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The effectiveness of borrower-based macroprudential measures: a quantitative analysis for Slovakia

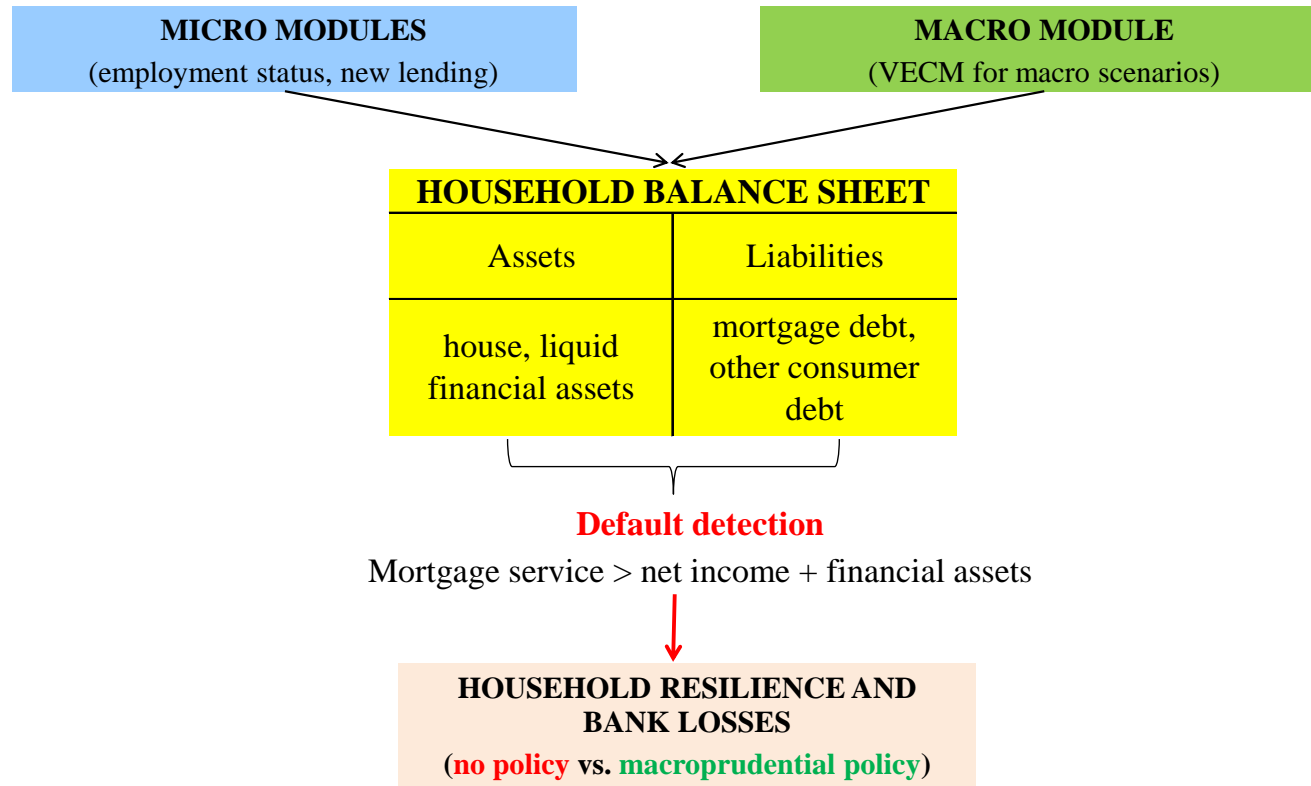
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Joint ECB & Banca d'Italia MPPG research workshop

The approach

- Adapting the integrated dynamic household balance sheet model of Gross and Poblacion (2017) to assess (ex ante) the change in resilience of households in Slovakia as a result of borrower-based measures (BBMs) **under an adverse macroeconomic scenario.**
 - **GP approach** focussed on quantifying impact of BBMs on risk parameters and **second round effects of policy-induced reduction in demand for mortgages** (incorporated both costs and benefits of BBMs).
- Uses an **empirical integrated “micro-macro” model:**
 - An **empirical macro module** to generate adverse macroeconomic scenarios
 - **A micro module** which uses micro data to simulate the employment status of household members and the dynamic probability of default (PDs) at the household level.
 - Produces household resilience measures such as LGDs and loss rates, as well as the impact on new lending flows.



