

# Thinking Outside the Box: Unpuzzling the UK's Productivity Performance by Looking Outside the National Accounts

Clodhna Taylor and  
Richard Heys

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# Motivation



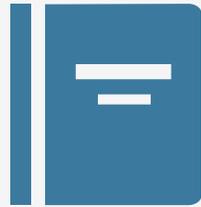
- A lot of recent technological development has taken place outside GDP's definition of "the economy"
- Some technological change has seen the same activity move from within GDP's definition of "the economy" to outside (or vice versa)

Does the recent slowdown in productivity growth reflect an actual slowdown in innovation, or just in the kind of innovation picked up by GDP / National Accounts?

# Inclusive Wealth and Income Accounts: Purpose

- There are a group of users for whom the economic accounting underlying GDP and the National Accounts is a core feature, and something they would like to maintain in a “Beyond GDP” metric
- Inclusive Wealth and Income Accounts build upon national accounts and other international economic accounting standards, which allows them to:
  - Ease the transition from GDP / National Accounts for some users
  - Reduce resource requirements of the NSI
  - **Increase their analytical use**

# Inclusive Wealth and Income: Building Blocks



## **National Accounts**

Economic activity within the production boundary



## **Household Satellite Accounts**

Economic activity within the household without participating in economic markets



## **Human Capital Satellite Account**

Investment, depreciation, and stocks of human capital

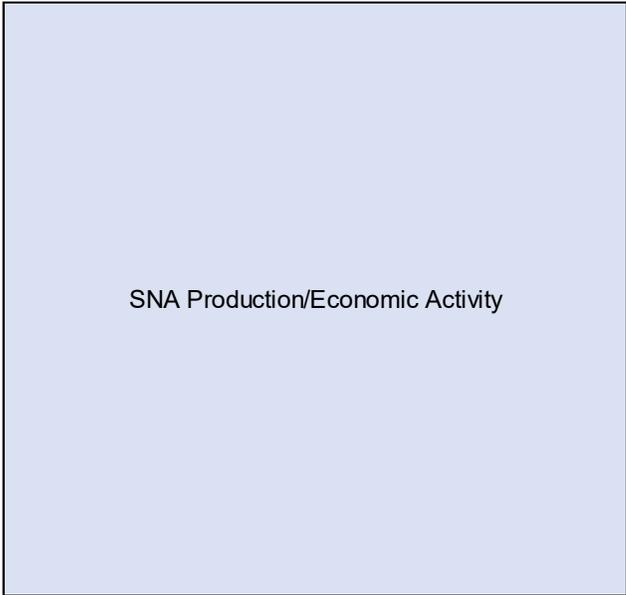


## **Natural Capital Accounts**

Economic value of the natural world, including natural capitals

# Inclusive Wealth and Income

SNA Income



SNA Wealth



## SNA / National Accounts

SNA defines two key boundaries for understanding value;

The “Production boundary” defines what counts as value-creating economic activity

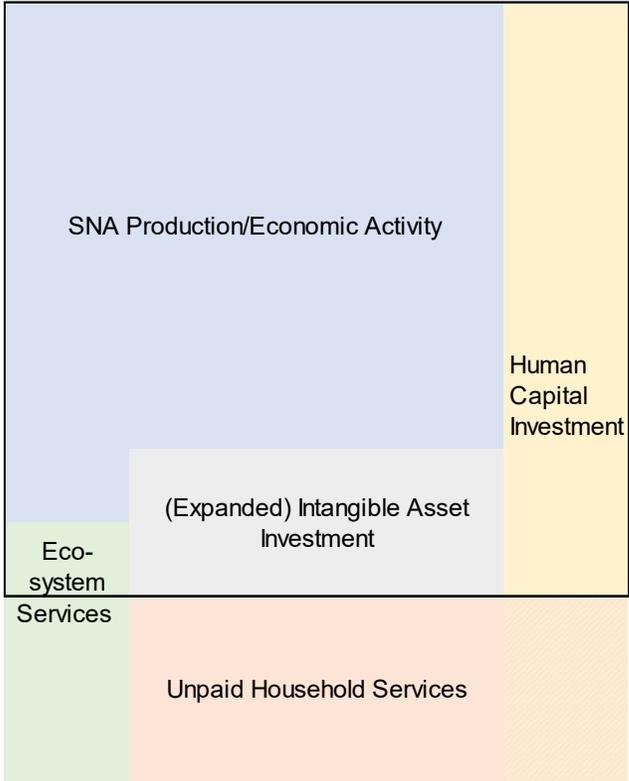
The “Asset Boundary” helps define what is treated as a capital\*

