

Discussion of
"Deconstructing Lifecycle Expenditures"
by Aguiar and Hurst

Discussant: Fatih Guvenen

July 23, 2008

Overview of Results

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- Two New Empirical Findings:

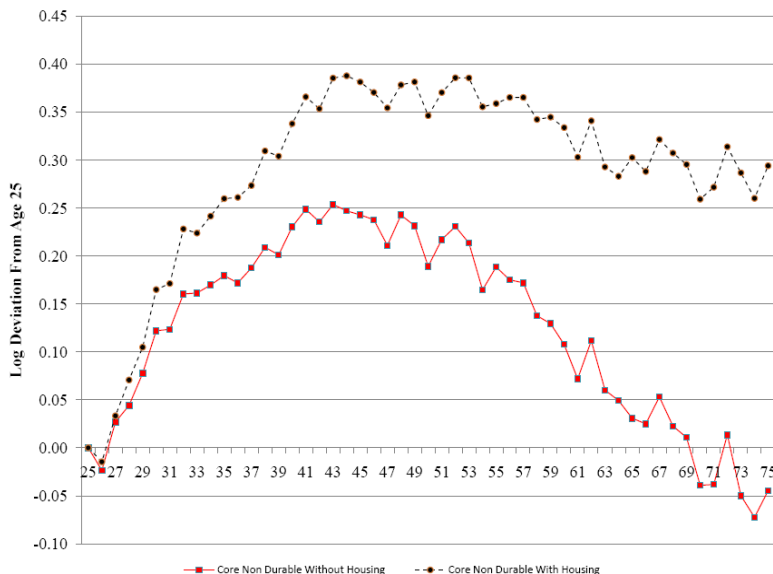
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- ★ Earlier papers: **Hump-shaped** total consumption over lifecycle

Lifecycle Profile of Expenditures (Aggregate)



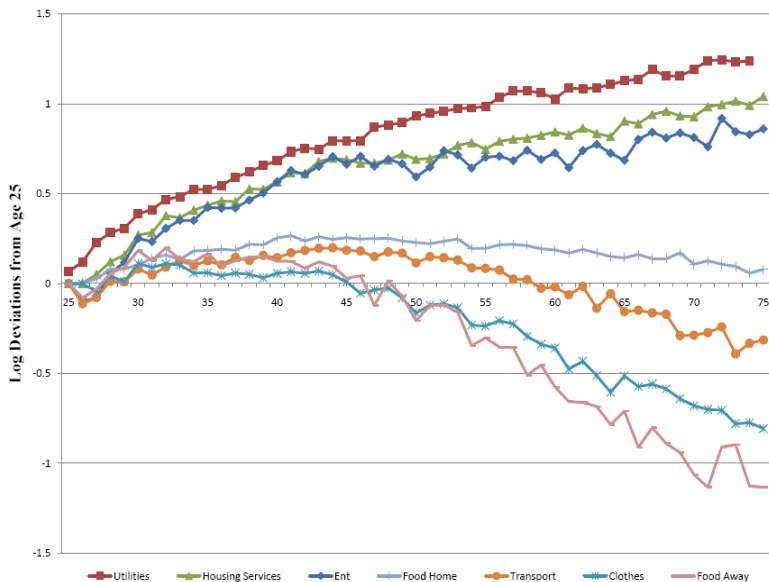
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Lifecycle Profile of Expenditures (Sub-categories)



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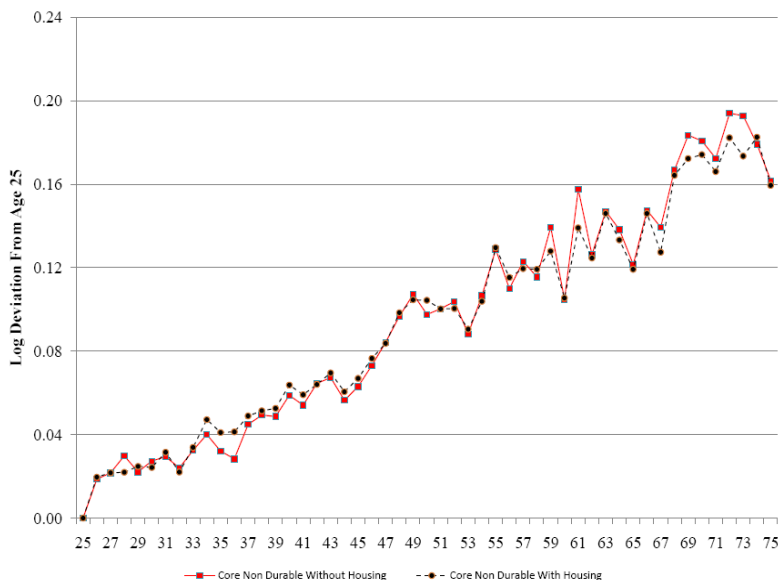
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Cross-sectional Variance of Expenditures (Aggregate)