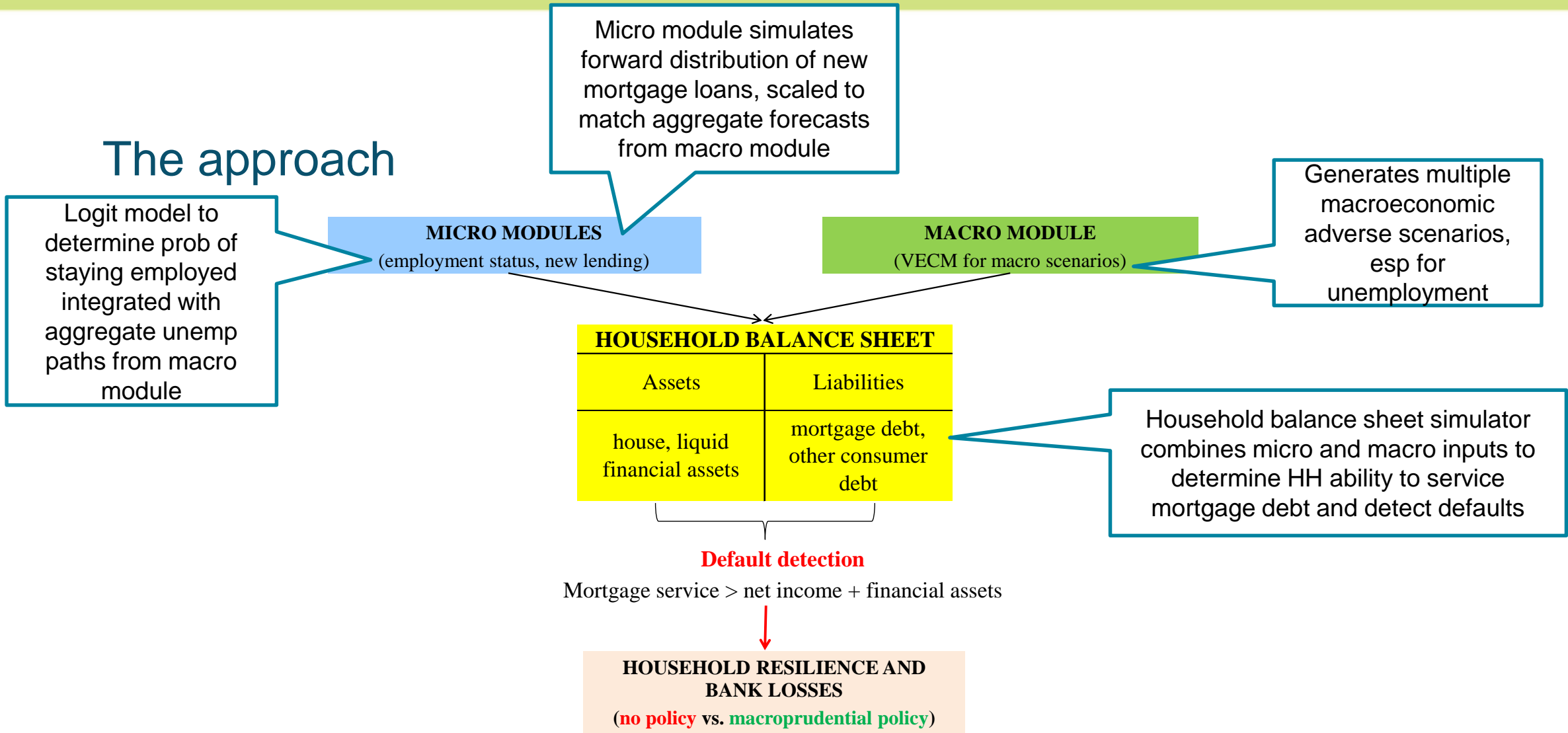
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Key findings of the paper – in line with the literature

- BBMs can **improve household and bank resilience to macroeconomic shocks**, in particular when multiple measures are applied;
- **BBMs tend to complement each other** as the impact of individual instruments is transmitted via different channels (PD vs. LGD);
- The resilience benefits of borrower-based measures are significant if the measures effectively limit the accumulation of risks before an economic downturn occurs, suggesting that an **early implementation of borrower-based measures is warranted**.



