Discussion of "Detecting Home Production" by Mariane Baxter and Dana Rotz

Discussion by Yongsung Chang

Outline of Discussion

1. Literature
2. Methodology
3. Contribution
4. Comments/Questions/Suggestion

Home Production: Why care?

Helps us to understand market behavior:
Allocation of time and goods

- Labor Supply (Becker, 1965)
- Female Wage Discrimination (Becker, 1984)
- Economic Development (Parente-Rogerson-Wright, 1997; Greenwood et al.; 2005)
- Business Cycles (Benhabib-Rogerson Wright (1991), Greenwood-Hercowitz (1991), Baxter (1994), Gomme-Kydland-Rupert (2004)
- Life-cycle Expenditure (Aguiar-Hurst, 2007)

Key is willingness to substitute goods and time and activities.

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- Inputs (especially, time) hard to measure.

Tough Question

- Can you identify the shape of home production technology?

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  - PSID (Hours) does not have a good consumption data.

Propensity Score Matching: Clever ...

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- Widely used to estimate "Average Treatment Effect".

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- Each consumption category j, compute expenditure differences $= E[C_{ij}(type1) - C_{ij}(type2)]$

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- Suggest strong substitution between market goods and home goods

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  - Substitution between time and goods within leisure activity

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But, potential identification problem...

- Decision to work or not depends on income and preferences (home production)
  - What if the main reason is the latter?

Two households with similar propensity scores

	"Smith" Family	"Jones" Family
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- (May exploit Engel Curve?)

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  - Regression is less subject to this criticism

Regression: e.g., Chang, 2000

- CEX married households 1990-1994
- Coarse categories only
- Regress expenditure share on household leisure
  - durable goods (-0.13%), food away from home (-0.72%), household operation services (-1.31%)
  - entertainment durables (0.18%), food at home (0.08%)

Chang, 2000

Table 3
Estimation of (8) based on the CEX for 1990–1994: married households[a]

Category	Durable goods	Entertainment durables	Non-durables and service consumption	Food at home	Food outside	Household operation
Log (income)	0.34	0.32	– 0.15	– 0.35	– 0.07	0.18
	(36.8)	(9.7)	(– 36.8)	(– 39.5)	(– 4.4)	(5.4)
Log (leisure)	– 0.13	0.18	0.06	0.08	– 0.72	– 1.31
	(– 3.9)	(1.6)	(3.9)	(2.7)	(– 13.6)	(– 10.8)

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  - Allow you combine CEX and ATUS
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- Production function for each activity (Becker vs. Gronau)

Becker 1965 vs. Gronau 1977

- Gronau
  - $U(C) + v(L)$
  - $C = g(C_m, C_h)$, $C_h = h(K_h, N_h)$

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  - $U(C) + v(L)$
  - $C = g(C_m, C_h)$, $C_h = h(K_h, N_h)$
- Becker
  - $U(X_1, X_2, ..., X_J)$
  - $X_j = f^j(C_j, L_j)$,
  - $\frac{f_C^j}{f_L^j} = \frac{P_j}{W}$

Substitution between Time and Good within Activity

Different ways to spend leisure time:

- Goods intensive way - High wage earner
  - go to Lakers game
  - High $\frac{C_j}{L_j}$ ratio
- Time intensive way - Low wage earner
  - Watch TV at home
  - Low $\frac{C_j}{L_j}$ ratio

Intra- vs. Inter-temporal Substitution

- Leisure activities: high inter-temporal substitution
  - Alaskan Cruise
  - Non-convexity
- Food: low inter-temporal substitution

Aguiar and Hurst, 2009

Figure 2a:
Expenditures over the Lifecycle, Categories that Do Not Decline After Middle Age

