

Foreword from the Rt Hon Sajid Javid MP, Secretary of State for Business, Innovation and Skills

The growth of the sharing economy in the UK has been phenomenal. We are now seeing millions of people up and down the country embracing new ways to share their assets, talents and free time with the help of innovative technology. The contribution to the wider UK economy of this sector goes far beyond just an economic one – it's creating new networks within communities and having a positive impact on the environment by using resources more efficiently.

In July 2015 I was delighted to be able to launch, along with the Chancellor, the government's plan for tackling what we view as the economic challenge of our time: increasing Britain's productivity. In addition to the announcements at the March Budget of 2015, where the government committed to encouraging a wider use of the sharing economy within the public sector and removing unnecessary barriers to entry, the Productivity Plan established an Emerging Industry Action Group to look at the key challenges and opportunities facing the sector. I am pleased that this group is working together to find solutions to help the sharing economy continue to grow.

In the Productivity Plan we noted that the success of the sharing economy is a clear demonstration of how new technology can drive industry transformation, new markets and greater competition – all of which can lead to Britain maximising its economic potential. Creating a framework to harness and accurately measure the possibilities that the sharing economy can provide is crucial, and I welcome this report's contribution to this effort.

It is a pleasure today to welcome this report from Sharing Economy UK and Diane Coyle, which I believe will act as an important landmark in addressing both the productivity and sharing economy agendas in this country.

The Sharing Economy in the UK

The sharing economy, consisting of platforms enabling people to get more from their under-used assets and skills, is growing rapidly in the UK. But it is impossible to track its contribution through official economic statistics.

One reason is that ***the sharing economy leads to win-win efficiency gains not included in the definition of Gross Domestic Product.***

The Consumer Price Index (CPI) only includes only purchases by consumers from businesses, so ***sharing economy exchanges between individuals are by definition excluded from the CPI***, and lower prices that benefit consumers are not being recorded.

Existing statistics also need to be modernised to account for new patterns of working and earning income. Even when this should be captured by today's data, current methods of tracking the economy mean there are large gaps.

More accurate figures are essential to help policymakers support the contribution of the sharing economy to growth and efficiency. The statistical evidence is vital to inform policy decisions on regulatory issues.¹

It is not possible to calculate the size of the sector from official statistics. A recent report predicted revenues could reach £9bn a year by 2025, but this may be an underestimate. ***The income individuals earn through participation in the sharing economy in the UK may already amount to billions of pounds a year. This report suggests 3% of the UK workforce is providing a service through a sharing economy platform.***

This report:

- Describes the increase in economic efficiency due to sharing economy platforms, and explains why this is not captured in GDP;
- Discusses the statistics needed to inform suitable policies, based on a new typology of the sharing economy;
- Calls for the collection of better evidence on the sharing economy as an important part of the digital transformation of business, as a priority.

Using new platforms to create efficiency gains, the sharing economy can be a win-win. But much of the current debate about the sector fails to recognise this. The debate is also skewed by the fact that almost all evidence on the impact of the sharing economy is based on the US experience, with its entirely different labour market and business context.

There is an urgent need to understand the sharing economy better, given the potential of the new platforms to enable millions of people in the UK to earn more income from their assets and skills; to give consumers access to more choice and lower prices; and to contribute to productivity and growth. The fact that sharing economy activity might even reduce measured GDP underlines the shortcomings of existing definitions and statistics.

The interim report of Sir Charles Bean's *Review of Economic Statistics* noted that digital activities, including specifically the sharing economy, are not well captured in existing statistics such as employment and GDP figures.² In its response, the Office for National Statistics rightly said "There is a need to consider and make progress in the measurement of new forms of economic activity." In the context of the Bean Review, collecting official, economy-wide data

¹ The issues were set out in the Woskrow Report.

² Bean, Sir Charles. *Independent Review of UK Economic Statistics: Interim Report*. London: UK Government, 2015.

on the sector is a priority. The sharing economy is a rapidly growing sector that must be better measured; this report sets out the data needed.

What is the sharing economy?

The sharing economy consists of platforms that bring people together, matching supply and demand. A strong motivation for early participants in the sharing economy was the potential benefit (social and environmental) of consuming less and collaborating more. This emphasis on collaborative consumption and human relationships remains a strong driver.

Many successful businesses have now emerged in the sector, growing rapidly. Sceptics focus on a few high-profile, well-financed American examples to question the potential for productivity and economic growth, seeing disruptive entrants as competitors for existing services, and their employment impacts solely in terms of the working conditions and potential earnings of the existing labour force.

Yet consumers (whose priorities may be ethical as much as convenience or price) choose sharing economy platforms, which indicates that they benefit from them. The providers of assets or services will benefit in other ways. For example, through services available in the UK some consumers choose to share, as well as homes and cars, their leftover food (Olio), their cats (Cat In A Flat) and even their toilets (AirPnP). Participating individuals can earn hundreds or even thousands of pounds a year in additional income from sharing access to their under-used assets or skills, significant sums when average earnings that have risen very little in real terms since 2008.

Rachel Botsman and Roo Rogers describe the early history of the sharing economy in their book *What's Mine is Yours*.³ They suggested a four-way classification, which reflects their emphasis on the social and environmental motivations of the early examples:

- Collaborative consumption systems (for example time banks, local exchange trading schemes, couch surfing, ride sharing, peer-to-peer currencies, co-housing, shared offices);
- Product service systems (multiple users for assets that would otherwise be idle for much of the time, such as cars, washing machines, tools or spare rooms);
- Redistribution markets (exchange of pre-owned goods, either free – such as Freecycle – or for sale – such as eBay or Gumtree, and forums that allow people to swap unwanted possessions);
- Collaborative lifestyles (exchange of skills and services, again either free or paid – sharing meals, gardens, and errands)

Many discussions of the sharing economy add other matching markets, especially matching the supply and demand of specific work activities, from cleaning and moving to professional consultancy. Others emphasise the growth of peer-to-peer activities (such as P2P lending or crowdfunding), which disintermediate traditional suppliers.

