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Keeping up with the Novaks: determinants of households' current and planned debt in CESEE

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Motivation

- Indebtedness of the household sector in CESEE increased prior GFC to 40% of GDP, since then heterogeneous developments but still lower levels than in the Euro Area
- Adverse impact on GDP growth and increased likelihood of a financial crisis even at close to 30% of GDP (IMF,2017)
- Overall, no universal theoretical underpinning of the drivers of credit growth and credit levels
- Understanding the drivers of household indebtedness in CESEE key due to implications for macroeconomic and financial stability

Our contribution

- 'Keeping up with the Novaks' \rightarrow 'Keeping up with the Joneses' (Duesenberry, 1949)
- We focus on income and its regional distribution in 10 CESEE countries after the GFC (2009-2015) and its relevance for household debt
- Our study enters 'unchartered waters'
 - Regional income distribution measures first time endeavour for some of the countries in our sample
 - Whether and how income distribution correlates with current and planned indebtedness
 - Evidence on demand vs. supply drivers of household debt based on household survey data
- Complementary to recent OeNB research (Beckmann et al., 2015; Fessler et al, 2017; Comunale et al., 2018)

Income & household debt - theoretical background

Demand-side theories

- Relative income hypothesis (Duesenberry, 1949) & Expenditure cascades (Frank, 2014)
- 'Demonstration effect' & 'habit formation effect' when income deteriorates

Supply-side theories

- Households are rational and forward-looking, borrow only temporary to smoothen out consumption (Permanent income hypothesis, (Friedman, 1957))
- Credit accessibility, financial liberalization, liquidity play a central role
- Income inequality Signalling effect (Coibon et al., 2014)- when income inequality rises, income becomes an increasingly precise instrument about the type of a household

Household debt in CESEE: stylized facts



Development of household loans in CESEE since 2008



Source: IMF, NCB, NSO, authors' compilation.

Note: SEE compise Albania, Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, Serbia.

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Purpose of household loans in CESEE



Source: IMF, NCB, NSO, authors' compilation.

Note: SEE complise Albania, Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, Serbia. No data available for Gross National Disposable Income (GNDI) for SEE.

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Keeping up with the 'Novaks': Evidence from the OeNB Euro Survey

OeNB-Eurosurvey



- 6 EU countries (Bulgaria, Czech Republic, Croatia, Hungary, Poland, Romania)
- 4 non-EU countries (Albania, Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, Serbia)
- Samples consist of **1,000 randomly** selected respondents per country and represent the population over 14 years.
- Samples are representative with respect to age, gender and regional distribution.
- From 2007 to 2014, surveys were conducted twice a year, in April/May and in October/November. In 2015, the survey frequency was reduced to once a year (autumn).

Data - income & income inequality

- Regional income inequality and household's position in the distribution based on the following question from the survey
 - "What is the total monthly **income of the household after taxes**?". The respondents have been asked to put their income in 20 categories, which have been defined in a way to ensure that at most 10% of respondents are in each category.
 - Income is calculated in EUR PPP to guarantee comparability across countries and time
 - OECD weighting method to obtain equivalence income
 - Several corrections needed to calculate measures of income inequality **Income inequality measures**: regional Gini, regional top shares, household's relative income (i.e ratio between household's income to the mean income of respondents above respondent's decile of income distribution in the same region)

Income data corrections

- 1. Missing income data (21% of all observations, unit non-response) \rightarrow Imputation
- 2. Underrepresentation of "rich" \rightarrow Pareto-shaped distribution \rightarrow time/country-variant Pareto parameter, corrected top 20% of the income distribution
- 3. Bootstrapping



Comparison income inequality 2009 & 2015



Data - household loans

Loan questions

- 'Do you, either personally or together with your partner, currently have any loans that you are still paying off?'
- 'Do you plan to take out a loan within the next year and if so, in what currency?'

