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New evidence on excess sensitivity of household consumption ☆

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ABSTRACT

The monthly salaries and allowances of Korean government employees are known in advance but vary greatly throughout the year. Using a Korean monthly panel data set, the present study examines how nondurable consumption expenditures in households headed by government employees respond to predictable income changes. The study finds a moderate excess sensitivity in consumption that can be attributed to about 9% of the households. Further analysis shows that these 9% of the households have lower 'committed expenditures' and are likely inattentive consumers.

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1. Introduction

A key implication of the permanent income hypothesis is that consumption of a utility-maximizing agent does not respond to anticipated changes in income. Violation of the proposition (i.e., excess sensitivity) has been tested in numerous natural experiments. The results are mixed. Some studies do not find excess sensitivity (e.g., Browning and Collado, 2001; Hsieh, 2003), but many do (e.g., Shea, 1995; Shapiro and Slemrod, 1995; Souleles, 1999; Parker, 1999; Stephens, 2003; Johnson et al., 2006).[1] Among the latter group, interpretations of detected excess sensitivity also vary.[2]

The present study examines a panel data set of households headed by Korean government employees. The data set has a number of unique features that make it ideal for testing excess sensitivity. The monthly salary and allowances of Korean government employees vary greatly over time and across households. More importantly, the monthly pays are known in advance thus household consumption should not respond to them. Despite the absence of obstacles to consumption smoothing, our estimation shows a moderate response in household consumption to the anticipated income changes. The long panels allow us to single out households whose consumption growth rates are strongly correlated with the growth rates of anticipated income. These households are conjectured to be more likely to exhibit excess sensitivity. They are labeled '*E* households' for brevity. This identification turns out to be fruitful in understanding the estimated excess sensitivity.

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[1] For a recent comprehensive survey, see Jappelli and Pistaferri (2010).

[2] A number of studies attribute excess sensitivity to obstacles to consumption smoothing, such as liquidity constraints.

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The empirical analysis shows that the *E* households exhibit much stronger excess sensitivity than the sample as a whole. In addition, when the *E* households (that account for about 9% of the whole sample) are dropped, the remaining households no longer show excess sensitivity. This suggests that the moderate excess sensitivity found in the whole sample is due to a substantial violation of consumption smoothing by a small fraction of households, instead of a moderate violation by the majority of households.

Because excess sensitivity is driven by the *E* households, examination of the characteristics of the *E* households may lead to an explanation to excess sensitivity. The result of empirical analysis does not lend support to commonly cited explanations of excess sensitivity. However, there is evidence that connects excess sensitivity to inattention of households. Here, 'inattention' means that households do not optimize consumption continuously and instead follow decision rules that require less effort in tracking past consumption and processing new information.[3] A household's cost of inattention is proxied by its 'committed expenditures' (CE hereafter). A number of authors (e.g., Chetty and Szeidl, 2007; Shore and Sinai, 2010) show that the presence of CE explains a number of puzzles related to the observed behavior of risk taking.[4] This paper explores a different proposition of CE, that even in the absence of income risk, CE increases the welfare loss due to failure of consumption smoothing.[5] An empirical predication of this proposition is that in the absence of liquidity constraints, households with a high CE are more likely to be attentive in consumption choice and less likely to exhibit excess sensitivity. Empirical analysis shows that the *E* households are much less likely to have a high CE-to-income ratio, consistent with this prediction.

Section 2 of the paper gives a detailed description of the data set. Section 3 reports the estimates of excess sensitivity and conducts robustness checks on the empirical findings. Section 4 examines competing explanations to excess sensitivity and Section 5 discusses the empirical findings of the present study in light of the earlier empirical literature and recently developed behavioral theories on household consumption.

2. Description of the Korean household survey data

The Korean monthly data set has several desirable features that are absent in the quarterly or annual data sets used in the existing literature. The commonly used Panel Study of Income Dynamics (PSID) only includes annual or semi-annual household expenditure on food and contains large measurement errors (see Runkle, 1991). The quarterly Consumption Expenditure Survey (CEX) has limited panel features and large measurement errors in income (see Lusardi, 1996). The Family Expenditure Survey (FES) for the U.K. has no panel feature. Household data studied (by Hayashi, 1985; Mork and Smith, 1989; Browning and Collado, 2001) for other developed countries (Japan, Norway, and Spain) are quarterly series with limited observations on each household. These limitations make it harder to explore household heterogeneity.

Our study is based on the Family Income and Expenditure Survey in urban areas of Korea from January 1994 to December 2003. Around 3000 households headed by salary and wage earning workers are surveyed monthly for up to five years. These salaried workers include government employees and private sector workers. Because our institutional knowledge of the predictability of income is limited to government employees, in this paper we will limit the scope of empirical analysis to households headed by them. The household information is gathered by National Statistical Office workers who visit the sampled households two or three times a week to inspect the entries in the account-book. The survey method is likely to generate relatively low measurement errors. For the sample period 1993–2003, the data set contains three sampling waves (1993–1997, 1998–2002, and 2003).

Before being further analyzed, the data set is trimmed by first deleting households who do not have complete records for a whole year. Because there are many missing records in 1993, all observations of that year are dropped. The head of a household may start as a government employee in January and then move to the private sector in the middle of the year. For these households, the study only uses the months when the head of the household is classified as a government employee. Also dropped are observations when the head of the household reports salary and allowance income below the minimum salary published in the government salary tables. Our total number of monthly observations on the levels is 21,850 after the initial round of omissions. Our regression analysis is based on the growth rates of head-of-household income and household nondurable goods expenditure. Growth rates in January (over December of the previous year) are not used in pooled regressions but are used in fixed effects models (unreported in the paper). The data set is further trimmed by excluding observations for which the nominal consumption expenditure, or real monthly income growth, or real consumption growth is outside the range of three times the sample standard deviation. The remaining sample includes 18,616 monthly observations of growth rates for pooled regressions. In the following, some key features of the data set are discussed in more detail.

[3] The term 'inattention' is loosely used here. In recently developed rational inattention models, households choose to optimize the amount of attention given to new information in the presence of constraints in capacity (see Sims, 2003) or resource cost (see Reis, 2006) in information processing. Here it is unspecified how the households process costly information or whether they do so rationally.

[4] For instance, CE makes a household more averse to moderate income risk and suffer a larger welfare loss from variations of uncommitted consumption caused by income shocks.

[5] To see why this is the case, note that the nondurable consumption is funded by the residual disposable income after substrating the CE. With a concave utility function, a higher CE lowers nondurable consumption for a household with a given level of income, and raises the cost of failing to smooth consumption.

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