A further possible distinction is the difference between the provision of labour services (matching supply and demand of services such as driving or cleaning) and capital services (renting or providing access to assets such as cars or houses); often the two are bundled together, but sometimes they are not.

Increasingly, the business sector has also provided (and used) sharing economy platforms, rather than non-profit community enterprises.

³ Botsman, Rachel and Roo Rogers. *What's Mine Is Yours: The Rise of Collaborative Consumption*. New York: HarperCollins Publishers, 2010.

A typology of the sharing economy is set out in the box, with some examples of the kinds of businesses involved.⁴

Category	Attributes	Examples
Learning	Mass provision of free learning (MOOCs); sharing of textbooks and course material	Khan Academy; Coursera; Chegg; Futurelearn
Municipal	Sharing of facilities between government agencies; provision of shared services	Bicycle sharing schemes; MuniRent
Money	Crowdfunding; peer-to-peer lending	KickStarter; Kiva; Zopa
Goods	Sharing, lending or swapping; peer-to-peer trading	Etsy; eBay; Craigslist; SnapGoods
Health and wellness	Sharing of time, expertise and resources	MacMillan Team Up; Kindly
Space	Renting or sharing spare accommodation or workspace	Airbnb; LoveHomeSwap; ShareDesk
Food	Matching chefs to home diners; collaborative consumption; sharing surplus food	VizEat; Feastly; Olio
Utilities	Sharing of home-generated power, network capacity	Mosaic; Fon
Transportation	Efficient matching of transportation providers and consumers; ride and asset sharing	Uber; ZipCar; Hailo
Labour/Professional Services	Efficient matching of freelance task providers to need	TaskRabbit; Freelance.com; Fiverr
Logistics	Shared storage; local delivery that makes sharing more efficient; shipping	Sharemystorage.com; UberRUSH
Corporate	Aggregation of sharing services	Compare and Share

The unique feature of all sharing economy platforms is matching demand for and supply of services (either labour or capital services from existing assets) quickly and at low cost. In this analysis we focus on those engaged in formal, marketed economic activity rather than non-monetary, community exchanges.⁵

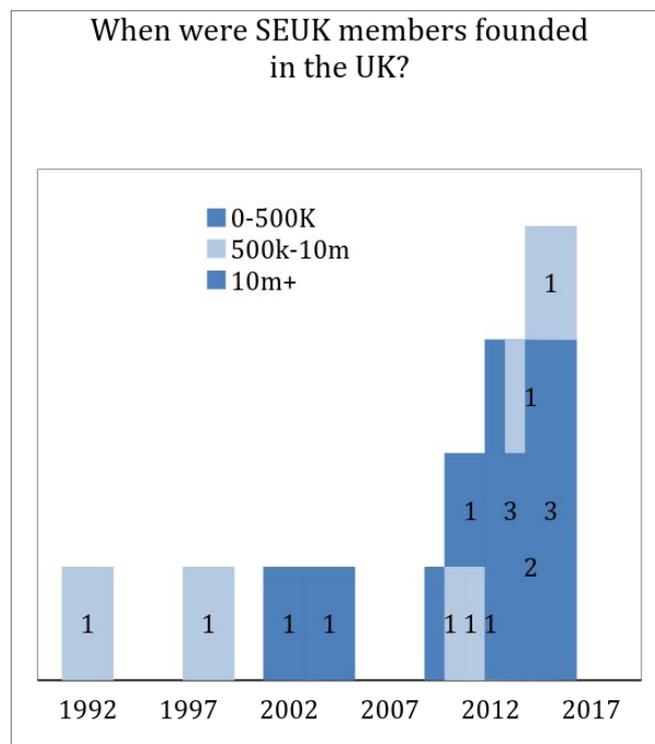
The sharing economy in the UK

⁴ Adapted and extended from Owyang, Jeremiah. *Meet the Interactive Collaborative Economy Landscape*. VBprofiles.com, 2015.

⁵ It is worth noting that one of the objections some commentators seem to have to the term 'sharing economy' is that it applies a non-market terminology to monetary activities: "This is efficiency under the virtuous guise of sharing." (Delves Broughton). There has been an evolution over time from community activities to business start-ups. We are interested here in the economic effects; however, the terminology is already so settled that we will continue to use it.

Nesta has estimated that **a quarter of the UK population has engaged in a sharing economy activity**.⁶ A PWC report estimated that five components of the UK's sharing economy had turnover of about £500m in 2014, and predicted this could grow to £9bn by 2025.⁷ SEUK was launched in March 2015 following the recommendation of the *Wosskow Report*, a Government-commissioned independent review.⁸ **The UK sector has been growing rapidly**, particularly during the past three years, as evidenced by the formation of SEUK members.

The membership shows that the sharing economy is neither a new idea (the oldest member firm was established in 1992) nor a single way of doing business. What the businesses have in common is that they allow people to unlock unused or underused assets (including human capital, or skills, physical assets, or financial assets) by enabling the fast and convenient matching of demand and supply.



Source: Survey of SEUK members.

While the rapid expansion of the sharing economy is apparent, at the moment we know little about their overall effect on employment and incomes, the value created for consumers, their impact on existing businesses, or their contribution to aggregate productivity and growth. There are many start-ups offering new online platforms – although some of these are clearly small, there is a strong indication of an explosion of activity.