— SNA boundaries

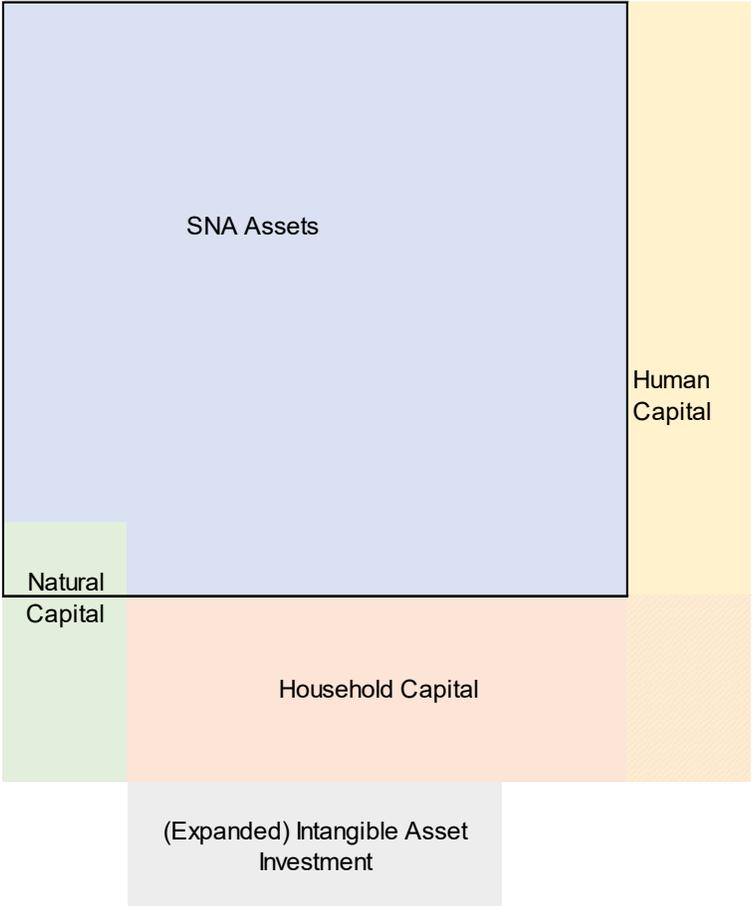
\*(For this simplified example I’m ignoring non-produced assets, so this could also be thought of as the capital boundary)

