

Keeping up with the Novaks: income inequality and household debt in the CESEE countries

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*The views expressed are strictly those of the authors and do in no way commit the
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Outline

1. Motivation and our contribution
2. Drivers of household debt: the role of income inequality
3. Keeping up with the 'Novaks': evidence from the OeNB Euro Survey
4. Results
5. Conclusions

Why To Do Research on Household Debt in CESEE?



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

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

Motivation

- Overall, no universal theoretical underpinning of the drivers of credit growth and credit levels
- Importance of determinants of household indebtedness due to
 - adverse impact on GDP growth
 - financial stability perspective: increased likelihood of a financial crisis even at close to 30% of GDP (IMF,2017)
 - unsolved puzzles: households' expectations, perceptions of opportunity costs, etc.
- 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

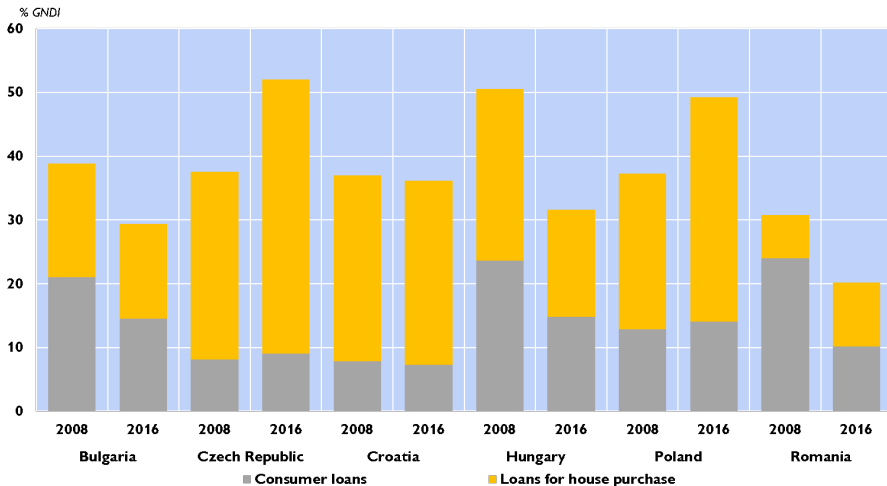
Motivation& Theoretical Background

- Income - central determinant of consumption choices, marginal propensity to consume (Keynes, 1936)
- What about income inequality?
 - Permanent income hypothesis- transitory&permanent part (Freedman, 1957)
 - Relative income hypothesis (Duesenberry, 1949) & Expenditure cascades (Frank, 2014)
 - 'Demonstration effect' & 'habit formation effect' when income deteriorates
 - Income inequality - Signalling effect (Coibon et al., 2014)- when income inequality rises, income becomes an increasingly precise instrument about the type of a household
- 'Keeping up with the **Joneses**' (Duesenberry, 1949)→'Keeping up with the **Novaks**'

Our Contribution

- We focus on income and its regional/country distribution in 10 CESEE countries after the GFC (2009-2015) and its relevance for household debt (debt-yes/no)
- Our study enters 'unchartered waters'
 - Regional income distribution measures - first time endeavour for some of the countries in our sample
 - Alternative measures of income inequality to disentangle demand from supply effects
 - Whether and how income distribution correlates with current (and planned) indebtedness
- Complementary to OeNB research (Beckmann et al., 2015; Fessler et al, 2017; Comunale et al., 2018; Belabed and Hake, 2018)

