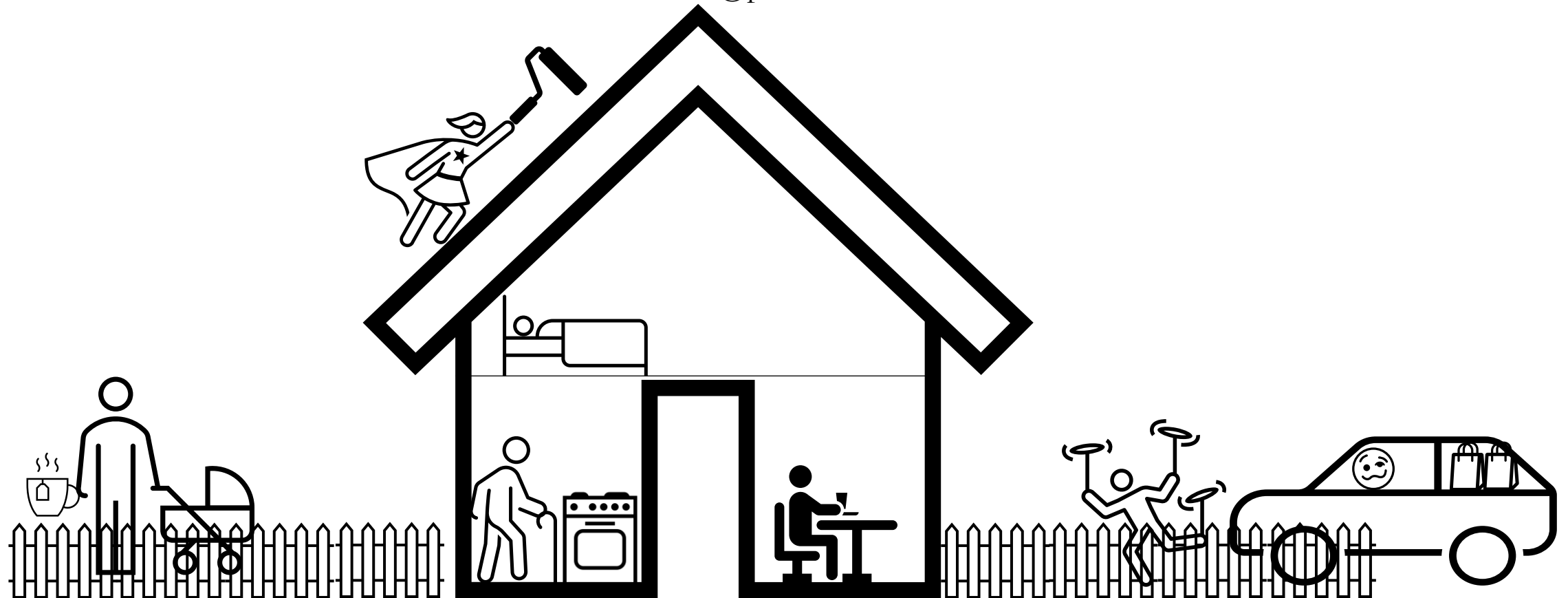


Detailing household time use in an input-output database for climate footprint estimation

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Agenda

- Intro to conventional accounts
- Motivation for improvement
- A new conceptual framework
- An application to the UK

Position in the *Getting The Data Right* Project

“Database for sustainable decision making and life cycle assessment”

- Hybrid input-output table, using national accounts and emission tables

Products	Products				Final uses			Total
	Agriculture, forestry, etc.	Ores and minerals; etc.	...	Services	Final consumption	Gross capital formation	Exports	
Agriculture, forestry, etc. Ores and minerals; etc. ... Services	Intermediate consumption by product				Final uses by product and by category			Total use by product
Imports	Intermediate consumption of imported products				Final use of imported products			
Value added	Value added by component							Value added
Total	Total supply				Total final uses by category			
Emissions	Emissions by product							

Source: UN Department of Economic and Social Affairs (2018)

NOT THE END

What is captured in “traditional” input-output



Non-economic activities



Household production of services



Household production of goods

Underground production

Illegal production

Informal sector production

The “statistical underground”