# Inclusive Wealth and Income: End goal

Inclusive Income



Inclusive Wealth



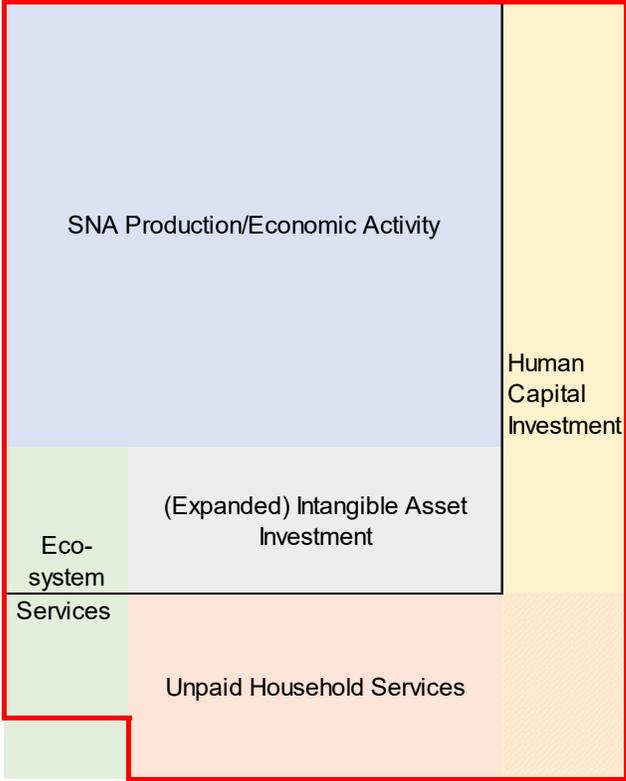
## Inclusive Income: End Goal

This shows how inclusive income intends to amend the two boundaries, as well as where it intends to make alternations within the boundaries