The UK is second only to the US in terms of the number of companies in the sector.⁹ It is not possible to estimate accurately the size of the sharing economy from existing statistics, as described in more detail below. But there is some indication that household income from

⁶ Stokes, Kathleen, Emma Clarence, Lauren Anderson, and April Rinne. *Making Sense of the UK Collaborative Economy*. London: NESTA, 2014.

⁷ Blann, Michael, Ian Powell, and Richard Oldfield. *Five Steps to Success in the Sharing Economy*. London: PricewaterhouseCoopers Megatrends, 2015.

⁸ Wosskow, Debbie. *Unlocking the Sharing Economy: An Independent Review*. London: UK Government, 2014.

⁹ Davidson, Lauren. "Mapped: How the Sharing Economy Is Sweeping the World." *The Telegraph*, September 23, 2015.

sources not captured in the usual surveys was, in 2014, billions of pounds higher than in the past.

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A survey of SEUK members suggests that **millions of people in the UK are already consistently using the sharing economy platforms** as consumers, or providing labour or capital services through them. Although it is not possible to be precise, as we do not know the overlap between the platforms (how many people who use one service also use others), and many nascent services are not yet members of SEUK, **it is highly likely that more than a million people are providing services via these platforms. This is equivalent to about 3% of the workforce**, although many or most of them probably do not regard this as employment in the conventional sense. Many millions more are customers.

¹⁰ Stokes, Kathleen, Emma Clarence, Lauren Anderson, and April Rinne. Making Sense of the UK Collaborative Economy. London: NESTA, 2014.

¹¹ Blann, Michael, Ian Powell, and Richard Oldfield. Five Steps to Success in the Sharing Economy. London: PricewaterhouseCoopers Megatrends, 2015.

Why are the benefits not captured in measured GDP?

The essence of the sharing economy is the ability of online platforms to match demand and supply faster, and more easily, so that activities can take place that would otherwise not be possible. Platforms provide information about which assets, resources or skills are available and which are needed, almost instantly. Both users and providers save time and costs involved in searching for someone to trade with. The result is a pure gain in economic efficiency benefiting both sides.

A simple example of the win-win economic benefits of better matching is provided by the arrival of mobile phone masts in ports along the coast of Kerala. When the fishermen were able to phone ahead to ports before landing, their incomes rose – and prices to consumers fell as well. *Both* producers and consumers gained because there was less waste: the fishermen were better able to supply specific demands and dumped less of their catch overseas.¹²

In the case of the sharing economy, the eliminated waste can take the form of search time spent looking for, say, a specific service such as the ideal holiday rental, or for someone with specific skills; or it can be under-used assets such as cars, driveways, rooms, or tools. Somebody with a skill available for a few hours a week, or an asset they do not use much of the time, can earn income from it that would otherwise be unavailable.

Technology significantly reduces the time and effort involved, and makes possible transactions that either did not exist before (because it was impossible to find information about which services were available, at which price, at the time they were needed) or that only existed because intermediary institutions had developed (such as banks or travel agencies). Adam Smith introduced the familiar idea of the economic gains due to specialisation in production; sharing economy platforms make possible as well the satisfaction of more specific or specialised preferences on the consumer side (such as a car for just one day a week, or a meal in the home of someone who will provide conversation and explain the food culture).

The result is an increased range of possible exchanges. For example, one of eBay's first transactions was to sell a broken laser pointer – to a buyer collected broken laser pointers. It is safe to assume this transaction would have been far less likely to occur without the platform. Accommodation platforms offer a greater variety of places to stay and range of experiences than is available through hotels. Car share or pooling services provide a wider range of usage options and rides, with less time lost, and at lower prices.

Sharing economy platforms can crystallise large efficiencies through enabling exchanges when:

- There is a lot of variety in demand or supply (or both) and therefore scope for better matching;
- Search costs have previously been high because of the time and effort required to find the opposite party to a potential transaction;
- There are potentially many participants on both sides of the platform;¹³
- The platform can reach critical mass to create a viable market;
- Pre-screening, feedback or other mechanisms create enough trust for transactions to occur.

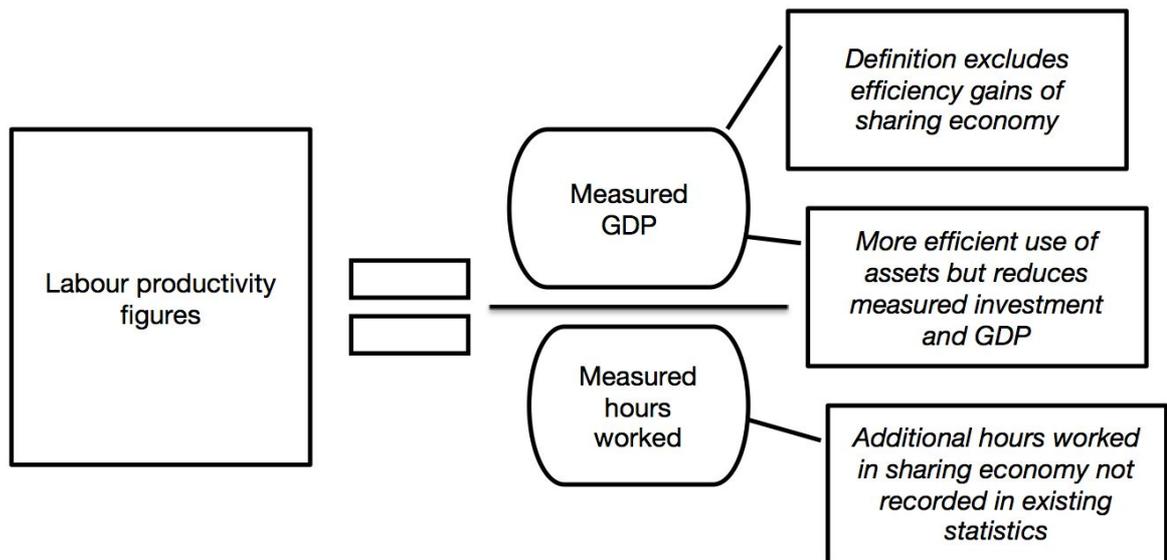
None of these benefits are captured in the definition of real GDP, which simply measures market revenues, adjusted for inflation.

