Liquidity Constraints, the Extended Family, and Consumption

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Abstract

This study examines whether the extended family influences consumption. Extending prior tests on food consumption to total consumption, little to no evidence is found in support of altruism among related households and or that fluctuations in dynastic income affects one's own consumption. However, the effect of transitory fluctuations in own income on consumption are contingent on own wealth and the wealth of the extended family, with estimates of the marginal propensity to consume roughly three times higher for individuals whose own and extended family wealth is low versus individuals whose own and extended family wealth is high.

Citation

Authors' Acknowledgements

Empirical studies estimating the marginal propensity to consume out of income have focused recently on heterogeneity across consumers. Specifically, consistent with theory (Jappelli and Pistaferri, 2010), researchers have concluded that consumers facing liquidity constraints spend a greater share of their transitory income relative to other consumers (Kaplan, Violante, and Weidner, 2014; Zeldes, 1989; Browning and Crossley, 2001; Jappelli and Pistaferri, 2014; Johnson, Parker, and Souleles, 2006). These findings have important ramifications for public policy because policies that increase (or decrease) family income would have a larger effect on the macro economy if consumers facing liquidity constraints were the ones who experienced increases in their income.

A distinct literature has examined the extent to which the economic decisions of extended family members are interconnected. In particular, this literature has tested the hypothesis that income of extended family members, e.g., parents of grown children, affects the consumption decisions of grown children even if parents and adult children live in separate households. Altonji, Hayashi, and Kotlikoff (AHK, 1992) is the most influential study of this type, where they find that income of extended family members may have a small effect on food consumption.

We integrate these two literatures by extending models estimating the marginal propensity to consume out of income to include the role of the extended family. In particular, we estimate a model where consumers' decisions may be influenced by members of their extended family and where some family members, but perhaps not others, have limited wealth. The model implies that the marginal propensity to consume out of a consumer's own income is affected not only by whether that consumer (e.g., adult child) has few liquid assets, but by whether their extended family (e.g., parent) has few liquid assets. Specifically, the marginal propensity to

consume should be the highest when both the consumer and their extended family have few liquid assets.

Before we test these predictions, we update and extend the empirical tests conducted by AHK. AHK was limited by the fact that in the data set that allowed them to examine dynastic models — the Panel Study of Income Dynamics (PSID) through 1985 — the only consumption category that could be analyzed was food. We take advantage of the fact that the PSID subsequently significantly expanded the measurement of consumption, allowing us to study a nearly comprehensive measure of consumption. Having more expansive data on consumption is important because the effects of (own) income on food consumption are small relative to the effects on other components of consumption, and therefore AHK's conclusions that the income of the extended family has limited effects on food consumption may not characterize effects on total consumption.

Data

The Panel Study of Income Dynamics (PSID) has been used extensively to study consumption expenditures of American families, but almost all of these studies are restricted to expenditure data on food and housing, which have been measured in the PSID in nearly every wave since 1968. The PSID expanded measures of consumption expenditures significantly in 1999, and again in 2005. With the new questions, the PSID captured roughly 70 percent of expenditures between 1999 and 2003 (food, housing, utilities, vehicles, transportation, health care, education, and child care) and 95 percent of expenditures 2005 through 2011 (the prior list plus clothing and apparel, home repairs and maintenance, household furnishings and equipment, recreation and entertainment, and trips and vacations). Furthermore, estimates of spending based on the PSID

align well with the best cross-sectional survey data, the Consumer Expenditure Survey (Li et al., 2010; Andreski et al., 2014). Our analyses are restricted to data from 1999 through 2011 to take advantage of the more expensive consumption data. The full set of items analyzed is described in detail by Andreski et al. (2013). We report models for two time periods: 1999-2011 with the more limited set of measures, and 2005-2011 with the more expansive measures.

The PSID has two additional strengths. First, when children of PSID sample members leave a PSID household they are followed by the survey. As a result, parents and adult children are each themselves interviewed. Second, the PSID contains detailed information on income, wealth, and consumption.

Our baseline sample consists of all PSID heads and wives ages 24 and older who have — in the same survey year — at least one non-co-resident relative (specifically, a biological mother, father, or child, or a half or full sibling) who is also a head or wife and at least 24 years old. The number of such individuals in each year is reported in Table 1. For example, in 2011 there were 7,612 such individuals, 5,207 were heads and 2,405 were wives. These individuals lived in 6,719 different PSID households (in PSID language, "family units"), and represented 1,504 distinct family dynasties (in PSID language, "distinct 1,968 IDs").

Our analysis sample size varies depending on the analytic model estimated because of missing values in specific measures and model specifications. For example, we use the log transformation for income and consumption, therefore cases with zero values of income (0.8%) or consumption (about 1.4 percent) are dropped. The analysis sample that includes more complete expenditure measures is limited to the years of 2005-2011. To test life-cycle model, we include lagged variables (t-2 and t-4) of nonasset family/dynasty income, which results in

missing values for those who recently entered PSID or recently qualified under our baseline analysis sample criteria.