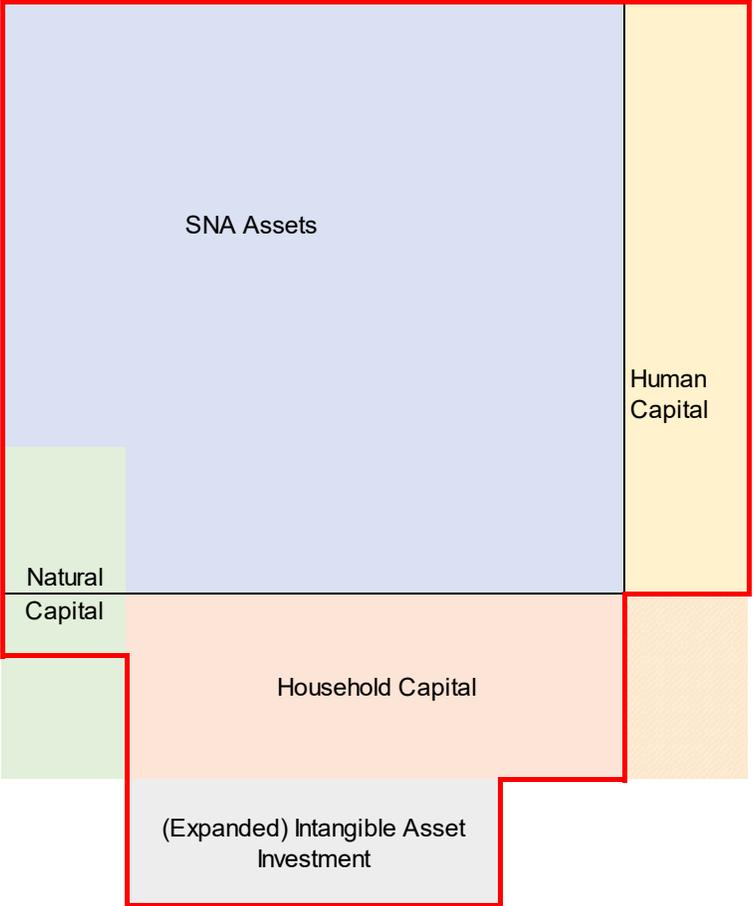
— SNA boundaries

# Inclusive Wealth and Income: Progress

Inclusive Income



Inclusive Wealth

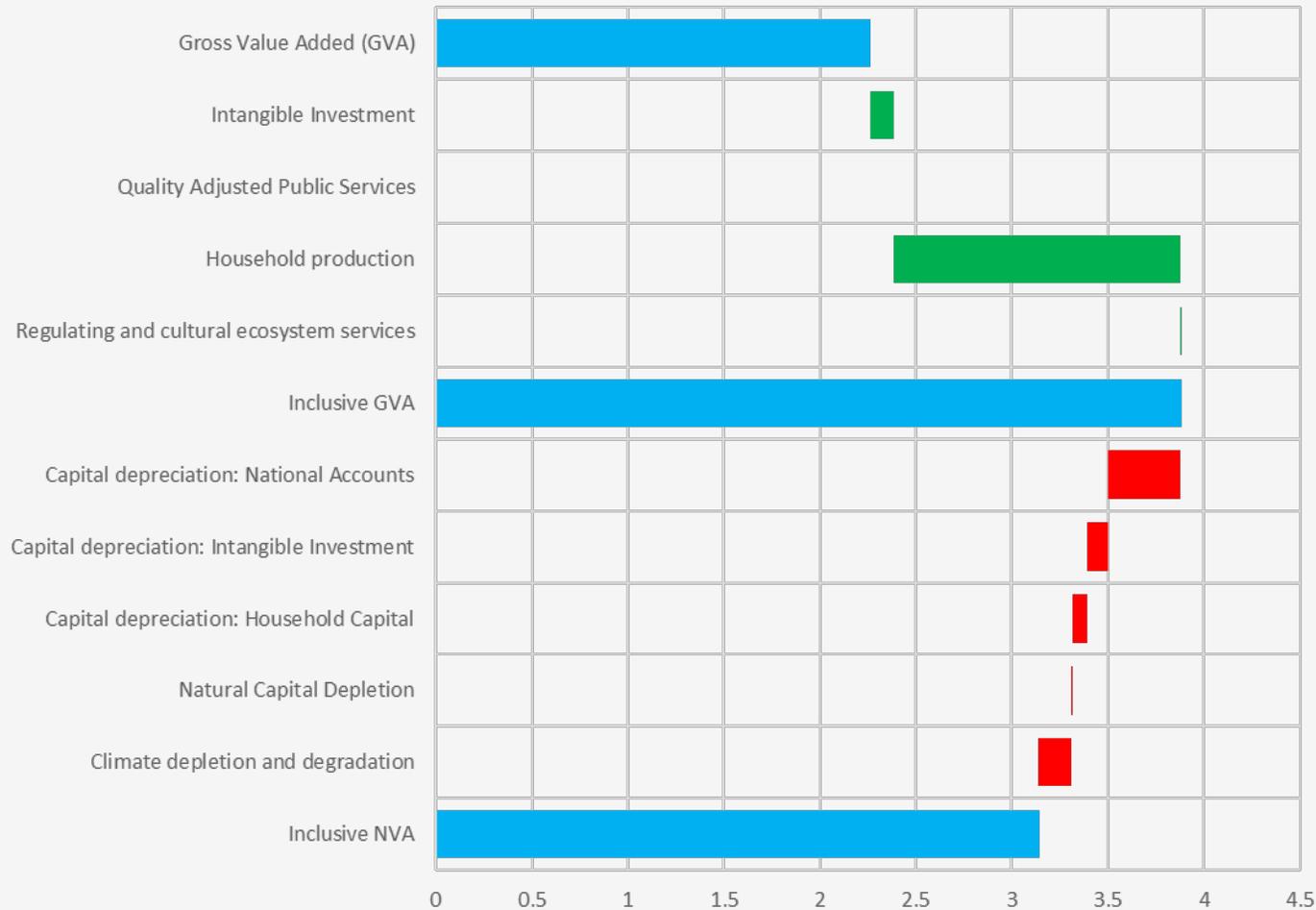


Work on the production side is near complete (in terms of coverage)

— SNA boundaries  
 — Inclusive Income **current** boundary

# Inclusive GVA

Contributions to GVA, I-GVA, and I-NVA (£ trillions, 2022)



Inclusive Gross Value Added is comparable to GVA, but includes:

- Additional intangible investment
- QA of public services output
- Unpaid household services
- Cultural and Regulating Ecosystem Services