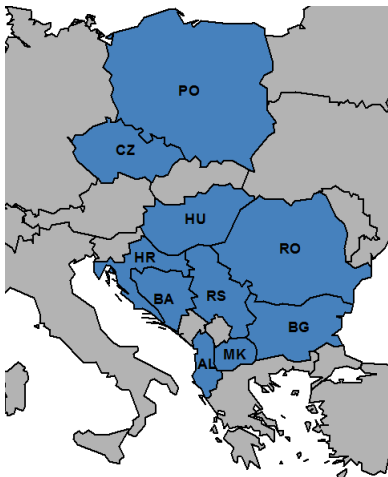
Purpose of household loans in CESEE



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

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

Data - 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

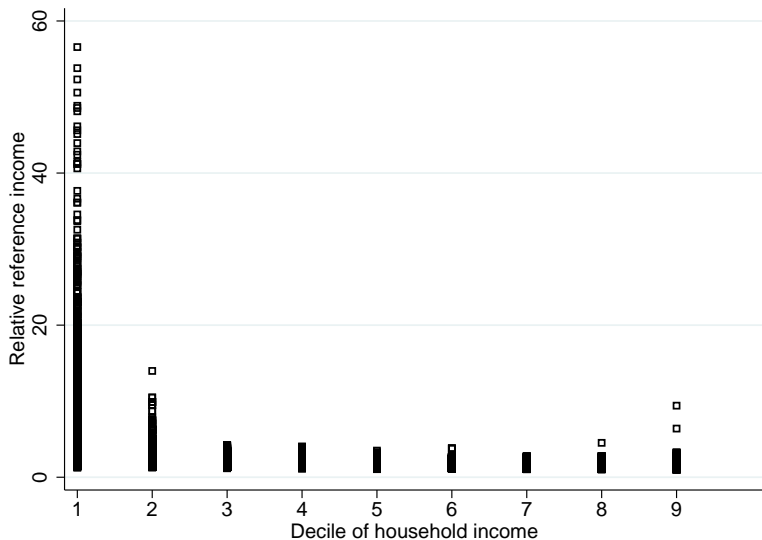
- Regional income inequality and household's position in the distribution based on the following question from the survey
 - "What is the total monthly **income of the household after taxes?**".
The respondents have been asked to put their income in 20 categories, which have been defined in a way to 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 (in line with Drechsel-Grau&Schmid, 2014))