We consider two different definitions of dynasty, one including only close relatives — i.e., "narrow dynasty" — and one including relatives of any kind – i.e., "broad dynasty." The narrow dynasty includes one's biological mother, father, child, and full/half siblings who are also PSID heads or wives ages 24 and older and do not live in the same PSID family unit as that individual. An individual's dynasty members can change over time as some family members become age 24 and older, or a head or wife during the sample period, and because step-siblings may change due to divorce or marriage by parents. Moreover, the dynasty structure is not necessarily hierarchical; dynasty composition of a focal person may differ from the dynasty composition of a fellow dynasty member. Potential sources of such cases include in-law relationships, remarriage, grandchildren, and grandparents. For example, suppose a focal person has a mother and a biological child in his dynasty. However, the mother of the focal person does not include the child (i.e., her grandchild) in her dynasty per our definition of dynasty. Another example is the case of husbands and wives; a focal person has his wife and his biological parents in his dynasty but does not have parents-in-law, while his wife includes them in her dynasty. Therefore, the couple can have different composition of dynasty members while they themselves are members of each other's dynasty. About half of the sample members are not nested within the dynasty (i.e., a focal person's dynasty composition is not the same as the dynasty composition of at least one member in the focal person's dynasty). We also estimated models using a broader definition of dynasty where anyone in the same PSID "1968 ID" is defined as being members of the same dynasty. Our substantive findings did not change and, therefore, we do not report estimates using the broad definition.

For some empirical models we include dynasty fixed-effects. In these models we restrict the sample to individuals within dynasties where all members of a given dynasty share the exact same dynasty members, i.e., individuals are fully nested within dynasties. Appendix Table A1 summarizes frequencies by the number of a person's dynasty members whose dynasty members are not identical to the person's.

Dynasty income and wealth is the average among family units that contain members of a given dynasty, excluding one's own family unit income and wealth. For example, if a woman lives by herself, her biological parents live together, and her son and daughter are 24 and older and live independently, her average dynasty income is the average family unit income among three PSID family units: her parents', her son's, and her daughter's.[1]

It is not clear whether AHK included the value of food stamps in their measure of food consumption. Therefore, we use two consumption measures of food: excluding food stamps and including food stamps. The Consumer Price Index for All Urban Consumers (CPI-U) was applied for the price adjustment for income, wealth, and consumption, expressed in 2011 dollars. Descriptive statistics for all variables for each analysis sample are summarized in Table 2. Also in Table 2 are descriptive statistics for all individuals 24 and older, regardless of whether they are a head or wife or have at least one non-co-resident biological mother, father, child, or full/half sibling who is also a head or wife 24 or older (i.e., our baseline sample). We find that the socioeconomic composition is quite similar in the two samples.

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[1] AHK include one's own income and wealth in the calculation of dynasty income and wealth when testing the life-cycle model; therefore, we report estimates in appendix table A2 using their approach for comparison.

Testing altruism and life-cycle models

The altruism model implies that own resources have no effect on own consumption once dynasty resources are controlled (AHK, 1992). The life-cycle model, on the other hand, predicts that own resources influence own consumption. We test these predictions using AHK's econometric approach but with more expansive consumption and wealth data in recent waves of the PSID.

 Altruism. The econometric model used for the static test of altruism is:

$$c_{ik} = \beta' X_{ik} + \varphi Y_{ik} + \alpha_i + \mu_{ik} \qquad (1)$$

where c_{ik} is log consumption (i.e., food 1999-2011; total 1999-2011; total, expanded 2005-2011) by household k of dynasty i , X_{ik} are demographic control variables (quadratic in the number of members in own household and average number of members of households within one's dynasty, own age and age of household head, own gender and the gender of household head, race of household head, marital status of household head), Y_{ik} is log total household income excluding private transfers, α_i is the dynasty fixed effect and μ_{ik} is the error term that is assumed to be uncorrelated with Y. All years of data are pooled, and we include year indicators as control variables.

 The dynamic test is the first difference of (1):

$$\Delta c_{ikt} = \beta' \Delta X_{ikt} + \varphi \Delta Y_{ikt} + \Delta \alpha_{it} + \Delta \mu_{ikt} \quad (2)$$

Standard errors for both models are White standard errors, allowing for clustering at the year-dynasty level. Because the PSID has surveyed every two years since 1997, the first difference in our analysis is the difference between year t and year t-2.

 Households are not stable units over time. For example, when a couple divorces the household splits. In such cases, analyzing changes in "households" is problematic. Some studies address this challenge by restricting analyses to households that have little or no demographic

change, for example, households in which there is no marriage or divorce. A limitation of this approach is that changes in family structure are important events that should be considered. Therefore, we use a different approach. Throughout our analyses, adults (specifically, PSID heads and wives) in a given year are the units of analysis. This allows us to follow adults as they change households and examine their household consumption.

