

International Experience with Time Use Surveys: History and Lessons

Mieke Meurs

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Department of Economics

COLLEGE of ARTS & SCIENCES • AMERICAN UNIVERSITY



With help from...

Nancy Folbre, **“Quantifying Care: Design and Harmonization Issues in Time-Use Surveys,”** work in progress (2020).

Maria Floro, **“Time Allocation and Time Use Surveys”** in Günseli Berik and Ebru Kongar (eds), *The Routledge Handbook of Feminist Economics*, forthcoming (2020).



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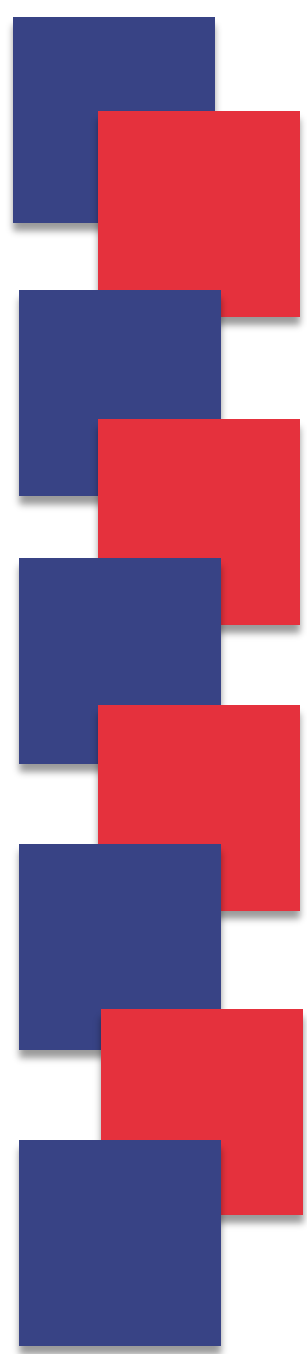
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Time Use Statistics: Origin Story

- Statistics Norway, 1912: collect data on unpaid household work
- USSR 1924, collection of data on leisure and community-oriented work
- 1920s, Bureau of Home Economics of the US Department of Agriculture: collect time use data on time use of farm homemakers
- 1950-60s: Global South time use surveys Gambia, Burkina Faso, and Peru

Mainly to study specific issues related to women's work and time use.



Contesting production boundary of the System of National Accounts:

- 1934, Margaret Reid, *Economics of Household Production*
- 1970, Ester Boserup, *Woman's Role in Economic Development*
- 1988 Marilyn Waring *If Women Counted*

“as a politician, I found it virtually impossible to prove – given the (SNA) production framework with which we were faced – that child care facilities were needed. “Non-producers” (housewives, mothers) who are “inactive” and “unoccupied” cannot, apparently, be in need.”



Expanded Collection of Time Use Data

- 1980s: UNDP, UN Statistics Division, regional agencies of the UN expand collection of time use data in developing countries
- 1995: Beijing Platform for Action UN Fourth World Women's Conference, Accounting for Women's Work project

Make unremunerated work within households visible for national accounts through “suitable statistical means.”



Time Use Surveys (Time Accounts)

- More than 100 countries
- Data on:
 - unpaid informal work
 - subsistence production
 - volunteer work
 - household work
 - Care work
 - Leisure and self-care time

What Do Time Use Statistics Tell Us?

- *who*
- *does what*
- *during a day*

- *reference population*
- *activity*

- *for how long*
- *how often*

- *time duration*
- *number of episodes*

- *where*
- *with whom*
- *for whom*
- *purpose*

- *context*

Elements of Time Use Data: Time Diary

Time	Main activity	Secondary activity	Persons present				Location
			Alone	Children age 0-9	Other hh member	Others	
07.00-07.10	Woke up the children			x			home
07.10-07.20	Had breakfast	Talked with my family		x	x		
07.20-07.30	.."	.."		x			
07.30-07.40	Cleared the table	Listened to the radio					
07.40-07.50	Helped the children dressing	Talked with my childr					
07.50-08.00	Went to the day care centre, by foot	.."					
08.00-08.10	By bus to job	Read the newspaper					
08.10-08.20	By bus to job	.."	x				
08.20-08.30	Regular work		x				working place
08.30-08.40			x				
08.40-08.50			x				
08.50-09.00			x				
09.00-09.10			x				
09.10-09.20			x				
09.20-09.30			x				
09.30-09.40			x				
09.40-09.50			x				
09.50-10.00			x				
10.00-10.10	Break: had coffee	Talked with a colleague				x	
10.10-10.20	Regular work		x				working place

Contextual Information

Allow respondents to name the activities they perform, usually over the preceding 24 hours. Total time limited to 24 hours. Responses are coded into specific categories for tabulation. Most regions of the world other than Latin America use these.

