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The Intergenerational Correlation of Consumption Expenditures[†]

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Academic researchers and policymakers have a long-standing interest in the extent to which economic well-being is transmitted across generations. Most of the research on this issue has focused on the intergenerational correlation in income (see Solon 1999 for a review) and wealth (Charles and Hurst 2003), where as relatively little attention has been paid to the intergenerational correlation in consumption expenditures (Mulligan 1997; Aughinbaugh 2000; and Waldkirch, Ng, and Cox 2004). Yet, consumption is arguably more directly related to consumers' utility than other indicators of material well-being, and there are reasons to suppose that the intergenerational correlation in consumption may reveal new insights about the extent and explanation for the transmission of material well-being across generations.

The presence of unobserved or mismeasured inter vivos transfers whereby families share risk and smooth consumption across generations is perhaps the main reason why the correlation in consumption expenditures might systematically differ from correlations estimated using other measures of material well-being. Indeed, with complete intra-family risk-sharing and consumption smoothing across generations, the intergenerational expenditure correlation should equal 1, even if different generations of a family experience markedly different income or wealth shocks. The intergenerational correlation in expenditure might also reflect factors such as particular preferences in family utility functions that might not manifest as strongly in income and wealth correlations.

This paper uses recent data collected by the Panel Study of Income Dynamics (PSID) to study intergenerational correlations in consumption expenditures. A key contribution of our

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work is that we use a more comprehensive measure of household expenditure than those used in the few previous studies of consumption correlations.

We document an intergenerational correlation in consumption expenditures that is both statistically and economically significant. We demonstrate the sensitivity of our estimate to the data used to measure consumption. In particular, we show that the estimated correlation is larger when based on comprehensive measures of consumption. We also find that the expenditure correlation is not significantly greater than that for income, and that the intergenerational expenditure mobility matrix largely resembles the income mobility matrix.

On balance, we demonstrate the merit of the new PSID expenditure data and find limited intra-family intergenerational consumption smoothing and risk sharing. In the remainder of the paper, Section I describes the data and sample construction; Section II presents the regression results. An intergenerational expenditure mobility matrix is introduced in Section III, and we conclude in Section IV with some remarks about future research.

I. Data Description

Because of data limitations, existing studies on the intergenerational correlation of expenditures have focused on either food expenditures or total expenditure *imputed* using a method developed by Skinner (1987). Indeed, comprehensive expenditure data in longitudinal surveys have been lacking historically. In recent years, the PSID has collected household expenditure data which corrects this data deficiency. Li et al. (2010) and Andreski et al. (2014) document that the mean of expenditure data collected by the PSID since 1999 compares favorably with the mean of expenditure data collected by the Consumer Expenditure Survey (CE). Moreover, the PSID expenditure data collected since 2005 cover essentially all of the expenditure categories captured by the CE.

A unique feature of the PSID that makes the survey a natural data source for studying intergenerational correlations of well-being is its genealogical design. All family members living in households interviewed in 1968 (the first wave of the PSID) are followed in future waves. Children are followed after they leave their parents' homes; when couples who were married in 1968 subsequently separate or divorce, both individuals continue to be interviewed. Children born to or adopted by sample members after 1968 inherit the "PSID gene" and are also followed.

We use the PSID data collected in 2005, 2007, and 2009, during which more than 5,000 households headed by adult children can be linked to their parental households. About 3,000 pairs of adult child- and parent-households participated in all three waves. For the adult children whose mother and father do not live in the same household, we link that child household to both the mother-household and the father-household, assigning a half-weight to each pair. Note that in constructing the sample, we require that adult children and their parents be either a head or spouse of head of a PSID family unit. Adult children living with their parents are not included.