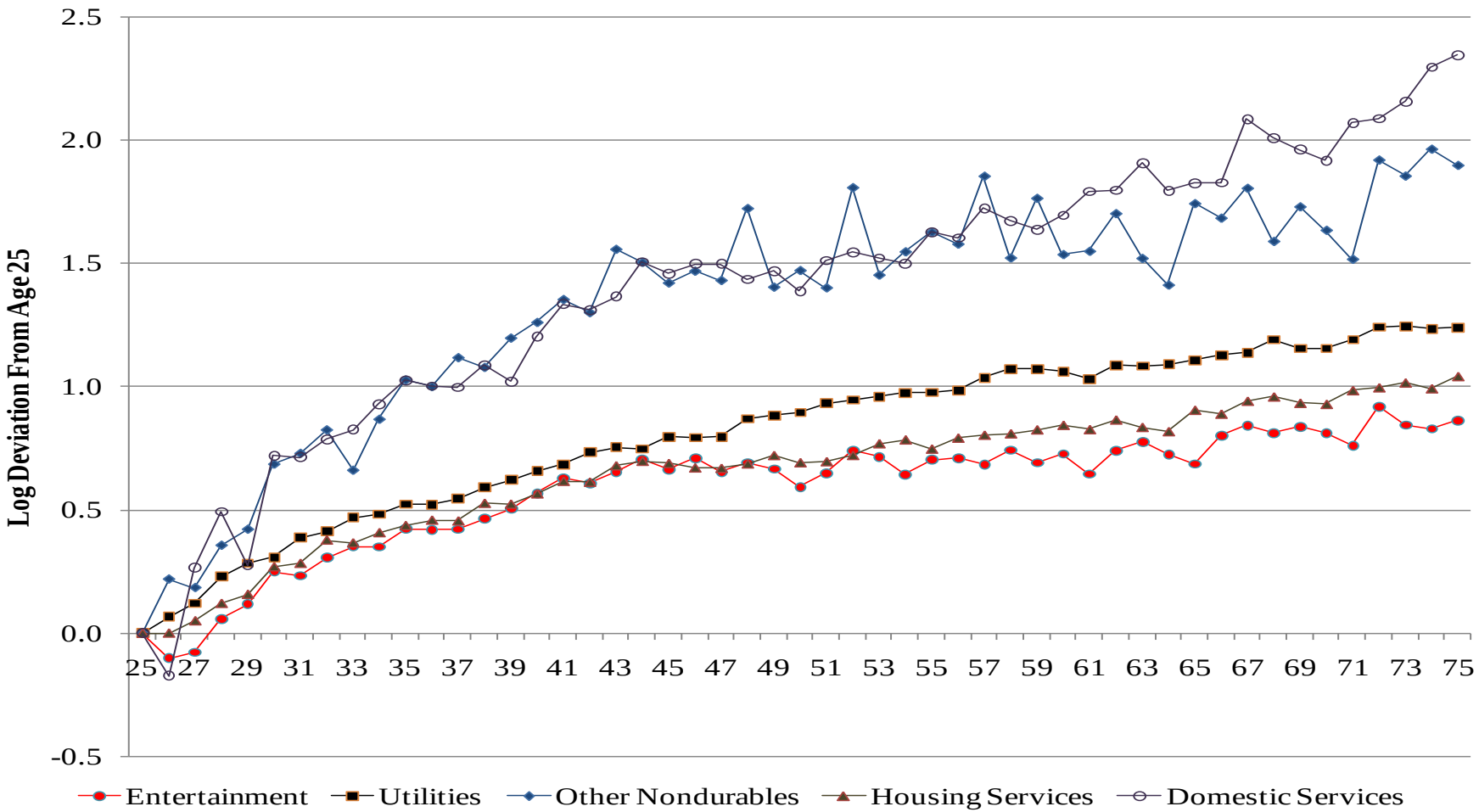

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