MAST WORKSHOP · JAKARTA

From Time Use Data to a Care-Extended Macro Model: Sri Lanka

Dileni Gunewardena

Professor of Economics, University of Peradeniya, Non-Resident Fellow, Verité Research
and Research Fellow, Poverty and Economic Policy (PEP) Research Network

Macroeconomic Analysis and Skills Training (MAST) Workshop · 27–29 October 2026 · Jakarta, Indonesia

Unpaid Domestic and Care Work in Sri Lanka, 2017

- First national Time Use Survey, conducted by DCS in October–December 2017
- 6,440 housing units from the Labour Force Survey Q4 sample, with about 17,000 respondents aged 10+
- 15-minute time diaries, coded to ICATUS 2016

Women spend more time than men on unpaid domestic and care work

4 h 6 min	**more per day**
1,496.5 h	**more per year**
187 days	**more working days per year**
8.5 months	**more working months per year**

Unpaid domestic and care work, hours per day, aged 10+



SDG 5.4.1[1]: 23.4% of the day for women and 6.2% for men

[1] SDG indicator 5.4.1 is the proportion of time spent on unpaid domestic and care work, by sex, age and location. It is average daily hours of unpaid domestic services and unpaid caregiving for household and family members, divided by 24. Volunteer work is excluded. The DCS figure uses mean population time for persons aged 10 and over.

Source: DCS (2020), Sri Lanka Time Use Survey Final Report 2017

Unpaid Work by Labour Market Status

Share of people aged 15+ who do any unpaid work on a given day

91% Women

56% Men

Approximate shares

Hours of (total) unpaid work on days it is done, aged 15+

Labour market status	Women	Men
Employed	5.7	2.5
Unemployed	5.9	3.1
Economically inactive	7.5	3.2

Source: DCS (2020), Table 6.1 and Figure 6.8

Value of Unpaid Work

Replacement cost method, using median employee wages from LFS 2019. Value as a share of GDP, by wage assumption.



Pre-school teacher wage: early childhood educators. Estimates cover main activities only.

Source: Gunewardena and Perera (2023); Gamage et al. (2026)

Care and Women's Labour Force Participation

Labour force participation, 2025[2]

32.4%

Women

69.1%

Men

PARTICIPATION (PERCENTAGE POINTS)

−54 to −60	Higher share of children aged 0–5 in the household[3]
−18 to −20	A person with a disability in the household; about 2% of adult women live with such a person
−7 to −9	A man aged 65–74 in the household

LIKELIHOOD OF EMPLOYMENT TYPE[4]

−98%	Formal private sector, with children under 6
−69% · −63%	Formal private sector and informal work, with a person with a disability
No effect	Young children on government or informal employment

[2] Reweighted to the 2024 Census; the 2024 female rate was 29.8%. [3] Marginal effect of the share of household members aged 0–5, for a change from none to all; effects of older people and of a person with a disability are for having such a person in the household. [4] Relative risk ratios. Disability: a lot of or total functional difficulty.

Source: DCS, LFS Annual Bulletin 2025; ADB (2025), using LFS 2019

Who Cares and Who Shares? Study Design

Gunewardena and Werawella (2025), IAFFE annual conference

2,157
Households with children aged 0–14 and no adults aged 65+

1,056
Households with adults aged 65+ and no children aged 0–14

641
Households with both children aged 0–14 and adults aged 65+

Data and outcomes

- 2017 Time Use Survey, 5,409 households; time use of adults aged 15–64
- Care measured as a primary activity only, and including care recorded as a secondary activity
- Estimated separately for women and men: childcare, eldercare, care where both children and older people are present, indirect care (cooking, cleaning and other housework) and market work

Explanatory variables

- Numbers of children and older people, by age group
- Numbers of other adult women and men in the household
- Employment of household adults
- Household income, and own wage relative to spouse's wage

Tests

Economies of scale | Economies of scope | Substitution between members | Bargaining through relative wages

Source: Gunewardena and Werawella (2025), using the Sri Lanka Time Use Survey 2017

Who Cares and Who Shares? Findings

Who provides care

- Women do more primary and total care than men in all three household types
- Men’s eldercare time is small
- In households with both children and older people, women carry most of the additional care

How care time scales

- Children aged 0–5 account for most of women’s childcare time
- Each additional young child adds less care time than the one before
- Caring for children in both age groups takes less time than caring for each group separately
- Eldercare time rises with the age of the older person, and most of it is recorded as a secondary activity