To compare our results with AHK's, we begin by modeling food consumption, but for the years of data on which we focus, 1999 – 2011 (Table 3). For the static models, we find that own income has a sizable effect, with an elasticity of 0.290 when the dynasty fixed effect is not included but we restrict to individuals in nested dynasties, very similar to AHK's estimate of 0.286 (Table 3, row 1, in brackets). Not restricting to nested dynasties leads to a very similar estimate, 0.303. Adding fixed effects lowers the income effect to 0.240, which is the same as AHK (0.240; their Table 3, row 1).

The dynamic test implies a substantially lower but still statistically significant effect: 0.075 without dynasty fixed effects and 0.090 with the fixed effects. Our dynamic estimates are smaller than AHK's.

Including the amount of food stamps as food spending lowers the effect of income. This pattern is expected because only low-income households are eligible for food stamps and food consumption from food stamps is not as sensitive to income changes. However, the effect of own income remains statistically significant and substantial.

As expected, income has a larger effect on the broader measures of consumption than it has on food alone. First consider consumption (excluding food stamps) that is consistently measured from 1999-2011. For these categories of spending, the income effect in the dynamic fixed effect specification is 0.100 for total consumption versus 0.090 for food consumption only.

The most inclusive measure of consumption, available 2005-2011, has an income effect of 0.128 in the dynamic fixed effect model. In sum, regardless of specification, income has a substantial, statistically significant effect on consumption, which is inconsistent with altruism.

Life-cycle model. The static test of the life-cycle model consists of regressing log consumption on log household income (excluding private transfers and asset income) for time t and lagged two periods, log average dynasty income (excluding private transfers and asset income) for time t and lagged two periods, household wealth without home equity at time t, and average dynasty wealth without home equity at time t. We use the inverse hyperbolic sine transformation on wealth because a substantial share of families has zero or negative wealth. Control variables include a quadratic in the number of members in own household and average number of members of households within one's dynasty, own age and age of household head, own gender and the gender of household head, race of household head, marital status of household head, and year indicators. The life-cycle model predicts that the dynasty income effect is zero.

Estimates from the static model implies a substantial effect of own income on food consumption including food stamps, with a total effect (i.e., the sum of current and two lagged effects) equal to 0.239 (Table 4). The estimate of dynasty income is 0.047 and statistically significant.[2]

The effects of own income and dynasty income are larger for the more expansive measures of consumption. When food stamps are included, for food, total consumption (1999–

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[2] Comparisons with AHK are not strictly parallel because they use annual data and lagged income measured at $t-1$ and $t-2$ instead of $t-2$ and $t-4$. Furthermore, AHK includes own income (wealth) in dynasty income (wealth). In Table A2 we re-estimate the models reported in table 4 by using AHK's definition of dynasty income and wealth. Compared to AHK's estimates, our estimates in table A2 are somewhat greater.

2011), and total expanded consumption (2005-2011), the own income effect (dynasty income effect) is 0.239 (0.047), 0.462 (0.071), and 0.501 (0.078), respectively.

Given the substantial difference in estimates when more categories of consumption are considered, Table 5 reports estimates for each of the main spending categories. A substantial share of families has no spending in some categories in a given year; therefore we estimate three different models: log consumption dropping observations without positive spending in a given category, log consumption dropping observations that do not have positive spending in all of the categories reported in Table 5 (i.e., balanced sample), and a linear probability model of having any spending in the given category. For all three approaches, own and dynasty income effects are smaller for food consumption than for almost all of the other seven consumption categories. The effects are especially large for trips and vacations: 0.656 and 0.167 for own and dynasty consumption, respectively. Vacations are particularly interesting because family members often experience them together. If one's parents' income increases, then the parents may purchase a longer or more expensive vacation. If they share vacation with their children, they may also pay for some of their adult children's vacation. Alternatively, in order to satisfy their parents' desire for a more expensive joint vacation, the adult children may also increase vacation expenditures even if their own income is unchanged.

The dynamic test of the life-cycle model consists of estimating the econometric model where change in log consumption is the dependent variable and change in log own income and change in log average dynasty income are the key explanatory variables. Control factors include year indicators and changes in the demographic factors (i.e., quadratic in the number of members in own household and average number of members of households within one's dynasty, own age and age of household head, own gender and the gender of household head, race of household

head, marital status of household head). We estimate models of change over two years and four

years. For two-year change, we find estimates of own income on food of 0.049 when food

stamps are included (table 6). As expected, own income effects are larger when consumption on

additional items is considered: 0.093 for the most comprehensive measure of consumption. The

estimates based on four-year change are larger than those based on two-year change. For

example, the estimate for the most comprehensive measure of consumption is 0.136 versus

0.093.