Strengths of this paper

Applied example of how original modular framework can be adapted for different countries and different policy needs

- Approach to assessing resilience under an adverse scenario is aligned with **objective of BBMs in many countries**: objective tends to be focussed on building resilience / reducing losses in a crisis rather than on taming the cycle.
- Approach allows for **assessment of a combination of BBMs** – LTV, DTI, DSTI, and the different transmission channels of these.
- **Flexible approach that accommodates country characteristics** through the use of national macro models and micro estimates for employment.
- **Use of micro data** allows for examination of the distribution of risks across the borrower population.



Other nice features of the paper

- Looks at behaviour over an “**exuberant period**” before the adverse scenario (but assumes no loosening of lending standards during this exuberant period?)
- **Implications for calibration** – loans with LTV below 80% experience only a small decline in expected losses?

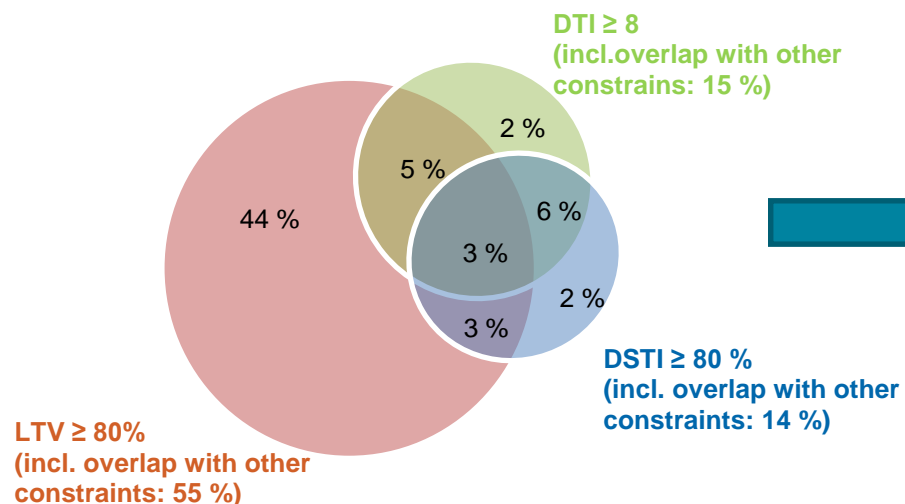
But how should policymakers in other countries interpret the results?

- At a high level, findings are clear and in line with the literature.
- Results are based on calibration for Slovakia.
- But are they generalizable?



Policy scenario under consideration is quite tight

Share of new mortgages granted in 2015-2017 exceeding regulatory limits or their combinations.



Policy scenario

At the start of 2018:

- LTV is tightened to 80% (with a 20% exemption up to the maximum allowed LTV of 90%),
- DSTI is limited at 80%
- DTI at 8 times annual income

Constrained borrowers are not excluded from the market but instead **reduce their borrowing proportionately to comply jointly with all the limits**

Is this a big assumption to make? What about borrowers who chose to delay purchase to increase savings?

