Measuring Economic Welfare
State of Play and Priorities

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Outline

- Motivation: old and new
- Unpaid work and gender implications
- Economic welfare *versus* Market value
- Welfare (beyond private consumption) from free new digital services and platforms
- Way Forward and Priorities

- Appendix: State of Play

Motivation

- Central issues in the debate about measurement of the digital economy involve welfare
  - What's the potential size of the unmeasured welfare gains?
  - Which aspects of welfare effects of digitalization are, or should be, captured in existing productivity, growth, and inflation statistics?
  - Which of the remaining aspects of welfare to prioritize for complementary indicators?
- The 2017 Statistical Forum, and April 2018 IMF Policy Paper on *Measuring the Digital Economy*
- "Free" and new digital goods and services as well as data are key

Old and new interest

- Growing interest in welfare, well-being and social progress
  - Stiglitz-Sen-Fitoussi (2009) highlighted well-being "beyond GDP"
  - Indicators of social progress and well-being for the SDGs
  - OECD, UN, World Bank (and academic literature) have indexes
- Three key areas for welfare indicators beyond GDP:
  1) *Inclusive growth* — inequality in income, consumption and wealth, including gender aspects
  2) *Sustainability* — environment, climate change, resource depletion
  3) *Digitalization and economic welfare*
- *Digitalization and welfare* area is closely related to GDP (and CPI), and will aid interpretation of growth and productivity statistics

Go digital and Do-It-Yourself!

- Free digital services are sometimes characterized as enabling do-it-yourself (DIY) production—outside the GDP production boundary
- But could also be characterized as quality improvements in market products—hence in-scope for GDP growth
- Digitalization has enabled consumers to offload less productive uses of their time to market producers
  - Online shopping, ridesharing, on-demand services, …
  - One online ordering service has a vision of home-cooked meals going the way of home-sewn clothing!
- How has digitalization affected time use? Have digital products increased productivity in nonmarket production?

Economic Welfare: in/outside macroeconomic statistics

Beyond GDP

Distributions of consumption, income, and wealth

Natural resource and human capital wealth and "genuine saving"