The dynamic tests with four-year change imply marginally significant but meaningful

effects of dynasty income on own food consumption and the more comprehensive measure of

consumption available 1999 – 2011. For food consumption including food stamps, the dynasty

effect is 0.011, which is roughly one-seventh the size of the effect of own income, 0.070. The

more comprehensive measure available for 1999–2011 has a similar dynasty effect — 0.010 —

and is roughly one-tenth the size of the effect of own income. For the most comprehensive

measure of consumption, available 2005 – 2011, the dynasty effect is 0.014, also roughly one-

tenth the size of the effect of own income, 0.136. However, with roughly half the sample size,

this effect is not statistically significant. In sum, we interpret the collection of estimates from the

static and dynamic models as indicating suggestive evidence of an effect of dynastic income on

one's own consumption.

Marginal propensity to consume and dynastic liquidity constraints

The updated and extended tests of AHK provide little to no support for the strict altruism

model and fairly strong evidence for the life-cycle model. In this section we extend our

investigation of the life-cycle model by testing for heterogeneity in the marginal propensity to

consume out of transitory income. Recent literature has demonstrated that the transitory income effect varies by liquid wealth holdings, with much larger effects among households with little or no liquid wealth (Kaplan et al., 2014; Zeldes, 1989; Browning and Crossley, 2001; Jappelli and Pistaferri, 2014; Johnson, et al. 2006).

The extended family is thought to be one of the most important sources of credit and insurance. Therefore, we test the hypothesis that the magnitude of transitory income effects are contingent on own wealth and wealth of the extended family.

To estimate the transitory income effect on consumption, we use the approach of Blundell, Pistaferri, and Preston (2008), Kaplan and Violante (2010), and Kaplan, Violante, and Weidner (2014). First, we regress log household income and log consumption (food, total 1999 – 2011, and total expanded 2005 – 2011) on age (quartic), education (<12, 12, >12), race (white, black, others), family unit size (one, two, three, four, five+), marital status of head (married, not married), employment status (employed, not employed), region (six categories), year indicators, and interactions between the year indicators and education, race, employment, and region. From this model, we calculate the residuals of log consumption and log income. We then regress the change in the residuals of log consumption on the change in residuals of log income, but instrument change in the residuals of log income at time t with residuals of log income at time $t+2$.

We stratified these models by liquid (i.e., non-housing) wealth and average liquid wealth of dynasty members excluding one's own liquid wealth. We use wealth measured in 1999 to determine wealth status. For those who entered the analysis sample after 1999, we use the wealth measure that was first observed. Theory provides only limited guidance on exactly how the magnitude of the marginal propensity to consume differs across levels of liquid wealth.

Therefore, our choice of wealth categories is driven largely by available sample size to detect differential effects. Separately for own liquid wealth and for extended family average liquid wealth, we identify three groups: below the 25th percentile, 25-75th percentile, and greater than the 75th percentile. The 25th percentile for own liquid wealth (extended family average liquid wealth) is $6 ($2,300). The 75th percentile of own liquid wealth (extended family average liquid wealth) is $79,217 ($84,557). Cross-classifying household wealth by extended family wealth generates nine categories for which the transitory income effect is estimated. The size of each of the nine groups is reported in Table A3.

There is a strong correlation in wealth holdings of parents and adult children (Charles and Hurst, 2003). However, there remains a substantial share of adult children with low wealth whose parents have significant wealth holdings. Among households in the bottom quartile of the 1998-2011 sample, 54 percent are members of dynasties whose wealth is in the middle 50 percent and 19 percent in the top quartile (Table A3).

Before estimating models stratified by wealth, we estimate the effect of transitory income for the full sample, but separately for the different consumption measures. Transitory income effects are much larger for total consumption than for food consumption: 0.089 versus 0.039 when food stamps are included (Table 7).

The estimates of the marginal propensity to consume – by own wealth and dynasty wealth – are reported in Table 8. The last column in each panel reports estimates by own wealth regardless of dynasty wealth. The pattern of estimates is generally consistent with prior findings, with substantial and statistically significant effects among the bottom two categories of own wealth but no significant effect among individuals in the top quartile of the own wealth

distribution. For the most part, this pattern holds regardless of the measure of consumption analyzed.

Consistent with the predictions based on theory, among individuals in the bottom own wealth category, the estimates of the marginal propensity to consume out of transitory income are qualitatively larger if dynasty wealth is in one of the bottom two groups. For example, in the middle panels where consumption measured from 1999 through 2011 is examined, the marginal propensity to consume for low-wealth families (bottom 25 percent), whose dynasty wealth is in the bottom two categories, ranges from 0.108 to 0.143. In two of the four cases the marginal propensity to consume is statistically significant at the 0.05 level, but it is -0.02 and insignificant for the highest category of dynasty wealth. This pattern also exists when the broadest measure of consumption is examined (i.e. the bottom panels), although the point estimates are not statistically significant.

The estimates of the marginal propensity to consume among individuals in the middle or top of the own-wealth distribution are less consistent with predictions. Among individuals in the middle of the own-wealth distribution, the estimates of the marginal propensity to consume are not larger for individuals whose dynasty wealth is low. In fact, the statistically significant effects among the middle-wealth category are among individuals whose dynasty wealth is in the middle or top category.