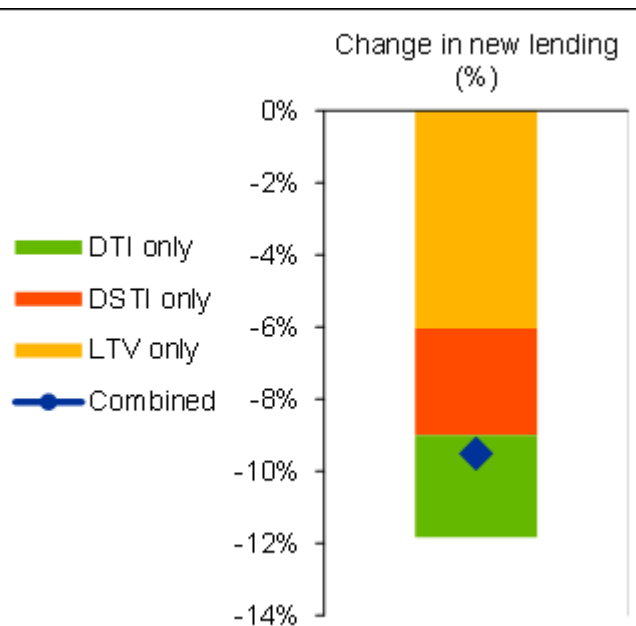


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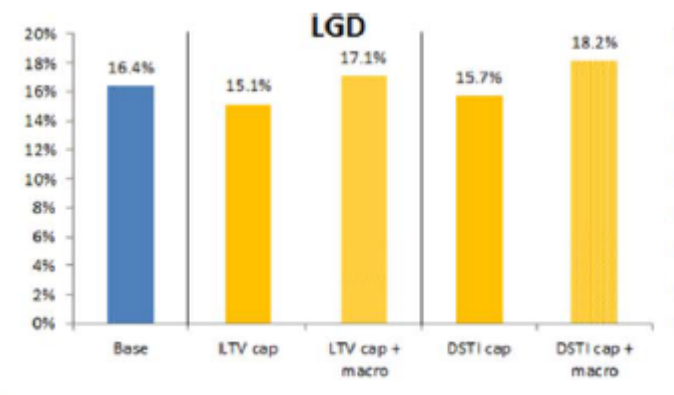
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Model assumes no second round effects of implementation

Impact of borrower-based measures on new lending



- Is it realistic that calibration like **this would only reduce mortgage credit by 10pp?**
- **What would happen to house prices?** No link from shock to credit demand to prices / broader housing market dynamics.
- GP framework would imply these effects are not negligible...



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Differential effects of different limits driven by calibration

Relative impact of borrower-based measures on resilience over the adverse period



Highest impact is through the LGD channel

because:

- A larger proportion of borrowers in the sample are constrained by the LTV limit
- The tightening of the LTV limit was the most significant

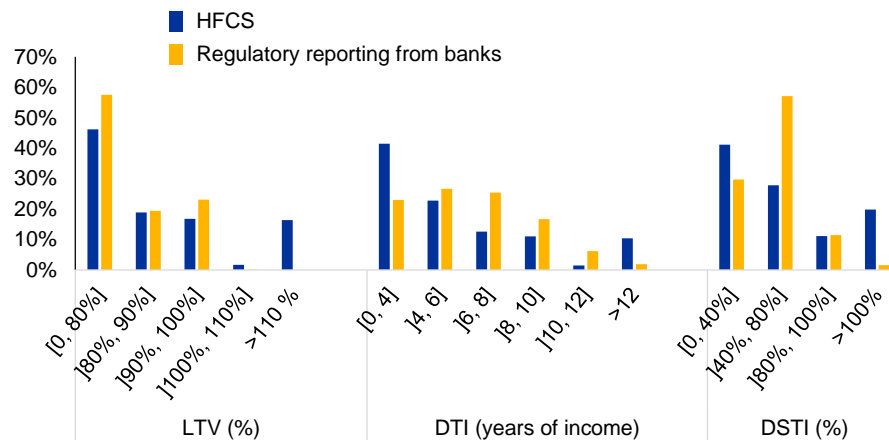


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Are the data representative enough?

Distributions of lending standards 2015 - 2017



- No. of borrowing households in HCFS sample of 2015 – 2017: **92** (0.005% of HHs in whole population)
- No. of household members in borrowing HCFS sample of 2015 – 2017: **155**



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Returning to the key findings of the paper – could these be linked more tightly with the results?

- BBMs can **improve household and bank resilience to macroeconomic shocks**, in particular when multiple measures are applied;

Paper finds most of the effect through the LTV channel because of the nature of the calibration?

- **BBMs tend to complement each other** as the impact of individual instruments is transmitted via different channels (PD vs. LGD);
- The resilience benefits of borrower-based measures are significant if the measures effectively limit the accumulation of risks before an economic downturn occurs, suggesting that an **early implementation of borrower-based measures is warranted**.

Is this a strong conclusion when only 2 years of exuberant period is considered?



Useful extensions?

- **Use ‘credit available’ approach** of Kelly et al (2015) to refine impact of introduction of measures on borrowers.
- No policy scenario could include **financial accelerator effects**: loosening of lending standards driving house prices and economic activity during upturn
 - Would increase resilience benefits of the measures relative to the counterfactual?
- Approach focuses solely on **benefits of BBMs**, could also incorporate **costs of these measures** so their activation can be considered in a net benefit framework:
 - Second round effects module from GP (2017)
 - Effect of measures on mortgage market entry – borrowers excluded from the mortgage market by these measures?
- Extend to assess **combinations of BBMs and capital based measures**: should the calibration of the CCyB be lower after implementation of BBMs?

