00	6311.64
	94	6866.42	6761.84
	95	7319.58	7315.00
	96	7893.50	8016.60
	97	8687.75	9059.51
	98	9945.17	10 688.72
	99	12 669.58	14 241.69

Comparison between the fiscal income distribution of StatBel with the total labour income distribution for all clients in the BNPPF dataset of 2019. Total labour income is the sum of regular labour income, unemployment benefits, other replacement incomes and pensions.

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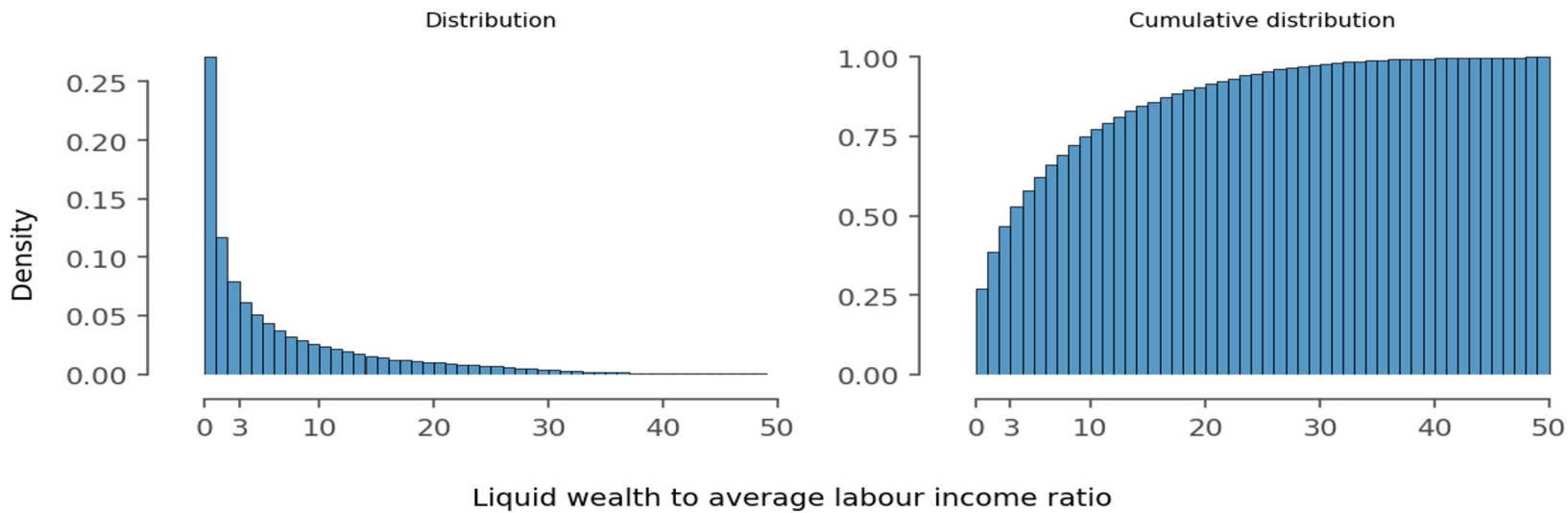
Appendix
Sensitive to modest income volatility - liquid wealth to labour income ratio ratio



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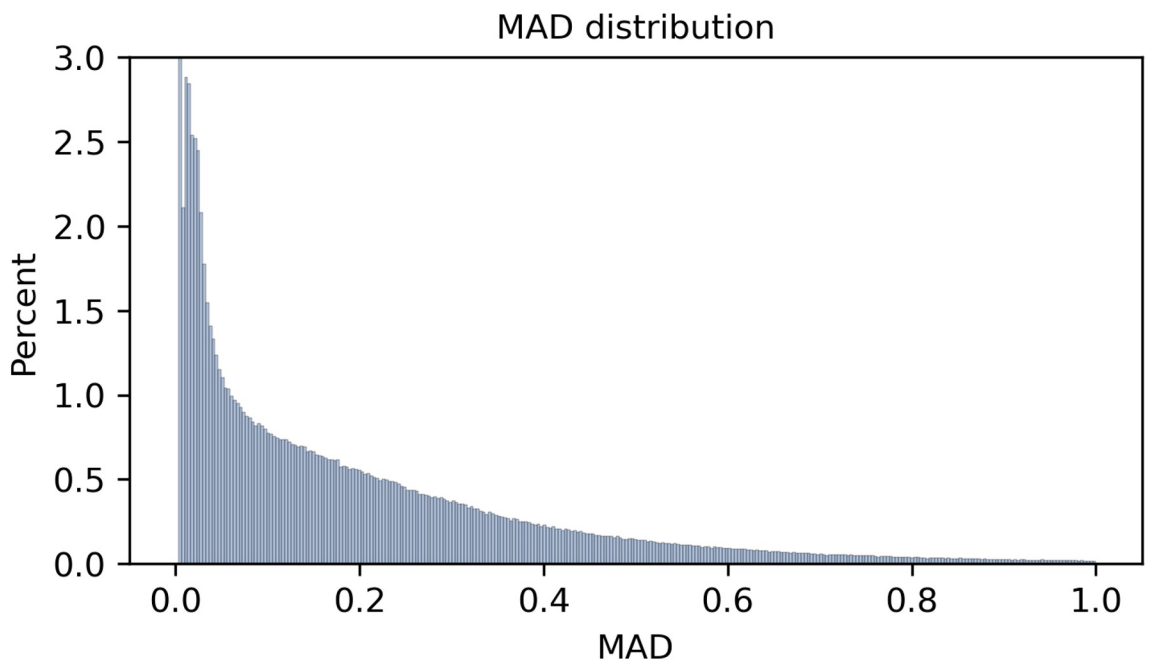
Appendix
MAD distribution of log labour income

$$\text{mad} = 1.4826 \cdot \text{med}\big(|x_i - \text{med}(x_i)|\big)$$



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