Elements of Time Use Data: Activity Lists

G5.01: Now I'd like to ask you some questions regarding how you've spent your time over the last week and whether or not this was typical. ENUMERATOR NOTE: THERE ARE 168 HOURS/WEEK.		In the last 7 days, how much time in hours did you spend on [ACTIVITY]?	Did you spend a usual amount of time on [ACTIVITY] in the last 7 days?	Since the last week was not usual, within the last 6 months how much time do you usually spend on [ACTIVITY] per week?
		HOURS	CIRCLE ONE	HOURS
A	Farming	<input type="text"/> <input type="text"/> <input type="text"/>	Yes.....1 → NEXT ACTIVITY No.....2 N/A.....98	<input type="text"/> <input type="text"/> <input type="text"/>
B	Fetching water	<input type="text"/> <input type="text"/> <input type="text"/>	Yes.....1 → NEXT ACTIVITY No.....2 N/A.....98	<input type="text"/> <input type="text"/> <input type="text"/>
C	Cooking	<input type="text"/> <input type="text"/> <input type="text"/>	Yes.....1 → NEXT ACTIVITY No.....2 N/A.....98	<input type="text"/> <input type="text"/> <input type="text"/>
D	Care for children/adults/elderly	<input type="text"/> <input type="text"/> <input type="text"/>	Yes.....1 → NEXT ACTIVITY No.....2 N/A.....98	<input type="text"/> <input type="text"/> <input type="text"/>
E	Work as employed (incl. casual and salaried labor)	<input type="text"/> <input type="text"/> <input type="text"/>	Yes.....1 → NEXT ACTIVITY No.....2 N/A.....98	<input type="text"/> <input type="text"/> <input type="text"/>
F	Own business work	<input type="text"/> <input type="text"/> <input type="text"/>	Yes.....1 → NEXT ACTIVITY No.....2 N/A.....98	<input type="text"/> <input type="text"/> <input type="text"/>

Activity list-based surveys ask respondents how much time they devoted to specific activities, often during the preceding week. Most Latin American surveys take this form.



Classification of Activities

International Classification of Time Use Survey (ICATUS)

- Guide the design of survey instruments and selection of methods
- Guide the interviewer in eliciting responses; level of detail required for the survey objectives
- Basis for developing SNA-compatible coding

Also: Harmonized European Time Use Survey (HETUS) and Classification for Time-Use Activities for Latin America and the Caribbean (CAUTAL)



2012 ICATUS Major Categories

1 SNA work and related activities

Outside-SNA activities:

2 Unpaid domestic services for own final use within household

3 Unpaid caregiving services to household members

4 Community services and help to other households

5 Learning

6 Socializing, community participation and religious practice

7 Leisure and sports

8 Self-care and maintenance



Simultaneous Activities:

Multitasking: Watching children and cooking dinner, folding laundry and watching TV

- Diary: Allow reporting of simultaneous activities (only some surveys do)
Is one "primary"?
Or can list 2-3 and coders can divide the time
- Activity Lists: list cumulative time in each activity. Time sums to over 24 hours.
- Problems:
 - How aware are people of simultaneous activities?
 - Are all activities reported?

If activity is to be listed simultaneously with others, more likely to be underestimated.



Collecting Data on Care Work

Three Types of “Care”

1. Direct active care: unpaid services provided directly to **dependents**, on a face-to-face, first-name basis, concern for the well-being of recipient likely to affect quality of services.

E.g. feeding, bathing, dressing, reading aloud, driving to school or the doctor.

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2. Direct supervisory care: being available to supervise dependents who cannot safely be left alone (“passive care” or “estar en pendiente de”).

3. Indirect care: inputs into direct care, but not necessarily involving personal interaction, such as (e.g. preparing meals, cleaning house, laundry, housework).

Quantitatively supervisory care is huge.

Time in supervisory care of children was largest component of direct care in Mexico and Ecuador:

Mex: 63% for women, 58% for men,

Ecu: 50% for women, 42% for men.

