

Lazy Rotten Sons? The intra-household allocation of work and leisure in South Africa

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But the son, if he is wicked, will naturally avoid aiding his father, or not be zealous about it; for most people wish to get benefits, but avoid doing them, as a thing unprofitable.

(Aristotle, Nicomachean Ethics, Book 8,
Section 14.)

Introduction

- What happens inside families has become an area of increasing interest to economists.
- The traditional view was that of the “unitary” household
 - a household that fundamentally agreed on how to allocate resources,
 - behaviour could be modelled analogously to that of individuals.
- This view given theoretical respectability by Gary Becker
 - argued that an altruistic head of the household could get recalcitrant household members (“rotten kids”) to behave as though they maximised the common good.

Introduction, cont.

- But “unitary” model has come under theoretical and empirical attack
- Indeed a number of South African papers (e.g. Duflo 2003) have argued that household spending decisions are made differently depending on who receives the income
 - Bertrand *et al* paper (2003) suggested that prime age males reduce their labour when someone in the household receives pension
- Issue of work and leisure and how this is divided within households of more general interest
- In this paper I will use time use data to argue that the division of work and leisure in South African households happens in ways which raises doubts about the “common preference” model

Plan

- Literature review
 - Look at “consumption shares” and their determinants
- The data
 - South African time use survey
 - Data construction
- Regression results

Literature

- Bergstrom showed that Becker's theorem relied on restrictive assumptions (transferable utility) and on the ability of the altruistic household head to make credible commitments
 - Argument fails if “lazy rotten kids” are able to preempt decision
- A number of alternatives to “unitary view”:
 - Manser and Brown (1980), McElroy and Horney (1981), Chiappori (1988, 1992, 1997), Browning *et al* (1994),
- Argue that allocations within the household can shift depending on who has “power”.
- Household allocations will tend to be “efficient” because of the repeated nature of household interactions

A simple model

- Chiappori showed that if individuals have “caring” preferences, the household expenditure problem can be regarded **as though** it were a two-stage budgeting process, with “shares” allocated in the first stage to each individual and then individuals deciding on their own expenditures.
- Formally, assume that

$$V_i = V_i(U_1, U_2, \dots, U_n)$$
$$U_j = U_j(u_j(\mathbf{x}_j, l_j), \mathbf{G})$$

Maximisation problem is:

$$\max V_i$$
$$s.t. \quad \mathbf{p}'\mathbf{x} + \mathbf{P}'\mathbf{G} \leq \sum_{i=1}^n \{y_i + (T - l_i)w_i\}$$
$$V_j \geq V_j^* \quad j \neq i$$

Model, cont.

- Problem can be re-cast as:

$$\begin{aligned} \max \quad & U_i(\mathbf{x}_i, l_i, \bar{\mathbf{G}}) \\ \text{s.t.} \quad & \mathbf{p}'\mathbf{x}_i \leq \theta_i(y - \mathbf{P}'\bar{\mathbf{G}}) + (T - l_i)w_i \end{aligned}$$

- Demand for leisure:

$$l_i = l_i(\mathbf{z}, \mathbf{p}, \mathbf{P}, w_i, y, \theta_i)$$

- The budget shares θ_i are particularly interesting. Factors that shift these reveal something about the workings of the household

Model, cont.

- We will be analysing the impact of a set of variables that arguably should affect only the shares and not preferences directly.
 - Prime case is a “connectedness” variable that captures how “central” an individual is in the household
- Argue in the paper that we would expect

$$\frac{\partial l_i}{\partial c_i} = - \frac{\partial l_i}{\partial c_{-i}}$$

Some properties of time use survey

- Core is the time diary: activities of individuals over a given 24 hour period
 - Allows us to construct a much richer definition of work & leisure:
 - Include all types of work (wage work, domestic work, informal production work, chores, care of kids, school work, homework)
 - Differentiate leisure that might create positive externalities for others (“socialising with family”) from “private” leisure

Time Use survey

- Time Use Survey was collected in a three-stage sampling process:
 - First stage: PSUs
 - Second stage: households (about 8,000)
 - Third stage: two individuals aged 10+ within the household (about 14,000)
- Time diaries collected in three tranches (Feb, June, Oct) and roughly equally spread over each day of the week.
- For each individual selected we have the relationships to every other individual in the household
 - This is different from the typical sample where we have relationships to the household head