Households' unpaid work

Leisure

Free goods

Included in national accounts

Real HH Consumption / Disposable Income

Adjusted HH consumption

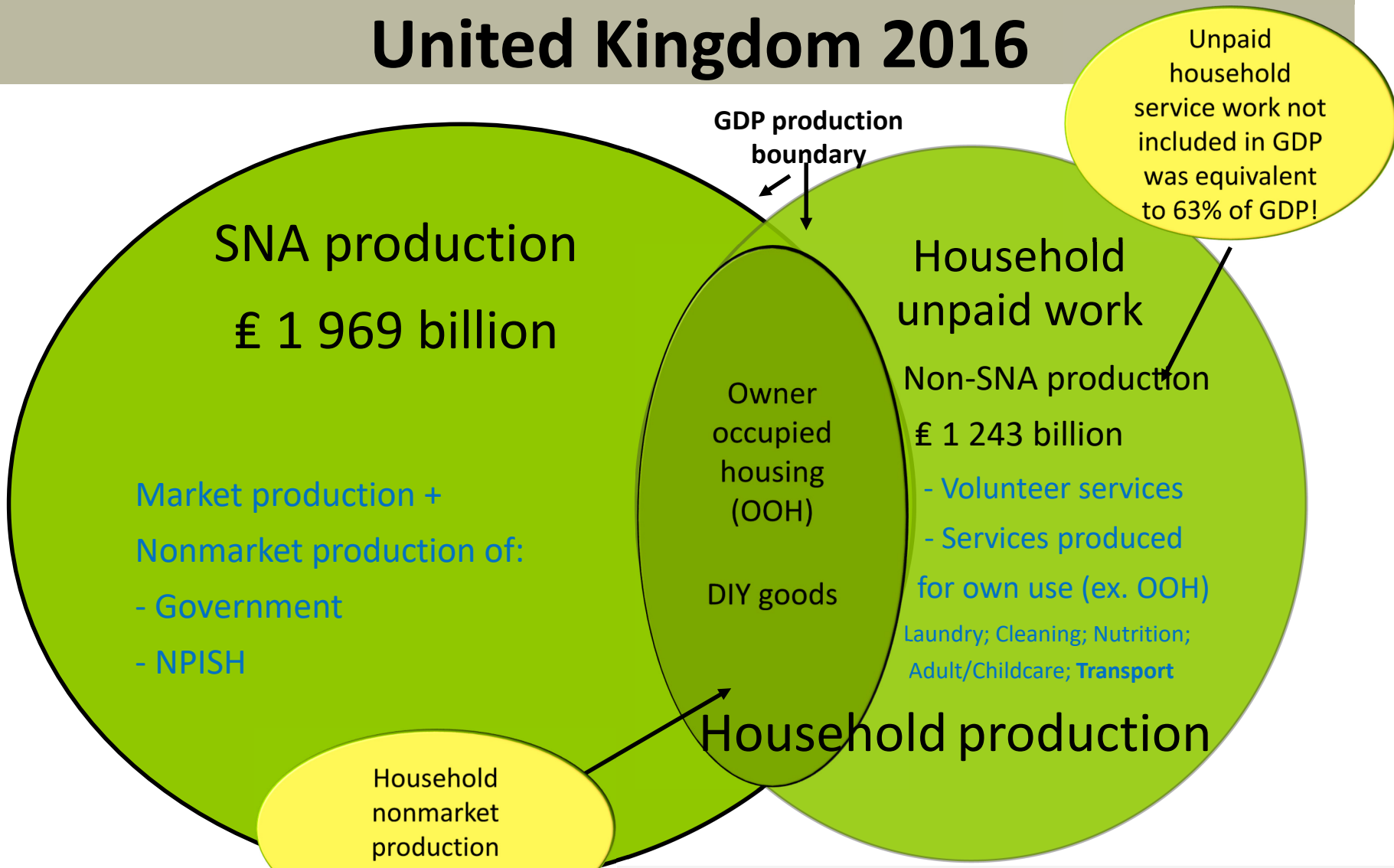
Net DP/ Income

Real domestic (national) income

Outside: Household unpaid work

- Unpaid work in the home and volunteering make large contributions to broadly defined production and welfare