Inclusive Net Value Added is comparable to NVA, and subtracts from Inclusive GVA:

- National accounts capital consumption
- Additional Intangible capital consumption
- Household capital consumption
- Additional Natural Capital consumption, of which:
  - Oil and Gas depletion
  - Depletion and Degradation of the atmosphere associated with Greenhouse Gas Emissions

# Greenhouse Gas Emissions by Sector

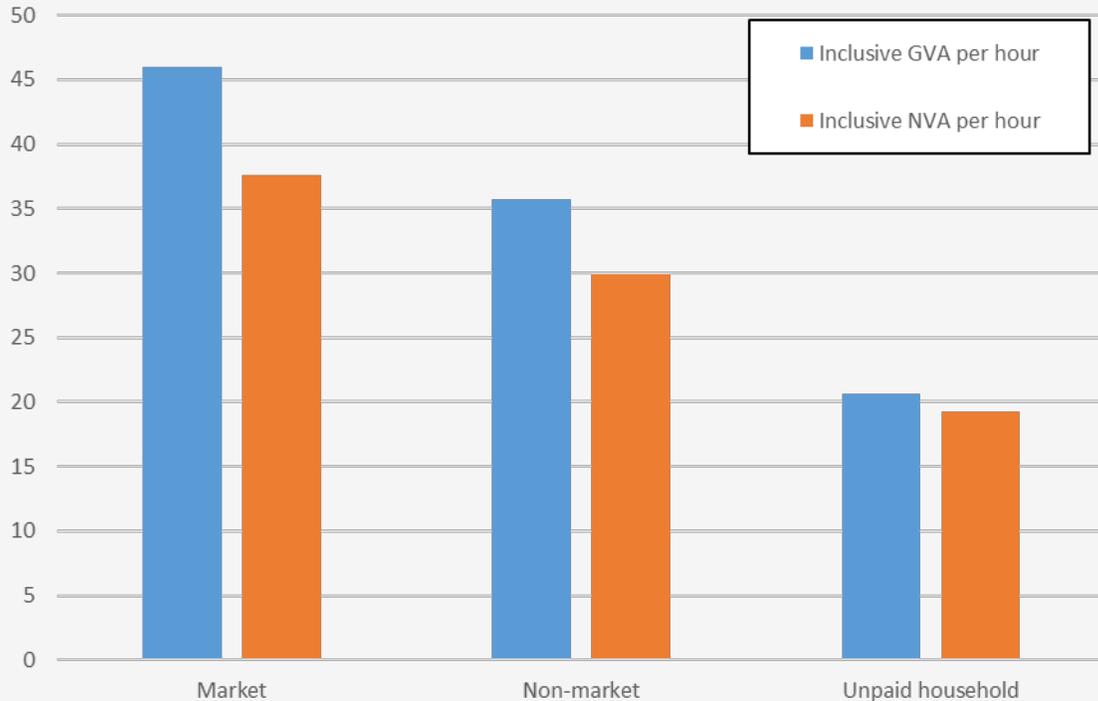
- Source: ONS's "Atmospheric emissions: greenhouse gases by industry and gas"
  - Gives emissions by a split of 129 industries, plus "consumer expenditure" split by Travel and Other
- Source: ONS Blue Book, Market Sector shares of GVA by industry:
  - Gives % of GVA for each industry which is due to market sector activity by 110 industry split.
- Industries of the two datasets are broadly aligned: 'market' emissions for each industry are calculated by multiplying the emissions of the industry by the industry's market share of GVA
  - Implicit assumption that, at the 110-industry level of detail, the production function is similar enough between market and non-market activity that the two have the same emissions-to-GVA ratio

# Household unpaid hours worked

- Transport: National Travel Survey used 2005-2022
  - Based on England – weighted up to UK, assuming average travel times for Scotland, Wales, and Northern Ireland replicate England
- Others:
  - 2020 onwards: ONS Time Use Survey used annually
  - 2005 and 2015: ONS Time Use Survey used as benchmark
    - Between these benchmarks, GVA used to interpolate – implicitly an assumption that productivity moves linearly between these points