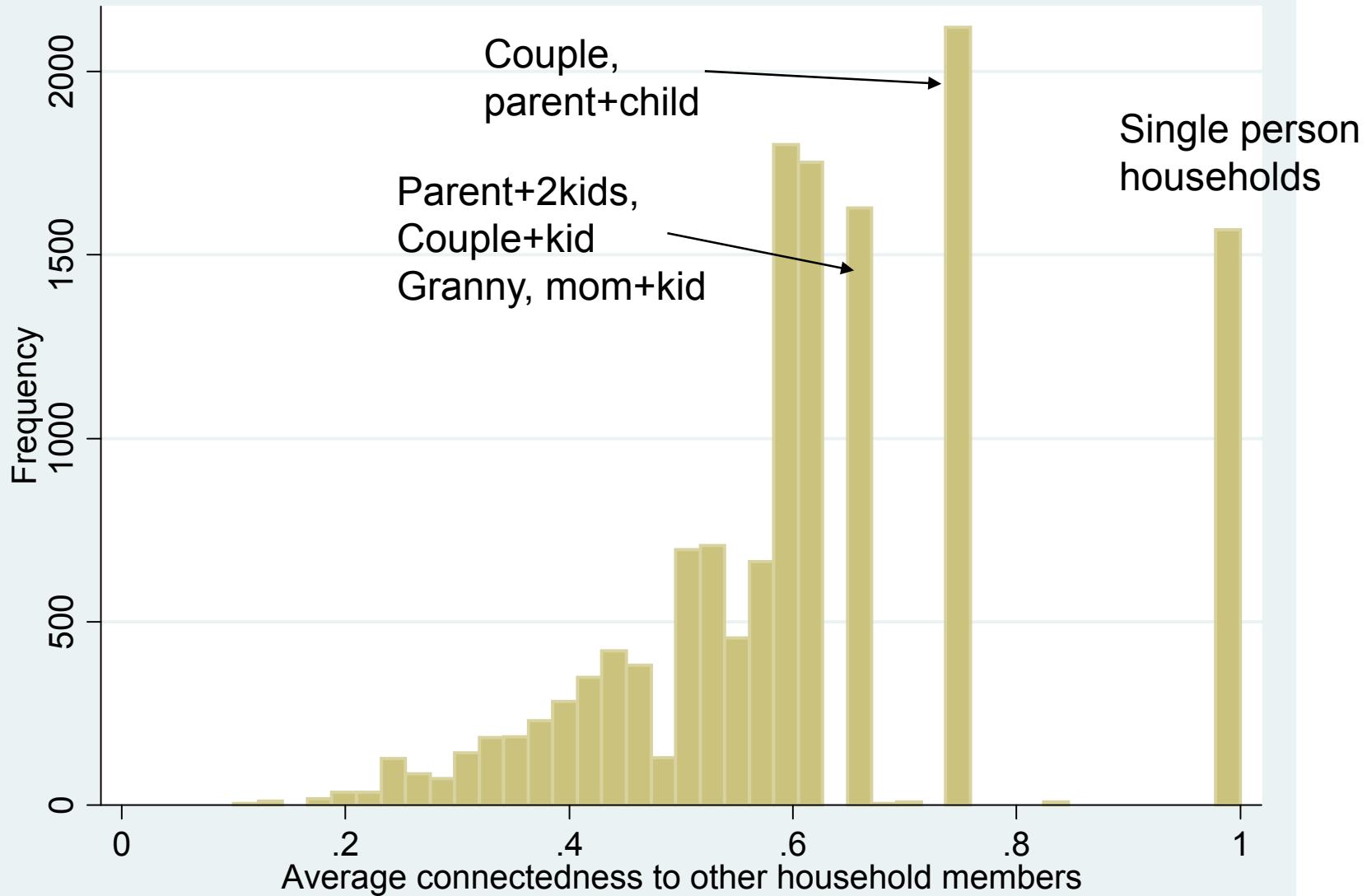
Creating an “average connectedness” variable

- I used these relationship codes to create a variable that measures the average distance to all members of the household
 - Modification of “Hamilton’s rule”
 - Self related as 1
 - Children, parents, siblings related as 0.5
 - Spouse related as 0.5 also (altruism – if not you should be divorced?)
 - Grandchildren, nieces etc. 0.25
 - Unrelated (other than spouse) set at zero
 - Take the average of these (rather than sum)

Implication

- Single person households show maximal connectedness (you should be willing to work for yourself)
- Individuals in larger households will show a relative smaller “connectedness”, simply because the self has a smaller weight
 - But it depends also on the “position” of the individual: in a three-generation household the mother (middle generation) will be related as 0.5 to everyone else, but the grandmother is related only as 0.25 to the grandchildren

Empirical distribution



An initial look at the data

Variable:	All: n=10479 mean weighted	Female: n=5589 mean weighted	Male: n=4890 mean weighted
work	401.6	424.9	374.9
private leisure	260.1	223.1	302.5
personal care	678.7	680.9	676.2