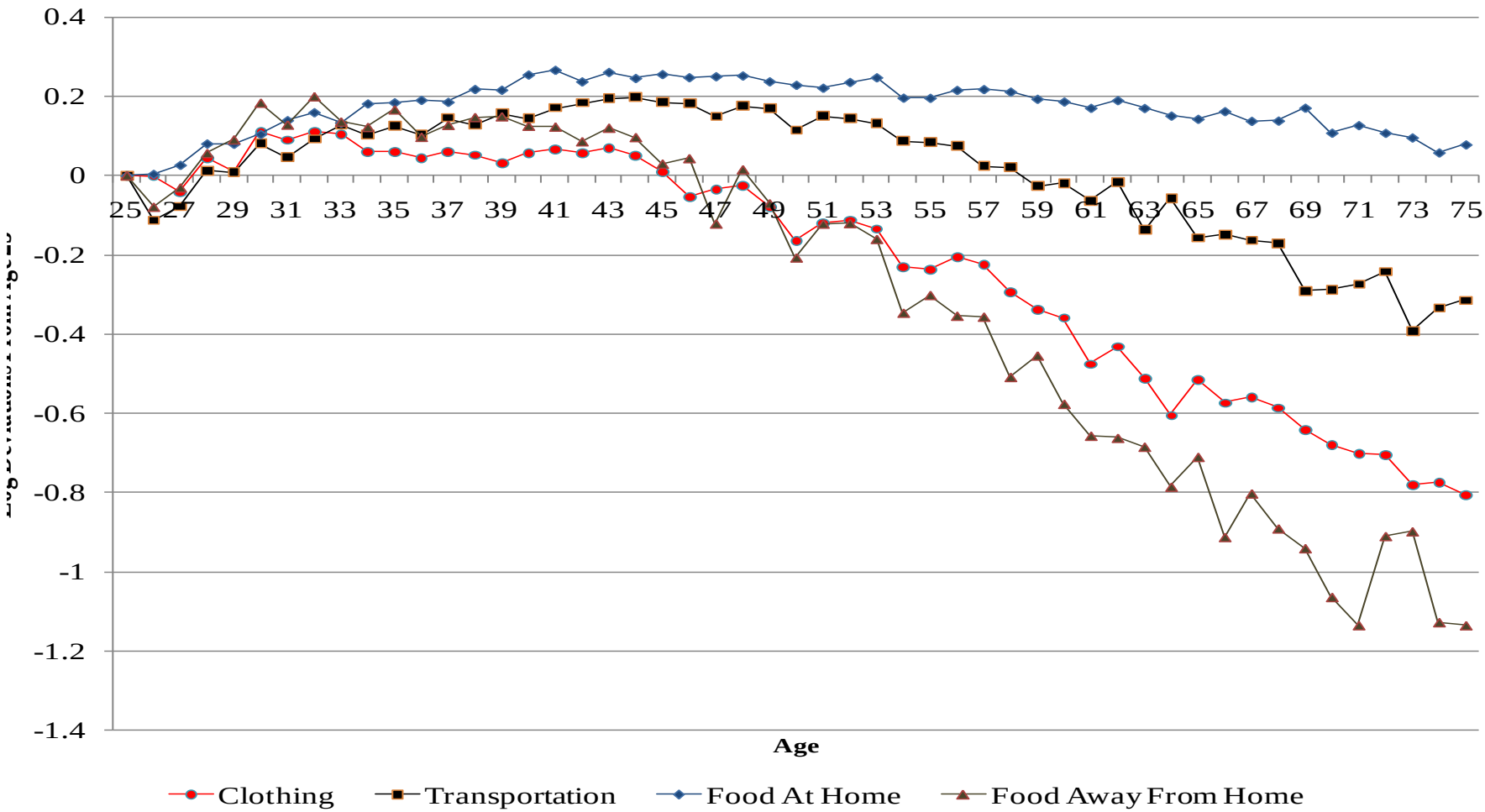
Figure 2b:
Expenditures over the Lifecycle, Categories that Decline After Middle Age