Non-observed economy



Observed economy

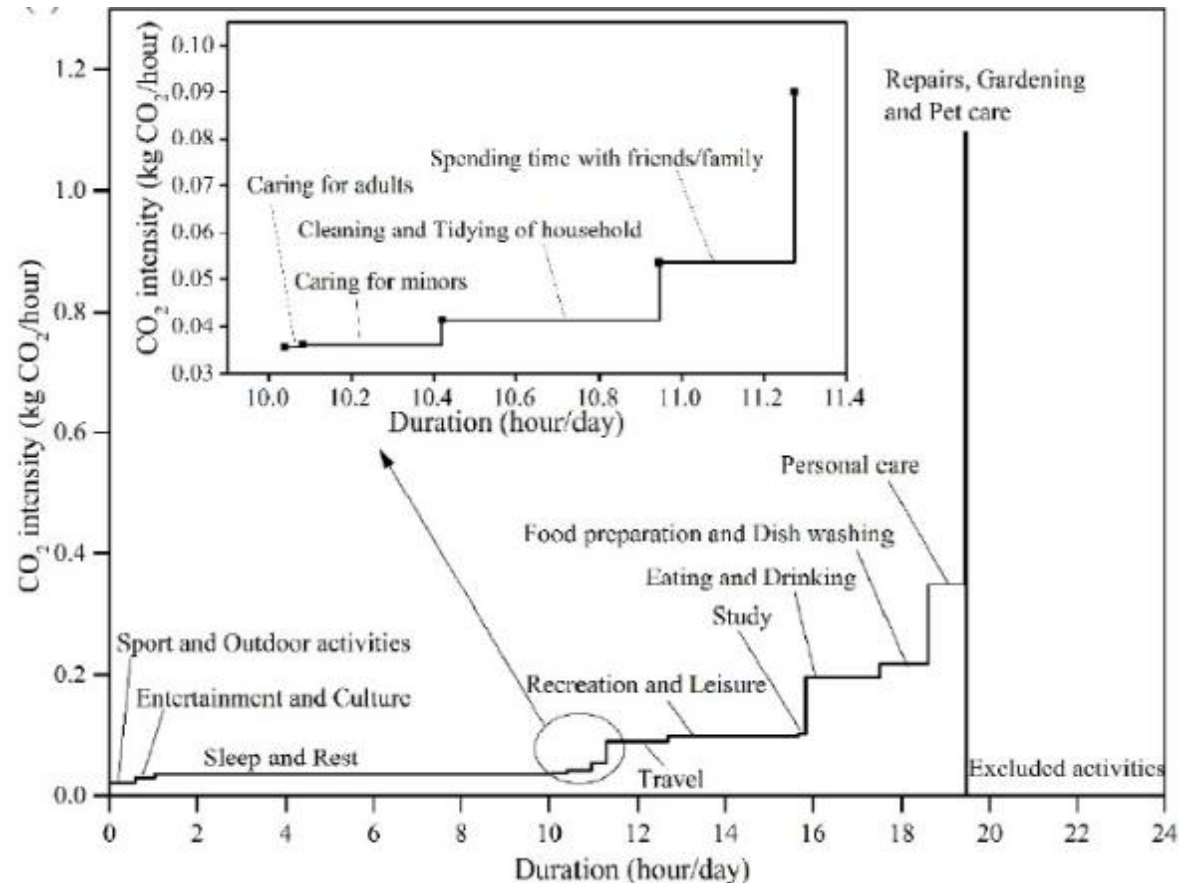


Three reasons to integrate household activity patterns

1. Complete economic accounts of production
2. Illustrate what humans do the entire day rather than just formal work
3. Show the environmental footprint for each market and household activity per time and money unit



Climate footprint of product end uses



Source: Yu et al. 2019

Work done for: Japan (Jiang 2022), Finland (Jalas 2015), Austria (Smetschka 2019), UK (Druckman, 2012), Germany (Minx 2009), and China (Yu 2019)