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Direct care =

direct active care + **direct supervisory care**

Direct care is often combined with **indirect care**.

Supervisory care may also overlap with **leisure**.



When is Care an Activity?

- Supervision (of children, elders) is not always an activity, may be seen as a “responsibility,”
- often simultaneous with something else
- “Passive care.”
- Not all countries include a code for this.
- Some countries use special prompt (Australia, Ecuador, Mexico give example of passive care as a secondary activity)
- Use “with whom” in China—S. Korea includes only include if doing the same activity.



What can has been done with this time use data?

- Measurement of unpaid work
- Gender inequality in household work
- Work-life balance
- Happiness and well-being
- Time poverty
- Labor supply decisions (women's labor force participation)
- Childcare and eldercare provisioning
- Impact of public policy on work burden of women

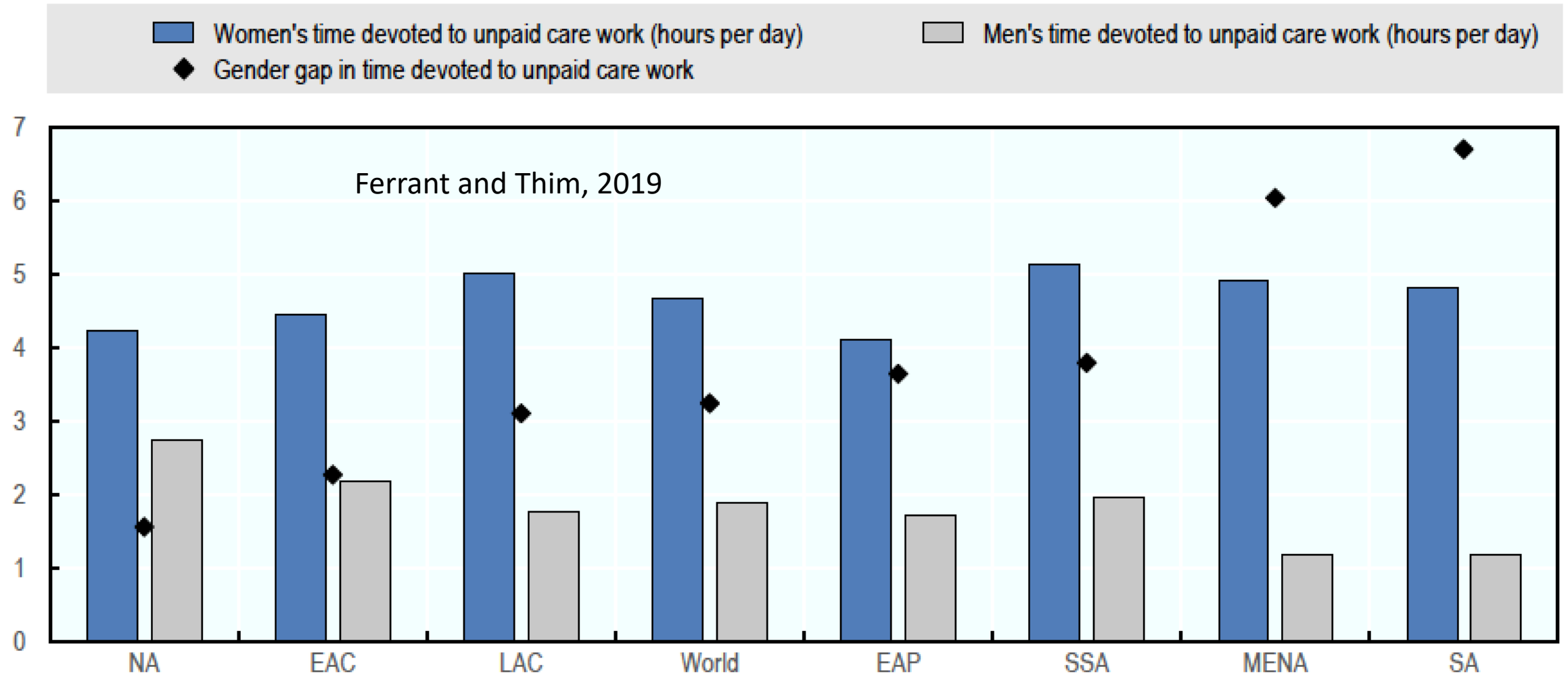


What have we learned?