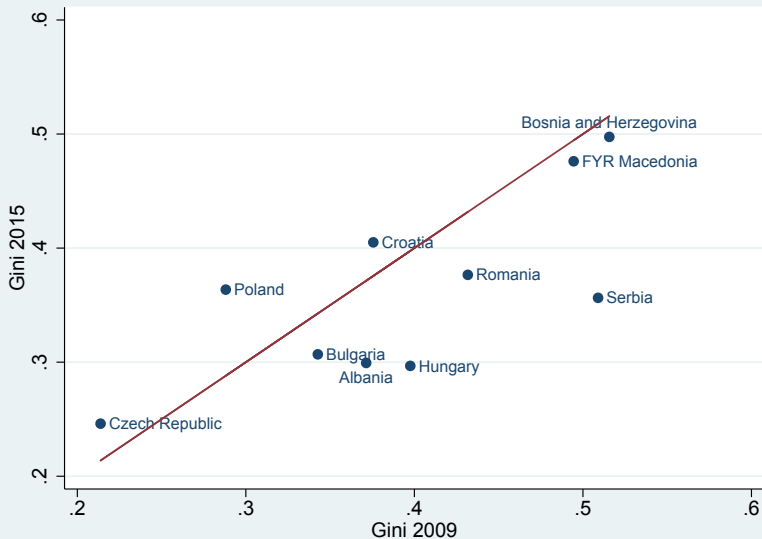
Income data corrections

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

Reference income-upward comparison



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

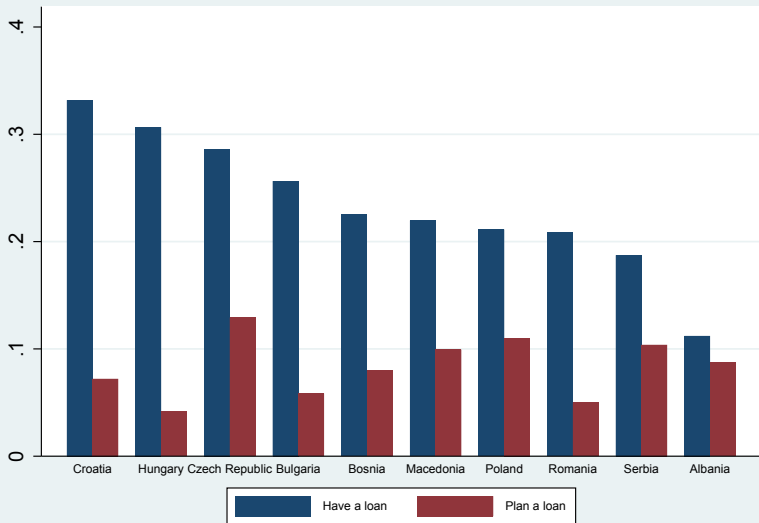
- We apply multilevel models (e.g Rabe-Hesketh and Skrondal,2008), which account for the multi-layer nature of the data.
- Three levels: individual, regional, country levels → random effects at all levels
- Why multilevel models?
 - systemic analysis of cross-level interaction
 - correction for biases of both parameters and standard errors
 - correction due to the violated independence assumption (i.e assumption of no autocorrelation → 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

$$\begin{aligned} Pr(Loan = 1)_{ijkt} = & \beta_0 + \beta_1 IncIneq_{jkt} + \beta_2 hhpos_{ijkt} + \\ & \beta_{12} IncIneq_{jkt} * hhpos_{ijkt} + \quad (1) \\ & \beta_3 \Pi_{ijkt} + \beta_4 Sentiments_{ijkt} + \theta_k + \beta_5 Macrovars_{kt} + \gamma_{jk} + \epsilon_{ijk} \end{aligned}$$

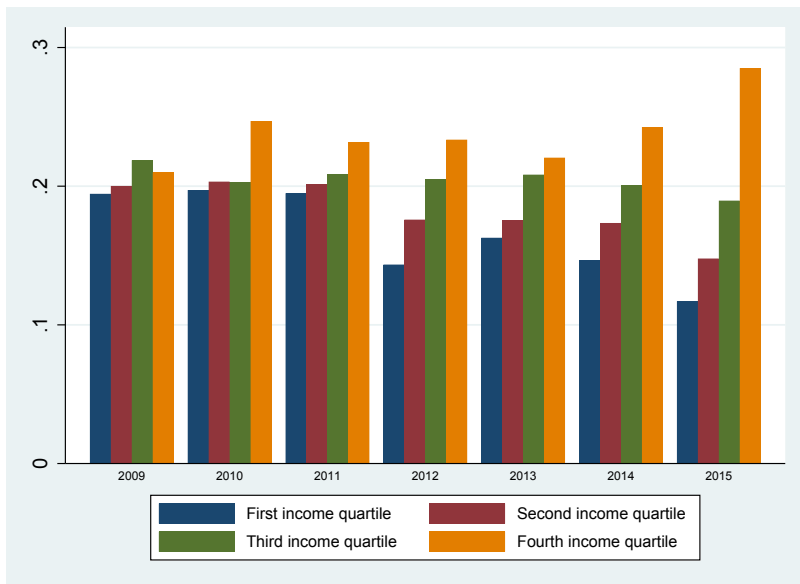
- where i =individuals (1,...,97000), j = regions (1,...,77), k =countries (1,...,10), t = years (2009,...,2015)
- Estimations for *have a loan, plan a loan*
- Socio-demographics (Π_{ijk}): Age, gender, household size, household composition, education, employment status
- *Sentiments_{ijk}*: Current 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

