ONS/MERGE 5.2 Household Satellite Accounts Workshop Summary

Executive Summary:

This workshop brought together global efforts to better measure and value **unpaid household work**, a critical yet often invisible component of national economies. The discussions spanned five major initiatives across the UK, Australia, the EU, South Korea, and the U.S., highlighting innovations, challenges, and policy implications.

Key Themes and Insights

1. Recognizing Unpaid Work

- Unpaid services like childcare, cooking, and elder care contribute significantly to economic and social well-being.
- In the UK, unpaid household services were valued at **over £1 trillion** in 2022 approx. **60% of GDP**.

2. Methodological Advances

- Most countries use **input-based valuation** (time × replacement wage), with some also applying **output-based methods**.
- Time Use Surveys (TUS) are central but vary in frequency and quality across countries.

3. Gender and Demographic Disparities

- Women consistently perform **2–3× more unpaid work** than men.
- The burden is highest among the **"sandwich generation"** (ages 35–44) and **single parents**.

4. Policy Relevance

- Unpaid work affects **income inequality**, **labour market statistics**, and **well-being**.
- Integrating unpaid work into national accounts can inform smarter, more inclusive policies—especially in care, welfare, and sustainability.

5. International Innovations

- **Australia**: Expanded labour accounts to include unpaid care, valued at **$300+ billion/quarter**.
- **EU (Wise Horizon)**: Linked time use to **carbon footprints** and **life satisfaction**, envisioning sustainable lifestyles by 2050.

- **South Korea**: Developed a robust Household Production Satellite Account, covering **25.5% of GDP**.
- **U.S.**: Found that declining unpaid work has **exacerbated income inequality**, especially for low-income and single-parent households.

6. Future Directions

- Regular, high-quality time use data is essential.
- Open-source tools and rapid pipelines are being adopted for transparency and efficiency.
- International standards are evolving, but consensus is still years away.

Unpaid household work is foundational to economies and well-being. Measuring it accurately is not just a statistical exercise—it's a **policy imperative**. The workshop underscored the need for **collaboration**, **data innovation**, and **framework evolution** to ensure that economic systems reflect the full scope of human activity.

1) UK Household Satellite Account (HSA)

Purpose & Scope

The HSA measures the value of unpaid household service production—activities like childcare, cooking, cleaning, and transport that are not included in GDP but are economically significant. It extends traditional national accounts to better reflect the total economic activity in the UK.

It follows the third-party criterion (Margaret Reid, 1934), which includes any unpaid activity that could be outsourced under normal market conditions.

Included Activities

- Childcare
- Adult care
- Nutrition (e.g. cooking)
- Cleaning
- DIY & gardening
- Laundry (washing, drying, ironing)
- Transport
- Organisation-based volunteering
- Clothing care (haberdashery, ironing)

Emerging areas like **digitally mediated services** are being explored for future inclusion.

Historical Development

- First HSA published by **ONS in 2002** (reference year 2000).
- Full update in **2016** covering **2005–2014**.

- **2018 update** added 2015–2016.
- **2023 release** included five more years (up to 2022) as a **data-only release**.
- **2023 estimates** are currently in development

Key Findings

- **Unpaid household services** now exceed **£1 trillion** in nominal terms.
- Relative to GDP:
    - **~50% in 2005**
    - Peaked at **over 60% in 2022**
    - Slight dip in recent years
- **Intermediate consumption** (e.g. cleaning supplies, fuel) and **imputed rent** have remained stable at **~10% of GDP**.
- **Per capita value (2022)**:
    - **Unpaid work**: £22,150
    - **Paid economy (GVA)**: £37,350

Growth Drivers

- Major contributors to growth:
    - **Transport**
    - **Childcare**
    - **Nutrition**
- During the **pandemic**, unpaid service value rose, but **transport** declined sharply, offsetting gains in other areas.

