



## Comment on Landefeld, Fraumeni and Vojtech

For ATUS Early Results Conference, Washington,

J Gershuny

December 3 2005

# Comment on Landefeld, Fraumeni and Vojtech

(around 1580 words excluding tables and references)

## 1 Introduction

There's more to economic life than is found in "the economy". A previous paper by one of the present authors, published in the Review of Income and Wealth (Landefeld and McCulla 2000) lists, among the reasons for producing satellite household accounts, that they allow us to answer questions such as:

- Does historical growth in measured national product disguise reduction in production that lies outside the system of national accounts?
- Is therefore the very rapid growth of some developing economies (such as the South East Asian "tiger" economies) in part illusory?
- Are there lessons to be learned for public policy by considering household production in parallel with that of more conventional "industries"?

Clearly, if the normally unmeasured part of economic life changes in all respects like the measured part, then the new satellite accounts do not change much of our understanding of economic life. So what's important is establishing differentials between the System of National Accounts (SNA) measures and the Household Production satellite estimates. The striking result in this paper is that overall GDP growth appears slower once household production is added into the accounts: "...the adjustments...increased GDP by 48 percent in 1946, and by 26 percent in 2004....".

The authors clearly recognise the deeply problematical theoretical basis for so-called "input" basis for valuing the satellite accounts. They provide—Table 8—estimates based on a wide range of alternative input methods for valuing unpaid work: the "housekeeper" valuation method adds the headline 26% to GDP in 2004, the "opportunity cost" (or "shadow wage") approach adds fully 67% to GDP—a two-and-a-half times greater increase. And in particular, the authors give considerable attention to the preliminary attempts in the UK Office of National Statistics (Holloway, Short and Tamplin 2002) at using the alternative "output" valuation approach—but do not themselves venture in this direction.

Our view is, that perhaps the authors do not take these problems quite seriously enough, or give quite enough attention to the new opportunities for the output approach that are offered by the arrival of the ATUS.

## 2 Input methods and core domestic productivity

At the heart of our concerns about the input valuation methodology is a suspicion that it may mislead us radically as to the productivity of domestic production.

Consider this simplified example of an input approach to valuing the household labour devoted to the core domestic tasks of cooking, cleaning and laundry. Table 1 presents some initial results emerging from a very substantial review of the US national time-diary-based estimates of housework since 1965 (Egerton, Fisher and Gershuny 2005). The 1960s and

1970s data come from the studies based at the University of Michigan as part of projects headed respectively by Alexander Szalai and Tom Juster; the 1980s and 1990s data come from studies run by John Robinson at the University of Maryland, and the 2003 data comes from the ATUS.

**Table 1 US National estimates of housework and household maintenance, cooking and clothes care time (mins/day, ages 19-64)**

	1960s	1970s	1980s	1990s	2003
<b>Men</b>					
Employed	38	54	78	65	64
Not employed	91	76	<i>124</i>	110	114
Mean	39	56	85	71	72
<b>Women</b>					
Employed	150	129	<i>118</i>	99	101
Not employed	302	218	<i>179</i>	180	173
Mean	224	167	<i>141</i>	122	121
<b>Grand mean</b>	138	116	<i>115</i>	99	97

There are two distinct problems with the current version of the harmonised dataset we use here. The first, which we hope will be resolved in the near future, is that detailed examination of the version of the 1985 micro-data used here shows some potentially important inconsistencies—it is not yet apparent to us if the same problems apply to the 1985 data used by Landefeld, et al—so for the moment we simply indicate the problematical nature of this evidence by the use of *italics* in the table. The second concerns the nature of the 1965 sample, which, following the guidelines of Szalai’s pathbreaking cross-national comparative project, covers only urban residents, and restricts the coverage to ages 19-64; Table 2 therefore gives the equivalent estimates for the whole adult age range for just the four most recent samples.