Who adjusts

- Other adults in the household help with indirect care but not with direct care
- When women are employed, their care time falls, and men’s care time does not rise to compensate
- Men’s employment is associated with more care time for women

Income and wages

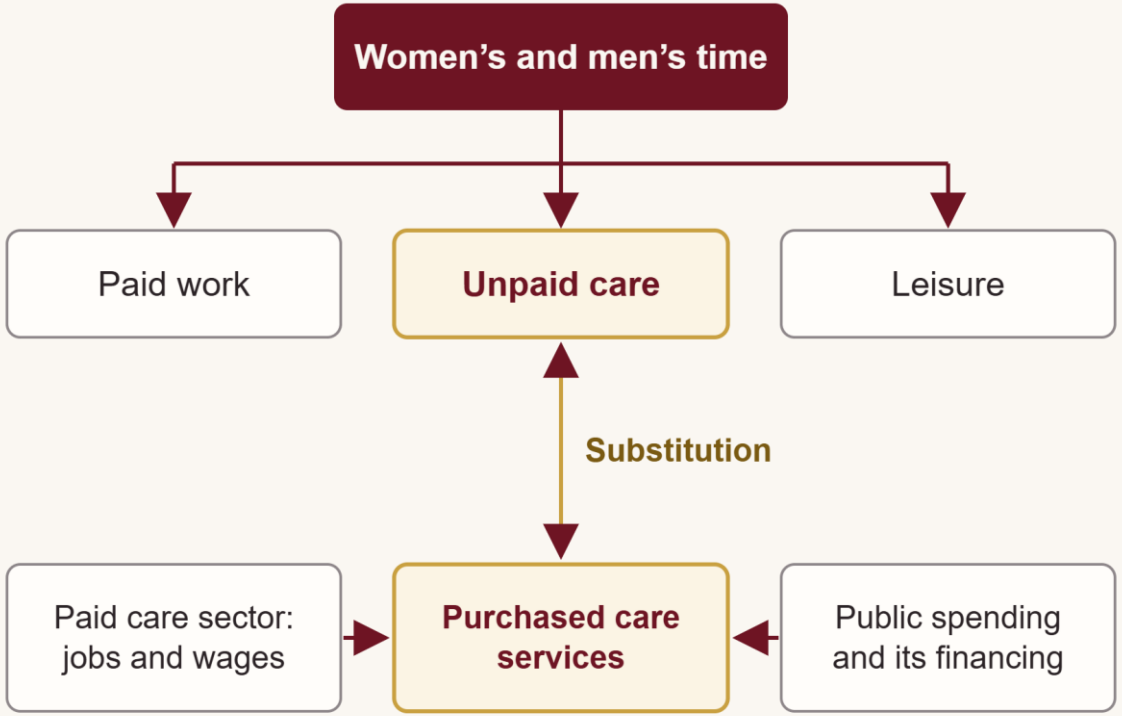
- Higher household income and a higher wage relative to the spouse are associated with less unpaid care for women, especially indirect care
- Men’s care time changes little with income or wages

Source: Gunewardena and Werawella (2025), using the Sri Lanka Time Use Survey 2017

A Care-Extended CGE Model for Sri Lanka

- A social accounting matrix extended to include unpaid care, valued from time use estimates
- Households allocate women's and men's time across paid work, unpaid care and leisure
- Households can substitute purchased care services for unpaid care
- Wages and prices adjust, labour supply responds to the cost and availability of care, and the financing of new public spending is modelled
- Most published estimates of returns to care investment use costing and input-output multipliers with fixed prices
- Related CGE work: Cicowiez et al. (2023) for Colombia; İlkkaracan et al. (2021) for Türkiye

2015 SUT updated with most recent statistics, sectors and closure TBD



Planned model. Related work: Cicowiez et al. (2023); İlkkaracan et al. (2021)

Data for the Model

Group	Source	What it provides
New primary surveys	Care Economy Survey, household questionnaire, all 25 districts	Care time, service use, acceptable fees and employment effects in caregiving households
	Community Leaders Survey	Local supply of childcare, eldercare and disability care by provider type: government, private, non-profit or community, home-visit, domestic workers, employer and informal Change in local care services over the past five years in number, quality and use, and travel time to each Pre-schools and health services, public or private provision, and distance if not available in the village
National statistics	Labour Force Survey	Labour supply and wages for all households
	Household Income and Expenditure Survey	Household income and spending
	National accounts: supply and use tables	Production structure
	Census 2024 and population projections	Population by age and projected ageing
Budget and administrative data	Government budget data	Public spending on care services
	ECCD and elders' secretariats	Capacity, fees and staffing of registered providers