Measurement Methods

1. Input Method

- Labour hours × market wage rate
- Adjusted for intermediate consumption, taxes, and subsidies

2. Output Method

- Units of service consumed × market-equivalent price
- Also adjusted for intermediate consumption, taxes, and subsidies

Application by Service:

- **Output**: Childcare, adult care, transport, nutrition, clothing & laundry
- **Input**: Household services, volunteering

Pricing Notes:

- **Childcare**: Market-based hourly rate

- **Adult care**: Based on government costs (no profit margin)
- **Transport**: Priced per mile, but doesn't reflect quality (e.g. traffic, comfort)

Intermediate Consumption

- Based on **5-digit COICOP** codes using a **3-year moving average**
- Manual assumptions used where data is lacking:
    - **Dry rice**: 100% intermediate (requires cooking)
    - **Fruit**: 50% (may be eaten raw or used in cooking)
- Recognises **interdependencies** (e.g. transport used for food shopping is input into nutrition)

Data Improvements & Future Work

Time Use Data:

- Since 2020, 9 waves of **online light time use diary** data collected
- Not yet fully integrated into HSA due to:
    - **Seasonal gaps** (e.g. gardening in winter)
    - **Missing travel episodes**
    - Ongoing **quality assessments**

Childcare Estimation:

- Uses a **24-hour model per child**
- Estimates formal care hours from **attendance headcounts** and **assumed hours**
- **Unsupervised time** is subtracted to estimate **informal care**

Planned Enhancements:

- **Nowcasting** to reduce the two-year lag
- **Direct survey questions** on formal childcare hours (to reduce reliance on external data)
- Transitioning from **licensed software (SAS/SPSS)** to **open-source tools (e.g. R)**
- Adopting **Rapid Analytical Pipeline** principles for efficient, reproducible coding
- Planning a **more visible release** for 2023 data (e.g. article with key messages)

2) ABS Labour Account Expansion Project – Measuring Unpaid Care

1. Background & Purpose

- Initiated in response to a **Treasury white paper** identifying labour market data gaps.
- Funded to expand the **Labour Account** to include:
    - **Unpaid care measurement**

- **Demographic breakdowns** (e.g. sex, age)

2. Framework & Scope

Care Dependency Model

- Adapted from **Statistics Canada**, focusing on:
    - **Children** (including those with disabilities)
    - **Adults with long-term health conditions or disabilities**

Types of Care

- **Direct Care**: Hands-on tasks (e.g. feeding, bathing, emotional support)
- **Indirect Care**: Instrumental tasks (e.g. cooking, cleaning, transport, supervision)

3. Methodology

Approach

- **Input-based** due to data limitations (no output-based valuation possible).
- Core formula:
  Unpaid care hours × Replacement wage rate

Valuation Methods

1. **Individual Function Replacement Cost** *(Preferred)*
    - Matches each care task to a relevant occupation (via ANZSCO codes).
2. **Minimum Wage Replacement Cost**
3. **Housekeeper Wage Replacement Cost**
4. **Median Wage** *(context only, not official)*

Data Sources

- **Time Use Survey (TUS)**: 2006 & 2021 (primary source for care hours)
- **Survey of Employee Earnings and Hours (EEH)**: Wage data
- **Census of Population and Housing**: Proportion of unpaid carers
- **Estimated Resident Population (ERP)**: Total population estimates
- **Wage Price Index (WPI)**: Wage trend modelling

4. Modelling Process

1. **Estimate average daily care time** from TUS (adjusted for employed carers).
2. **Identify participation rates** in care activities (primary & secondary).
3. **Apply census proportions** to ERP to estimate number of carers.

4. **Multiply carers × participation × time** to get daily care hours.
5. **Scale to quarterly estimates** using number of days per quarter.

5. Key Results (as of Sept 2024)

Unpaid Care Hours

- **~9.7 billion hours per quarter** across all care types and demographics.

Valuation (Quarterly Flow)

- **Minimum wage**: ~$250 billion
- **Housekeeper cost**: ~$280 billion
- **Individual function cost**: ~$300+ billion
- **Median wage (context only)**: ~$400 billion

6. Demographic Insights

By Age

- **Lowest** unpaid care value: **15–24 years**
- **Highest & fastest-growing**: **35–44 years** (often the “sandwich generation”)

By Sex

- **Women** performed the majority of unpaid care.
- **Value of women’s unpaid care**: **~double** that of men across the time series.