Work

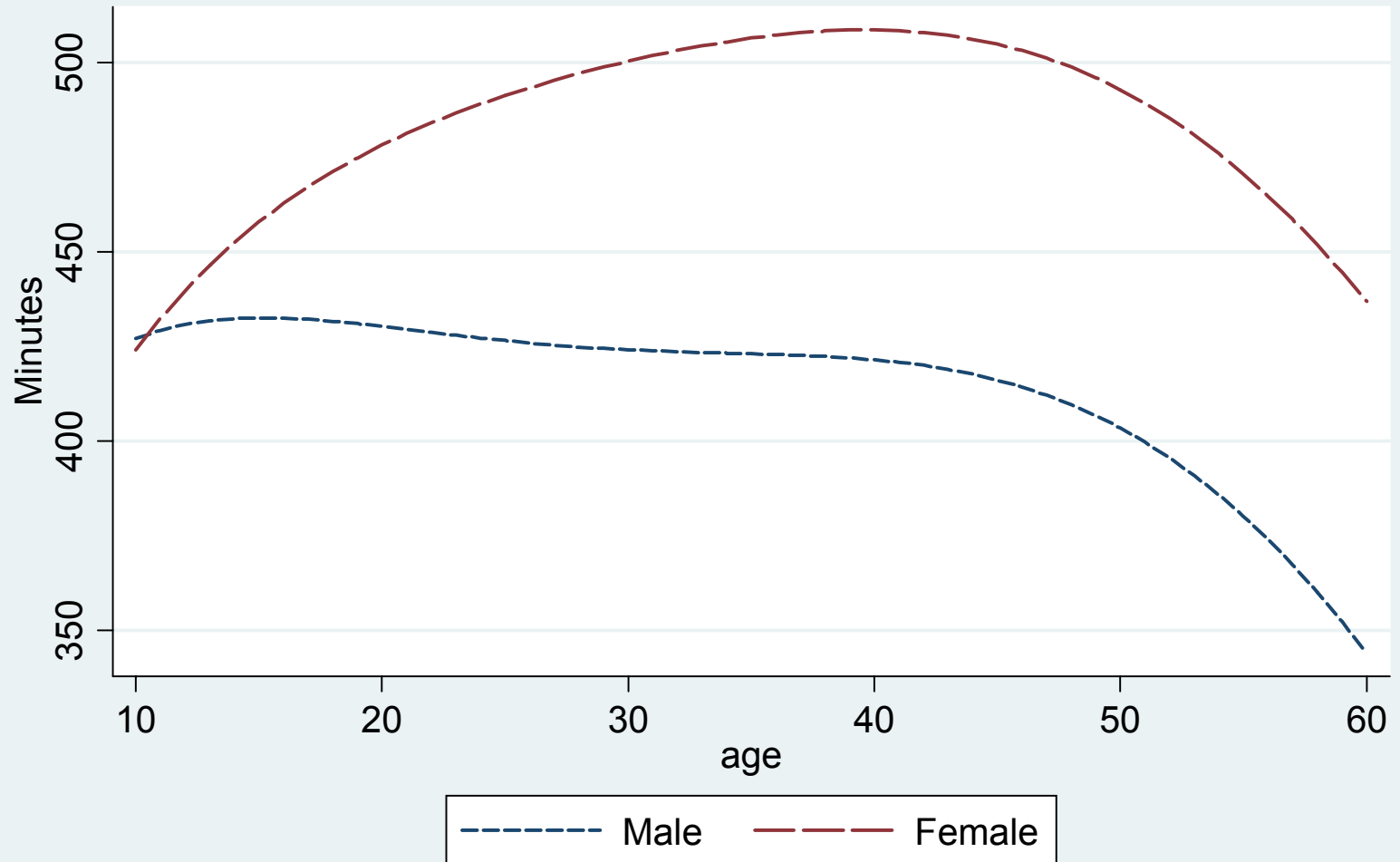
	(1) All	(2) Men	(3) Men R	(4) Women	(5) Women R	(6) FE Men FE Women	
Male	-55.723 [6.181]**						
Married/Living together	33.393 [9.903]**	51.464 [17.511] **	52.99 [17.192] **	21.309 [11.044] +	21.768 [10.953] *	79.098 [17.465] **	4.495 [12.013]
Household size	1.298 [1.771]	-0.508 [2.900]	-1.528 [2.539]	1.832 [2.216]	0.845 [1.892]		
connectedness	80.17 [25.491]**	101.064 [39.552] *	75.056 [18.196] **	40.685 [31.598]	13.696 [17.673]	-20.004 [76.648]	107.8 [64.349] +
HH connectedness	-36.63	-60.725	-75.056	1.924	-13.696	20.004	-107.8