The household survey covers households with a primary caregiver; LFS and Census weights scale results to the population.
The Community Leaders Survey (2024) covers 190 GN divisions in 157 DS divisions across all 25 districts.
2,667 households and 381 community level officials, May–July 2026

From Micro Estimates to Model Parameters: 2017 TUS Evidence

Model input	2017 TUS and LFS 2019 (and our analysis of the data)	Use in the model
Unpaid care time	Hours by sex and activity; the valuation uses main activities, and the household analysis also counts care recorded as a secondary activity	Time endowments of women and men; inputs to household production of care
Care time and household composition	Diminishing care time per additional young child, and overlap in caring for children of different ages	Shape of the household care production function
Who adjusts within the household	Other adults take on indirect care but not direct care, and men's care time does not rise when women are employed	How care time is redistributed when women enter paid work or when services become available
Response to income and wages	Women's care time falls with higher income and a higher relative wage; men's care time changes little	Separate responses of women's and men's care time to wages
Value of unpaid care	Replacement cost, 14–19% of GDP	Value of household care output in the extended SAM
Labour supply response	Participation effects of young children and older men, from regressions (LFS 2019)	Targets for calibrating how women's labour supply responds to care demands

Source: Gunewardena and Perera (2023); Gunewardena and Werawella (2025); ADB (2025)

From Micro Estimates to Model Parameters: Care Economy Survey

Model input	What the Care Economy Survey adds
Unpaid care time	Previous-day diary for primary caregivers, recording care done alongside other activities and for whom
Care needs	Care recipients by type (child aged 5 or under, person aged 65+, ill or disabled person) and by dependency in daily activities
Labour supply response (new)	Caregivers' own reports of how caregiving changed their work; employment status and job search of all household members
Choice between unpaid and paid care (new)	Current use of services, reasons for not using them, whether a suitable service would be used, acceptable monthly or daily fee, and distance, travel time and transport cost
Paid care work (new)	Household members working as paid caregivers in Sri Lanka or abroad, and their earnings
Existing transfers (new)	Government payments received for children, older people and people with disabilities
Gender norms (new)	Own views and views attributed to others, with a 2-minute video shown to a random 60% of respondents

The 2017 estimates describe the base year and how care time varies across households.
The Care Economy Survey adds information on how households would respond to changes in the price and availability of care.

(new) marks inputs with no 2017 equivalent; *(new)* indicates different measures.

Source: Sri Lanka Care Economy Survey, household questionnaire

Policy Simulations and Responsible Ministries

Ministry of Labour

- Employer childcare obligations, with subsidies for small employers
- State funding of maternity benefits, estimated at 0.25% of tax revenue

Ministry of Finance, Planning and Economic Development

- Net fiscal cost of each option after tax revenue from new employment
- Jobs created per rupee of care spending, compared with other public investment

Ministry of Women and Child Affairs

- Expansion of subsidised day care and early childhood care under the ECCD Action Plan 2025–2029

Ministry of Rural Development, Social Security and Community Empowerment

- Community-based eldercare and disability care
- Village-level care services delivered through Praja Shakthi councils

Ministry of Education

- Pre-school provision and teacher training

Distributional results

- By sex, by sector (urban, rural, estate) and by income group
- Change in women’s time poverty

Source: ADB (2025) for maternity benefit cost and care policy options

Scenarios from the Social Care Action Plan

National Action Plan on Social Care, 2026–2035. Approved by Cabinet on 28 September 2026; co-led by the ministries of Labour, Women and Child Affairs, and Rural Development, Social Security and Community Empowerment

Expand care services

- Healthy Elderly Day Centres in all 25 districts
- Childcare through public-private partnerships
- Community and cooperative day care

Lower the cost of care

- Regulated day care fees
- Transport to day care for older people and people with disabilities

Support unpaid carers

- Financial support to households providing long-term care

Raise care workers' pay

- National minimum wage for all care workers
- Wages linked to NVQ levels

Financing

- Line ministry budgets
- A social care trust fund

Use in the model

Each measure changes the supply or price of care services, transfers to households, care workers' wages, or how spending is financed

Source: Government of Sri Lanka (2026), National Action Plan on Social Care 2026–2035

Comparable Work Elsewhere

1.5% + 2.5%

of GDP a year by 2035

ILO (De Henau 2022), 82 countries: extra investment needed for universal childcare and for long-term care. With paid care leave, this could create up to about 300 million jobs.