7. Strengths & Limitations

Strengths

- Rich detail on time use and demographics
- Flexible, scalable framework
- Supports incremental development

Limitations

- Only two TUS waves (2006 & 2021) → large time gap
- High standard errors for small subgroups
- Survey design changes over time
- Difficulty capturing **passive/secondary care**
- Limited data on **care recipients**

8. Future Outlook

- **Biennial TUS** now in place:
    - **2024 TUS** due late 2025

    - **2026 TUS** to follow
- Potential to expand care categories and improve model precision

3)Wise Horizon Project: Rethinking Time Use for Sustainable Well-being

Project Overview

The Wise Horizon project is part of the EU's "Beyond GDP" initiative, aiming to shift economic focus toward **well-being, inclusion, and sustainability**. It explores how **changes in time use** can support **low-carbon, high-well-being lifestyles** by 2050.

Why Time Use?

- **Universally equal**: Everyone has 24 hours a day, regardless of wealth.
- **Deeply personal**: Our lives are shaped by how we spend our time.
- **Policy-relevant**: Time use is a relatable way to communicate complex sustainability issues to the public, media, and policymakers.

Methodology

Baseline (2016)

- Time use data from 2016
- Household consumption, energy use, and travel technologies
- Carbon intensity calculated per activity using environmental accounts and input-output tables

2050 Post-Growth Baseline

- Time use held constant
- Infrastructure fully decarbonised (e.g. renewable energy, electric vehicles, insulated homes)
- Consumption reduced to **sufficiency levels** (based on Loughborough University's Minimum Income Standards)
- Diet and supply chain technologies held constant

Functional Time Use Framework

Time is divided into four constrained categories:

1. **Personal** – Biological needs (sleep, eating, hygiene)
2. **Domestic** – Unpaid work (cooking, cleaning, caregiving)
3. **Economic** – Paid work for income
4. **Community** – Socialising, volunteering, civic life

Transport is treated as an **enabling system** embedded across categories.

Data Sources

- **Time Use Surveys with Enjoyment Ratings**:
    - CADDIE (Click and Drag Diary Initiative) – 10,000+ diaries across 9 countries
    - Includes activity-level enjoyment (1–7 scale) and life satisfaction
- Other sources: Environmental accounts, travel surveys, household expenditure, IEA, UK Climate Change Committee

Key Findings

Enjoyment vs. Carbon (2016)

- **High carbon, low enjoyment**: Driving, commuting
- **Low carbon, low enjoyment**: Paid work, public transport
- **Low carbon, high enjoyment**: Sleep, family time, sports, leisure (the “sweet spot”)

2050 Carbon Intensity

- Most activities become **less carbon-intensive**
- Exception: **Low-carbon travel** (e.g. cycling) becomes slightly more carbon-intensive due to increased demand and embedded emissions in production

2050 Time Use Scenarios

The Good Life

- More leisure, family time, volunteering, personal care
- Less paid work and screen time
- Active/public transport replaces private cars
  Outcome:
- Slight increase in enjoyment (UK, Finland)
- Carbon footprint ↓ in France, ↔ in UK, ↑ in Finland

Caring Responsibilities

- More unpaid care and paid work
- Less leisure and active travel

Outcome:

- Enjoyment ↓ in all countries
- Carbon footprint ↑

Individualist

- More paid work, screen time, private transport

- Less sleep, domestic work, community time

Outcome:

- Enjoyment ↓
- Carbon footprint ↑

Limitations

- No modelling of **dietary changes** or **supply chain decarbonisation**
- Only **primary activities** considered (no multitasking)
- **Enjoyment ratings** don't capture **eudaimonic well-being** (e.g. parenting may feel hard but is deeply meaningful)
- Research is **Western-focused**; more work needed in the **Global South**

Policy Relevance & Broader Impacts

- Time use is a **powerful communication tool** for sustainability
- Useful for:
    - **Public engagement**
    - **Media storytelling**
    - **Civil society advocacy**
    - **Policy design**
- Highlights the need for:
    - **Social norm shifts**
    - **Radical systemic change** in consumption and infrastructure
    - **Gender-sensitive policies** to avoid reinforcing inequalities

Final Conclusion

Time use change alone is not enough, but it is a **crucial, accessible lever** for imagining and enabling sustainable, fulfilling futures.

