

## **Executive summary**

### *“Leverage constraints, House prices and household debt”*

This paper investigates the effect on household debt of the macro-prudential limits that apply in the mortgage market, namely the Loan-to-Income (LTI) and Loan-to-value (LTV) limits. The analysis focuses on the Netherlands, a country characterized by the second highest level of household debt in the world and by one of the highest house price growth in the recent years. The identification strategy aims at disentangling the role of house prices for the growth in household debt, and relies on exogenous changes in the macro-prudential limits to estimate, parametrically and non-parametrically, the causal effect on household debt at origination. In the parametric analysis, I address the potential reverse causality between house prices and household debt by using as instrument a proxy of the total housing supply elasticity in each municipality, as measured by the share of developing land and the number of unoccupied dwellings. In the non-parametric analysis, I use a bunching approach to obtain a reduced-form estimate of the share of LTI- and LTV- constrained borrowers. This approach exploits the presence of a non-linearity in borrowers' inter-temporal budget constraints to retrieve a local estimate of the effect of macro-prudential limits. Results show that changes in the LTI limits are binding only for low-income households, while the progressive LTV limit reduction has doubled the share of constrained borrowers. Also, results show the role of increasing house prices in inflating the household balance sheet of new borrowers via the LTV limit. The policy implication supports the joint use of LTI and LTV limits in the macro-prudential policy framework.