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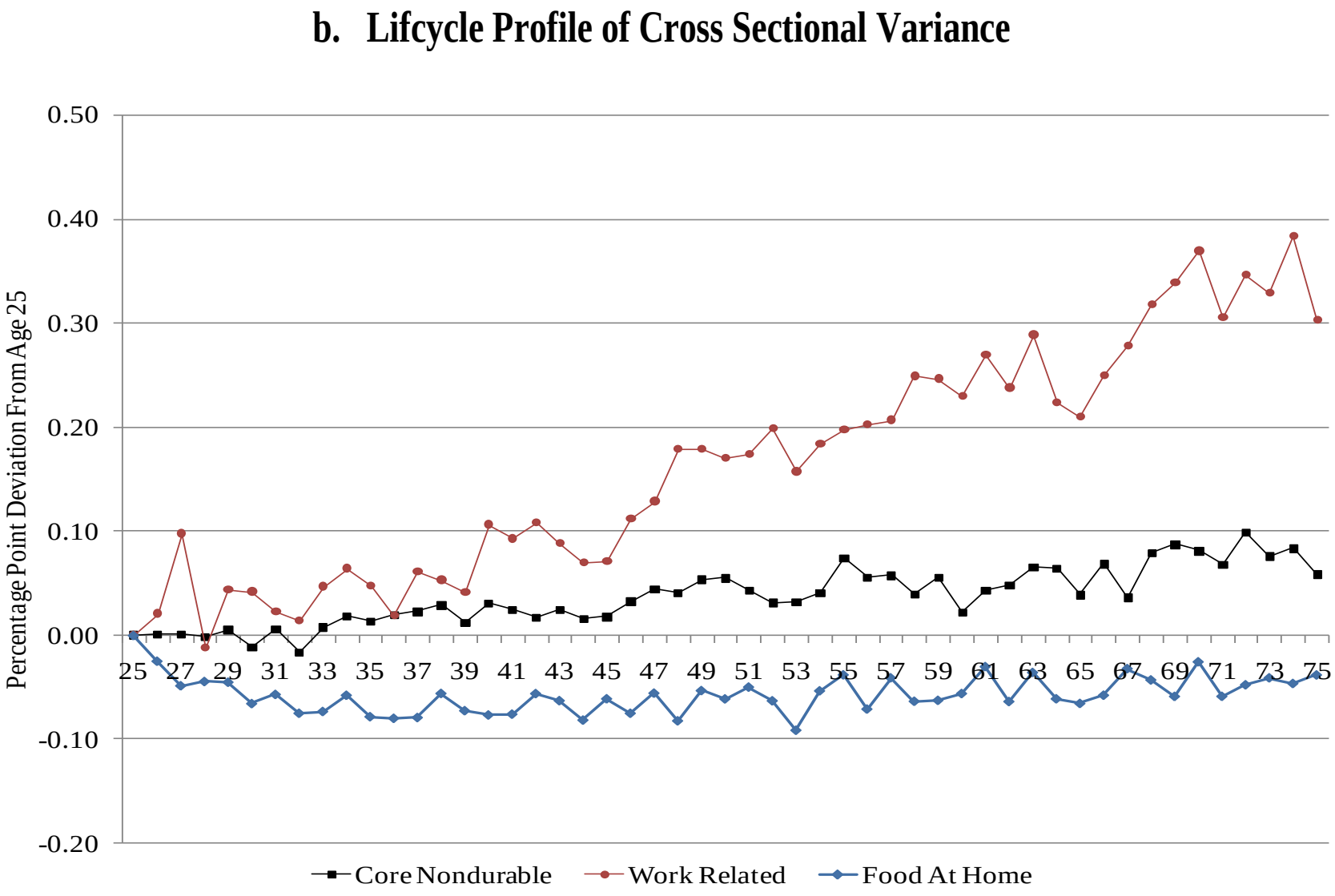