7 of 7 · 4 of 6

countries where care created more jobs

ITUC and Women's Budget Group (2016, 2017): investing 2% of GDP in care created more jobs than the same spending on construction in all seven OECD countries and in four of six emerging economies. India and South Africa were the exceptions.

13 of 13

countries where women gained more jobs

In every country studied, women took a larger share of the new jobs under care investment than under construction.

These studies use costing and input-output multipliers with fixed wages and prices.

Source: De Henau (2022); De Henau, Himmelweit and Perrons (2016, 2017)

Getting Time Use Data into Policy

Producers of time use data rarely see it used in policy decisions.

Sri Lanka's National Action Plan on Social Care (2026–2035) includes an unpaid care module in the Labour Force Survey, based on the Time Use Survey, and costing unpaid care's contribution to GDP

Ways to change this

- Use time use estimates as inputs to fiscal and labour policy models
- Align with the UN Guide to Producing Time-Use Statistics (2024) and SDG 5.4.1 reporting
- Build the model into Finance Ministry processes
- Work with the Women Parliamentarians' Caucus

Lower-cost options

- Design the planned LFS module on the ILO light diary for own-use provision of services
- Smartphone diaries, as in Mongolia's 2019 survey

Mongolia

Statistics law amended in 2004 to require a government-funded time use survey every 4 years; surveys followed in 2007, 2011, 2015, 2019 and 2023

Colombia

Law 1413 of 2010 requires the care economy to be included in national accounts; the satellite account values unpaid work at about 20% of GDP

Bangladesh

Unpaid household production satellite account (2025), produced by BBS with UN Women and ADB from the 2021 time use survey

Source: Government of Sri Lanka (2026), National Action Plan on Social Care, activity 1.1.1.27; ADB (2026), It Is About Time; DANE, Colombia

Acknowledgements

The research presented in these slides was supported by:

- The Social Sciences and Humanities Research Council of Canada (Grant 895-2021-1015)
- The Open Society Foundations, through sub-grants from the Centre for Global Social Policy at the University of Toronto and American University
- The Co-Impact Research Fund (Grant 0311-2024)

The Care Economy Survey was funded by Co-Impact.

Sri Lanka Time Use Survey 2017 and Labour Force Survey data were used with the permission of the Department of Census and Statistics.

Thank you

Backup: Studies of Returns to Care Investment

ITUC and Women's Budget Group (2016), 7 OECD countries

- Care created more jobs than construction in all seven
- Care narrowed the gender employment gap by 1.6–4.2 points; construction widened it in every country

ITUC and Women's Budget Group (2017), 6 emerging economies

- Care created about 20–25% more jobs than construction in Brazil, China and Indonesia; about the same in Costa Rica
- Construction created more jobs in India (13.5 million against 11 million) and South Africa (511,000 against 400,000)
- Women's share of new care jobs: 32.5% (India) to 56.8% (Brazil)

UN Women (2019): South Africa, Türkiye, Uruguay

- Universal childcare could cost 3–4% of GDP a year
- Tax revenue from new jobs could cover about half the cost

De Henau and Himmelweit (2021): EU countries and US

- Raising care employment and wages to Scandinavian levels raises employment by more than 5 points and roughly halves most gender employment gaps
- The same gain through construction costs at least twice as much

UN Women (2021): 5 sub-Saharan African countries

- Annual cost of universal childcare: 4–10% of GDP
- Rise in women's employment rate: 9–17 points
- Share of cost recouped in tax: 11–41%

Method in these studies

Bottom-up costing with input-output or SAM multipliers; wages and prices fixed; gender mix of each sector held constant

Backup: Uruguay's National Integrated Care System

Coverage and services

- Established by Law 19.353 (2015)
- Covers young children, dependent people aged 65+, and people with disabilities who lack autonomy
- Early childhood centres and community care houses
- Personal assistants for people with severe dependency
- Teleassistance for older people with mild or moderate dependency

National Care Board members

- Ministries of social development, health, and labour and social security
- Planning and budget office and the education authority
- Social security bank, and the children's and women's institutes

Time use surveys from 2007 and 2013 were part of the case for the law and are used to monitor progress.

Projected cost in 2020: about US$210 million a year more than in 2015.

Source: CEPAL and OPP (2017); ADB (2026), It Is About Time; Government of Uruguay