TABLE 1

CELL COUNT SUMMARY STATISTICS FOR GROUP-LEVEL CPS AND CEX DATA

Variable Type	Source	Number of Cells	Mean Cell Count	Minimum	Maximum
Wages:					
Men	CPS	420	902	227	2,291
Women	CPS	420	762	192	2,056
Husbands	CPS	420	695	190	1,576
Wives	CPS	420	509	148	1,166
Consumption:					
All	CEX	288	499	137	1,071
Married	CEX	288	414	117	896

NOTE.—Groups are defined by crossing 5-year birth cohorts with four educational attainment categories. Each cell corresponds to one annual observation on a group. The number of cells equals the total number of annual group-level observations that are admissible under our sample selection criteria. For CPS data, an admissible cell is one in which all men are between 23 and 59 years of age. The CPS samples of wives are restricted to women with husbands between 23 and 59 years of age. The CEX samples are restricted to households with a male head or husband of female head between 23 and 59 years of age. Other selection criteria are defined in the text. The number of admissible cells and the cell count summary statistics for CPS (CEX) data pertain to the 1975–90 (1980–90) sample period. The cell count equals the number of nonmissing observations for the indicated variable type.

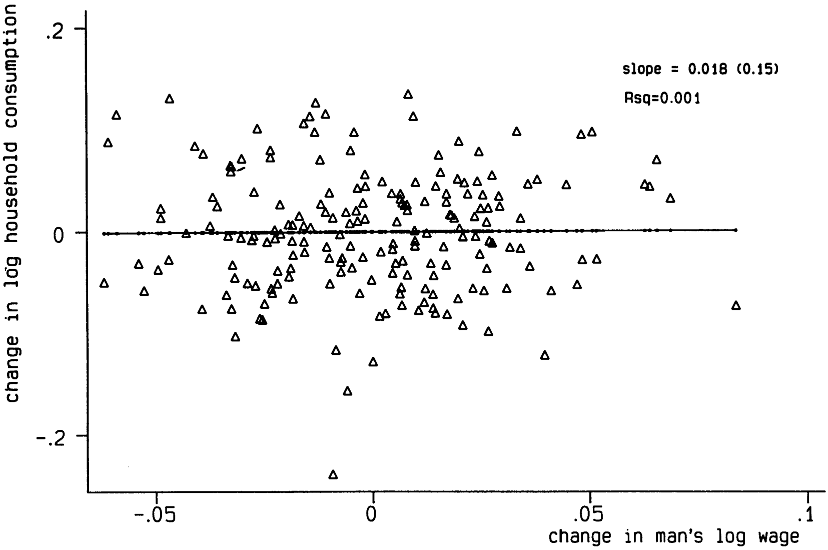

FIG. 1.—Household consumption vs. man's wage, annual log change residuals, 1981–90. Groups are defined by four-way education crossed with 5-year birth cohorts. Plotted values are residuals from regressions on year effects and a cubic in age.