A Rich Body Of **Descriptive** information:

- The amount of unpaid work time varies widely across countries. Example: Men's average time in unpaid work ranges from 200 minutes per day to 18 minutes (Cambodia) (Charmes, 2018).
- Unpaid work burden heavier for women and children where households lack access to basic services such as medical care, sanitation services, safe water supply, electricity (Floro and Terbisch, 2018)
- Paid time differences between employed and unemployed women not fully compensated by less unpaid work (Folbre, 2020).

Figure 1. Regional gender gaps in unpaid care work



Note: This graph shows regional gender gaps in time devoted in unpaid care work. NA stands for North America, ECA for Europe and Central Asia, LAC for Latin America and the Caribbean, EAP for East Asia and the Pacific, SSA for Sub-Saharan Africa, MENA for Middle East and North Africa, SA for South Asia.

Source: OECD Gender Institutions and Development Database (GID-DB), 2019, oecd.stat.org.

Figure 3. Predicted values of women's time-use in routine housework by education levels

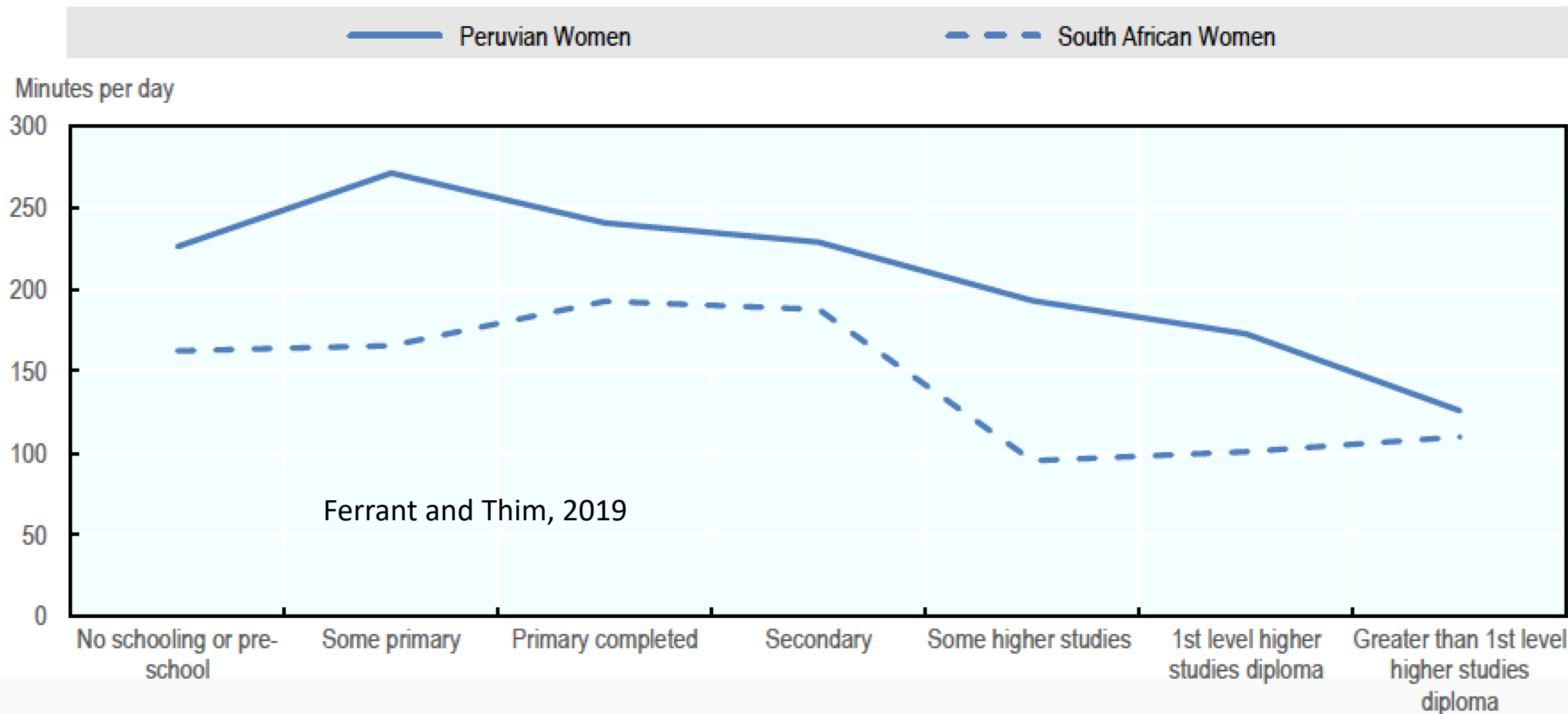


FIGURE 3: Time spent on child care by gender for the most recent years for which these data are available^a (in min/d)