¹² Jensen, Robert. "The Digital Provide: Information (technology), Market Performance, and Welfare in the South Indian Fisheries Sector." *The Quarterly Journal of Economics* 122, no. 3 (August 1, 2007): 879–924.

¹³ Implying that there are not large economies of scale in supply.

By definition, the efficiency gains of the sharing economy are excluded from how we measure the economy.

The debate about the UK's productivity performance should take account of the fact that the sharing economy acts as a kind of technological progress, equivalent to increasing the amount of capital available in the economy. But this effect is not recorded in the measured statistics and productivity.



Some sharing economy activity will substitute directly for services that already existed in some form, by offering a wider range of services or better prices. In the short run this aspect of the sharing economy reduces the income of incumbents in different sectors, and therefore may reduce *measured* GDP – although the long-run effect of new competition on productivity and innovations is always beneficial.

But it is important to remember that there are always potentially very large, yet unmeasured, efficiency gains from involvement in the sharing economy. The best indicator of these is simply the rapidly growing number of users and providers on the platforms, both of whom gain from participation.

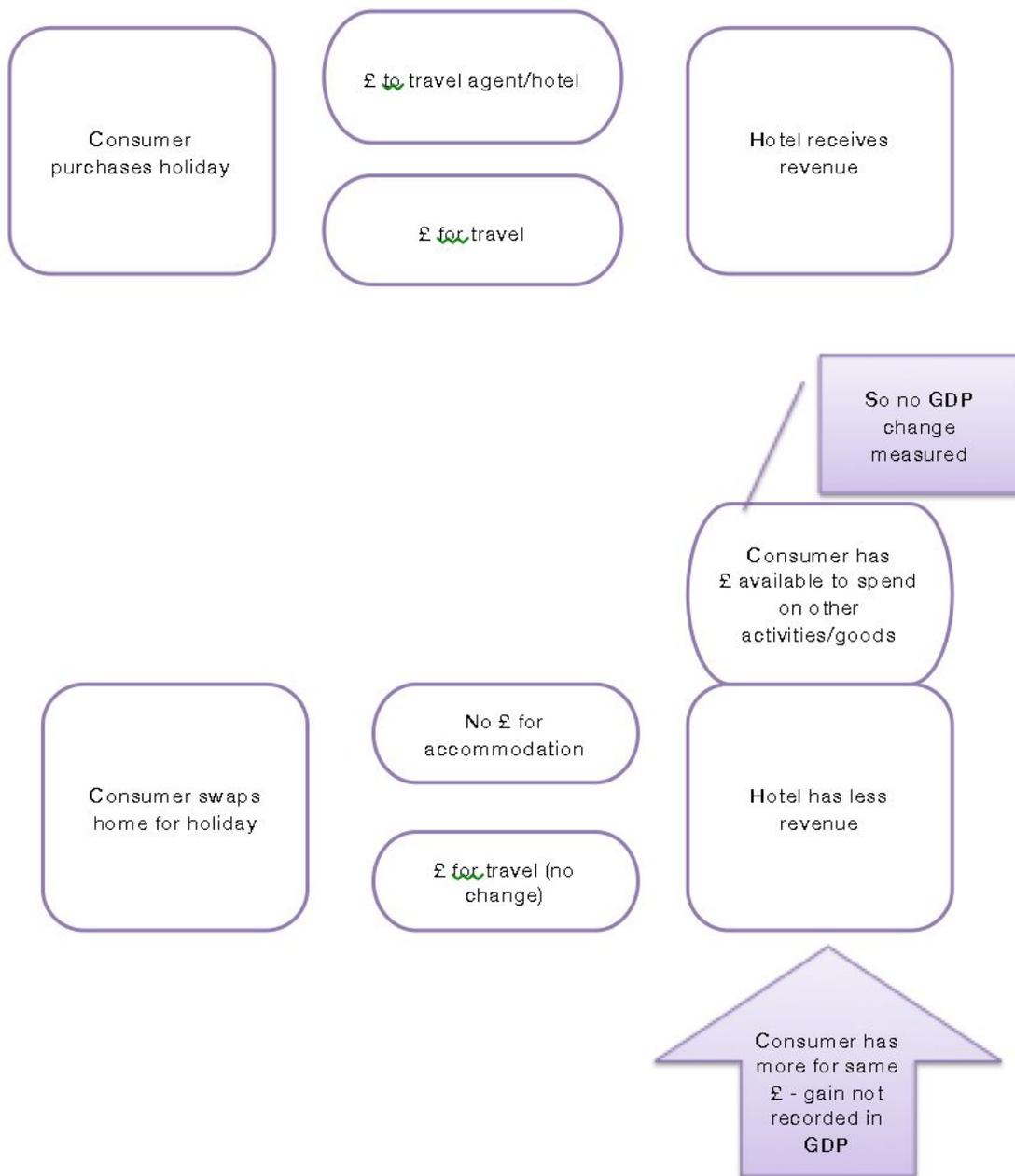
Consumer side of the platforms

Consumers or users benefit from wider choice and lower prices. People who do not own specific assets will gain access to them; there is some evidence from the US that sharing economy platforms particularly benefit low-income consumers through this access. For instance, the annual cost of car ownership in the US is estimated at \$9,000, whereas car sharing or ride sharing schemes provide access to transport for tens of dollars.¹⁴ There will be less incentive or need to invest in personal ownership of assets, whether cars or holiday homes.