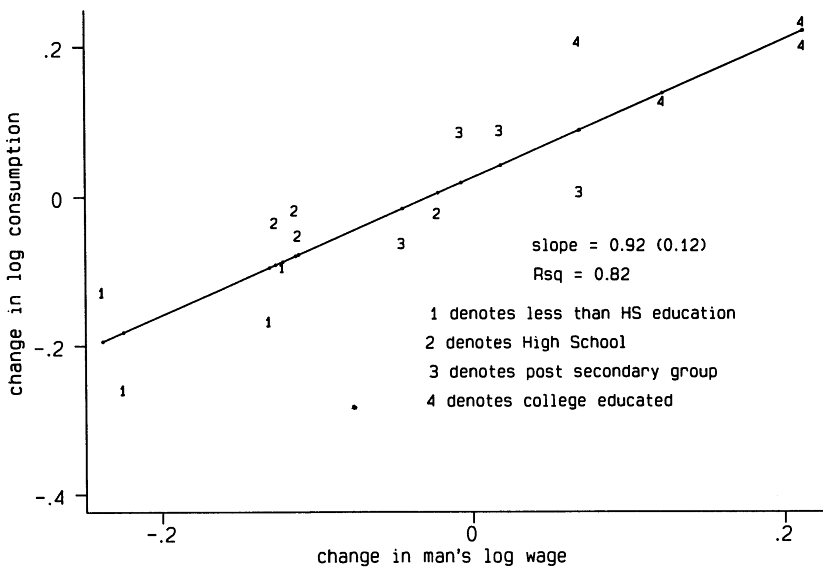

FIG. 2.—Household consumption vs. man's wage, 1980–90 log change residuals. Groups are defined by four-way education crossed with 5-year birth cohorts. Plotted values are residuals from regressions on a cubic in age.

TRANSITION MATRICES AND RELATIVE MOBILITY

To examine mobility, this section uses transition matrices following Jappelli and Pistaferri (2006). Table 4 looks at transitions between quintiles of the income distribution and between quintiles of the consumption distribution between 1984 and 1999. The pattern we expect is that consumption mobility is less than or equal to income mobility.

Table 4: Income and Consumption Transition Matrix - 1984 to 1999

EQUIVALENT INCOME

		Quintile in 1999				
		1st	*2nd*	*3rd*	*4th*	*5th*
	1st	**0.498**	0.256	0.140	0.083	0.033
Quintile	*2nd*	0.238	**0.293**	0.218	0.176	0.075
in 1984	*3rd*	0.121	0.207	**0.232**	0.269	0.171
	4th	0.080	0.158	0.230	**0.263**	0.269
	5th	0.062	0.106	0.172	0.209	**0.451**

EQUIVALENT CONSUMPTION

		Quintile in 1999				
		1st	*2nd*	*3rd*	*4th*	*5th*
	1st	**0.509**	0.255	0.133	0.059	0.044
Quintile	*2nd*	0.240	**0.271**	0.237	0.180	0.072
in 1984	*3rd*	0.129	0.204	**0.224**	0.253	0.190
	4th	0.074	0.185	0.254	**0.258**	0.229
	5th	0.047	0.086	0.153	0.250	**0.464**

Notes: Table reports equivalent income and equivalent consumption transitions between quintiles from 1984 to 1999. Equivalent consumption comes from our imputed, total consumption in the PSID. Equivalent income also comes from the PSID.

Table 3. Comparing OLS and IV Estimates of Consumption Smoothing Using PSID Data[a]

	OLS method		*IV method*	
Dependent variable	*Earnings coefficient*	*Implied elasticity*[b]	*Earnings coefficient*	*Implied elasticity*[b]
Basic equations				
Food	0.0099	0.053	0.0381	0.205
	(0.0014)		(0.0066)	
Housing	0.0068	0.046	0.0241	0.163
	(0.0017)		(0.0075)	
Food plus housing	0.0171	0.051	0.0581	0.174
	(0.0025)		(0.0111)	
Equations with individual fixed effects[c]				
Food	0.0098	0.053	0.0378	0.203
	(0.0016)		(0.0078)	
Housing	0.0068	0.046	0.0269	0.182
	(0.0019)		(0.0090)	
Food plus housing	0.0168	0.050	0.0595	0.179
	(0.0028)		(0.0133)	

Source: Authors' calculations based on data from the PSID.

a. Coefficient is that on change in head's earnings from regression specifications like that described in table 2 and its notes. Standard errors are shown in parentheses. Instrumental variables (IV) column instruments change in earnings with change in imputed earnings, as described in the text.

b. Evaluated at variable means.

c. These equations add a person-specific fixed effect identifying each individual in the sample.

mated using wage at the interview and hours worked last year).[36] The OLS coefficients (from table 2) are included for comparison.

We find that instrumenting significantly raises the effect of income changes on consumption changes. Each dollar of income rise in this IV specification leads to an increase of 3.8 cents in food consumption and of 5.8 cents in food plus housing consumption. In elasticity terms, this is an elasticity of food consumption of 0.205, and of food plus housing consumption of 0.174. While significant, these effects remain fairly small. Thus, while one can reject full consumption insurance, the deviations from that benchmark are not substantively significant.[37]

36. The imputed earnings instrument has significant explanatory power. The R^2 of the first stage is 0.192, and the t statistic on the instrument is 20.94.