Discussion

The recent economic downturn has refocused attention on the role of the family in providing protection against economic shocks. The media is replete with stories of older parents helping adult children cope with unemployment, perhaps to the detriment of their own retirement

and savings plans. This assistance is not limited to transfers from parents to adult children but can also flow from children to parents, a potentially important phenomenon as layoffs in the last recession hit older workers particularly hard. Assistance can take many forms, including cash, in-kind gifts, and time help. Furthermore, even if assistance is not received, knowing that the extended family is available if needed may affect behavior.

As the national population ages and programs such as Social Security come under increasing financial pressure, understanding the role of families in providing support for their members becomes increasingly important. Furthermore, to the extent that support of adult children affects the savings and labor market behavior of older workers, older parents may find their own futures negatively affected by shocks to the incomes of their children. And children hit hard in their peak earning years may be unable to provide for elderly parents.

Despite widespread anecdotal evidence of beneficence, empirical tests have rejected altruism as a motivation for behavior. Many of these tests have relied on the relationship between changes in incomes of parents and children and changes in family transfers (Cox, 1987, Altonji et al., 1997). However, economic models also suggest that individuals save in order to smooth consumption and cope with declines in income. A negative shock need not necessitate assistance from family if individuals have their own wealth holdings or have access to credit.

A more rigorous test would be based on changes in consumption. However, because of the paucity of consumption data in national surveys, studies examining the role of family in smoothing consumption are rare. Altonji et al.'s widely cited study uses data on food consumption in the PSID to test whether resources are shared fully within families. They examine the effect of own income on consumption controlling for extended-family fixed effects, and strongly reject strict altruism and, furthermore, find limited to no evidence that changes in

dynastic income leads to changes in food consumption 1968-1985. Our estimates using comprehensive information on consumption from 1999-2011 imply similar qualitative conclusions about altruism; we reject the predictions of the strict altruism model. However, the estimates from the static and dynamic models taken together imply suggestive evidence in favor of effects of dynastic income on own consumption.

We go on to test whether the response of own consumption to changes in transitory income is dependent on not only one's own wealth, but the wealth of the extended family. We find some evidence indicating that the effect of transitory income on consumption is influenced by the level of wealth held by extended family members.

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	Analytic sample without restricting to nested dynasties (Baseline sample)					All individuals 24 and older				
	Number of individuals (unit of analysis)	Number of heads	Number of wives	Number of PSID family units	Number of dynasties	Number of individuals (unit of analysis)	Number of heads	Number of wives	Number of PSID family units	Number of dynasties
1999	5310	3523	1787	4696	1326	11687	6795	3840	6691	2490
2001	5686	3758	1928	5031	1359	12318	7168	4065	7079	2426
2003	6106	4083	2023	5403	1414	13014	7612	4169	7490	2393
2005	6594	4396	2198	5817	1452	13469	7806	4331	7665	2347
2007	6879	4613	2266	6053	1473	13905	8102	4454	7909	2278
2009	7380	4995	2385	6496	1517	14594	8514	4599	8335	2244
2011	7612	5207	2405	6719	1504	14887	8735	4594	8549	2190
Total	45567	30575	14992	40215	10045	93874	54732	30052	53718	16368

Table 1. Number of individuals, PSID family units, and dynasties

Analytic sample: heads and wives 24 and older who have - in the same year - at least one non-coresident biological mother, father, child, or full/half sibling who is also a head or wife 24 or older.

Table 2. Descriptive statistics				
		Nested dynasty sample	Baseline analysis sample	All individuals >=24
Characteristic	Statistic	N=23314	N=45567	N=93874
Age	mean (years)	48.4	47.1	45.3
Female	%	54.8	55.6	53.6
Race of head				
White	%	68.9	65.8	62.2
Black	%	26.5	30.8	30.9
Others	%	4.6	3.4	6.9
Marital status of head				
Married or permanently cohabiting	%	70.4	64.7	67.1
Single, never legally married	%	12.6	15.7	12.7
Widowed	%	4.9	5.5	5.7
Divorced	%	9.4	10.9	10.2
Separated	%	2.7	3.2	4.3
Number of family members	q25; q50; q75	2; 2; 4	2; 2; 4	2; 3; 4
Annual family consumption				
Food (without foodstamp)	median ($)	6240	5720	6160
Foodstamp	>0; median $ among	7%; 2400	9%; 2532	10%; 2760
Total consumption	median ($)	31131	29637	31047
Total consumption/# in FU	median ($)	12748	12584	11651
Total consumption 2005-2011	median ($)	41516	38000	40033
Total consumption/# in FU 2005-2011	median ($)	17032	16285	15072
Annual family income				
Family Income without transfer	median ($)	56108	51000	52706
Per capita Family Income without transfer	median ($)	22950	21683	19733
Family non-asset income	median ($)	54600	50000	51600
Annual narrow dynasty income				
N. of families per dynasty	q10; q50; q90	2; 4; 7	2; 3; 6	
Average narrow dynasty income (per family)	median ($)	61323	58180	
Average expansive dynasty non-asset income (per family)	median ($)	59147	56067	
Family wealth				
Family wealth without equity	median ($)	27000	18000	16000
Per capita Family wealth without equity	median ($)	10500	7300	5700
Family wealth with equity	median ($)	83000	57800	52000
Per capita Family wealth with equity	median ($)	32075	23000	18339
Narrow dynasty wealth				
N. of families per dynasty	q10; q50; q90	2; 3; 5	2; 3; 6	
Average narrow dynasty wealth without equity (per family)	median ($)	48880	41683	
Average narrow dynasty wealth with equity (per family)	median ($)	106734	92225	

