Journal of Development Economics 101 (2013) 195–205

Contents lists available at SciVerse ScienceDirect

Journal of Development Economics

journal homepage: www.elsevier.com/locate/devec

Are poor people credit-constrained or myopic? Evidence from a South African panel ☆

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ARTICLE INFO

Article history:
Received 2 March 2012
Revised 3 October 2012
Accepted 21 October 2012

JEL classification:
D91
H55
O12
O16

Keywords:
Credit constraints
Household consumption

ABSTRACT

Credit constraints are an almost ubiquitous assumption in development economics. Yet direct evidence for credit constraints is limited, and many observations consistent with credit constraints are equally compatible with myopic (non-forward-looking) consumption or precautionary saving. Using household panel data and a source of widely anticipated income in South Africa, this paper tests and rejects the standard consumption model with perfect capital markets. Then, myopic consumption and precautionary saving are tested as alternative explanations for the observed jumps in expenditure. The standard model with credit constraints cannot be rejected in favour of myopic consumption or precautionary saving.

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1. Introduction

Credit market imperfections are central to contemporary development theory, and these imperfections are frequently operationalised as constraints on the amount of credit available to households or firms. But given how often credit constraints are assumed, there is little clear evidence of their presence. In the entry on 'Development economics' in the New Palgrave Dictionary of Economics, Ray (2008) discusses credit market failure and constrained credit as key themes of the field, but admits that '[t]he direct empirical evidence on the existence of credit constraints is surprisingly sparse.'

In fact, many observations that are consistent with constrained credit are equally consistent with alternative explanations, such as myopic ('Keynesian') models in which consumption today depends only on current income or models that permit precautionary saving. In particular, this applies to observations of imperfect consumption smoothing over time.

Apart from the direct interest in establishing whether credit constraints are present, the issue is also related to the question of whether or not poor households can be assumed to be behaving according to the neoclassic paradigm, i.e. whether their behaviour is optimal given the constraints ('poor but rational'). Duflo (2006) argues, based on recent evidence, that the decisions of poor households cannot always be explained by models assuming full rationality. Finding that the consumption behaviour of poor households is not guided by forward planning would have large consequences for the study of development, and being able to distinguish credit constraints from myopic behaviour is therefore important.

Recent work using data from rich countries has exploited the prediction that under standard assumptions and perfect capital markets, there should be no 'jumps' in consumption associated with *anticipated increases* in income. Such jumps, if present, can be explained either by incorporating credit constraints and/or precautionary saving within the general framework of the standard (forward-looking) consumption model, or by a simple alternative model in which consumption depends only on current income.

However, forward-looking but credit-constrained households should be able to smooth their consumption over anticipated *decreases* in income. In contrast, myopic consumption functions respond to negative as well as to positive anticipated income changes.

Furthermore, in the standard model, household savings must be zero when credits constraints bind. This can be used to construct a partial test of credit constraints versus precautionary saving as the main mechanism behind consumption 'jumps' within the augmented standard model.

This paper presents a version of the standard consumption model with income uncertainty and constrained credit. An approximate Euler equation is derived and used to predict the effects of anticipated changes in income on the consumption path. It is shown that, in general, expenditure jumps can be explained either by credit constraints or by changes in precautionary saving. This framework is then compared to a simple

☆ I am grateful for feedback and suggestions from Tim Besley, Martin Browning, Daniel Clarke, Stefan Dercon, Greg Fischer, Maitreesh Ghatak and participants at the CSAE seminar series and the CSAE Conference 2010. I also thank the Research Council of Norway and the British Academy for financial support.

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0304-3878/$ – see front matter © 2012 Elsevier B.V. All rights reserved.
http://dx.doi.org/10.1016/j.jdeveco.2012.10.002

myopic consumption model in which current consumption tracks current income.

Using data from a large panel of black South African households, the response in expenditure to a large anticipated increase in income is investigated. The public, non-contributory Old Age Pension scheme is large compared to median income among black South Africans. The scheme and its age cut-offs are widely known in the population, and take-up is high and well predicted by age.

It is shown that the arrival of the Old Age Pension is associated with large jumps in expenditure, amounting to a rejection of the standard model with perfect credit markets and no uncertainty. However, such jumps are consistent both with an augmented version of the standard model in which credit is constrained or households respond to uncertainty in future consumption, and with a myopic consumption model.

Further evidence is presented using the age-triggered lapse of another public welfare scheme, the child support grant. The lapse of the grant represents a significant and highly predictable decrease in household income. The results show that there is no downward jump in consumption when the grant lapses. This asymmetry in the behavioural response to positive and negative income changes is supportive of the augmented standard model rather than the myopic consumption model.

Finally, within the augmented standard model, the mechanisms of credit constraints and precautionary saving are contrasted. If credit constraints bind, the balance of liquid savings must be zero (or at some other minimum) and therefore cannot decrease at the time of arrival of an anticipated increase in income. But precautionary saving *is* consistent with households decreasing savings when income increases. Evidence is presented that the tendency to hold positive savings increases at the time of pension eligibility, implying that credit constraints cannot be rejected in favour of precautionary saving effects.