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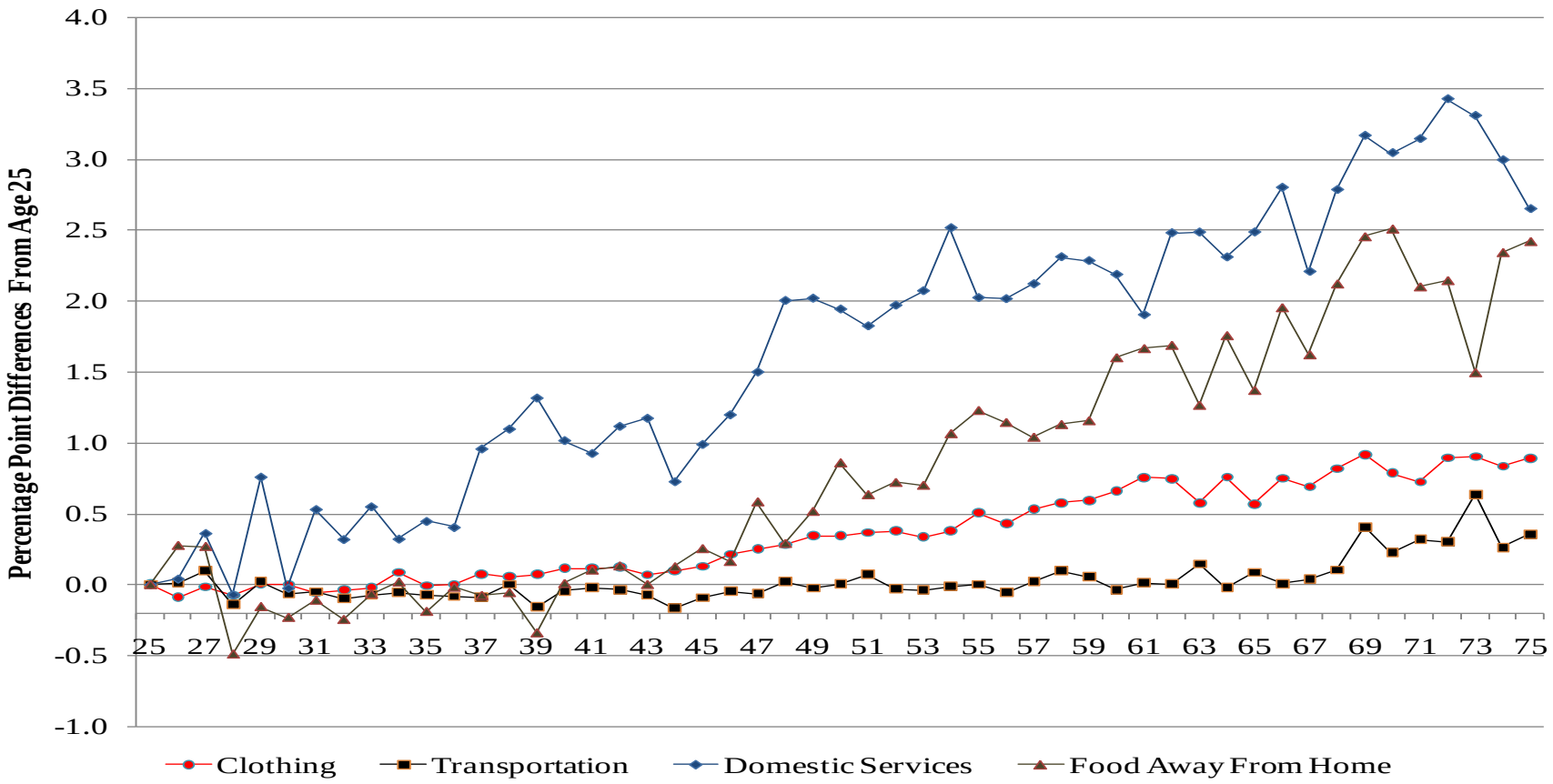
Figure 3b:
Cross Sectional Variance of Expenditure Over the Lifecycle,
Increasing Variance Categories



Summary

- Very nice paper, important contribution.
- Detailed expenditure category.
- Could be even better if estimate the home prod. technology
  - Especially if combined with Time Use Survey