Angeles Duran and Milosavljevic, 2012

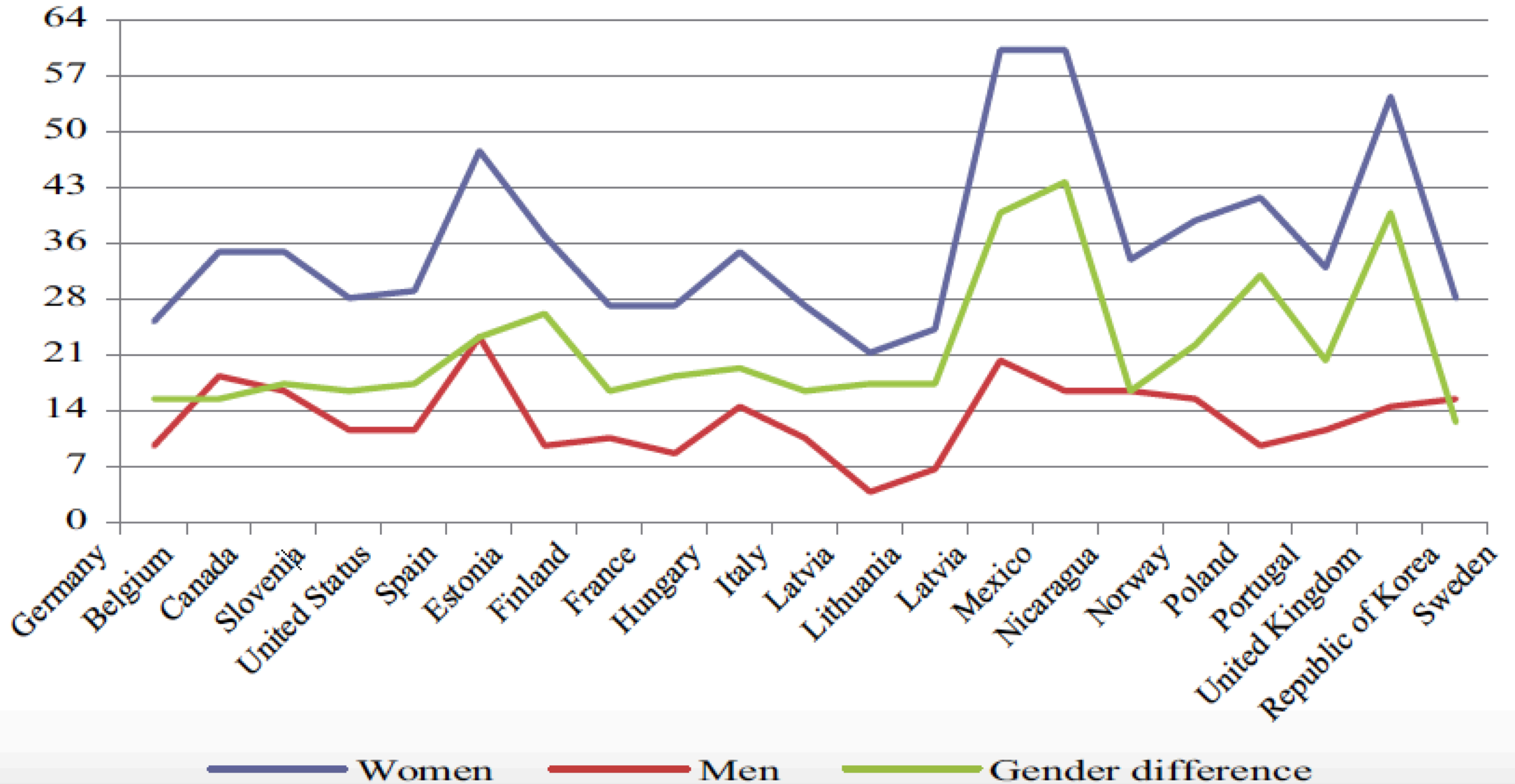


TABLE 2: Value of unpaid household work in relation to the GDP of various Latin American countries