II. Econometric Analysis

We estimated the following model over the constructed pairs of adult child expenditures and parent expenditures:

$$\bar{C}_k = \alpha + \delta \bar{C}_p + X_k' \alpha_k + X_p' \alpha_p + \varepsilon_k, \quad (1)$$

where $\bar{C}_k$ and $\bar{C}_p$ are the log of 2005–2009 average consumption expenditures of the adult children and their parents' respective households (deflated using 2005 dollars). We consider three measures of household expenditure to gauge the merit of the new PSID expenditure data—food expenditures (including the value of food stamps), imputed total expenditure, and measured total expenditure.¹ It is well documented that the estimated coefficient, δ , might be biased downwards because of measurement error in the right-hand-side variable, C_p . We therefore use three-wave average expenditure to alleviate such potential bias. X_k and X_p are vectors of control variables for children and parents, respectively. Both vectors include a cubic polynomial in age, a race dummy, a dummy for current marital status, a dummy for homeowner status, and family size dummies.² Moreover, X_k includes a dummy for whether the child is the household head, as opposed to the spouse. Our key parameter of interest is δ —the intergenerational elasticity of expenditures—presented in the upper part of Table 1.

The intergenerational correlation in food expenditure is modest—0.15—but statistically significant, whereas the coefficient estimated for the imputed total expenditure is slightly smaller—0.12. Notably, the intergenerational correlation in total expenditure as measured in the PSID is much greater—0.28, highlighting the new information in the expanded PSID consumption expenditure data.³ This larger correlation coefficient suggests that the preferences of consumers are likely nonhomothetic with respect to food and other consumption, and that a substantial portion of the correlation is independent of factors included in the imputation equation, such as number of vehicles and household size.

In addition to the parent-child correlation in expenditure *levels*, we also estimated the intergenerational correlation in the parent-child *percentile* expenditure position. To do this, we regress the log of parental and child household expenditures on their age-cubic polynomial and family size dummies, and then rank the resulting regression residuals into percentiles. We then correlate the child household's age and family size-adjusted income percentile with that of the parental household, with race, marital status, and homeowner dummies included. The estimated correlation coefficient is 0.29, similar to the expenditure level regression result.

¹Following Skinner (1987), total expenditure is imputed using a model fitted with the CE data. The covariates include a cubic age polynomial, log of food expenditures at and away from home, log of utility expenditure, dummies of the number of vehicles, dummies of household size, a homeowner dummy, and year dummies. The R^2 of the imputation equation is about 0.6.

²Specifically, we take the child and the parental age in 2007 (the middle wave), the three-wave average family size, and define the child and parents as married and homeowner if they have been married and homeowner in all three waves of 2005, 2007, and 2009.

³As a robustness analysis, we remove the observations where parents are older than 75 or adult children are younger than 20. The results are little changed.

Putting the estimated δ coefficients in perspective, we also estimated the coefficient of intergenerational income correlation, with $\bar{C}_k$ and $\bar{C}_p$ in equation (1) being replaced with the 2005–2009 average household income of the child and parent households. Comparing the estimated expenditure correlation coefficient (total observed expenditure) with the income correlation coefficient, we find that the former is higher than the latter by a modest margin (0.28 versus 0.26), suggesting limited intergenerational consumption smoothing and risk sharing.

Our estimate of an intergenerational income correlation of 0.26 is appreciably smaller than the results in many studies surveyed in Solon (1999). The most important explanation for this discrepancy is that, unlike many of these studies, which examine the correlation of income when parents and children were at comparable ages (different calendar years), we estimate the intergenerational correlations using data from the same calendar years, during which parents and children are at very different stages of their respective life cycles.

That is, the median adult child in our sample is 38, whereas the median parent is 64. This is done because the comprehensive consumption data are available only since 2005. Because life-stage effects may not be fully captured by the controls for age in our models, we focus most of our attention on the relative size of the intergenerational correlations in income versus consumption. As future waves of the PSID consumption data become available, consumption of parents and their adult children can be assessed at more comparable ages in the life cycle.