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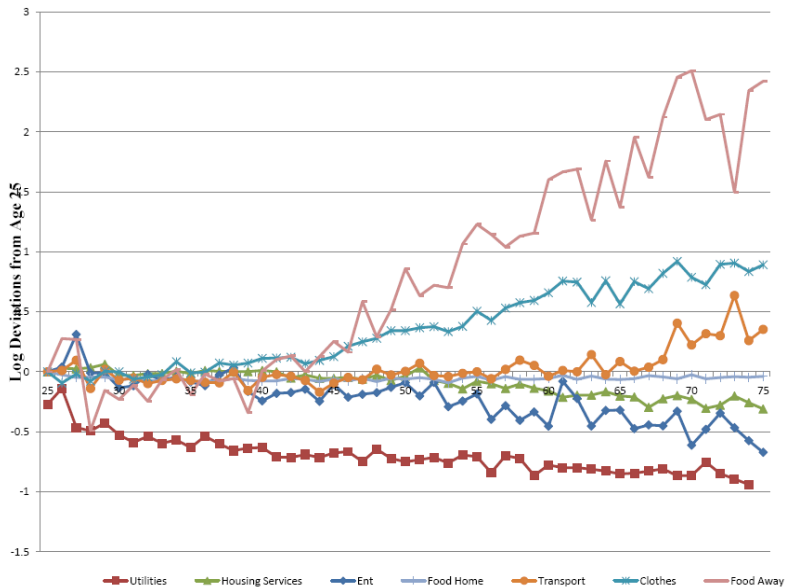
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Cross-sectional Variance of Expenditures (Sub-categories)



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 - ▶ Difficult to reconcile with standard models (with uninsurable idiosyncratic shocks and impatience).

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- Implications for Existing Theories

- ▶ Difficult to reconcile with standard models (with uninsurable idiosyncratic shocks and impatience).
 - ▶ Categories that behave differently are **work-related** (transport and clothing) or **suitable for home production** (food).

Comments/Suggestions for Empirical Analysis

$$\ln C_{it}^k = \beta_0 + \beta_{age}^k Age_{it} + \beta_{cohort}^k Cohort_i + \beta_{fs}^k Family_{it} + \varepsilon_{it}^k$$

Comments/Suggestions for Empirical Analysis

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- ▶ Population aging over sample period.

Age distribution by year		
Age	1985	2000
25-44	0.556	0.396
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% Inflation 1980-2003	
Housing	140
Food away	125
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② Similarly, control for geographical region, and urban-rural (different age distributions).

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Sensitivity to Time Period

- Variance profile:

CEX	Change in variance between age 25 and 65
1980-1990	0.20-0.25
1980-1998	0.08-0.10
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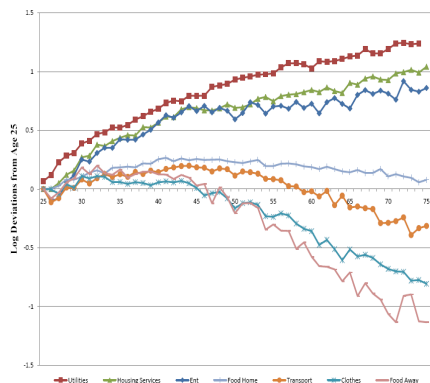
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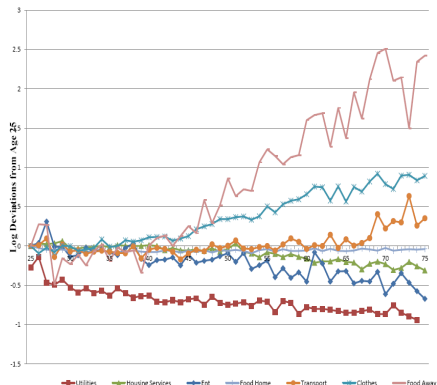
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- Same comment applies to the different results obtained by "cohort effects" versus "time effects" approaches.
- Similar sensitivity in "mean profiles" of food, transport and clothing.
- The paper currently does not focus on any of these results. But it could be useful to dig further.