Dependent variable - Binary dependent variables of (i) current (existing) loans, (ii) planned loans of household *i*, period 2009-2015, no panel on the household level



Empirical strategy

- We apply multilevel models (e.g Rabe-Hesketh and Skrondal,2008), which account for the multi-layer nature of the data.
- Three levels: individual, regional, country levels \rightarrow random effects at all levels
- Why multilevel models?
 - systemic analysis of cross-level interaction
 - correction for biases of both parameters and standard errors
 - correction due to the violated independence assumption (i.e assumption of no autocorrelation \rightarrow no relation between error terms for different cases)
- The main contribution of random effects multilevel models is to account for the presumed similarity shared by different members of the same cluster

Empirical strategy

$$Pr(Loan = 1)_{ijkt} = \beta_0 + \beta_1 IncIneq_{jkt} + \beta_2 hhpos_{ijkt} + \beta_{12} IncIneq_{jkt} * hhpos_{ijkt} +$$
(1)

 $\beta_3 \Pi_{ijkt} + \beta_4 Sentiments_{ijkt} + \theta_k + \beta_5 Macrovars_{kt} + \gamma_{jk} + \epsilon_{ijk}$

- where i=individuals (1,...,97000), j= regions (1,...,77), k=countries (1,...,10), t= years (2009,...,2015)
- Estimations for have a loan, plan a loan
- Socio-demographics (Π_{ijk}): Age, gender, household size, household composition, education, employment status
- Sentiments_{ijk}: Current and future financial situation of the household
- *Macrovars_k*: GDP growth per capita, regional unemployment, financial development index

Share of respondents with loans and planned loans in CESEE, 2009-2015



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Distribution of loans acc income quartiles in CESEE



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Correlation between loans and income distribution



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Results existing loans - marginal effects



(a) Regional Gini coefficient

(b) Individual income ratio

decile region



Results - existing loans

Regional income inequality increases indebtedness above the median

- Supply-side view
 - Gini is more likely to be observable i.e supply-side income distribution effect
 - Banks use 'soft' information (i.e income distribution) as well to assess the creditworthiness of borrowers (e.g Loschiavo (2016))
 - Higher-income borrowers in regions with higher income inequality-more likely to get a loan (i.e signalling effect)

• Demand-side view

- Individual income ratio rather known to the household itself
- 'Keeping up with the Novaks' (e.g. due to consumption smoothing)
- Welfare-enhancing 'anticipatory' effect if the income of the others grows stronger effect when income inequality higher (Senik (2008))

Results confirmed with different measures of income inequality (e.g. top shares)

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Results - planned loans



Results - planned loans

Planned loans

- Weak significant 'keeping up with the Novaks'- effect only for households above 8th decile
- Loan plans might be intended for durable goods, while 'keeping up with the Novaks' effect might rather apply for loans for consumption goods
- Might imply prevalence of supply-side factors (in line with Loschiavo, 2016)



Results - additional variables

Socio-demographics

- Older respondents more likely to have a loan and plan a loan (U-shaped relationship)
- Higher-educated more likely to have&plan loans
- Female respondents more likely to have a loan
- Students and unemployed respondents more likely to have&plan loans

Sentiments

- Better situation of the household in the future reduces the likelihood to have & plan a loan
- Improving economic situation of the country increases the likelihood of having but not planning a loan

Country-level variables

 GDP growth decreases the likelihood to have and plan a loan; unemployment rate increases the likelihood to plan a loan; financial deepening increases both have/plan a loan

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Conclusions

- Evidence on the distribution of income on access to finance in CESEE
- We find that regional income inequality affects the probability of being indebted and to plan a loan depending on the household position

Relevance for policymakers

- Household income could be considered a stronger signal of creditworthiness in highly unequal regions due to reduced income mobility
- Income inequality might become self-sustained as it produces unequal access to finance reinforcing the initial economic inequality



Thank you for your attention!

Comments and suggestions very welcome!

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Additional slides

Country Gini coefficient and regional dispersion