Inform decision-making

- Substitution
- Duration vs intensity
- Market vs home-produced

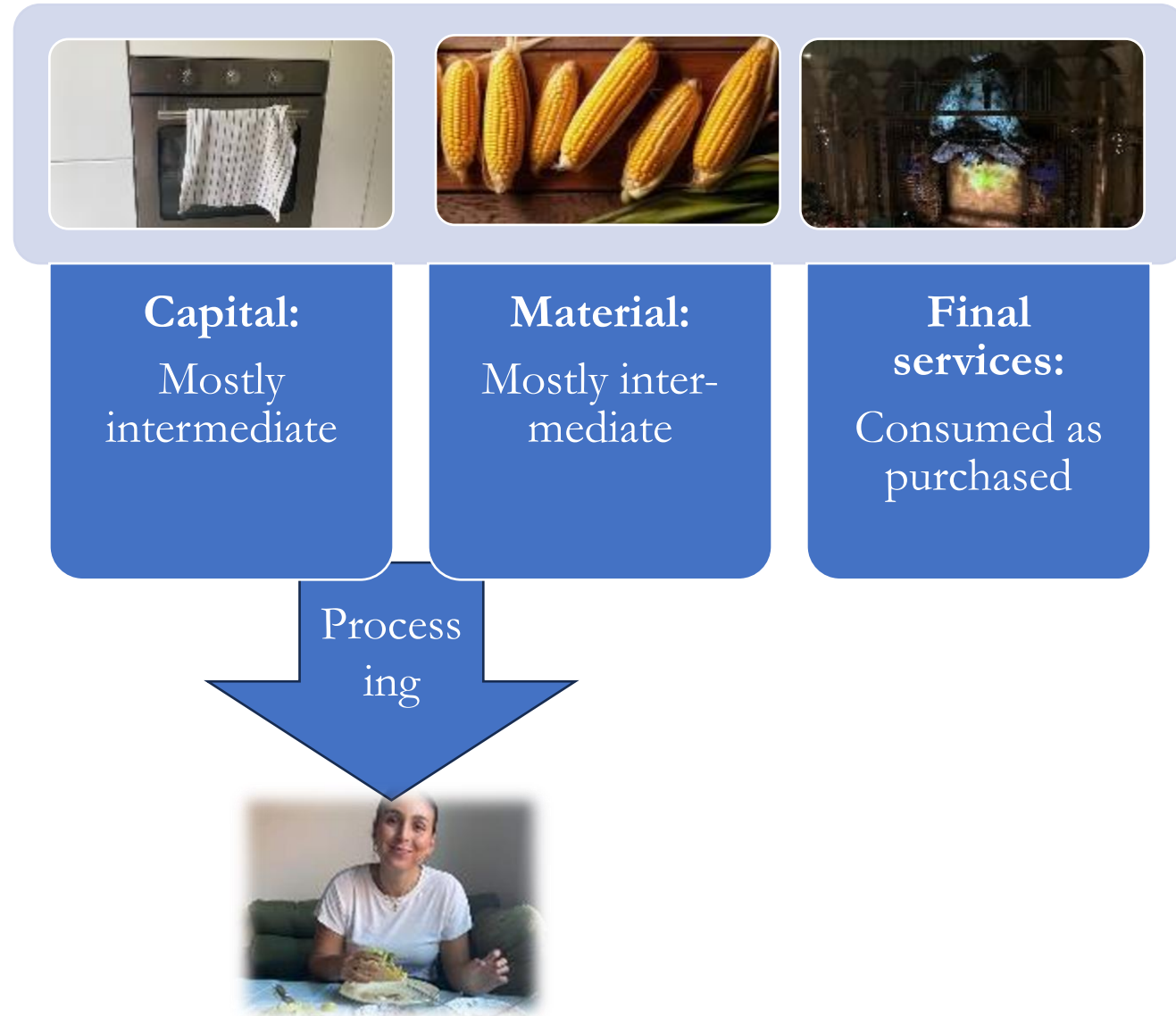
Old times



Modern times



Traditional input-output does not capture *how* things are used in the households



...does not capture:

- Flow of time
- What we do during the part of the day when we are not engaged in paid work
- Full effect of new policies

Our new framework captures in detail...



Market
production



Household
production



Consumption

Household production

- Is in the non-money sphere of reciprocity
- Is a network of binding relationships
- Fulfills Reid's 3rd party criterion
- Requires inputs of time, market products, and often household produced products