Table 3. Tests of altruism: Effects of own income on consumption

	Static test					Dynamic test				
	Baseline sample		Restricted to nested dynasty sample			Baseline sample		Restricted to nested dynasty sample		
	No dynasty fixed effect	Sample size	No dynasty fixed effect	Dynasty fixed effect	Sample size	No dynasty fixed effect	Sample size	No dynasty fixed effect	Dynasty fixed effect	Sample size
Food 1999-2011, excluding food stamps	0.303***	44085	0.290***	0.240***	22677	0.084***	32813	0.075***	0.090***	16349
			[0.286 t=33.07]	[0.240 t=23.29]	23257			[0.144 t=13.35]	[0.137 t=10.43]	15439
Food 1999-2011, including food stamps	0.204***	44481	0.212***	0.170***	22826	0.050***	33254	0.054***	0.056***	16501
Total consumption 1999-2011, excluding food stamps	0.424***	44632	0.418***	0.358***	22895	0.090***	33454	0.099***	0.100***	16588
Total consumption 1999-2011, including food stamps	0.389***	44611	0.391***	0.332***	22883	0.075***	33419	0.086***	0.084***	16570
Total consumption, expanded, 2005-2011, excluding food stamps	0.459***	28026	0.461***	0.405***	12878	0.112***	18455	0.126***	0.128***	8236
Total consumption, expanded, 2005-2011, including food stamps	0.424***	28003	0.433***	0.378***	12865	0.098***	18422	0.113***	0.110***	8217

AHK's estimates reported in brackets and are from table 3 in their manuscript. AHK dynamic tests are for two-year difference to parellel our two-year differences.

*,**,*** indicates statistical significance at the 0.05, 0.01, and 0.001 level, respectively.

Control variables included in all models: quadratics in the number of members in own household and average number of members of households within one's dynasty, own age and age of household head, own gender and the gender of household head, race of household head, marital status of household head, year dummies.

	Food 1999-2011, excluding food stamps	Food 1999-2011, including food stamps	consumption 1999-2011, excluding food	consumption 1999-2011, including food	consumption, expanded, 2005-2011, excluding	consumption, expanded, 2005-2011, including
	N=28509	N=28493	N=28509	N=28493	N=18912	N=18899
Own income						
t	0.197***	0.122***	0.247***	0.226***	0.267***	0.247***
t-2	0.076***	0.062***	0.129***	0.126***	0.135***	0.130***
t-4	0.067***	0.055***	0.112***	0.109***	0.125***	0.124***
ihs own wealth time t	0.003***	0.002***	0.002***	0.002***	0.003***	0.003***
Dynasty income						
t	0.041***	0.031***	0.040***	0.038***	0.053***	0.050***
t-2	0.007	0.008	0.014*	0.015*	0.007	0.008
t-4	0.019*	0.008	0.022***	0.018**	0.024**	0.020**
ihs dynasty wealth time t	-0.001	-0.002**	-0.001+	-0.001*	-0.001	-0.001+
Sum of income coefficients						
Own	0.340***	0.239***	0.488***	0.462***	0.526***	0.501***
Dynasty	0.066***	0.047***	0.076***	0.071***	0.083***	0.078***

Table 4. Static tests of life cycle model: Effects of own and dynasty resources on consumption

+, *,**,*** indicates statistical significance at the 0.10, 0.05, 0.01, and 0.001 level, respectively.

Control variables included in all models: quadratics in the number of members in own household and average number of members of households within one's dynasty, own age and age of household head, own gender and the gender of household head, race of household head, marital status of household head, year dummies.

ihs=inverse hyperbolic sine transformation.