4) South Korea's Household Production Satellite Account (HPSA)

1. Purpose & Background

- The **HPSA** quantifies the value of **unpaid household service work** (e.g. cooking, cleaning, caregiving) in alignment with the **System of National Accounts (SNA)**.
- It addresses a key limitation of GDP by incorporating **non-market activities** that significantly contribute to economic and social well-being.

- The initiative follows the 2010 SNA recommendation to develop **extended accounts** for unpaid household services.

2. Scope of Household Production

- **Includes** unpaid services that could be **market-replaced**, such as:
    - Household management
    - Caregiving
    - Volunteering
    - Transport (only when clearly related to household services)
- **Excludes**:
    - Personal activities (e.g. sleeping, eating, studying)
    - Information services (not yet captured in Korea's time use survey)

3. Methodology

Components

- **Output**: Value of unpaid services
- **Intermediate Consumption**: Based on 145 household expenditure items (e.g. food, cleaning supplies)
- **Consumption of Fixed Capital**: Estimated using the **perpetual inventory method** (e.g. depreciation of household appliances)
- **Value Added**: Time spent × replacement wage

Valuation Approaches

- **Specialist Approach** (main method): Applies occupation-specific wages to each activity
- **Opportunity Cost** and **Generalist Approaches** also used for comparison

Data Source

- **Time Use Survey** (every 5 years by Statistics Korea)
    - Covers individuals aged **15 years and older**
    - Latest (6th) survey conducted in 2024; results expected by end of the year

4. Key Findings (2019 Data)

- **Total value**: 490 trillion (~25.5% of GDP)
- **By activity**:
    - Household management: largest share
    - Followed by caregiving, volunteering, and transport
- **By gender**:
    - Women contributed **2.6× more** than men

    - Men's share increased from **20% (1999)** to **27.5% (2019)**
- **By marital/employment status**:
    - **91%** of unpaid work done by married individuals
    - **41%** by married, non-employed women

These findings informed **local policy discussions**, including:

- Reducing long working hours
- Introducing **household labour subsidies**

5. Integration with National Time Transfer Accounts (NTTA)

- **NTTA** complements HPSA by distributing unpaid household service value **by age group**.
- Shows **life-cycle transfers** of unpaid services (e.g. grandparents caring for grandchildren).
- Informs **local policies**, such as **grandparent caregiving subsidies**.
- Together, **HPSA + NTTA** provide a more **complete picture** of the economy, covering both **market and non-market** activities.

6. Future Plans

- **Next release** (covering 2024) scheduled for **first half of 2025**.
- Planned improvements:
    - Reviewing **wage assumptions** for each activity
    - Enhancing **data disaggregation** (e.g. by gender, age, employment status)
    - Exploring inclusion of **information services** and broader transport categories in line with **2025 SNA** updates

7. Final Remarks

- The HPSA (launched in 2018) and NTTA (introduced in 2023) are compiled every **five years**.
- Statistics Korea welcomes **feedback and collaboration** to improve the accuracy, relevance, and policy utility of these accounts.

5) Household Production, Time Use, and Inequality in the U.S. (1965–2018)

1. Motivation

- The U.S. has seen a **sharp rise in income inequality** since the 1970s.
- Simultaneously, there has been a **major increase in female labour force participation**, especially among highly educated women.

- This shift has led to a **decline in household production time**, raising questions about how this affects **material living standards** and **inequality**

2. Research Questions

1. How has **household production time** changed across the income distribution?
2. How do **extended income trends** (market income + value of unpaid work) compare to market income trends?
3. How does **inequality** in extended income differ from inequality in market income?

3. Data & Methodology

- **Time Use Data**: Heritage time use surveys (1965–1998) and American Time Use Survey (ATUS, 2003–2018).
- **Income Data**: CPS Annual Social and Economic Supplement (ASEC).
- **Imputation**: Unpaid work time predicted using shared covariates (e.g. age, education, employment, household composition).
- **Valuation**: Household production valued using the **replacement cost approach** (housekeeper wage); sensitivity checks with state minimum wages.
- **Equivalence Scales**:
    - Market income: $\sqrt{(\text{adults} + \text{children})}$
    - Household production: $\sqrt{(\text{adults} + 2 \times \text{children})}$

4. Key Findings

Trends in Household Production Time

- **Women**: ~15 hours/week decline
- **Men**: ~5 hours/week increase
- **Overall**: Net decline in unpaid work, especially among single parents

Extended Income Trends

- Market incomes rose significantly.
- Value of household production fell ~20% (equalised).
- Extended income grew **more slowly** than market income.

