Comment on "Is a Household Debt Overhang Holding Back Consumption?"

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gate impact. A discussion of such general equilibrium effects would have been useful in the paper. If household leverage or debt overhang has been important in pulling consumption back, what implications does that have for policy? As I mentioned at the beginning, the key factor on which to focus is the distributional shock. Aggregate consumption in such models is constrained by the net worth of the borrowing class. Thus, any policy that works to increase their net worth, such as principal reduction for underwater homeowners, is likely to be helpful. Similarly, practices that are part of traditional bankruptcy regimes, such as forcing foreclosures, may not be optimal because of their spillover effect of lowering home prices further and reducing the net worth of current homeowners. More broadly, macroeconomic policy in a world where consumption is driven by debt overhang needs to be seen through its implications for the net worth of the borrowing households.

REFERENCES FOR THE MIAN COMMENT
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COMMENT BY KAREN M. PENCE
Home prices in the United States as a whole have fallen nearly 30 percent since early 2006. Outstanding mortgage debt, however, continued to rise for 2 years after home prices began to fall and is now only about 7 percent below its peak. As a result, households are both poorer and more leveraged. Aggregate home equity has fallen around

1. I am grateful to Jesse Bricker, Brian Bucks, Jane Dokko, Charles Fleischman, Andrew Figura, Josh Gallin, Ben Keys, Michael Palumbo, and Claudia Sahm for helpful comments and conversations. The analysis and conclusions in this discussion are mine alone and do not indicate concurrence by other members of the research staff of the Board of Governors of the Federal Reserve System.
50 percent, or by $7 trillion, since early 2006, and about a quarter of all mortgage borrowers are underwater. That households, on average, cut back on spending when their wealth falls is widely accepted, but whether household leverage affects consumption, holding wealth fixed, remains an open question. Put differently, it is unclear whether two households with the same amount of wealth, but different mixes of assets and debt, will differ in their consumption.

In this paper Karen Dynan explores this issue using household-level data from the Panel Survey of Income Dynamics (PSID). Like all of her work, the paper is beautifully written and reasoned, and the empirical work is cleverly and carefully done. In this discussion I will consider why high leverage might matter for consumption, explore why micro data are likely a better source than macro data for answering this question, and raise some issues about the interpretation of the results. Dynan’s paper also includes some sobering statistics about the share of borrowers who are in distress on their mortgages.

High leverage is a problem for consumption primarily because it impedes the ability of homeowners to refinance their mortgages or sell their homes. Borrowers with little or no home equity face considerably more obstacles to refinancing their mortgages, and thereby boosting their consumption, than borrowers with identical declines in wealth but some remaining home equity.2 Similarly, low- or no-equity borrowers who face difficulties in selling their homes are less able to reduce their mortgage payments by moving to a smaller home, or to increase wage income by moving to a stronger labor market, and this has corresponding effects on their spending.

Households may also react to high leverage by developing a distaste for debt. For example, data from the Survey of Consumer Finances suggest that the share of households agreeing with the statement that “buying on credit is a good idea” fell from 31 percent in 2004 to 28 percent in 2007 and 22 percent in 2010. Households might express this distaste by forgoing purchases of durable goods that typically require financing, such as automobiles or appliances, and by paying down existing debt more quickly than required by the contracts.

In practice, precautionary saving motives may be stronger for many households than “distaste for debt” motives, and households with such worries about the future might prefer to conserve their cash rather than pay

2. The revamped Home Affordable Refinance Program appears to have eased some of these constraints to refinancing for borrowers with mortgages guaranteed by Fannie Mae or Freddie Mac.
down debt, especially mortgage debt. Under the tight mortgage lending standards that have prevailed since 2008, borrowers will have difficulty accessing home equity in an emergency through a line of credit or a refinancing. In addition, borrowers who are concerned about possible home price declines might be reluctant to invest in their homes further.