The two tables tell pretty much the same story. In broad-brush terms, women’s core household work time shows a regular and continuous decline through to the 1990s. The men’s data exhibits a regular and (ignoring the problematical 1980s data) continuous—though much smaller—increase through to the 1990s. Both show little change from the mid-1990s to the ATUS in 2003—though we have as yet little idea of the potentially large measurement consequences of the differences between the largely consistent Szalai/Juster/Robinson methodologies of the earlier studies, and the somewhat different approach adopted by the BLS in the ATUS study.

**Table 2 US National estimates of housework and household maintenance, cooking and clothescare time (mins/day, ages 19-90+)**

Men	1970s	1980s	1990s	2003
<b>Economic Activity</b>				
employed	56	80	66	63
not employed	104	132	110	110
All	66	94	76	74
<b>Women</b>				
employed	128	118	100	101
not employed	209	180	172	167
All	170	146	128	126
<b>Grand Mean</b>	122	122	105	102

We might note—a phenomenon also remarked on by Landefeld et al—that the decline in core housework time is fully shared by non-employed women. Indeed Gershuny 2000 demonstrates that the majority of the reduction is independent of employment status change, and might be interpreted as something that might in broad terms be described as technological change in household production (a point established for the US through a formal decomposition by Bianchi et al 2000, who find that, with appropriate controls, the decline in domestic work for non-employed women was substantially greater than for employed). These findings hint at the possibility of a substantial change in domestic productivity, to which we will return in a moment. But first, let us continue with the conventional input valuation approach.

Table 3 sets out the relevant employed labour cost series for a valuation of these domestic work time estimates.

**Table 3 US hourly wages in constant (2003) Dollars, Current Population Survey data**

Function	1965	1975	1985	1995	2003	
Cleaning	7.13	6.09	7.80	8.00	8.58	maids and janitors
Maintain house/vehicle	14.01	14.95	13.01	14.52	16.47	
Other domestic	11.21	11.27	11.30	12.70	14.00	carpenters and accounts clerks
Gardening	8.41	9.55	7.69	7.72	9.59	groundskeepers
cooking,waiting,etc.	5.61	5.75	6.17	7.41	7.92	food preparation workers
synthetic housekeeper	7.73	7.94	7.66	8.39	9.43	

These are among the very lowest rates of real wage growth observable anywhere in the US economy. Small wonder then, that when we multiply through the unpaid work-time trends by these wage rates to arrive at an equivalent to Landefeld et al's imputed income from unpaid work, we arrive at something close to zero real growth in these core areas of domestic productivity (Table 4).

**Table 4. Annual value of US Core Housework per capita, constant (2003) dollars**

	1965	1975	1985	1995	2003
age 19-64	6488	5599	5360	5054	5563
age 19-90+		5892	5686	5360	5849

Remember that this is only part of domestic production. It excludes for example, childcare, which shows a very substantial growth through this entire period, and whose input valuation costs (ie the wage rates of child care workers) show a more substantial growth. And it of course also leaves out of account the growth of investment in household facilities and equipment, which are dealt with in the satellite accounts by imputed rents from purchased household equipment. These do imply some overall growth in non-market household output, though at a rate substantially below that of the SNA economy.

Nevertheless, the core housework activity covered by Tables 1 and 2 account for more than two-thirds of all housework throughout the period. These unpaid work activities, valued by input methods, show **no real increase in value whatsoever, over a forty year period during which “the economy” as measured by the SNA has grown at approximately 7.1 per cent per year.** The implication of the reduction in housework by non-employed women is that the real value of the meals and residential services accruing from their activities has actually **fallen** over the period.

Can we really believe this?

We suspect, on the contrary, that the producer cost approach to input valuation, may in fact misrepresent the actual process of innovation in household production. Rather than the linear addition of materials, capital and labour costs, we think that the new household equipment, more easily maintained domestic materials, semi-finished or pre-cooked high quality foodstuffs, may **interact** to produce substantial increases in the quality and quantity of output of domestic services, of a sort that is not captured by input measures. Or, to put it another way, the much higher values for domestic work we obtain when we use opportunity cost or shadow wage input valuations, may actually be providing some genuine information about the real values of domestic outputs

But either way, the problem is that, as Landefeld and colleagues tell us, we do not have measures of domestic output.