¹⁴ Sundararajan, Arun and Samuel P Fraiberger. "Peer-to-Peer Rental Markets in the Sharing Economy." NYU Stern School of Business Research Paper October 6, 2015; McDuling, John. "The Latest Attack on America's Car Culture Comes from Wall Street." Quartz, September 12, 2014.

Most of the consumer benefits will not be captured directly in the measurement of the economy: GDP simply does not include them. If anything, consequences such as lower prices (if not fully recorded in the inflation statistics), or reduced purchasing of consumer assets, will tend to *reduce* reported economic growth. At a time when real incomes for many people have been flat for years, the benefits they can gain in living standards from the use of digital platforms, in terms of reduced prices or enhanced access to services, could be significant.

Taking a holiday: conventional purchase and home swap compared



Provider side of the platforms

Incumbents, such as hotel groups or taxi dispatchers, fear they will lose business. The potential competition with existing businesses dominates discussion of the sharing economy, but the new matching platforms also extend the scope of the market and increase consumer demand. Whether this is enough to benefit incumbents too, or whether instead there is substitution of demand away from existing suppliers, is an empirical question. The answer will depend on the place and the type of business. At the moment there is little evidence that the loss of business incumbents fear has happened (Appendix 2 discusses some empirical US studies).

For individual providers on sharing economy platforms, participation provides additional income on flexible terms. *Flexibility* has come to be a loaded word because it is usually interpreted as suiting only the employer. But **sharing economy platforms can offer genuine flexibility for the first time to individuals in the labour market**. Workers with control over their participation in the sharing economy can earn top-up income, choose their own hours, learn some entrepreneurship skills, or start to transition into work if they have been out of the workplace, perhaps because of parental or caring responsibilities. If the platform terms do not suit them, they will not participate. **The opportunities can be most important to the kinds of people who currently have fewer labour market options, including women and carers.**

Defining “the economy”

One of the consequences of the growth of the sharing economy, highlighted by Sir Charles Bean in his interim report on economic statistics, was the blurring of what economists refer to as the “production boundary”: the dividing line between what is included in GDP and what is left out. The previously sharp boundary between paid work, leisure and work at home is less clear now.

For example, somebody who wants to buy a holiday used to go to a travel agent (transaction included in GDP). They can now book online through a portal (travel agent disintermediated – loss of agency fees and less investment in high street property reduces GDP; consumer spends some unpaid time searching online; lower online transaction fees and also broadband subscriptions are included in GDP, as are hotel charges). Alternatively, they can arrange accommodation or a swap through a sharing economy platform (the consumer spends some time searching and arranging; any platform membership fee is included in GDP; if accommodation is paid for rather than swapped, it is included in GDP, if recorded). These alternatives may result in someone selecting the same holiday, but the measures of GDP would differ. Compared with the past, consumers are clearly better off, with lower (perhaps much lower) prices and more choice. Travel agencies have struggled, but new online businesses and platforms, and new providers of accommodation, have benefited.

The blurring suggests the need to rethink the definition of the economy in terms of GDP, and develop instead a measure that is not affected by the variety of ways people can choose to share assets and to work, whether paid, unpaid, or a mixture.

What is measured now?

In principle, although the definition of GDP omits key gains, some aspects of the sharing should be captured in the economic statistics. But the reality is that the statistics are very limited, and the sharing economy is not being recorded.

Work and income

Incomes earned through participation in the sharing economy ought to be captured in official statistics. Incomes for suppliers on the platforms will be growing (they would not participate unless they benefited from doing so), although the amount will depend on whether or not they are switching from other paid work. Existing statistical surveys are probably failing to record all of the work and income growth, however.

One strong indication that this is the case comes from the growing gap between GDP measured by adding the value of all output in the economy, and the alternative version measuring total incomes. These ought to be the same, but there is always initially a statistical discrepancy, because the data sources are different and also because income data is slower to gather. At the end of each year, the Office for National Statistics balances the different measures to produce a single GDP figure. In the past, the statistical discrepancy was of the order of £1bn, and more recently £2-3bn.. In 2014 it reached an extraordinary £9bn.¹⁵

There are many reasons why incomes might initially be under-recorded, but normally the gap would be bigger during a recession. It is surprising to see the figure rising so much when the economy was growing. It is entirely possible that some of the discrepancy is accounted for by the growth of the sharing economy, not recorded in existing official surveys. It might be that more people are earning small amounts not captured in surveys, or perhaps in ways they do not realise should be reported because they also have a job. The insights from the next ONS balancing exercise will be interesting.

It is clear that patterns of work in general are changing. More workers consider themselves to be self-employed or freelance, although these definitions cover a wide range of types of work that have little to do with the sharing economy. There are long-term trends in the UK labour market towards flexible work and self-employment: according to official data, 15% of the workforce now identifies as self-employed: around 4.5 million workers. A December 2015 analysis of users of LinkedIn showed that, in the UK, a 30% year-on-year increase in the number of people claiming to be self-employed on its site, and a 43% increase in those employed at companies with fewer than 10 staff.¹⁶

Government data on business size (see figure) shows the number of businesses with no employees has risen by more than 70% since 2000, accounting for 17% of employment (up from 13%), while the number of large firms has not changed. But the self-employed sector now accounts for a smaller proportion of UK output than in 2000: their share of total turnover has risen by 24%, so the character of the activity recorded this way may be changing.¹⁷ The outflow from self-employment has dropped since 2009, while the inflow has remained constant.