In some cases, high leverage may lead to higher consumption, not less, because borrowers have the option to default on their mortgages. Imagine that one household purchases a $100,000 home with cash, whereas an otherwise identical household purchases an identical home with a no-money-down mortgage and puts $100,000 in a savings account. If home prices then fall by half, the two households have the same net worth, but the first has no leverage and the second is deeply underwater. The second household can shed its mortgage through default, in which case its wealth—and presumably its consumption—will then be higher than that of the cash purchaser. Borrowers who still have equity in their homes, however, or who find the costs of default unacceptably high, will not find this option attractive.

Macroeconomic models of consumption typically do not include debt as an explanatory variable. Aggregate debt changes slowly over time, and has done so even in recent years, and data on aggregate debt have too little variation for its effect on consumption to be precisely estimated. In addition, households use debt both as a way to smooth consumption over time and as a payment method for purchasing goods and services. Thus, although debt can lead to an increase in consumption, consumption can also lead to an increase in debt, and this endogeneity further complicates estimation and interpretation.

Macro models of consumption that do not explicitly include household debt have performed fairly well in the last couple of years. My figure 1 shows a simulation of the saving rate that is based on a standard error-correction model of personal consumption expenditures. The explanatory variables in the model are net worth, disposable income, transfer payments, the federal funds rate, consumer sentiment, banks’ willingness to lend, and changes in the unemployment rate; the coefficients on these variables are estimated on aggregate data from 1963 through 2007Q4. Although the simulation predicts a lower saving rate, and thus higher consumption, than occurred during the depths of the financial crisis, it matches the actual data fairly closely after mid-2009.

3. I am grateful to Claudia Sahm of the staff of the Board of Governors for providing this simulation.
The strong performance of this model does not necessarily mean that leverage plays no role in consumption growth. In particular, the effect of debt may be captured by variables in the model that are correlated with leverage. For example, the “willingness to lend” variable, which comes from the Federal Reserve’s Senior Loan Officer Opinion Survey, may be capturing the effect of tight credit standards on the consumption of borrowers with little or no equity in their homes.

Given the limitations of macro models, household-level analysis may be a more promising approach for exploring the effect of debt on consumption. In particular, the effects can be estimated more precisely because leverage varies more across households than aggregate leverage varies across time. Household-level data also allow for more precise estimation of the correlations among debt, wealth, and consumption.

In this paper Dynan regresses the 2007–09 change in household consumption on household leverage in 2007; the 2007–09 changes in wealth, income, and the state unemployment rate; and the age and education of the household head. By using the leverage data as of 2007, she avoids the endogeneity problem that debt, in its role as a payment mechanism, is a function of consumption. She finds that households with higher leverage in 2007 subsequently cut their consumption more than did their less
leveraged counterparts, even with the controls for changes in wealth and other factors. This relationship is consistent across several specifications, although the coefficient on the leverage variable is often statistically insignificant because of the small sample size in the PSID and the noisiness of the wealth data.

However, this analysis does not escape the identification issues that plague macro models. In particular, households with high leverage are systematically different from other households. Some have high leverage because their initial down payments were small. These households tend to have fewer financial resources than households who made larger down payments, and so they may be forced to cut back their consumption more acutely in response to a job loss or other negative shock.

To illustrate this point, my table 1 displays selected characteristics of households in the 2007 Survey of Consumer Finances who purchased a primary residence with a mortgage in 2006 or 2007. Households are categorized by their combined loan-to-value (CLTV) ratio at the time of home purchase. In a reflection of the extraordinarily loose lending standards that prevailed at that time, 40 percent of these borrowers purchased their homes with no money down; an additional 23 percent made down payments of 10 percent or less. In 2007, borrowers with initial CLTV ratios of 100 percent or higher had median net financial assets of about $5,000, compared...
with $11,000 for those with CLTVs of 90 to 100 percent, and $17,000 for those with LTVs of 80 to 90 percent. The differences in mean net financial assets across these groups are even more dramatic. Further, borrowers with no or low down payments appeared to face restrictions on their access to credit even in 2007, and thus were less able to smooth consumption over time through borrowing: nearly half of these borrowers reported that they had been turned down for credit in the last 5 years or had not applied for credit because of fear of being turned down.4

Other households have high leverage because their homes have declined significantly in value. As areas with large home price declines also tended to see greater increases in unemployment, such households are more likely to lose jobs and thus decrease their consumption, or fear losing jobs and thus increase their precautionary saving, than homeowners in areas where home price declines were more modest. My table 2 shows the