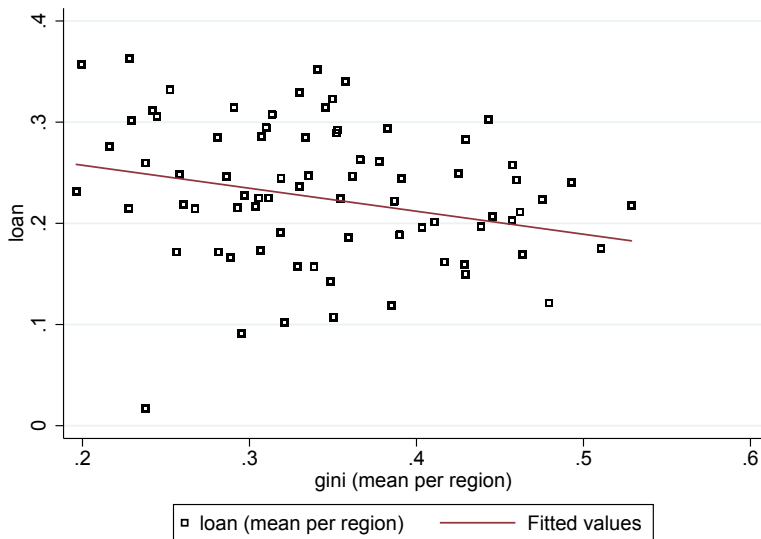


Source: OeNB Euro Survey, authors' calculations.

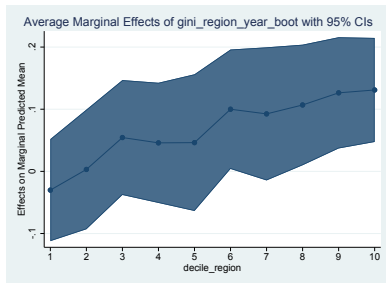
Distribution of loans acc income quartiles in CESEE



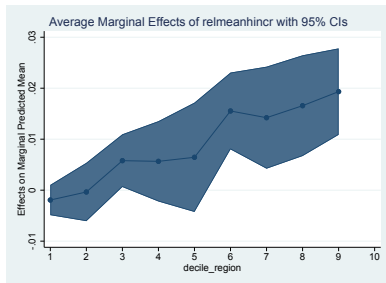
Correlation between loans and income distribution



Results existing loans - marginal effects



(a) Regional Gini coefficient



(b) Individual income ratio

Results - existing loans

- **Demand-side view**

- Individual income ratio- negative effect (rather known to the household itself)
- Higher regional income inequality increases indebtedness above the median due to 'Keeping up with the Novaks'-demand considerations (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))

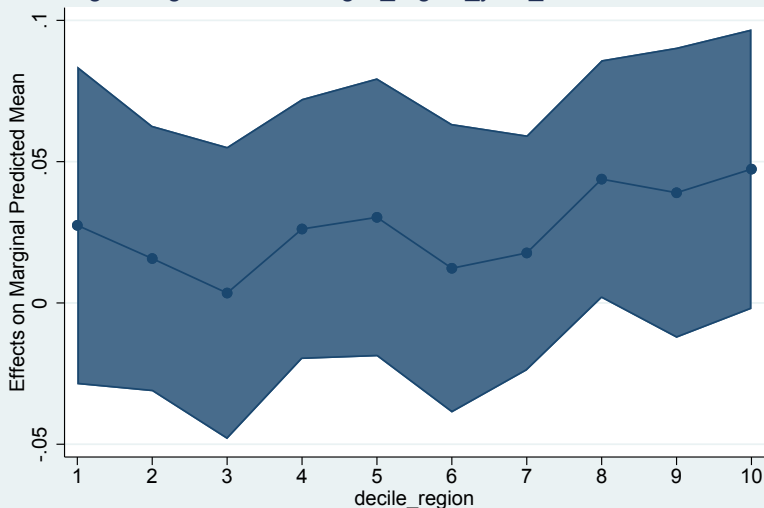
- **Supply-side view**

- Gini coefficient is more likely to be observable by the banks i.e. is considered when credit registries absent/ insufficient coverage
- Higher-income borrowers in regions with higher income inequality-more likely to get a loan (i.e. signalling effect)
- Banks use 'soft' information (i.e. income distribution) as well to assess the creditworthiness of borrowers (e.g. Loschiavo, 2016)

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

Results - planned loans

Average Marginal Effects of gini_region_year_boot with 95% CIs



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 - less 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; savings & financial deepening increase both have/plan a loan

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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Country Gini coefficient and regional dispersion