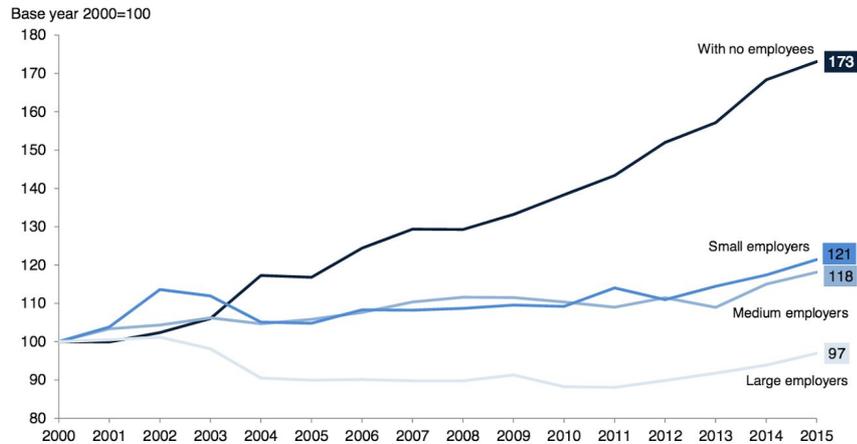
¹⁵ Quarterly national accounts Q3, 23 December 2013, p1=85. http://www.ons.gov.uk/ons/dcp171778_429067.pdf

¹⁶ O'Connor, Sarah. "Workers Moving from Large to Smaller Companies." *Financial Times*, December 1, 2015.

¹⁷ Flip Chart Rick. "The Incredible Shrinking Gig Economy." November 17, 2015.

<https://flipchartfairytails.wordpress.com/2015/11/17/the-incredible-shrinking-gig-economy/>

Figure 4: Growth in the number of UK private sector businesses by size band, 2000 to 2015 (index: base year=2000)



Private business population estimates for the UK, 2000 to 2015, Source: Department for Business, Innovation and Skills. *Business Population Estimates for the UK and Region*. (Gov.uk), October 14, 2015.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/467443/bpe_2015_statistical_release.pdf.

Average earnings from self-employment, even when the only income source, are relatively low, as revealed by data from the Inland Revenue (after removing the small number of self-employed people who earn more than £100,000). In the financial year to 2013, 47% of self-employed people had no other source of income, and their mean total income was £10,871. Another 13% were self-employed pensioners, earning £21,509 on average, and the remaining 40% who mixed self-employment with other sources of income earned £10,621 of their average £27,006 income from self-employment.¹⁸

A 2013 study by Airbnb showed that 80% of Airbnb hosts in the UK rent out only the home they live in, topping up income. So 63% of hosts said that their Airbnb income helped them pay bills they would otherwise struggle to pay, and 44% said that this income helped them afford to stay in their homes. The study found that 42% of hosts were self-employed, freelancers or part-time workers.¹⁹

However, there is simply a lack of conclusive data on how much freelance or self-employed activity takes place, and who earns money from it. Official surveys give us limited insights: people earning money from renting out houses or driveways, for instance, would probably not consider this to be 'work'; and because of its scale and novelty this type of income may not yet show up at all in the data. In surveys, identified freelancers represent just 2% of the workforce, a proportion that is not increasing. This seems to contradict a survey of SEUK members indicates that the equivalent of about 3% of the workforce (depending on the extent of overlap) are participating as providers on their platforms. A Resolution Foundation report, which tried to infer the growth of sharing economy labour force from survey results showing a growth in the number of people working for themselves, concludes only that "[i]t's not clear whether this really captures the new economic model rather than traditional forms of self-employment."²⁰

There are three main problems with existing surveys when it comes to capturing participation in the sharing economy:

¹⁸ O'Connor, Michael. "More for the Self-Employed." *Stronger in Numbers*. 2014.

¹⁹ Airbnb. "Airbnb Community Generates £502 Million in Economic Activity in the UK." 2013.

²⁰ Gardiner, Laura. "The 'gig Economy' – Revolutionising the World of Work, or the Latest Storm in a Teacup?" *The Resolution Foundation*. October 23, 2015.

1. *Official employment categories do not identify work in the sharing economy:* The SIC codes that capture occupations barely recognise the digital economy at all. So 49320 (Taxi operation/Other passenger land transport) will not differentiate a shared car service from a minicab company. Similarly with 55100 (Hotels and similar accommodation), 78200 (Temporary employment agency activities), and so on. There's no mention of "hire", "share", "club", or any of the other key words of the sharing economy in the SIC codes, so anyone wanting to register as a sharing economy business would have to pick the broad category of service offered, or "other". The Office for National Statistics is preparing a feasibility study for methods to capture this data, but has delayed this, stating, "More work is required than initially anticipated."
2. *It is not the primary or full-time occupation of many participants:* Surveys such as the Business Structure Database (BSD) only include companies paying VAT – that is, reporting over £79,000 in annual turnover – and/or those with at least one employee registered in the PAYE system. As such, the BSD will not capture much sharing economy activity in the labour force, and would not capture changing work patterns. A campaign by HMRC to identify earnings on digital marketplaces, on which it thinks tax due in principle has not been paid, has targeted 14,000 people registered as business sellers; there could be many who have registered as individual sellers given the small scale of their activity.²¹ The fact that participation is a pathway into economic activity for people who are not otherwise in the labour market, or who perhaps have another job, blurs the boundaries of existing statistical categories.
3. *The digital economy in general is under-recorded:* The National Institute of Economic and Social Research combined survey data with existing government SIC data to estimate the number of digital businesses in the UK at between 270,000 and 471,000, compared to a government estimate of 120,000. However, although this signals that official statistics are significantly under-recording digital business,²² we do not know the proportion of digital businesses involved in the sharing economy.

Prices

One of the key benefits for consumers using sharing economy services, in addition to variety and the better matching of their requirements, is that it can cost them far less. Sharing a car or joining a club, or exchanging their home for a holiday, are good examples. Prices might also be lower for goods or services that are purchased, such as gifts from an online marketplace, or a car ride.