- (OECD+) Time for *unpaid work*, *paid work*, *leisure*, and *other*, ratio of unpaid work time to paid work time averages almost 0.8
  - Suggests value of unpaid services could approach half of GDP
- Data on HH nonmarket production needed for a complete picture of welfare and growth as unpaid share of work changes

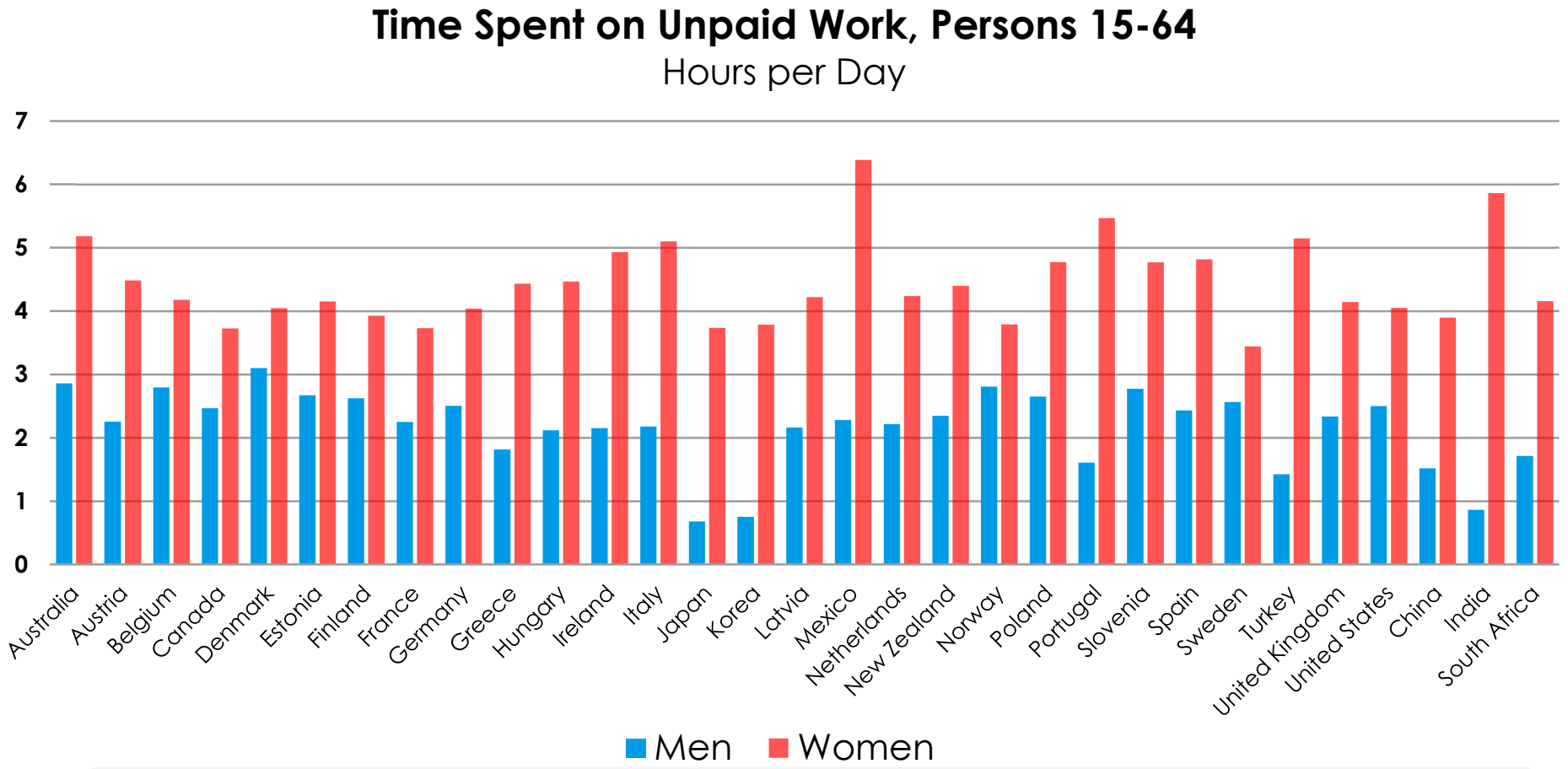
Market and nonmarket production United Kingdom 2016