4. I assume that a household’s characteristics at the time of the 2007 interview are a reasonable proxy for their characteristics at the time of home purchase.
changes in home prices and unemployment for 12 metropolitan statistical areas in California. For 2005–07 these changes ranged from essentially zero in San Francisco to a 33 percent drop in Stockton. The correlation between these changes and the 2007–09 change in unemployment is 54 percent; that between the 2007–09 changes in home prices and unemployment is nearly 90 percent.5

Whether the coefficient on the leverage variable in Dynan’s regressions captures the effect of leverage itself or of characteristics correlated with leverage depends on the other explanatory variables in the model. The age and education of the household head will proxy somewhat for the amount of household resources available to weather shocks, as will the change in household income. The change in state unemployment should control partly for the fact that high-leverage households are more likely to lose or fear losing jobs. That said, financial resources vary considerably within age and education groups, and labor market conditions may vary quite a bit within states. For example, the 2007–09 increases in unemployment within California ranged from 5 percentage points in San Diego to 7.4 percentage points in Riverside (table 2).

As in all such studies, the results also do not shed light on the mechanism by which debt affects consumption, which is a crucial consideration for policymakers. If debt weighs on consumption by impeding mortgage refinancing and home sales, policymakers may want to facilitate these transactions through streamlined refinancing programs such as the Home Affordable Refinance Program and improved short-sale programs. If instead households’ discomfort with their level of debt is the main factor, programs that reduce mortgage principal might be an appealing option. And if debt weighs on consumption only through its effect on household wealth, policymakers may prefer more traditional methods of stimulating aggregate demand.

I conclude with some thoughts for future research. When home prices fall, homeowners become less willing to sell their homes, particularly if they are underwater on their mortgages or the sale would result in a nominal loss. Homeowners may be reluctant to sell because they are unable or unwilling to bring cash to the closing table, or because they are averse to taking nominal losses. As a result, both repeat-sales home price indexes and homeowner reports of their home values may suffer from opposing biases during home price downturns. In the case of repeat-sales indexes, if homeowners hold their homes off the market, the transactions reflected

5. Williams (2012) shows a similar relationship with state-level data.
in the index will be dominated by foreclosures and short sales, which tend to garner lower prices. In contrast, if homeowners are in denial about the extent of home price declines, their reports of their home values may exceed the true market values. More research is needed on the extent and severity of these biases, on whether perceived or market home prices matter more for consumption, and on how a correlation between the home price cycle and the accuracy of home price data might affect the estimation of macroeconomic models.

REFERENCE FOR THE PENCE COMMENT

GENERAL DISCUSSION The paper demonstrated for Christopher Carroll that the Panel Study on Income Dynamics could provide valuable insights into household consumption patterns. In his view a key question the paper addressed is whether a household’s consumption is purely a function of its net worth, or whether the breakdown of net worth into assets and debt affects consumption, too. For that question he thought the debt-to-income ratio and the assets-to-income ratio might be better variables to include in the right-hand side of the regression than the debt-to-assets ratio and the debt-service ratio, as Dynan had specified it. The debt-to-income ratio also seemed to Carroll preferable to the debt-to-assets ratio because a large fraction of households have few assets aside from their home.

Carroll also described related research in which he and coauthors regressed the aggregate household saving rate on three variables: the aggregate wealth-to-income ratio, a measure of aggregate credit supply, and unemployment expectations. Their measure of credit supply was derived from data from the Federal Reserve’s Senior Loan Officer Opinion Survey. Together, the three variables explained the path of the aggregate saving rate very well, including during the recent recession. An increase in unemployment expectations explained a large part of the run-up in saving in the recession, which Carroll took as evidence that this saving was motivated by rising fears of job loss. Increasing credit supply, meanwhile, explained a long-term decline in the saving rate over the past few decades, but the reduction in that supply at the onset of the recession was estimated to be a fairly unimportant factor in the run-up in saving. Jan Hatzius warned, however, that the loan officer survey probably underestimates the loosening of credit availability over the past 10 years because it virtually ignores shadow banks.