# Productivity by sector

£ per hour, 2022



In 2022 for Inclusive NVA:

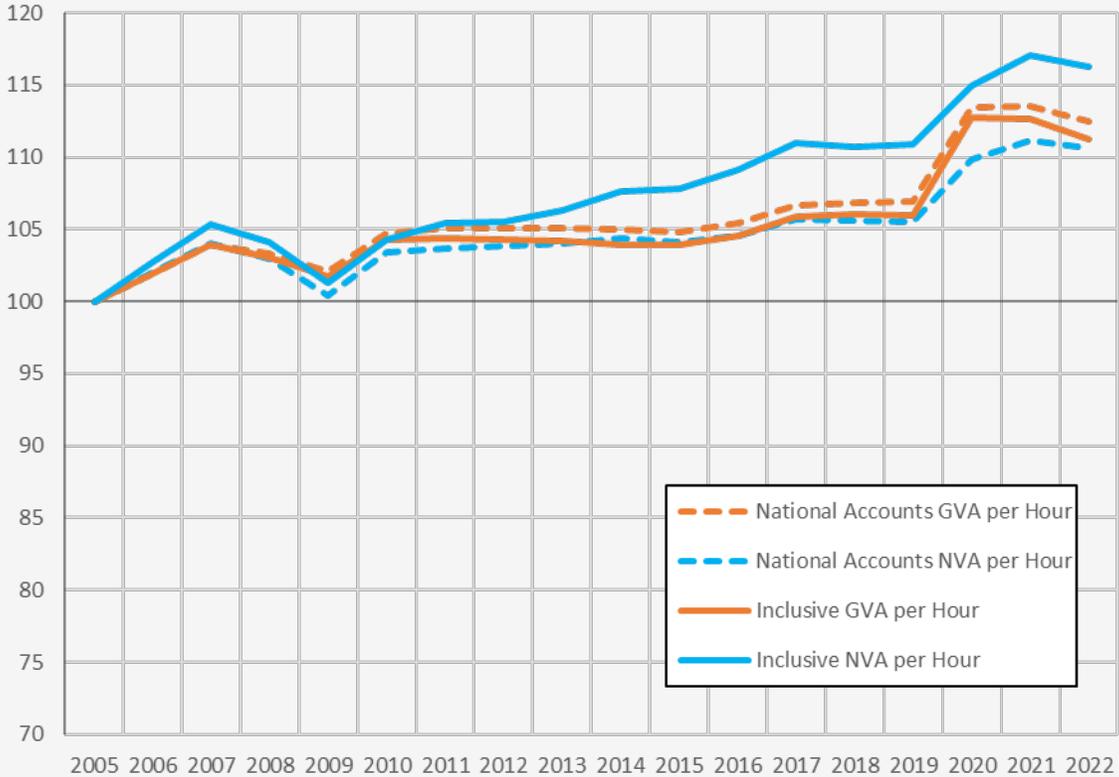
- **Non-market** productivity was 20.4% below Market productivity
- **Unpaid household** productivity was 48.7% below market productivity

**Unpaid household** productivity is dragged down by certain activities which are substantially more unproductive than their market counterparts