This is a potentially measurable phenomenon. Yet these price reductions are not included at all in the inflation figures. Price indices such as the CPI include only purchases by consumers from businesses. **Sharing economy exchanges between individuals are by definition excluded, so the lower prices benefiting consumers are not being recorded in the official statistics.**

Growth

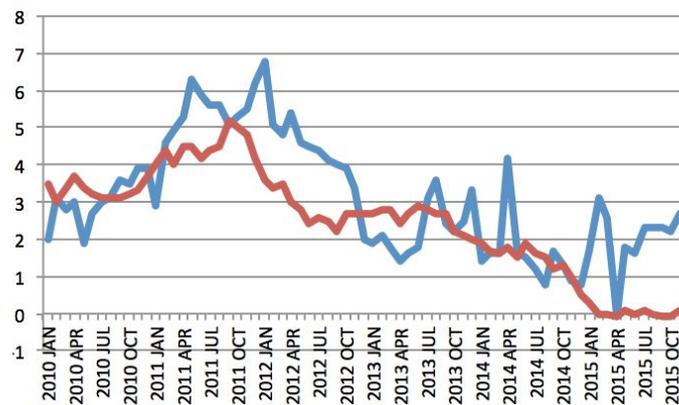
²¹

<http://www.telegraph.co.uk/finance/personalfinance/household-bills/11632478/HMRC-targets-Etsy-eBay-and-Gumtree-sellers-but-when-is-your-hobby-taxable.html>

²² Growth Intelligence/NIESR (2013), 'Measuring the UK's digital economy with big data', July, <http://www.niesr.ac.uk/publications/measuring-uk%E2%80%99s-digital-economy-bigdata#.ViUBQqQmyXc>

The fact that the definition of GDP excludes the important sharing economy gains was noted earlier. In addition, sharing assets could reduce investment could reduce recorded growth, while the effective increase in the availability of assets is not recorded.

There are other ways in which the sharing economy is not captured in growth statistics. If the inflation measure used in the national accounts is overstated because it ignores sharing economy transactions, real (inflation-adjusted) GDP growth will be understated. For instance, as the chart below shows, price increases for using taxis and public transport (blue line) have been running ahead of the general inflation rate (red line). Car share schemes reduce the cost of road travel, albeit still on a small scale at the moment. To the extent that the prices people pay to travel are lower than recorded in the official statistics, the inflation figures will be overstated, and real economic growth understated.



Source: ONS CPI database

Price increases for taxi and public transport services compared to CPI, 2010-2015. Source: ONS.

The under-counting of digital activity in general, and sharing economy activity in particular, will also tend to mean real growth is understated. The switch from physical to digital channels alone will tend to reduce measured growth.²³ The effect is probably still small, but the rapid growth of the sector makes this an increasingly important issue.

This raises two kinds of questions about the effectiveness with which the economic statistics reflect new activities. One is whether the collection and sampling methods used by statistical agencies, and the categorisations they use, have kept pace with changing business and consumer behaviour and habits.

But there is a bigger question: do the statistical definitions and conventions used for the past half a century – notably real GDP growth as now defined and constructed – remain useful indicators for economic policy and accountability?

The answer is no. The Office for National Statistics has recently indicated that it will make gathering data on emerging economic activity one of its strategic priorities.²⁴ Including the sharing economy must be an important part of that programme.

²³ Bank of England blog reference

²⁴ December strategic document

Recommendations for statistics

There is frustratingly little information available on the UK's sharing economy – frustrating because of signs that it is growing rapidly, and because there is a vacuum in terms of the evidence needed for debate and sound policy. This report has described the measurement gap, and also noted the wide acknowledgement that there is a need for better data on the sharing economy, and the wider digital economy. Sir Charles Bean's review of economic statistics, whose final report is due shortly, and the ONS's response to its call for the modernisation of statistics, is very timely. We end here with some specific suggestions for the statisticians.

The key point is that the statistics needed to measure the sharing economy will need to collect data from the perspective of individuals, not just businesses or even platforms. This is because it is inherently peer-to-peer, and is disintermediating many of the organisations traditionally used as a source for collecting statistical information, especially big firms. And as noted in this report, it is blurring the conventional boundary between 'the economy' and everyday life; understanding this is vital if the government is to develop policies that enable the economy to grow and people to work and earn as they want to.

In modernising official economic statistics to measure better the sharing economy, the ONS could therefore consider:

- Additional questions on surveys of individuals (such as the Labour Force Survey) to capture the extent to which people are engaged as providers on sharing economy platforms, including consideration of the definitions and terms used in questions to ensure they reflect the way people think about their provision of services via sharing platforms;
- An updated Time Use Survey could provide data on people's engagement in sharing economy activities. A time use survey is a statistical survey that aims to identify, classify and quantify the main types of activities that people engage in during a specific time period. They may require respondents to keep a time use diary for a few days, or as much as a full year. Time use surveys provide activity sequence information (who does what, when?) and time budgets (how much of each activity?). They can capture activities not measured in any other statistics. The last one for the UK was carried out in 2005. There is useful information in the Household Accounts, due to be published in February 2016, but time use data is far richer;
- The possibility of using 'Big Data' techniques to gather information, for example by scraping websites, could be a useful first step to building a statistical picture of the sharing economy
- Surveys such as the LFS or other household surveys could include additional questions on sources of income from sharing activities, or administrative data (for example from HMRC) might be explored for additional evidence;
- Consideration should be given to trialling something similar to the US 2005 Contingent Worker Survey (which observers there are calling on the Bureau of Labour Statistics to repeat for up to date information), for evidence on a range of policy-relevant issues, including the importance of sharing activity in household incomes.^[i] To inform a useful policy debate, a survey of this kind should cover working conditions, flexibility and the alternatives, as well as income. It could also ask specifically about participation as providers of access to assets such as cars or driveways, rather than just asking about income derived. This would provide valuable information on the efficiency of asset use;
- Assessing the prices paid for services for which there are conventional comparators, to explore whether the inflation measures currently used are missing an important element – although the conceptual problems posed for price indices by the variety of services, their peer-to-peer character, and the dispersion of prices, are extremely difficult;