Source: ONS, *HH Satellite account, UK: 2015 & 2016*

Gender and household unpaid work

Time use data are vital to understand gender division of work—women do large amounts of unpaid work

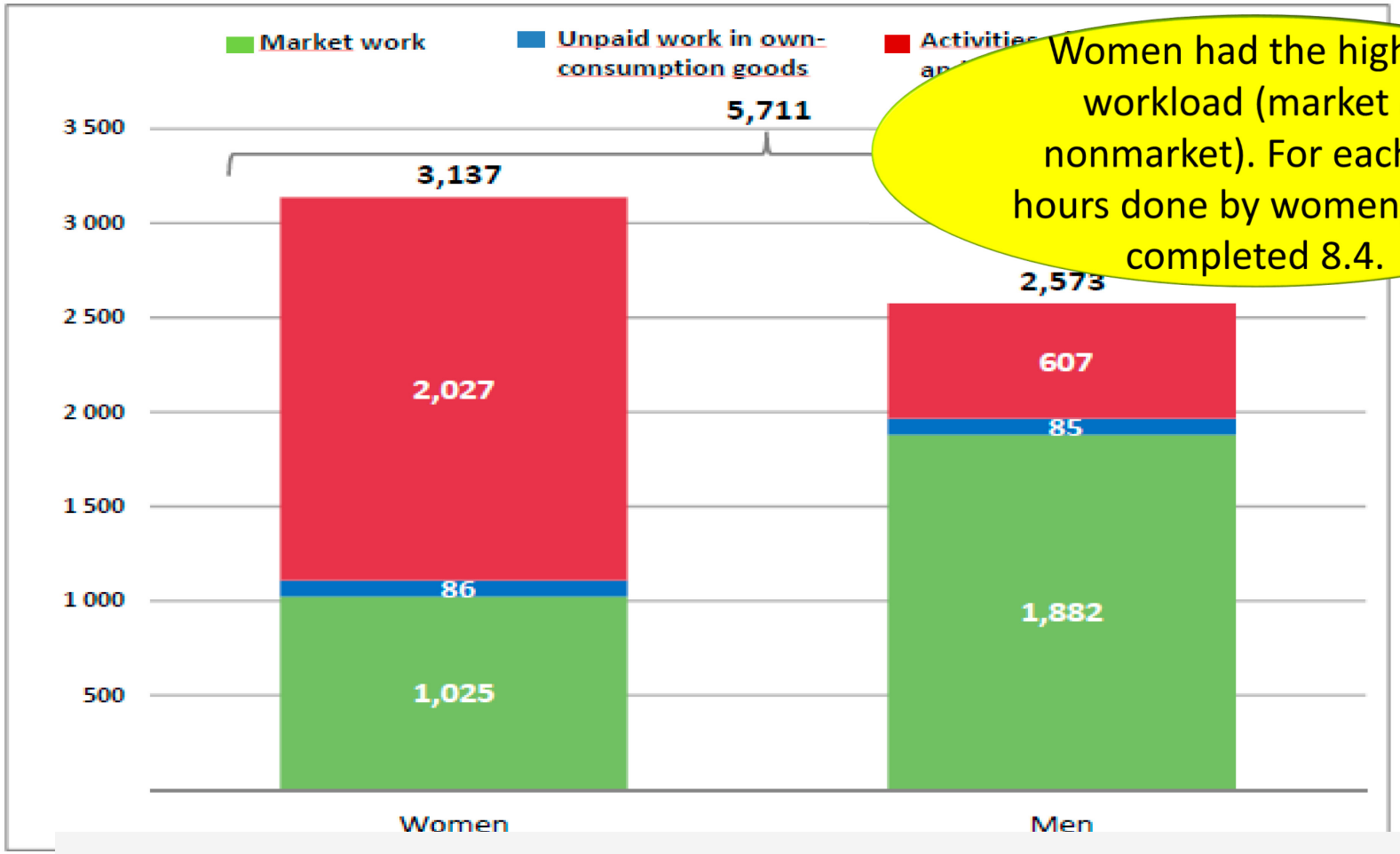


Source: OECD Time Use Data, Latest year available

Gender and total work load

Time composition of total work load by sex, Mexico 2016

(Millions of hours)



Women had the highest workload (market & nonmarket). For each 10 hours done by women, men completed 8.4.

Source: UNECE Guide to Valuing Unpaid Household Service Work (2017) and INEGI

Consumers as Producers: Blurring the Production Boundary

- Internet has allowed tasks to be shifted to the consumer
  - e.g. making one's own travel arrangements, no travel agent needed
- The activity moves outside the GDP production boundary
- A wider boundary would keep the tasks in, raising output
- But redefining the production boundary to include these tasks would also imply general inclusion of non-market production
  - This non-market production is of interest, but including it would make NA/GDP unsuitable for some key uses
- Another kind of production boundary problem arises with volunteer-created wikis and open source software

Economic Welfare *versus* market value

Many aspects of welfare are beyond GDP, but how does it do at measuring the welfare from market goods and services?

Economic welfare generally differs from market value, as illustrated by the diamond-water paradox:

Economic Welfare *versus* market value

- Water is essential for life:
- Its contribution to welfare is ***vital, isn't it?***

Economic Welfare *versus* market value

- …a couple of diamonds may make us rich
- but are "***not vital"…***

Economic Welfare *versus* market value

- **Growth** is more feasible to measure than level when it comes to welfare from market goods & services
- **Growth of real consumption is an indicator of welfare growth**
- SNA measures of real income and wealth cover other aspects of economic welfare, beyond production

Implications:

- Close relation between GDP growth and welfare growth despite lack of connection in levels
- Unmeasured welfare can cause underestimation of growth

Free services from online platforms

- Welfare growth from free services from online platforms and apps is not captured in NA/GDP
- Free services are often funded by advertising and collection of users' data: data on your behavior and preferences
- Controversy over whether free media paid for by advertising is already counted in GDP as part of the price of the advertised products
- Research is needed on how NA/GDP should account for value of data and services provided in exchange for users' data

Digital replacements

- Online platforms enable users to do tasks for themselves that they previously paid someone to do
  - For example, you can now be your own travel agent
  - Issue has been discussed as a production boundary question since *do-it-yourself* nonmarket production replaces market production (but in cases like online shopping and on-demand services digitalization allows market production to replace DIY tasks)
  - Digital devices like smartphones and cameras that don't require film developing also replace goods & services once bought separately
- When free services are added to the bundle of capabilities of a market good or service, the welfare gain should be captured in the consumption deflator via a quality adjustment

Way Forward: three *whats*, two *musts*

- ***What*** changes to the conceptual framework are needed?
- ***What*** are the highest priorities for policy-making?
- ***What*** is feasible? Depends on some ***musts:***
  - ***Must***: International coordination and cooperation: seeking synergies, preventing overlaps
  - ***Must:*** National statistical compilers need resources and access to new and old data sources

What conceptual framework?