UK Living Cost and Food Survey

- Partly diary-based
- 2014, 2015, and 2016 data:
16,972 households

UK 2015 input-output table

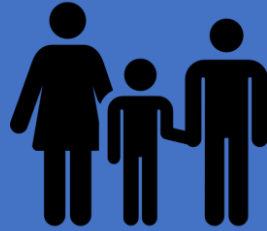
UK time use data

- 2014-2015 data:
16,533 individuals



Socio-economic characteristics

Creating household groups by
income & composition



Defining household activities

- 15 household production
- 29 consumption
- 6 transport
- 129 market work



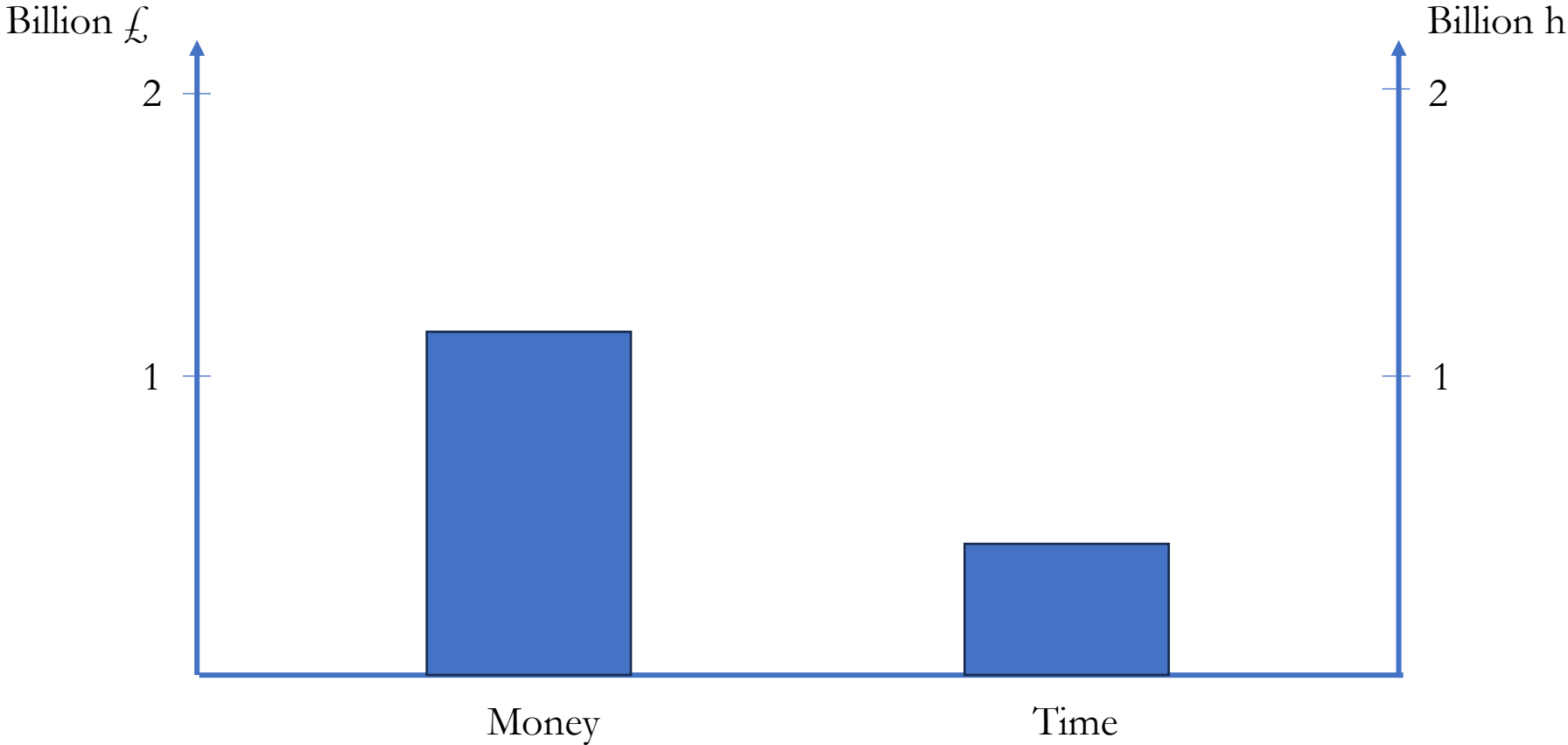
Valuing household-produced



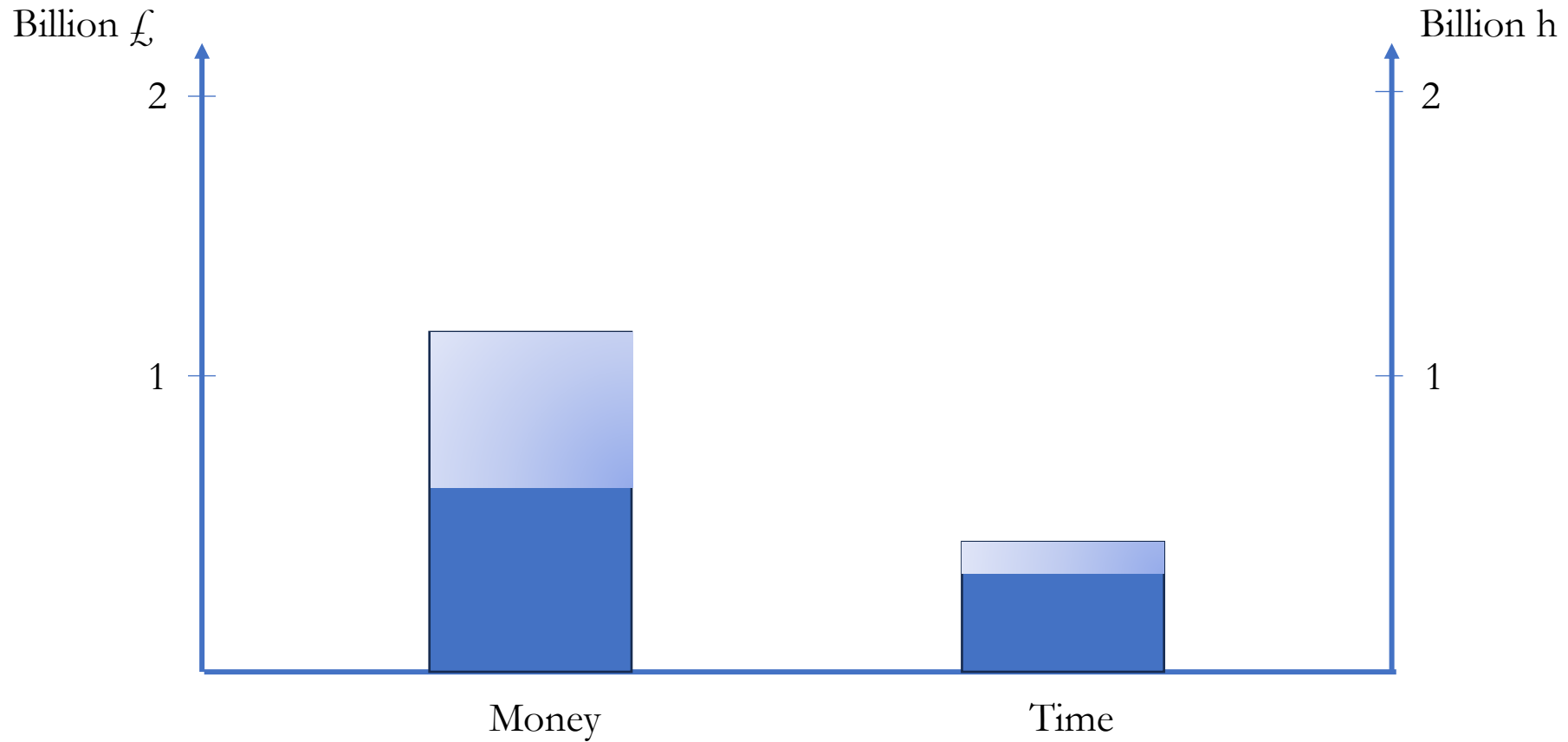
Allocating time and
expenditures to activities