What to Make of These New Facts?

MEAN PROFILE



VARIANCE PROFILE



Three Regularities to note from Previous Page

Putting all sub-categories on the same graphs (instead of separately looking at "increasing" and "decreasing categories) reveals more systematic patterns:

- 1 Mean profiles of different categories:
 - 1 are all concave
 - 2 Do not criss-cross each other (ie, a ranked in an orderly fashion)
 - 3 all look like each other except being rotated around age 25.
- 2 Sub-categories rank on the mean and variance profiles in exactly opposite order!!
- 3 Subcategories associated with goods consumed away from home all decline later in life whereas those that capture consumption at home all rise (broader than home production!)

Overall, these are remarkably systematic patterns that seem to point to a general explanation (rather than a different explanation for each category as currently done in paper).

Consumption “Home” versus “Away”

	share	Mean	Variance
Home Consumption:			
Food at home	.15	↗	↘
Utilities	.09	↗	↘
Domestic services	.02	↗	↗
Housing services	.34	↗	↘
<i>Total Home</i>	.60		
Away Consumption:			
Food Away	.06	↘	↗
Clothing	.07	↘	↗
Transportation	.14	↘	↗
Entertainment	.05	↗	↘
<i>Total Away</i>	.32		

Attempt at a Model: "Standard Framework" with a Twist



$$\max \sum_{t=1}^T \beta^t \frac{C_t^{1-\alpha}}{1-\alpha}$$

s.t.

$$C_t + S_{t+1} = (1+r)S_t + Y_t$$

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- where the income process is given by:

$$\log(Y_t) = \log(Y_{t-1}) + \varepsilon_t, \quad \varepsilon_t \stackrel{iid}{\sim} N(0, \sigma_\varepsilon^2) \quad \text{for } t = 1, \dots, R$$

$$Y_t \equiv 0 \quad \text{for } t = R + 1, \dots, T$$

Home Sweet-er Home

- Two types of consumption goods aggregated by:

$$u(C) = ((\theta H)^\rho + ((1 - \theta) M)^\rho)^{\alpha/\rho}$$

where H : good consumed at home; M : good consumed away from home.

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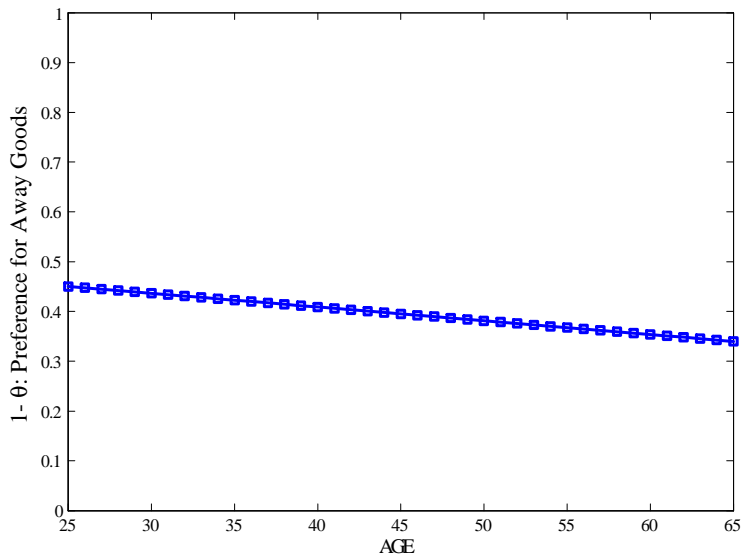
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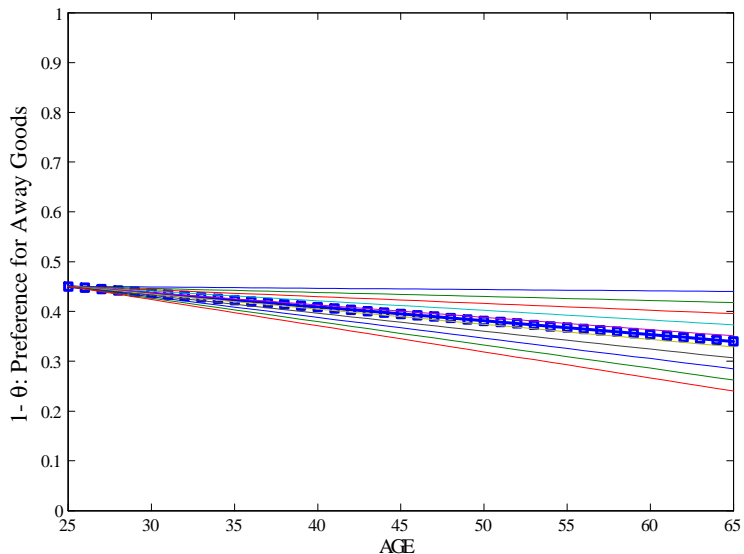
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- ▶ $\theta_t^i = \theta_0 + \delta^i t$