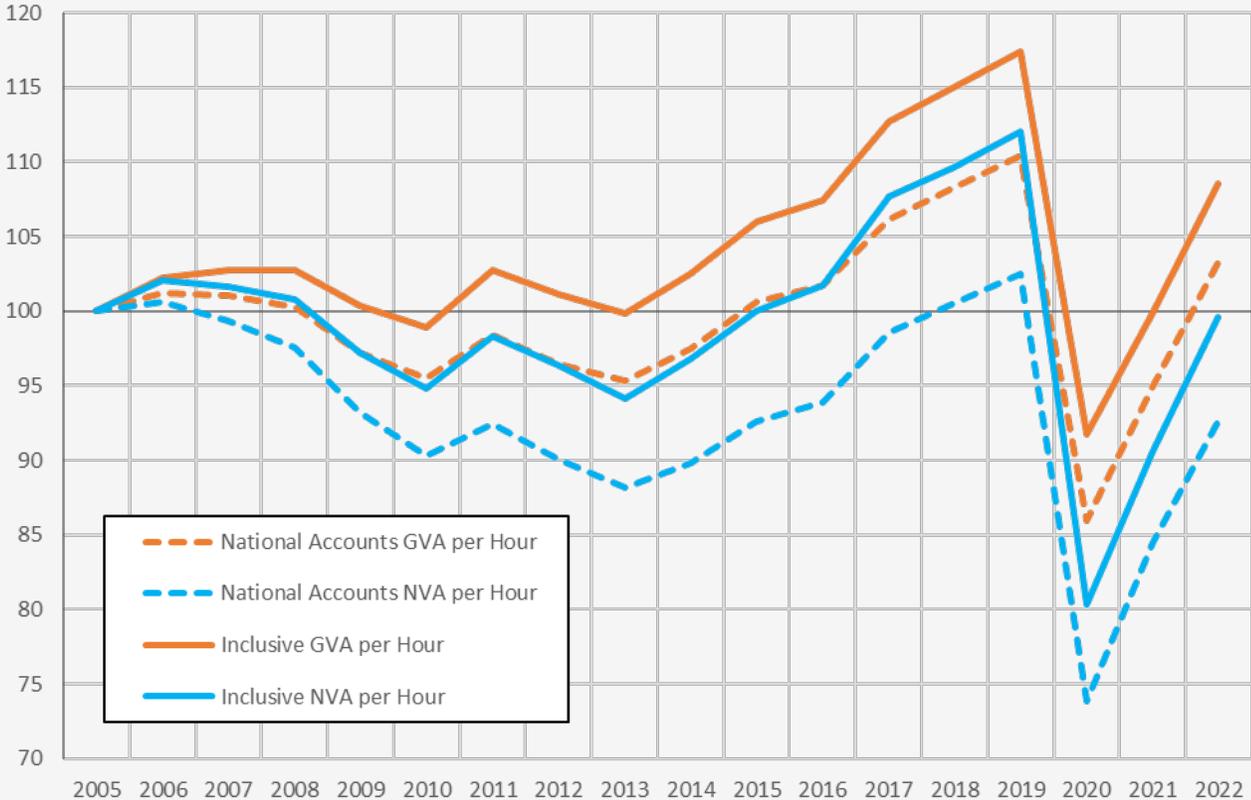
- E.g. **clothing**, where GVA per hour is around £2 per hour, reflecting differences in the production process
- Other services – for example **transport** – are more comparable in levels to their market counterparts, reflecting comparability in the production process