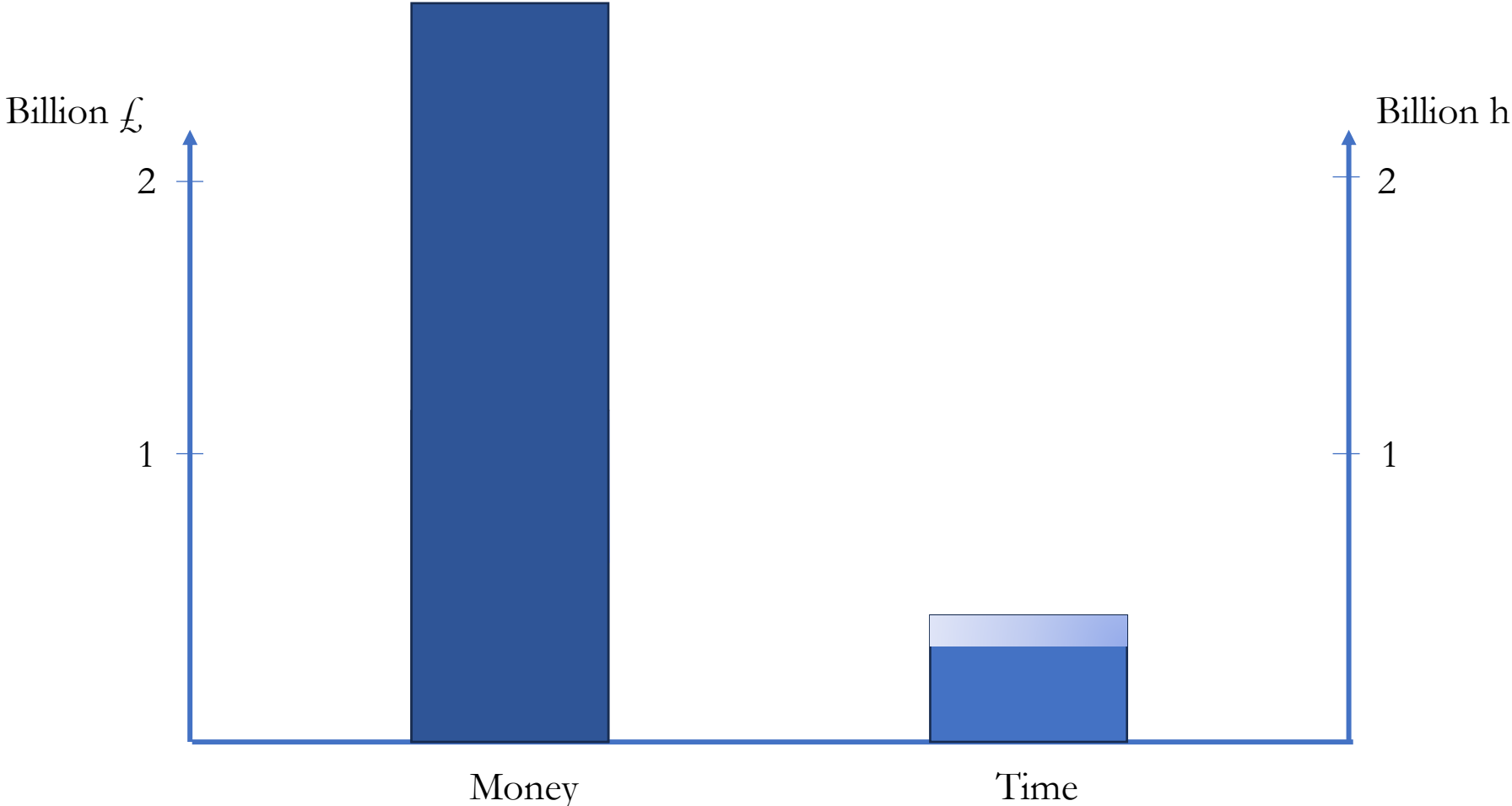
Traditional way of viewing consumption, UK 2015