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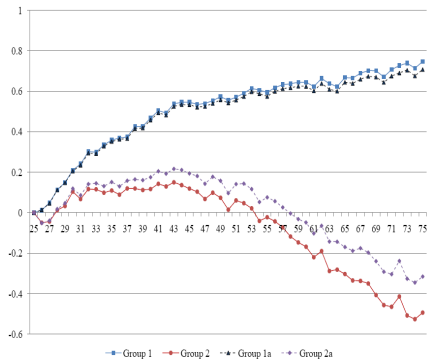
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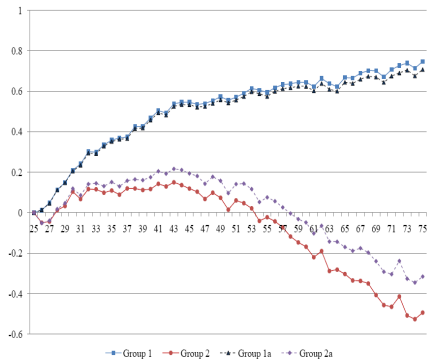
Simple Calibration

- $R = 40, T - R = 20.$
- $\sigma_{\varepsilon} = 0.15$
- $\beta = 0.94, r = \frac{1}{0.96} - 1.$
- $\rho = 0.6 \rightarrow \text{Elasticity} = 2.5.$
- $\theta_0 = 0.55, \theta_{40} = 0.68$ (to match the share of home versus away foods at age 25)
- $\sigma(\delta^i) = 0.10$

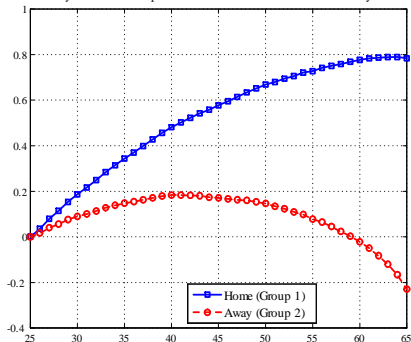
Lifecycle Profile of Expenditure: Alternate Sub-Aggregates



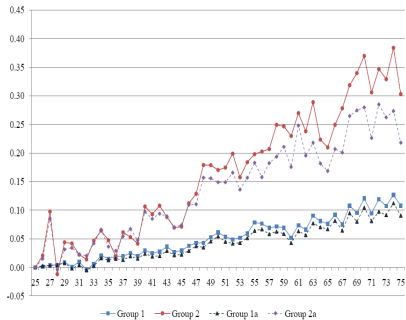
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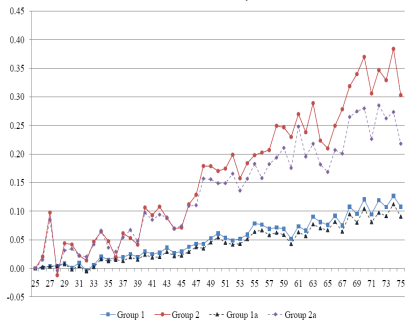
Lifecycle Profile of Expenditures in the Model: Home versus Away



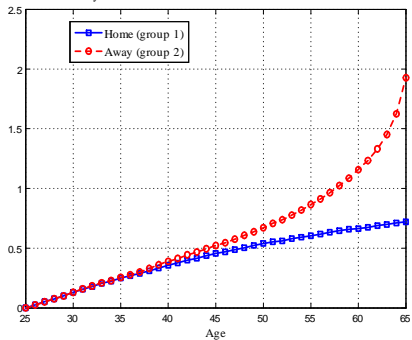
**Lifecycle Profile of Cross Sectional Variance:
Home versus Away**



Lifecycle Profile of Cross Sectional Variance:
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Lifecycle Profile of Cross-sectional Variance in the Model



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- Introducing "opportunity cost of time" (via endog. labor supply) into this framework could form the basis of a more compelling explanation
- ATUS data could be used to shed more light on time spent at home versus away.