Inequality Trends

- **Extended income inequality** rose **more sharply** than market income inequality.
- This is because:
    - The decline in unpaid work affects **low-income households more**, as it forms a larger share of their extended income.
    - The **equalising effect** of household production has weakened over time.

Counterfactual Analysis

- If household production time had remained constant:
    - The divergence between market and extended income inequality would be **50% smaller**.

5. Subgroup Analysis

Single vs. Married Parents

- **Single parents**: 22% drop in household production value
- **Married parents**: 4% drop
- Reflects increased employment among single parents and dual-earner dynamics in married households

Supervisory Childcare

- Including supervisory care (e.g. being “on call” for children) reveals:
    - A **larger decline** in household production time
    - A **greater increase** in inequality, especially in the upper half of the income distribution

6. Methodological Considerations & Future Directions

- Exploring **opportunity cost valuation** as a counterfactual (though less appropriate for baseline estimates).
- Considering **gender wage dynamics**: As unpaid work shifts from women to men (who earn more), the value of unpaid work may appear to rise.
- Investigating **alternative inequality measures** (e.g. decile shares).
- Potentially incorporating **consumption data** (e.g. from the CEX) or **national income-style measures**.

7. Policy Implications

- **Unpaid work** plays a critical role in shaping **material well-being** and **inequality**.
- **Single-parent families**, especially single mothers, are disproportionately affected by the decline in household production.
- **Welfare policies** that condition support on paid employment may overlook the value of unpaid care work.
- There is a need to **recognise, support, and measure** unpaid work in economic and social policy.

6) Closing Remarks

Understanding and Integrating Unpaid Work

1. Challenging the Traditional Economic Narrative

- The post-WWII story of economic growth often overlooks the **trade-offs** involved in shifting unpaid household work into the market economy.
- When **extended income** (including household production) is considered, growth appears **slower and more unequal** than standard GDP suggests.

2. Measurement Matters

- **Time use data** and **household satellite accounts** are essential for capturing the full scope of economic activity.
- However, **irregular data collection** and **lack of standardization** limit their impact.
- There's a growing push to **embed unpaid work into existing economic frameworks** (e.g. labour accounts, productivity measures).

3. International Standards: A Work in Progress

- Bodies like the **ILO** and **UNECE** are working toward clearer definitions and frameworks, but **consensus is years away** (likely post-2028).
- Countries like Australia are taking **context-sensitive approaches**, recognizing cultural dimensions (e.g. Indigenous "care for country") and starting with **scalable, defensible methods**.

4. Policy Relevance

- Assigning a **monetary value** to unpaid work helps **communicate its importance**, but this alone is not enough.
- The **MERGE project** aims to go further—developing tools and frameworks that allow unpaid work data to:
    - Inform **policy trade-offs** (e.g. disability support, care infrastructure),
    - Reveal **inefficiencies or inequalities** in economic transitions,
    - Support **holistic, beyond-GDP policymaking**.

5. Rethinking the Economy

- As Richard Heys noted, once you strip out non-market components, the UK is arguably a **non-market economy**.
- This raises profound questions:
    - Has there been a **structural shift** in the economy?
    - Is **GDP still a sufficient measure** of economic activity?
    - How do we **tax, support, and plan** for an economy where so much value is created outside the market?

6. **Reflections: Where do we go from here?**

- **Data is foundational**: Without regular, comparable time use data, we can't build the narratives or evidence base needed for change.
- **Frameworks must evolve**: Integrating unpaid work into national accounts and labour statistics is essential for relevance and usability.
- **Policy must catch up**: The real value of this work lies in its ability to **shape smarter, fairer, and more inclusive policies**.
- **Collaboration is key**: Projects like MERGE, and forums like this discussion, are vital for bridging the gap between **research, statistics, and policy**.