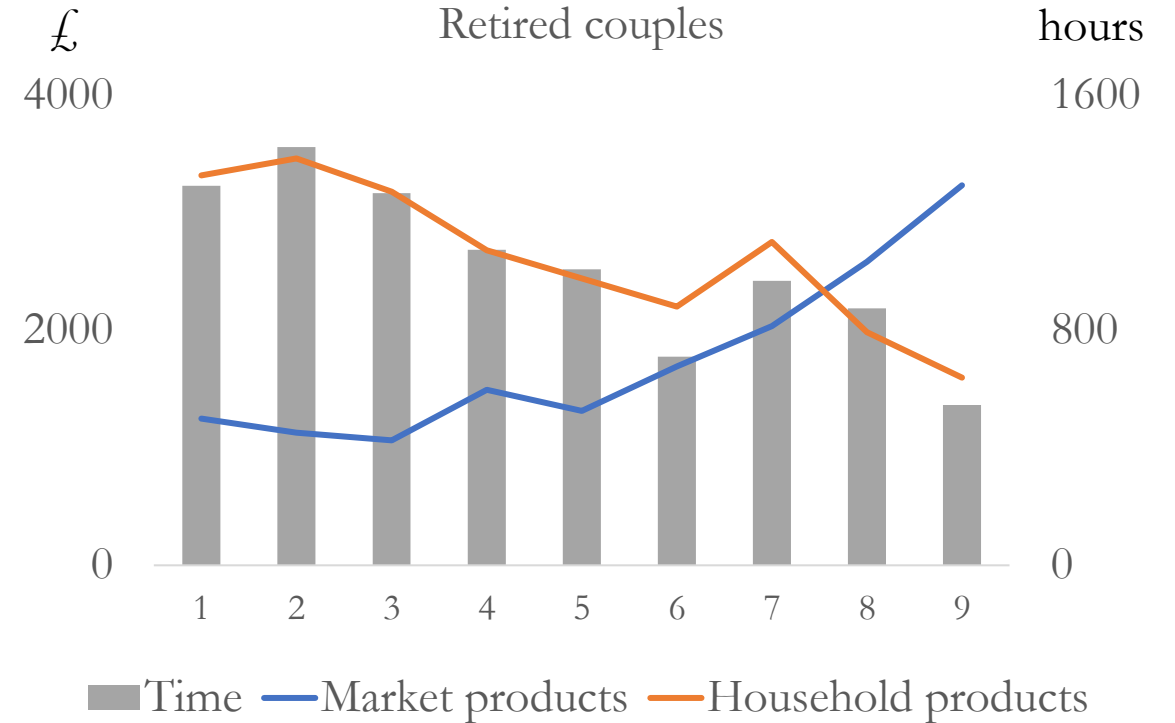
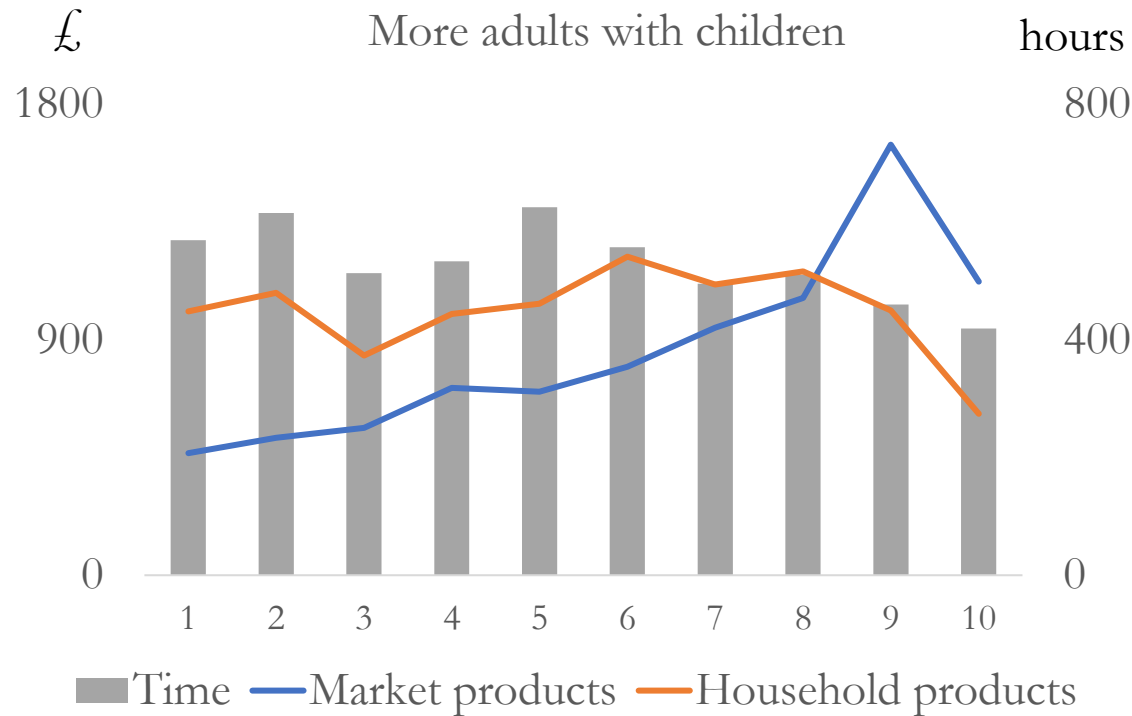
Consumption excluding household production, UK 2015