	Food 1999-2011, including food stamps	Utilities, 1999-2011	Vehicle gas, 1999-2011	Health care, 1999-2011	Clothing, 2005-2011	Household repairs, 2005-2011	Household furnishings, 2005-2011	Trip/vacations, 2005-2011
Table 5. Static tests of life cycle model: Effects of own and dynasty resources on consumption								
Disaggregated consumption								
Drop observations with no consumption in given category								
	N=28493	N=27038	N=25485	N=26559	N=17886	N=11321	N=12054	N=12662
Sum of income coefficients								
Own	0.239***	0.169***	0.272***	0.440***	0.577***	0.536***	0.478***	0.656***
Dynasty	0.047***	-0.030***	-0.044***	0.124***	0.097***	0.061*	0.041+	0.167***
Drop observations with no consumption in any of the given categories (i.e., balanced panel, 2005-2011)								
	N=6342	N=6342	N=6342	N=6342	N=6342	N=6342	N=6342	N=6342
Sum of income coefficients								
Own	0.278***	0.219***	0.254***	0.292***	0.637***	0.575***	0.516***	0.667***
Dynasty	0.037***	0.003	-0.056**	0.049+	0.097***	0.038	0.038	0.178***
Linear probability model of whether any spending (i.e., 0/1)								
	na	N=28509	N=28509	N=28509	N=18912	N=18912	N=18912	N=18912
Sum of income coefficients								
Own	na	0.046***	0.087***	0.079***	0.043***	0.156***	0.103***	0.190***
Dynasty	na	0.000	0.014***	0.020***	0.002	0.018**	0.012+	0.057***

+, *,**,*** indicates statistical significance at the 0.10, 0.05, 0.01, and 0.001 level, respectively.

Control variables included in all models: quadratics in the number of members in own household and average number of members of households within one's dynasty, own age and age of household head, own gender and the gender of household head, race of household head, marital status of household head, year dummies.

na=Not applicable because all observations have positive food consumption.

	Food 1999-2011, excluding food stamps	Food 1999-2011, including food stamps	consumption 1999-2011, excluding food	consumption 1999-2011, including food	consumption, expanded, 2005-2011, excluding	consumption, expanded, 2005-2011, including
Table 6. Dynamic tests of the life cycle model: Effects of change in own and dynasty resources on change in consumption						
t-(t-2)	N=30718	N=30852	N=30948	N=30913	N=17867	N=17837
Change in own income	0.085***	0.049***	0.084***	0.070***	0.107***	0.093***
Change in dynasty income	0.008	0.004	0.005	0.005	0.005	0.004
t-(t-4)	N=23611	N=23713	N=23777	N=23758	N=11064	N=11052
Change in own income	0.120***	0.070***	0.129***	0.112***	0.155***	0.136***
Change in dynasty income	0.013+	0.011+	0.011+	0.010+	0.014	0.014

+, *,**,*** indicates statistical significance at the 0.10, 0.05, 0.01, and 0.001 level, respectively.

Control variables included in all models: quadratics in the number of members in own household and average number of members of households within one's dynasty, own age and age of household head, own gender and the gender of household head, race of household head, marital status of household head, year dummies.

	Food 1999-2011, excluding food stamps	Food 1999-2011, including food stamps	Total consumption 1999-2011, excluding food stamps	Total consumption 1999-2011, including food stamps	Total consumption, expanded, 2005-2011, excluding food stamps	Total consumption, expanded, 2005-2011, including food stamps
Table 7. Marginal propensity to consume out of transitory income shocks						
	N=21133	N=21109	N=21133	N=21109	N=9767	N=9750
Family Income	0.059**	0.039*	0.100***	0.089***	0.093***	0.089***

*,**,*** indicates statistical significance at the 0.05, 0.01, and 0.001 level, respectively.

Table 8. Marginal propensity to consume out of transitory income shocks by wealth category

Effect on food expenditure excluding food stamp

	1999-2011 Sample	Dynasty wealth (excluding one's own wealth)			
		Bottom 25%	25-75%	Top 25%	
Own family wealth	Bottom 25%	0.074	0.159*	-0.002	0.099*
	25-75%	0.025	0.054	0.115*	0.063*
	Top 25%	-0.084	-0.02	0.007	-0.017

Effect on food expenditure including food stamp

	1999-2011 Sample	Dynasty wealth (excluding one's own wealth)			
		Bottom 25%	25-75%	Top 25%	
Own family wealth	Bottom 25%	0.019	0.091+	-0.001	0.053
	25-75%	-0.006	0.053+	0.106*	0.053*
	Top 25%	-0.065	-0.017	0.008	-0.011

Effect on total consumption excluding food stamp (using 1999-2011 sample)

	1999-2011 Sample	Dynasty wealth (excluding one's own wealth)			
		Bottom 25%	25-75%	Top 25%	
Own family wealth	Bottom 25%	0.108	0.143**	-0.02	0.102***
	25-75%	0.082+	0.152***	0.154***	0.133***
	Top 25%	-0.001	0.062	-0.011	0.022

Effect on total consumption including food stamp (using 1999-2011 sample)

	1999-2011 Sample	Dynasty wealth (excluding one's own wealth)			
		Bottom 25%	25-75%	Top 25%	
Own family wealth	Bottom 25%	0.111+	0.116**	-0.021	0.086**
	25-75%	0.059	0.140***	0.153***	0.122***
	Top 25%	-0.006	0.063	-0.011	0.022