Country	% GDP	Value considered
CHILE Source: SERNAM, 2008 (Special TUS)	26% Urban metropolitan region Only	Mean monthly pay for two job categories (unskilled workers and personal service and protection workers)
GUATEMALA Source: ECLAC Sara Gammage	26-34% Guatemala In 2000	Estimated replacement cost is the cost of one domestic worker, service costs estimated using 2004 data based on disaggregation of the two-digit ISCO codes
NICARAGUA Source: INEC, 1998	23%	Average salary for agricultural workers in rural areas and for personal service workers in urban areas
MEXICO Source: INEGI, María Eugenia Gómez Luna	23.70%	Equivalent value of salary for one hour of work performed in an equivalent activity
URUGUAY Source: based on the CHS and TUS 2007 Ec. Soledad Salvador CIEDUR Montevideo, April 2009	26.60%	Replacement cost (unskilled worker's salary)

Table 1 Estimated WPR from NSSO and TUS

<i>States</i>	<i>NSSO 1999-2000</i>			<i>TUS 1998-9</i>		
	<i>Rural</i>			<i>Rural</i>		
	Men	Women	Person	Men	Women	Person
Haryana	46.2	17.7	32.8	58.7	61.47	59.96
Madhya Pradesh	51.2	30.7	41.3	61.8	54.92	58.58
Gujarat	57.1	35.5	46.4	63.4	58.48	61.05
Orissa	52.7	23.3	37.9	61.7	58.34	60
Tamil Nadu	56.6	38.1	47.4	68.4	60.62	64.52
Meghalaya	55.6	42	48.7	58.6	59.35	58.91
Combined states	51	25.3	38.4	63.3	58.2	60.82

Sources: NSSO (2000); Saha (2003).



Beyond Description:

Make care projections (combine with demographic data to inform policy):

Angeles Duran and Milosavljevic (2012) “Unpaid Work, Time Use Surveys, and Care Demand Forecasting in Latin America,” Fundacion BBVA.

TABLE 4: Care demand by age group in Latin America and the Caribbean, 1950, 2010 and 2050

	Population (in millions)			Population (in percent)			Care units* (in millions)		
	1950	2010	2050	1950	2010	2050	1950	2010	2050
Total population	167.3	588.6	729.2	100.0	100.0	100.0	268.1	853.8	1,156.4
Population aged 0-4	26.9	53.0	40.5	16.1	9.0	5.6	80.6	158.9	121.6
Population aged 5-14	40.4	109.8	83.7	24.2	18.7	11.5	80.9	219.6	167.5
Population aged 15-64	94.1	385.1	462.8	56.3	65.4	63.5	94.1	385.1	462.8
Population aged 65-80	5.2	32.1	142.1	3.1	5.4	19.5	10.3	64.1	284.2
Population aged 80+	0.7	8.7	40.1	0.4	1.5	5.5	2.1	26.1	120.3
Care unit to total population ratio	1.6	1.5	1.6						

Source: Compiled by M.A. Durán using data from World Population Prospects: The 2008 Revision Population Database. United Nations I

* Weighted by Madrid II scale: population 0-4 years = 3 care units; 5-14 = 2 care units; 15-64 = 1 care unit; 65-80 = 2 care units, and 80+



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Macro models: In progress through CWE-GAM project

- Pierre-Richard Agénor, Madina Agénor, “Access to Infrastructure, Time Use and Economic Growth”

OLG Macromodel to test propositions like:

Does improved access to infrastructure services reduce women’s time allocated to home production and raise time allocated to market work?



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Macro models: In progress

Carmen Estrades, “General Equilibrium Analysis of Time Use and Unpaid Domestic and Care Work: Existing SAMs and Models, and Possible Extensions”