### **3. Domestic output measures.**

Or do we? Landefeld et al provide an extensive summary of Holloway, Short and Tamplin’s (2002) ONS experimental derivation of parallel input and output measures of domestic production. The ONS group relies on a wide range of information on outputs ranging from commercial market research reports on the number and quality of meals, to the National Travel Survey estimates of household travel by various transport modes. They also rely on time diary information, but only for the purposes of domestic work inputs.

But in fact time diaries cover the whole day, allowing estimates not just of unpaid work, but also of consumption episodes. Reading consecutively through the diaries we can, for example, count meals, identify when during the day they happen and how long they last, count travel episodes and classify them by mode of transport, count shopping trips, classifying them by purpose (weekly marketing, durables etc) and duration, and so on. So, for example Table 5 gives the historical change in distribution of US meals at home by their duration, while Table 6 gives the distribution of travel episodes broken down by their purpose.

	<b>1960s</b>	<b>1970s</b>	<b>1980s</b>	<b>1990s</b>	<b>2003</b>
<b>1 to 9 minutes</b>	4.8	6.8	4.5	4.4	3.9
<b>10 to 19 minutes</b>	28.4	25.3	24.9	20.1	23.9
<b>20 to 29 minutes</b>	17.0	14.4	15.0	11.8	15.2
<b>30 to 39 minutes</b>	31.9	29.5	31.0	30.1	33.1
<b>40 plus minutes</b>	17.9	24.0	24.6	33.5	23.8
	100	100	100	100	100

	<b>1960s</b>	<b>1970s</b>	<b>1980s</b>	<b>1990s</b>	<b>2003</b>
<b>travel related to personal care</b>	10	14	12	17	18
<b>travel as part of paid work</b>	na	na	na	1	3
<b>travel to/from work, oth work trav</b>	28	20	22	25	17
<b>travel related to education</b>	2	2	2	3	2
<b>travel related to consumption</b>	30	26	31	26	32
<b>travel related to child care</b>	5	5	4	3	7
<b>travel for adult care, vol, worship</b>	5	12	8	5	4
<b>other travel</b>	19	21	21	22	17
	100	100	100	100	100
<b>N of travel episodes</b>	8987	20923	10562	25622	81269
<b>Sample n</b>	1987	4402	2554	6913	17649

We can produce analogous estimates for all of the categories of domestic production, and deploy methods similar to those used by Holloway and colleagues to value these consumption episodes by comparison with appropriate market analogies. And we can then make use of the standard national accounts “dual entry” identities to **test** our valuations: are, for example, the input (ie preparation time) based valuations of the meals identical to the output (meal count) based valuations? And if not, why not?

Of course, the time diaries are not really a sufficient basis for output accounts. Ideally we would also supplement the time diary collections, with the sorts of consumption diaries just now being put in the field by Duncan Ironmonger of the University of Melbourne....but that takes us altogether too far away from the present paper....

## References

SM Bianchi, MA Milkie, LC Sayer, JP Robinson “Is anyone doing the Housework? Trends in the Gender Division of Labour” Social Forces 79,1, 2000, pp 191-228.

M Egerton, K Fisher and J Gershuny American time use 1965-2003: the construction of a historical comparative file, and consideration of its usefulness in the construction of extended National Accounts for the USA. Draft Final Report to the Glaser Progress Foundation, July 2005.

Gershuny J Changing Times: Work and Leisure in Post-industrial Societies Oxford: Oxford University Press 2000

Holloway S, S Short and S Tamplin Household Satellite Account (Experimental) Methodology London: ONS 2002

JS Landefeld and SH McCulla “Accounting for Nonmarket Household Production within a National Accounts Framework” Review of Income and Wealth 46,3 September 2000, pp 289 to 307.