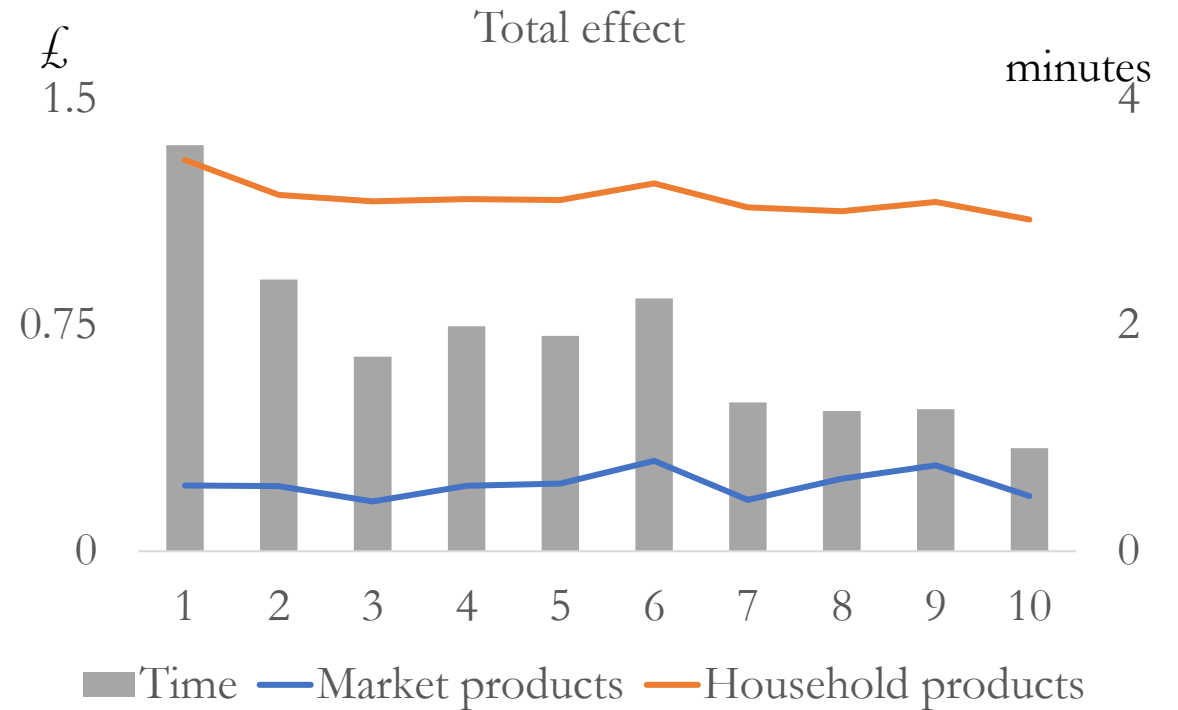
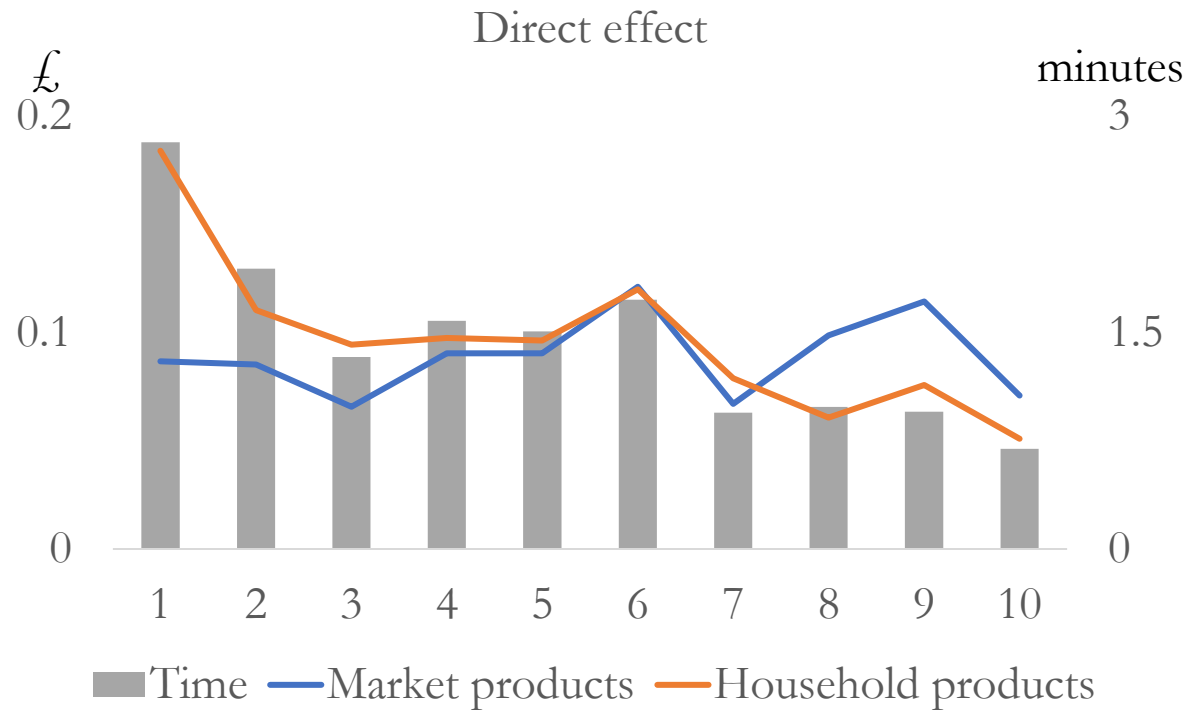
New way of viewing consumption, UK 2015



Direct inputs to watching TV per person per year



Demanding one £ of home-produced food, multiple adult households without children



Examples of uses

- Comparing economic growth with and without household production
- Comparing time and money embedded in activities across household income groups and compositions
- Comparing activity-level climate footprints across household income groups and compositions
- Comparing the climate footprint of market vs home-produced products

Thank you