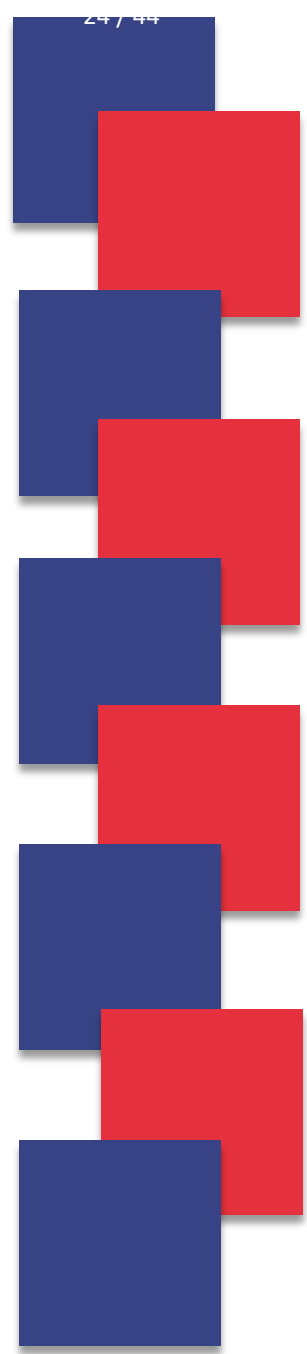
CGE model to test propositions like:

- How does incorporating unpaid work in the households’ utility function change predicted impacts of labor market policies?
- How would including care work as investment affect LR economic outcomes in a dynamic CGE model?



Limitations of Current Time Use Data

- Limited frequency of TUS in some countries (frequent/regular: Australia, Canada, France, Netherlands, Norway, Sweden, South Korea, UK, Colombia, US) (infrequent: India, China, Ghana, Tanzania and Thailand). (middle: Korea, every 5 years)
- Cost and budget constraints result in use of “short-tasks list” method (“activities light” list). 2001 Bolivian time-use survey listed only seven tasks.



Limitations, continued

- Who is surveyed? 2 people or all hh members (China, Mexico, Ecuador)?
- Differing ages of interviewees (China 3 and up)
- Under reporting (Korea) or no reporting of simultaneous activities
- Prompts not always effective: Chinese survey included explicit attention to supervisory or passive childcare, but does not show higher rates of household-level direct childcare than the Korean survey, which did not code this particular activity.

	Strengths	Weaknesses
Time-diary-based	<p>More respondent flexibility</p> <p>Less social-desirability bias</p> <p>Shorter recall, more accuracy</p>	<p>If based only on "activities," (e.g. "what were you DOING?"), underestimates supervisory constraints</p> <p>May not capture simultaneous or secondary activities as well.</p>
Activity-list-based	<p>Can explicitly designate supervision as an "activity" and ask after it</p> <p>May be easier for some respondents</p>	<p>Less accuracy</p> <p>Sensitive to number and wording of activities listed</p> <p>As result of simultaneous activities, total hours reported far exceed number of hours in week</p>

Folbre, 2020





Care-Specific Limitations

- Often poor reporting of care, especially supervisory care, as simultaneous activity, even with activities list
- Need data on all hh members to estimate the total amount of household care that a dependent receives
- Activity lists may not include care for elders (Ecuador)
- Elderly may not be explicitly or consistently defined by age (no definition: China, S. Africa, Ghana, Ecuador, >60 years: Mexico, >65 years, Korea)
- Children may not be consistently defined by age (<10 Ghana; <12 Ecuador; <15 Mexico)
- Include care for non-dependent adults? (Ghana, China)
- Sleeping time if dependents present?
- Breast feeding?



Infant Care Example

Smith and Craig (2009) compare 1997 Australian Time Use Survey and 2004-2005 intensive survey of 188 new mothers

- Find larger national survey did not capture time spent breastfeeding infants and emotional care like holding infants.
- Smaller survey provided an electronic device, press a button designating the activities they were engaged in whenever these changed: Revealed 15 hours of week of breastfeeding and 5 hours per week of interrupted or delayed sleep.
- **New mothers spent virtually all their time in the company of infants, and this preempted other time allocation decisions.**

Under reporting Care:

Bittman et al. 2004 analysis of 1997 Australian survey:

Women who worked outside the home for 8 hours a day spent, on average, only 24 minutes less on direct (supervisory and active) childcare than those who were not employed.

Table 5. Household Participation Rates in Care of Household Children in all Households with at least one Child Under 10 in all Households with at least One Child under 10 and Two Adults on Diary Day or Surveyed Week Converted to Daily Average

	South Korea 2014 (1)	China 2017 (2)	South Africa 2010* (3)	Ghana 2009* (4)	Ecuador 2012* (5)	Mexico 2014* (6)
All households						
Indirect care	100%	90%		96%	100%	100%
Active childcare	100%	56%		81%	90%	94%
Supervisory childcare	-	28%		11%	92%	95%
Households with up to 2 adults						
Indirect care	99%	85%	98%	96%	100%	100%
Active childcare	100%	54%	69%	80%	90%	94%
Supervisory or passive childcare	-	27%	4%	11%	92%	94%

*Households with incomplete member diaries excluded. No incomplete diaries were evident for South Korea or China.