How much of the observed intergenerational correlation in consumption expenditure is attributable to the intergenerational correlation in income? We augment equation (1) to include the log of parental and child's household income. The δ coefficients estimated in the augmented model are reported in the lower part of Table 1. When income is being controlled for, the correlation in expenditure falls for both food and total observed expenditure. Moreover, the decline in the estimated correlation coefficient is particularly pronounced for the total expenditure, leaving its gap over the food expenditure correlation coefficient much smaller than in the model that does not control for child's and parental income.

These results are broadly consistent with Altonji, Hayashi, and Kotlikoff (1992), who find that the economic resources of extended family members have at most a modest effect on own consumption once own economic resources are accounted for. Specifically, we find that the coefficient on child's own income (0.52) is much larger than the coefficient on parental income (0.04), although both coefficients are statistically significant at the 1 percent level. Though smaller, the intergenerational expenditure correlations remained positive and highly statistically significant, indicating a robust channel of well-being transmission across generations beyond income correlations.

III. Mobility Matrices

An alternative approach to examining the intergenerational correlation in expenditure is to estimate the probability that adult children fall into various percentiles in the expenditure distribution among adult children, given the placement of one's parents in their respective

expenditure distribution. For the sample of children and parents, we regress three-wave average spending on an age-cubic polynomial and family size (specified as dummy variables). The residuals from this regression are ranked, and children are placed into one of the age- and family size-adjusted spending quartiles among adult children. The same procedure is conducted to locate parents within the parental spending distribution. A cross-tabulation of the quartiles to which children belong and the quartile to which the parents belong demonstrates the quartile-specific mobility.

Results are presented in the upper panel of Table 2, where the residuals for the three years are averaged for each family and then ranked. Among children whose parents are in the top expenditure quartile, 40.7 percent are themselves in the top quartile. Among children whose parents are in the lowest quartile, 44.1 percent are themselves in the lowest quartile. The degree of upward and downward mobility is similar; while 11.9 percent of children with the lowest-spending parents are in the highest quartile, 10.9 percent of the children with the highest-spending parents are in the lowest quartile.

For comparison, the lower panel shows the income transition matrix, which is remarkably similar to the expenditures matrix, implying again that families do not completely share income risks or smooth consumption across generations.

IV. Discussion and Conclusion

The recently collected PSID expenditure data have opened new possibilities for empirical research on household consumption. Because of its unique genealogical nature, we are able to examine the intergenerational correlation of consumption using a comprehensive measure of expenditure. We find that, on the one hand, though substantial and statistically significant, the inter-generational correlation in expenditure is not substantially greater than that in income, implying limited intergenerational risk sharing. On the other hand, even controlling for the correlation in income, expenditure remained correlated across generations, suggesting other factors, such as preferences, access to credit, and nonpecuniary inter vivos transfers potentially played a role in consumption smoothing across generations within a family. Quantifying the effects of such factors presents a promising future research agenda.

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Table 1

Intergenerational Elasticity of Expenditures and Income

	Food	Total (imputed)	Total (observed)	Total (observed pct)
Not controlling for income correlations	0.153 *** (0.020)	0.120 *** (0.017)	0.275 *** (0.018)	0.289 *** (0.018)
Controlling for income correlations	0.077 *** (0.020)	0.068 *** (0.016)	0.085 *** (0.016)	0.088 *** (0.016)
Memo: income correlation		0.264 ***		0.267 ***

Note:

Significant at the 1 percent level.

Table 2

Intergenerational Mobility Matrices of Expenditures and Income

Child expenditure quartile	Parental expenditure quartile			
	1 (lowest)	2	3	4 (highest)
1 (lowest)	44.1	27.3	17.6	10.9
2	27.1	27.1	27.1	18.9
3	16.9	25.8	27.8	29.4
4 (highest)	11.9	19.9	27.5	40.7
Child income quartile	Parental income quartile			
	1 (lowest)	2	3	4 (highest)
1 (lowest)	46.4	25.6	16.3	11.8
2	27.5	29.6	24.9	18.0
3	15.0	23.8	32.0	29.2
4 (highest)	11.0	21.2	26.8	41.0