37. Note that our food plus housing coefficient need not equal the sum of the food and housing coefficients. This is because (1) the sample is changing across these regressions, due to missing data on food or housing expenditure; and (2) we censor separately the food, housing, and food plus housing variables. For this second reason, in the CEX

Table 4. Estimating Consumption Smoothing Using CEX Data[a]

	OLS method		*IV method*	
Dependent variable	*Earnings coefficient*	*Implied elasticity[b]*	*Earnings coefficient*	*Implied elasticity[b]*
Food	0.0044 (0.0015)	0.026	0.0238 (0.0064)	0.142
Housing	0.0008 (0.0012)	0.006	0.0042 (0.0048)	0.029
Food plus housing	0.0053 (0.0022)	0.017	0.0339 (0.0089)	0.109
Nondurables	0.0344 (0.0058)	0.042	0.0893 (0.0237)	0.110
Durables	0.0329 (0.0112)	0.169	0.1727 (0.0047)	0.888
Total consumption	0.0680 (0.0130)	0.067	0.2440 (0.0550)	0.240
Utilities	0.0004 (0.0006)	0.005	0.0017 (0.0026)	0.021
Clothing	0.0058 (0.0013)	0.693	0.0111 (0.0053)	0.177
Entertainment	0.0073 (0.0022)	0.102	0.0013 (0.0091)	0.018
Vehicle maintenance and fuel	0.0034 (0.0017)	0.030	0.0016 (0.0072)	0.014
Home services	0.0028 (0.0015)	0.076	0.0224 (0.0063)	0.604
Alcohol and tobacco	0.0011 (0.0004)	0.047	0.0044 (0.0015)	0.188
Medical care and insurance	0.0013 (0.0008)	0.051	0.0022 (0.0034)	0.086
Other insurance	−0.0007 (0.0010)	−0.013	−0.0087 (0.0039)	−0.166
Contributions to others	0.0016 (0.0008)	0.048	0.0088 (0.0033)	0.266
Summary statistic				
N^c	19,155		12,875	

Source: Authors' calculations based on data from the CEX.

a. Coefficient is that on change in head's earnings from regression specifications like that described in table 2 and its notes, including a full set on month dummies. Standard errors are shown in parentheses. IV column instruments change in earnings with change in imputed earnings, as described in the text. The sample period is 1980–93.

b. Evaluated at variable means.

c. For equation involving total consumption.

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- To what degree are households insulated from idiosyncratic income fluctuations?

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  2. Not all shocks are born equal: trans. vs perm.

Recent Progress

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- Developed data by merging PSID and CEX
- Developed empirical methodology to distinguish consumption insurance against shocks with different “durability”
- Their findings:
  1. The insurance coefficient with respect permanent shocks to after-tax household earnings shocks is estimated at 0.36
  2. The insurance coefficient with respect to transitory shocks to after-tax household earnings is estimated at 0.95

A Framework for Measuring Insurance

- Detrended log-earnings y_{it} for individual i of age t:

$$y_{it} = \sum_{j=0}^{t} a_j' \mathbf{x}_{i,t-j}$$

where $\mathbf{x}_{i,t-j}$ is an $(m \times 1)$ vector of orthogonal i.i.d. shocks, and a_j is an $(m \times 1)$ vector of coefficients

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$$\phi^x = 1 - \frac{cov\left(\Delta c_{it}, x_{it}\right)}{var\left(x_{it}\right)}$$

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- Identification problem: realized shocks x_{it} not directly observable

Identification Strategy

- Let $\mathbf{y}_i$ be the entire lifetime history of income realizations for individual i, from $t = 1, ..., T$
- Suppose there exist functions of observable histories of individual income $g_t^x(\mathbf{y}_i)$ such that:

$$\begin{aligned} cov\left(\Delta c_{it}, x_{it}\right) &= cov\left(\Delta c_{it}, g_t^x\left(\mathbf{y}_i\right)\right) \\ var\left(x_{it}\right) &= cov\left(\Delta y_{it}, g_t^x\left(\mathbf{y}_i\right)\right) \end{aligned}$$