The contributions of this paper are as follows. It is the first paper to employ the asymmetric predictions of anticipated income increases and decreases to test for perfect credit markets and distinguish between credit constraints and myopia in a developing-country context. This methodology is borrowed from existing studies using data from rich countries, but the existing literature does not take into account the possibility that expenditure jumps could also be caused by household responses to uncertainty in future consumption. In a developing country context, the effects of risk on household behaviour cannot be ignored. This paper therefore introduces a partial test between credit constraints and precautionary saving which is, as far as we know, novel: if consumption jumps are driven primarily by uncertainty then households savings might decrease when the anticipated income increase arrives, whereas in the case of binding credit constraints, liquid assets should be at a minimum in the period before the income increases and so cannot decrease further. Therefore, finding that the tendency to hold positive savings does not decrease at the time of the anticipated increase in income, this paper cannot reject credit constraints. Though precautionary saving can also not be ruled out as a mechanism, circumstantial evidence is presented which makes the credit constraints explanation more likely. Apart from providing nuanced evidence for the presence of credit constraints, the paper also contributes to the debate on whether people in developing countries are 'poor but rational' by suggesting that they are, indeed, forward-looking but credit-constrained.

The remainder of the paper is organised as follows. The next section provides an overview of related literature. In the theory section, an approximate Euler equation incorporating credit constraints and a precautionary saving motive is derived from a standard consumption model. The predictions from this model are contrasted with those of a basic model of myopic consumption, and the relevant implications for empirical work are drawn out. Next, background information about the Old Age Pension and the Child Support Grant is presented. Thereafter, there is a discussion of the data used, followed by the empirical specifications and results. Finally there is a brief conclusion.

2. Related literature

Hall (1978) extended the standard additive consumption model[1] to the case with stochastic earnings. His influential central finding is that, conditional on today's consumption, no other information available today is predictive of consumption tomorrow.[2] In other words, consumption should respond to income changes only to the extent that these reflect changes in permanent income.

This prediction has subsequently been exploited by many economists to construct tests of the perfect capital markets assumption. One line of research looks at the effect on consumption of anticipated or unanticipated changes in income (see Browning and Lusardi (1996) for a review). More recently, two papers have argued that households in the United States and Spain adjust their consumption in response to significant and regular changes in annual income, but not in response to irregular and small payments because the computational cost of doing so outweighs the potential utility gain. Hsieh (2003) exploits the pre-announced annual payout of petroleum dividends to residents of Alaska as an anticipated change in permanent income. He does not find excess sensitivity of consumption related to the petroleum payout, but on the other hand he confirms earlier results when he finds that the same households do over-react to tax refunds, which are smaller and harder to predict on average. Similarly, Browning and Collado (2001) find that the consumption patterns of Spanish households working in sectors with regular bonus payments do not differ significantly from those of households in other sectors.

The findings in this paper go the other way, indicating that at least in one developing country context, the standard model with perfect capital markets is rejected even with respect to a very large and highly predictable increase in income.

Flavin (1985) tests credit constraints versus myopic consumption using data from the United States, but relies on an instrumental variable technique and aggregate data rather than a source of anticipated income in a panel of households. Altonji and Siow (1987) were possibly the first to point out that forward-looking but credit-constrained agents should react differently to positive and negative changes in income. These papers find no strong evidence of either credit constraints or myopic consumption in the American panel they look at (PSID), whereas this paper provides a strong rejection of the standard model with perfect capital markets in a panel of black South African households.

Shea (1995) uses union contracts to match PSID households to an expected income growth path. He rejects the standard model with perfect capital markets, but finds that consumption reacts more strongly to decreases than to increases in income, which is not in line with either model. Apart from the developing country setting, a much larger data set and (arguably) a cleaner source of income variation, this paper differs from his in incorporating the possible effects of uncertainty.

Deaton (1992) investigates how closely simple 'rules of thumb' can approximate the optimal solution to the standard consumption model. These rules of thumb are partly a function of current income and are thus related to myopic consumption as defined here.

Deaton (1991) studies savings behaviour in the presence of credit constraints, and uses simulations to study the effectiveness of precautionary saving in smoothing household consumption.

Banerjee (2003) surveys the evidence for capital market imperfections in developing countries. One of the most striking pieces of evidence he presents is a wide dispersal between interest rates on saving and

[1] These models assume intertemporally additive utility, constant discount factors and consumers who maximise (expected) present discounted utility over the remainder of their lifetime. I follow Browning and Lusardi (1996) in referring to these as standard consumption models, though their origins lie in Modigliani's life-cycle and Friedman's permanent income hypothesis models.

[2] Parker (1999) presents a consumption model that combines Hall's (1978) framework with the durable-goods model of Mankiw (1982), and derives similar predictions.

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