Effect on total consumption excluding food stamp (using 2005-2011 sample)

	2005-2011 Sample	Dynasty wealth (excluding one's own wealth)			
		Bottom 25%	25-75%	Top 25%	
Own family wealth	Bottom 25%	0.111	0.107	-0.009	0.087
	25-75%	0.021	0.196***	0.193**	0.152***
	Top 25%	-0.256*	0.180*	0.136+	0.083

Effect on total consumption including food stamp (using 2005-2011 sample)

	2005-2011 Sample	Dynasty wealth (excluding one's own wealth)			
		Bottom 25%	25-75%	Top 25%	
Own family wealth	Bottom 25%	0.098	0.107+	-0.008	0.082
	25-75%	0.006	0.184***	0.190**	0.141***
	Top 25%	-0.246*	0.183*	0.138+	0.087

+, *,**,*** indicates statistical significance at the 0.10, 0.05, 0.01, and 0.001 level, respectively.

Table A1. Number of individuals in nested dynasties, for selected years						
Analytic sample without restricting to individuals in nested dynasties						
	Year 1999		Year 2005		Year 2011	
# of person i's dynasty members whose dynasty members are not identical to i's	# of persons	%	# of persons	%	# of persons	%
0	3469	65.33	3315	50.27	3294	43.27
1	939	17.68	1782	27.02	2434	31.98
2	524	9.87	610	9.25	639	8.39
3	160	3.01	325	4.93	387	5.08
4	89	1.68	196	2.97	312	4.1
5	55	1.04	156	2.37	222	2.92
6	33	0.62	103	1.56	139	1.83
7	16	0.3	42	0.64	78	1.02
8	15	0.28	35	0.53	48	0.63
9	4	0.08	18	0.27	26	0.34
10	4	0.08	5	0.08	19	0.25
11	2	0.04	3	0.05	8	0.11
12	0	0	1	0.02	5	0.07
13	0	0.01	2	0.03	1	0.01
14	0	0	1	0.02	0	0
Total	5310	100.02	6594	100.01	7612	100

	Food 1999-2011, excluding food stamps	Food 1999-2011, including food stamps	Total consumption 1999-2011, excluding food stamps	Total consumption 1999-2011, including food stamps	Total consumption, expanded, 2005-2011, excluding food stamps	Total consumption, expanded, 2005-2011, including food stamps
Table A2. Static tests of life cycle model: Effects of own and dynasty resources on consumption						
INCLUDE own income (wealth) in dynasty income (wealth)						
	N=29318	N=29302	N=29318	N=29302	N=19247	N=19234
Own income						
t	0.178***	0.108***	0.224***	0.205***	0.237***	0.218***
t-2	0.071***	0.054***	0.119***	0.115***	0.123***	0.117***
t-4	0.057***	0.047***	0.098***	0.097***	0.112***	0.112***
ihs own wealth time t	0.003***	0.002***	0.003***	0.002***	0.004***	0.004***
Dynasty income						
t	0.068***	0.053***	0.075***	0.072***	0.108***	0.103***
t-2	0.016	0.022+	0.031**	0.033**	0.026+	0.030*
t-4	0.028*	0.017+	0.038***	0.034***	0.029*	0.025+
ihs dynasty wealth time	0	-0.001+	-0.001	-0.001+	-0.001	-0.001
Sum of income coefficients						
Own	0.305***	0.209***	0.441***	0.416***	0.472***	0.448***
AHK estimate	[0.208 t=13.97]					
Dynasty	0.113***	0.093***	0.143***	0.139***	0.163***	0.157***
AHK estimate	[0.062 t=3.04]					

AHK estimates reported in brackets and based on income measured at t, t-1, and t-2 and reported in their table 6.

+, *,**,*** indicates statistical significance at the 0.10, 0.05, 0.01, and 0.001 level, respectively.

Control variables included in all models: quadratics in the number of members in own household and average number of members of households within one's dynasty, own age and age of household head, own gender and the gender of household head, race of household head, marital status of household head, year dummies.

ihs=inverse hyperbolic sine transformation.

Table A3. Sample size (frequency) for sample stratified by own and extended family wealth						
1999-2011 Sample						
		Extended family wealth				
		Bottom 25%:		25-75%:		Top 25%:
Own family wealth	Bottom 25% :	1108	(5.0%)	2150	(9.6%)	746 (3.3%)
	25-75%:	2126	(9.5%)	6343	(28.4%)	2621 (11.7%)
	Top 25%:	859	(3.8%)	3179	(14.2%)	3227 (14.4%)
2005-2011 Sample - including more consumption items						
		Extended family wealth				
		Bottom 25%:		25-75%:		Top 25%:
Own family wealth	Bottom 25% :	579	(5.9%)	1028	(10.5%)	374 (3.8%)
	25-75%:	1045	(10.6%)	2726	(27.7%)	1168 (11.9%)
	Top 25%:	378	(3.8%)	1294	(13.2%)	1240 (12.6%)