# Productivity by sector

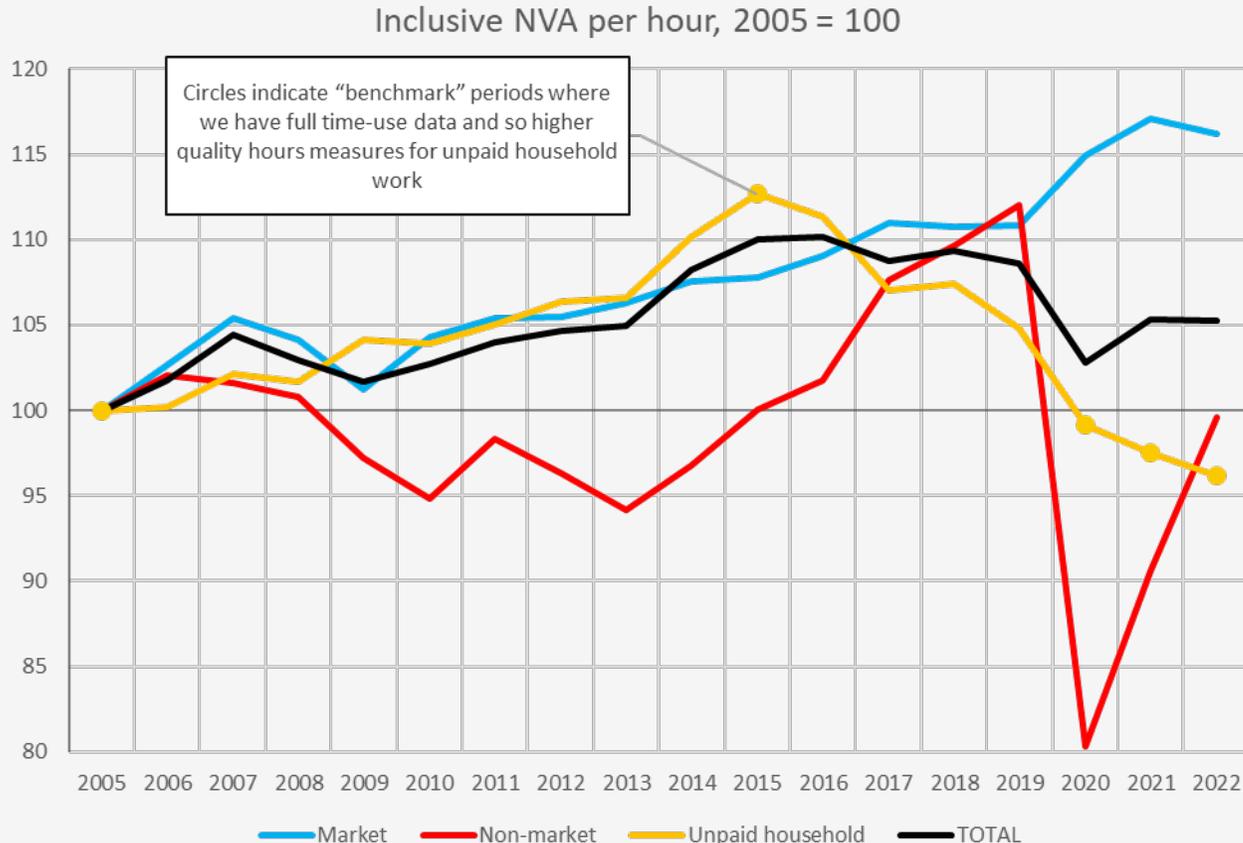
Market Sector Labour Productivity Measures, 2005 = 100



Non-Market Labour Productivity Measures, 2005 = 100



# Productivity by sector



Growth in productivity of unpaid household work up to 2015 driven by several sources:

- Example: **Transport** productivity has grown consistently since 2005 (with an upwards spike in 2020)
- Driven by both a higher average distance travelled (our output metric) per hour (our input metric), as well as reduced emissions per unit GVA

Initial fall in productivity of unpaid household in 2015-2022 primarily driven by an **allocation effect** – higher portion of time being spent on ‘lower-productivity’ unpaid household services (e.g. Nutrition services and Clothing)

# Conclusions

- Using an expanded measure of NVA (“Inclusive NVA”), productivity growth in the market sector since 2005 has been stronger, primarily due to decreases in greenhouse gas emissions
- Productivity growth in the non-market sector has also been stronger, primarily due to increases in public service quality
- Productivity growth in unpaid household work prior to the pandemic as strong or stronger than market sector. Mixed picture post-pandemic, mostly due to a composition effect (more people cooking and making clothes at home)

## Next Steps

- MFP measures
- Industry decompositions: Key to understanding activity moving between the Production Boundary
- Longer time series / more timely data

# Thank you! Any questions?

You can find all our previous publications and research in this area using the QR code to the right