- Then, we can identify ϕ^x as:

$$\phi^x = 1 - \frac{cov\left(\Delta c_{it}, g_t^x\left(\mathbf{y}_i\right)\right)}{cov\left(\Delta y_{it}, g_t^x\left(\mathbf{y}_i\right)\right)}$$

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- BPP is a special case of this strategy

The BPP Methodology

1. Permanent + Transitory earnings process

   - Recall our log-earnings representation:

$$y_{it} = \sum_{j=0}^{t} a_j' \mathbf{x}_{i,t-j}$$

   - Set $m = 2$, $\mathbf{x}_{it} = (\eta_{it}, \varepsilon_{it})'$, $a_0 = (1,1)'$ and $a_j = (1,0)'$, $j \geq 1$

$$\Delta y_{it} = \eta_{it} + \Delta \varepsilon_{it}$$

   - MaCurdy (1982), Abowd-Card (1989), Carroll (1997)

The BPP Methodology (transitory shocks)

2. Identify ϕ^ε through the function:

$$\begin{aligned} g_t^\varepsilon(\mathbf{y}_i) &= \Delta y_{i,t+1} \\ &= \eta_{i,t+1} + \varepsilon_{i,t+1} - \varepsilon_{it} \end{aligned}$$

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and note that:

$$\begin{aligned} cov\left(\Delta y_{it}, \Delta y_{i,t+1}\right) &= -var\left(\varepsilon_{it}\right) \\ cov\left(\Delta c_{it}, \Delta y_{i,t+1}\right) &= -cov\left(\Delta c_{it}, \varepsilon_{it}\right) \end{aligned}$$

where the second equality requires:

A1 [no advanced info]: $cov\left(\Delta c_{it}, \eta_{i,t+1}\right) = cov\left(\Delta c_{it}, \varepsilon_{i,t+1}\right) = 0$

The BPP Methodology (permanent shocks)

3. Identify ϕ^η through the function:

$$\begin{aligned} g_t^\eta(\mathbf{y}_i) &= \Delta y_{i,t-1} + \Delta y_{it} + \Delta y_{i,t+1} \\ &= \eta_{i,t-1} + \eta_{it} + \eta_{i,t+1} + \varepsilon_{i,t-2} + \varepsilon_{i,t+1} \end{aligned}$$

The BPP Methodology (permanent shocks)

3. Identify ϕ^η through the function:

$$g_t^\eta(\mathbf{y}_i) = \Delta y_{i,t-1} + \Delta y_{it} + \Delta y_{i,t+1}$$
$$= \eta_{i,t-1} + \eta_{it} + \eta_{i,t+1} + \varepsilon_{i,t-2} + \varepsilon_{i,t+1}$$

and note that:

$$cov\left(\Delta y_{it}, \Delta y_{i,t-1} + \Delta y_{it} + \Delta y_{i,t+1}\right) = var\left(\eta_{it}\right)$$
$$cov\left(\Delta c_{it}, \Delta y_{i,t-1} + \Delta y_{it} + \Delta y_{i,t+1}\right) = cov\left(\Delta c_{it}, \eta_{it}\right)$$

where the second equality requires:

A1 [no advanced info]: $cov\left(\Delta c_{it}, \eta_{i,t+1}\right) = cov\left(\Delta c_{it}, \varepsilon_{i,t+1}\right) = 0$

A2 [short memory]: $cov\left(\Delta c_{it}, \eta_{i,t-1}\right) = cov\left(\Delta c_{it}, \varepsilon_{i,t-2}\right) = 0$

BPP Estimation: Main Results

1. The insurance coefficient with respect permanent shocks to after-tax household earnings shocks is estimated to be $\phi^{\eta} = 0.36$

2. The insurance coefficient with respect to transitory shocks to after-tax household earnings is estimated to be $\phi^{\varepsilon} = 0.95$

3. The estimated age profile of ϕ_t^{η} is roughly flat