- ***No fundamental changes to the NAs framework,***
  - …but **marginal adjustments**, e.g. data as intangible asset
- Beyond production, two more dimensions are essential to monitor developments in the market economy: expenditure and income
- The current NA framework, covering market and near-market production only(!), makes the three dimensions internally consistent and fit-for-use
- ***Complementary indicators*** *to the existing framework to better measure non-market household production and welfare*
- ***Better quality adjustment of prices*** *of evolving digital goods*
  - To reduce measurement errors

What are the highest priorities?

- *(Old)* ***Distributional measures*** *of income, consumption and wealth*
- *(Old)* ***Nonmarket household production****, including gender aspects*
- *(New)* ***Indicators of welfare effects of digitalization in*** *areas, e.g.:*
  - Value of free services
  - Value of open source software (e.g. R, Python) and online content (e.g. Wikipedia) produced by volunteers
  - Time used: opportunity cost of enjoying those free digital services
- *(New) Better measurement of* ***intangible assets****, intellectual property*
- *(New) Recording of the value of ("your")* ***data as intangible asset***

What are the highest priorities?

- (New) **Indicators of gig economy and digital platforms**
  - Enhanced measurement of new forms of (informal) employment and income enabled by digitalization
- *(New)* ***Measurement of Financial Technology Services, FINTECH***
  - *New Financial transactions and payments, domestic and cross-border:*
- *(Old wine in new bottles)* ***Indicators of Globalization***
  - *Larger and stronger global value chains*
  - *More intense tax arbitrage through easier profit-shifting*
  - *Residency principle versus non-domestic production*

What is feasible?, considering *the Musts*

- *In the context of many current stretching objectives: NAs, SDGs, Well-being,. …**pre-conditions**: synergies, no duplication, prioritization, cost-effective compilation methods*
- ***Not all will be possible**… **It will depend inter alia on***
- ***Resources** available to national compilers*
- *Access to and good use of **data sources**, beyond surveys: **administrative data and new digital data (big data)***
- *International **cooperation and coordination**: statistical standards that are feasible to implement across very diverse national statistical systems*

Appendix: State of Play

Existing Indicators

- Many countries producing welfare/well-being indicators
  - Household nonmarket production accounts
  - Distributional aspects of HH income/consumption in national accounts
  - Environmental accounts and sustainability indicators
  - Well-being dashboards
- International organizations' dashboards and indexes:
  - OECD's *How's Life?* and *Better Life Index* cover 11 types of well-being indicator and 4 types of capital relevant for sustainability
  - World Bank's *Changing Wealth of Nations* has comprehensive measures of wealth and sustainability (e.g. *Genuine saving*).
  - UNDP's *Human development index* summarizes aspects of well-being involving life expectancy, education and income

Current state of play: Price statistics

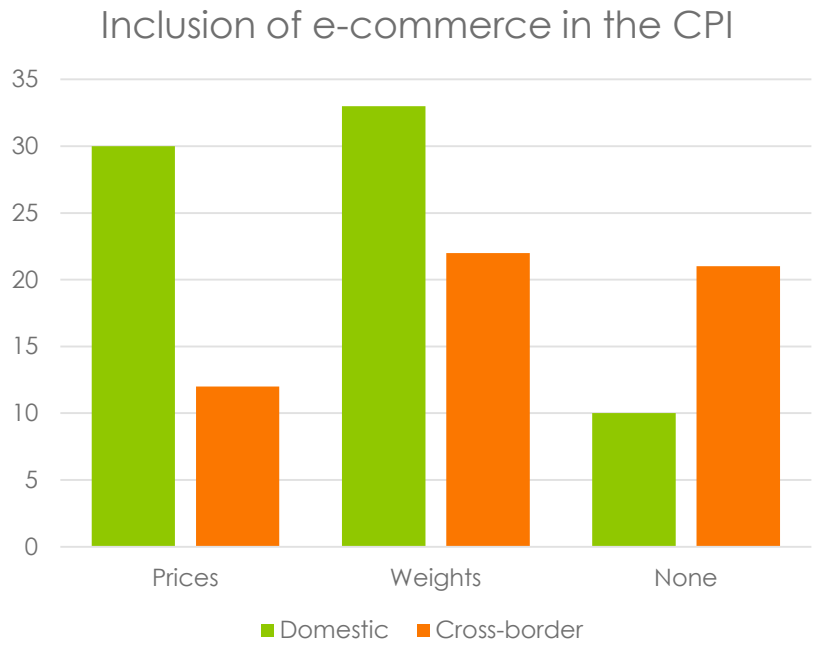
- Research considered in the April 2018 Policy Paper included IMF-OECD surveys on country compilation practices for price statistics
  - 43 responses to the CPI questionnaire
  - 36 responses to the PPI questionnaire