Leisure

	(1)	(2)	(3)	(4)	(5)	(6)	
	All	Men	Men R	Women	Women R	FE Men	FE Women
Male	77.957 [5.070]**						
Married/Living together	-33.416 [8.059]**	-58.88 [14.3]**	-59.093 [14.4]**	-12.886 [8.577]	-13.449 [8.571]	-65.353 [14.0]**	-3.431 [9.229]
Household size	-4.424 [1.764]*	-0.631 [2.722]	-0.488 [2.529]	-6.144 [1.9]**	-4.934 [1.8]**		
connectedness	-27.396 [23.106]	-19.166 [38.771]	-15.537 [14.340]	-17.446 [24.388]	15.657 [13.019]	82.752 [64.164]	-128.7 [49.2]**
HH connectedness	-5.759	13.537	15.537	-34.814	-15.657	-82.752	128.7

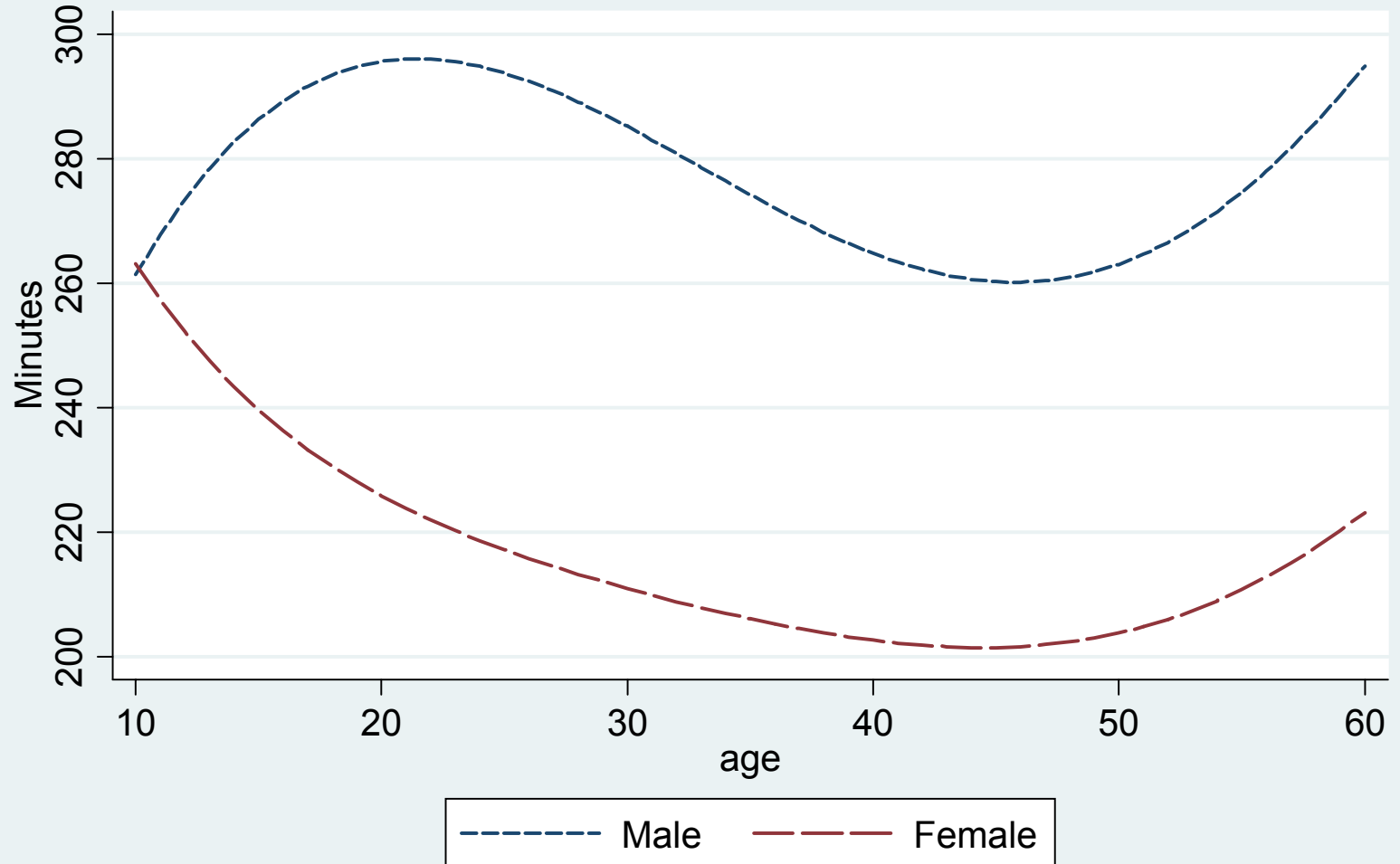
Impact of age on work

Minutes spent working by age
Fixed Effects model



Impact of age on private leisure

Minutes spent on leisure by age
Fixed effects model



Conclusion

- How and where one is positioned in the household seems to matter
- Asymmetry between men and women:
 - More centrally located women do more work and have less leisure
 - Consistent with altruism for other household members
 - Centrally located single men (“lazy sons”) do significantly less work and have more leisure
- If unitary model breaks down in this case, it should be questioned more generally