Folbre, 2020

What's going on?



Residual Approach:

United Kingdom's Office of National Statistics: Use the 1440 minutes in a day to create benchmarks for total direct care need.

Childcare:

South Korea: 1440 minutes (24 hours) minus 235 minutes average deported in in direct care= 1205 minutes (20 hours) that a child (or children) are not receiving care. Subtract 11.95 hours (average time a child under the age of 10 sleeps) leaves about 488 minutes (about 8 waking hours unaccounted for)

Residual Approach to Child Care, continued:

Using the UK method:

3,887 Ecuadorian households with only one child under the age of 10 (and no additional children under 12) report average supervisory care *deficit* during children's waking hours of 364 minutes per day (6 hours). Adding average sleep time for children yields a total supervisory care deficit of 18 hours.

Without survey information on the average hours that children in this age group spend in childcare or school activities, or data on domestic servants, so cannot determine extent to which these household-level direct care time for children was underreported.

Surveying all children, with adult entering the information improves accounting for their time (especially outside the household)



Elder Care More Complicated:

Who needs care?

- Age not a clear criterion, as with children
- Some elders *provide* care
- Ghana, >50 percent of people 65-75 years *require some assistance* with daily activities (Aboderin and Beard 2015). 75 years and older, 65 percent.
- U.S.: only about half of all adults requiring home or community-based assistance are over age 65 (Kaye et al. 2010).
- Care intermittent
- Passive care may be important



Reported Elder Care Rates Very Low:

China: Households with at least one member 75 or older, rates of participation in the care of an elderly or disabled family member are 3% for women and 2% for men.

Colombia: Peaks at 1 hr per week for 70 year old women caring for people over 65 (spouse) (Urdinola and Tovar, 2017)

Residual method cannot help here. Prompts to improve awareness of care work?



Major Limitation for Policy Work: Inability to Show Causal Relationship

Cross-sectional data subject to important endogeneities:

- Does less housework cause more employment? Or does more employment cause (slightly) less housework?
- Does more time in paid childcare cause more employment? Or does more employment cause more use of paid childcare?
- Does more gender equal division of labor support women's employment? Or does women's employment support more equal division of household labor?



Inability to Show Causal Relationship

- Lack of panel data
- Lack of instruments in otherwise sparse surveys focused on time use (already very demanding in time and money)
- Inability generally to link TUS to other national surveys
- To have greater policy impact, to understand what drives more and less equal divisions of labor, better care of children, more paid work in poor households, need to address this



Example Using Custom TUS:

Supriya Garikipati, (2011) “Microcredit and Women’s Empowerment: Through the Lens of Time-Use Data from Rural India”

- Custom TUS collected from rural Indian households enrolled in the Self-Help Grant Program.
- Does micro-credit change women’s time use?
- Enrollment in micro-credit might be endogenous to time use. IV: dummy if sub-caste had ≥ 15 households in neighborhood
- Access to credit does not improve women’s time in self-employment, associated with better pay and higher social status compared to wage-work.



Recommendations :

1. Improve standardization of survey design : Cross-country comparison important, especially without panel data.
 - Diary versus list,
 - durations of time periods,
 - classification of care for non-household members and supervisory in the three major activity code groupings, ICATUS, HETUS, and CAUTAL,
 - age categories for children and elderly would be helpful,
 - whether “direct care” should include services to household non-dependent adults
 - clear and consistent prompts regarding on-call, supervisory, and passive care of dependents
2. Collect data on all household members, children with adults filling in
3. Panel data!
4. Link to other national surveys



Application :

1. Form groups of 3-4
2. Come up with a question, useful to your work or interests, that could be answered using the CTUS.
3. Using the questionnaire, identify specific questions/answers that you might use to answer your question.
4. Identify any insufficiencies (and/or special benefits) in the data for answering your questions:
 - Causes of under/over-estimation
 - Individuals whose data would be important but who are not included in the questionnaire
 - Issues related to the use of Activities List instead of Diary approach
 - Issues related to definition of elders/children in the sample
 - Possible benefits panel data or links to other surveys
 - Other issues

