

## Executive Summary:

### Consumption Responses to Fiscal Stimulus Policy and the Household Price of Liquidity

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Many countries reacted to the large negative shock that hit the global economy in 2008 by adopting unprecedented fiscal stimulus policies. The efficacy of these policy actions, and fiscal policy more generally, is still intensely debated. At the center of the debate is household consumption behavior: In standard intertemporal optimization models without credit constraints, rational households respond to tax rebates and increased government expenditures by increasing their savings, to smooth consumption across their life-cycle, implying that fiscal policy measures are ineffective in raising aggregate spending.

These theoretical predictions are in contrast to the empirical findings of significant spending effects of fiscal stimuli, for example identified for the US tax rebates implemented in 2001 and 2008. Most empirical studies have alluded to the functioning of credit markets when explaining their findings but have not been able to measure the effect of credit market imperfections precisely. A simple theoretical model of fiscal stimulus policy under credit market imperfections predicts that the consumption response of a household to stimuli is a function of the marginal price of liquidity, defined as the gap between household borrowing and lending rates. In this paper Kreiner, Lassen and Leth-Petersen test this hypothesis directly by using household specific marginal interest rates computed from third-party reported administrative records of individual loans and deposits in

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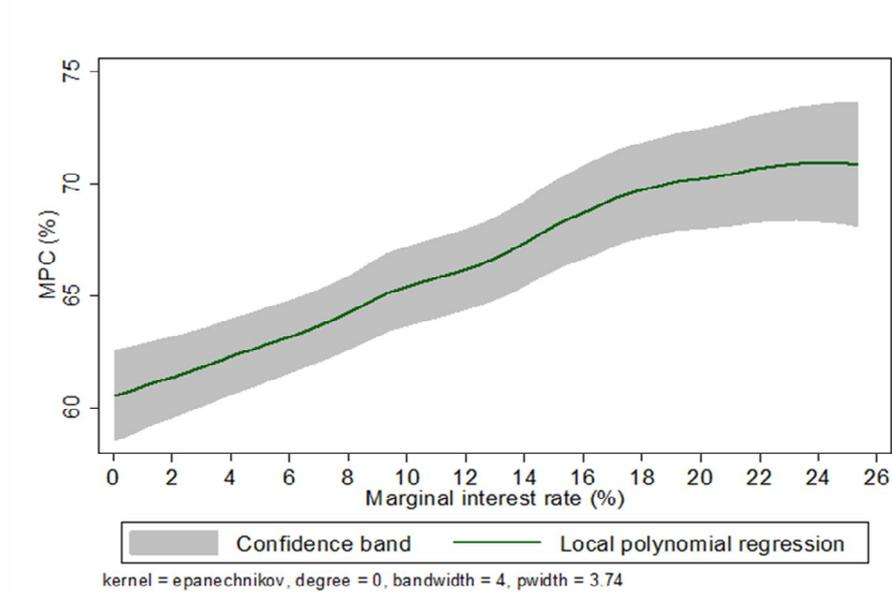
combination with a Danish fiscal stimulus policy that allowed households to transform illiquid pension wealth into liquid wealth.

The Danish stimulus policy has several interesting features. From 1998 to 2003 almost all Danes contributed 1% of their income to a mandatory pension plan, the so-called Special Pension (SP) savings plan. The funds were kept in individual, non-accessible accounts and were to be paid out starting at the public retirement age. However, on 1 March 2009 the Danish government announced that accounts could be paid out in the period 1 June-31 December 2009. The objective of the policy was to stimulate household spending. A number of characteristics of the policy are attractive for our purpose: First, the Danish stimulus policy changed the timing of access to the individual funds and was (approximately) wealth neutral. Spending the pension funds today directly lowers consumption possibilities in the future. In this sense the Danish stimulus policy implicitly imposed Ricardian equivalence at the micro level and is thus almost ideal for measuring the importance of credit market imperfections. Second, it was relatively large. The average individual payout amounted to approximately 1900 USD after taxes. Third, the policy was transparent and easy to access: All account holders received a personal letter stating the balance of the account. To have the balance paid out, account holders should sign a slip and return it in an enclosed, stamped envelope. The money would then be transferred directly to the holder's main bank account, already on file. Finally, the policy was announced without any previous discussion in the public. This is important for measuring the effect of the policy because it makes it possible to bound the time frame where possible spending responses could be observed.

To measure the spending effect of the reform, Kreiner, Lassen and Leth-Petersen conducted a telephone survey in January 2010, just after the pay-out window had closed, resulting in about 5,000 completed interviews with information about spending behavior related to the SP-payout. The survey data were matched at the person level to income tax records and other administrative registers giving information about household characteristics, income, and broad categories of financial assets for the period 1998-2009. Additionally, a novel administrative data set with third party reported information about all individual deposit and loan accounts in 2007-2008 held by our survey respondents was matched on. This enables Kreiner, Lassen, and Leth-Petersen to calculate account specific interest rates and, based on this, to estimate the marginal interest rate for 2008 for each survey respondent. Arguing that these estimated household specific marginal interest rates represent households' price of liquidity, they correlate them with information about the propensity to spend the stimulus from the survey. The result is presented in Figure 1 showing a strikingly linear and significant relationship between the propensity to spend the stimulus and the marginal interest rate.

The correlation is significant also when controlling for a number of covariates including income, financial asset holdings, demographics and expectations regarding future economic constraints, showing that the marginal interest rates is a robust predictor of the propensity to spend the stimulus. This is consistent with the theory and suggests that credit market imperfections are important for explaining consumption responses to stimulus policies.

**Figure 1. The marginal propensity to spend and the marginal interest rate.**



Kreiner, Lassen, and Leth-Petersen go on to show that differences in the price of liquidity across consumers at the time of the stimulus policy are strongly correlated with financial asset holdings more than a decade earlier. This result reflects heterogeneity across consumers, a heterogeneity that is permanent -- or at least persistent to a degree that cannot be accounted for by shocks appearing within the horizon of a typical business cycle -- and suggests that differences in the price of liquidity to a large extent are driven by differences in the demand for liquidity, implying that liquidity constraints are self-imposed. While not identifying any particular model, such a pattern is consistent with recent models of savings behavior where some agents discount the future heavily while others do not, including Mankiw's (2000) savers-spenders model of fiscal policy.