- Digitalization has exacerbated longstanding challenges in price measurement
  - Introduction of new products
  - Insufficient quality adjustment
  - Incorporation of new sellers

- Gaps in measuring online prices and sharing economy are examples

CPI: Digitalization & e-commerce

- 30 countries out of 43 include domestic e-commerce prices
- 12 countries include cross-border e-commerce prices
- IT equipment and recording media are the best covered product classes
- Products with a lot of online spending are often omitted (e.g. clothing)



Source: IMF-OECD questionnaire, 2017

PPI: Digitalization & e-commerce

- E-commerce or online shopping should be included in the PPI if its share of value of production output is significant
  - B-to-All PPIs should include e-commerce
  - Shares should be studied by industry and by product
- Half of the countries in survey include e-commerce in the PPI

	Domestic	Cross-border	None
Prices	13	7	23
Weights	18	11	18
None	18	25	

Digitalization & Quality adjustment

- New products should be introduced to the index on a regular basis
  - Sharing economy included in the CPI for 3 countries out of 43
- Replacement products - proper quality adjustment (QA) methods should be used
  - For CPI
    - 27 countries out of 43 use several QA methods
    - 8 countries use one QA method
    - 6 countries do not use any QA method
  - For PPI
    - 15 countries out of 37 use several QA methods
    - 12 countries use one QA method
    - 9 countries do not use any QA method

GDP and Economic Welfare

Often said that *GDP is not a welfare measure.* But why is that so?

- Production is different from welfare
  - Rising export prices and falling import prices don't increase real GDP*
  - Income payments to foreign investors*
  - More time spent in production means less time available for leisure
- Sustainability questions*
- *Externalities* and *expenditures to offset harms*
- Nonmarket services of households in the home or as volunteer
  - GDP *production boundary* includes market production, close substitutes for market production (owner-occupied housing, subsistence farming), and government/nonprofit institutions

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* The *SNA* does include some relevant measures (NDP, real NNI,…)

Synergy of Work on Inclusive Growth and Welfare from Digital Products

- Welfare indicators of inclusive growth are also needed
- Consumption inequality and financial access are among the indicators of inclusive growth affected by digitalization
- Welfare indicators could shed light on questions such as:
  - What is the effect of mobile money and fintech on financial inclusion and gender inequality?
  - Do the welfare gains from digital products such as mobile phones, free calls, and free media disproportionately raise the welfare of those in the bottom quartiles?
  - Are teleworking, online learning and mobile money helping to create new economic opportunities for women?

Other Welfare Indicators beyond NA/GDP

Aspects of economic welfare addressed by indicators beyond GDP

- Most kinds of household nonmarket production
- Volunteer services
- Distributional aspects of income, consumption and wealth
- Comprehensive measures of saving and wealth
- Free services from digital platforms
- Depletion of natural resources

- These indicators needed for questions such as:
  - Is the average person better off?
  - Has growth been inclusive?
  - Has growth been sustainable?

Several parallel workstreams

- Several SDG goals target economic welfare
  - **Gender Equality:** Ex. Indicator 5.4.1- Proportion of time spent on unpaid domestic and care work, by sex, age and location
  - **Reduced Inequality**: Ex. Indicator 10.1.1- Growth rates of household expenditure/income per capita among the bottom 40 per cent of the population and the total population
- Distribution of income, consumption, & wealth
  - G20 Data Gaps Initiative (DGI-2): recommendation 8
  - Initiatives: OECD and other IOs, NSOs, and Academic
- System of Environmental-Economic Accounting
  - International statistical standard for measuring the environment and its relationship with the economy
- **Aligned with IMF's mandate for sustainable and inclusive economic growth accompanied by financial stability**