- It is important to carry out feasibility study looking at updating the classifications of employment/sectors to take account of new kinds of occupation and business. The categories used now were defined for an economy in which manufacturing was far more important and do not allow people to identify accurately the kind of activities they engage in. It is estimated that about a third of businesses in the economy currently do not identify themselves accurately in the standard classification;
- Finally, the statisticians should look to collaborate with sharing economy platform businesses to discuss the sector definition and data gathering, including the implications of the platform business models for economic definitions and statistics.

Better data will make for a more informed policy debate. Sir Charles Bean's Review and the ONS's response offer a timely opportunity to start the process of gathering comprehensive evidence on this important and rapidly growing sector of the economy.

It is important to recognise that the service innovation and greater use of all kinds of under-used assets through sharing economy platforms are not captured in measured GDP growth and productivity statistics. The current debate about productivity should be informed by the recognition of win-win efficiency gains of the opportunities created by the sharing economy.

Appendix 1: Aggregate growth and productivity

Although economic welfare unambiguously increases due to the expanded scope of possible exchanges via sharing economy platforms, it is not clear what the effect of the sharing economy on *measured* GDP growth and productivity will be, and there is much confusion in this debate.

As noted in the report, reduced investment in consumer durables (such as cars or bikes) or in buildings (such as hotels) will tend to reduce *measured* GDP growth, but there will be more efficient use of existing assets; they will be idle less of the time. This is an increase in the effective stock of capital in the economy. As GDP is a measure of flows (spending in a given period) rather than assets, this stock effect is omitted, and anyway no statistics record it.

The sharing economy is therefore likely to lead to a reduction in *measured* GDP because there will be reduced personal investment by participants in individually-owned assets such as cars or second homes. The productivity of asset use in the economy will rise, however (and of course there could be wider social benefits, such as reduced pressure in the housing market, less space required for car parking and so on).

Their owners will make assets available for rent when the benefit of doing so exceeds maintenance costs and depreciation, as well as rewarding them for any working time they spend in providing them. Much-cited Morgan Stanley research estimates that private cars are used just 4% of the time, so there seems significant scope for owners to defray the maintenance costs by ride-sharing or for people to avoid the high fixed costs of ownership by joining car clubs.²⁵ If this reduces car purchases, measured GDP growth would decline as a result, while the asset efficiencies would not be captured in GDP data. Nor is the increase in capital services provided captured in the statistics used to calculate total factor productivity growth; measuring capital services is a notoriously difficult part of calculating this concept.

Some incumbents or market intermediaries might see a reduction in demand, and in their revenues and value added, tending to reduce GDP growth. Consumer demand, and business revenues, in the newly expanded markets will grow, however. The extent to which the sharing economy is substituting for existing services or growing the market due to being better able to meet specific consumer preferences is an empirical question; the evidence so far available (from the US) is that the market overall is growing, but this is tentative.

On the income side of the national accounts, incomes for suppliers on the platforms will grow, as they would not participate unless they benefited from doing so – although the extent will depend on whether or not they are switching from another form of paid work rather than using some of their currently unpaid time. Existing statistical surveys are probably failing to record all of the work and income in the sharing economy, although in principle they should.

There is possibly a redistribution of profits between businesses – a constant, and healthy, phenomenon in a market economy – although again the basic matching efficiencies mean that suppliers in the aggregate, as well as consumers, will gain.

There has been a debate about whether or not the expansion of the sharing economy improves productivity.²⁶ Productivity is sometimes taken to be a simple measure, real GDP per worker hour. Sometimes it is what economists refer to as ‘total factor productivity’, the real GDP

²⁵ Jonas, Adam. Shared Autonomy: Put This Chart On Your Wall, It's My Sad Life. New York: Morgan Stanley Research, 2015.

²⁶ Among others, Tim Worstall and Frances Coppola, both contributors to Forbes, conducted this debate in direct terms in the pages of their publication. For example, see: Worstall, Tim. "Kaminska and Coppola Completely Misunderstand Economic Growth." Forbes, October 21, 2015, which prompted the response: Coppola, Frances. "The 'Sharing Economy' Is Not Going To Create Economic Growth." Forbes, October 27, 2015.

growth that cannot be explained by increases in the inputs of labour services and capital services, adjusted for quality, and weighted by their relative importance in the economy.

This debate can be confusing. Often it refers to measured GDP, rather than underlying economic efficiency. Yet 'true' GDP growth and therefore productivity, taking account of the mismeasurement, could have increased. Sceptics might think the gain is small. However, the size depends on the extent of straight substitution of new activities for old, either in consumer demand, or on the other side of the platform in the supply of the services of capital or labour. But the net effect will be a positive efficiency gain, as nobody participating in the sharing economy has any reason to do so unless it is preferable to their existing options.

Unfortunately, in making an empirical estimate of productivity, we have to rely on measured GDP, as well as measured capital and labour services used to generate economic output. All of these statistics are subject to mis-measurement, to a degree which has been increasing anyway, given the importance of services and 'intangibles' in the economy, and is increasing further as the sharing economy grows..

Productivity calculations also typically involve making assumptions that do not hold for sharing economy activities. In particular, the sharing economy can be considered a kind of technical progress that acts like an increase in the stock of capital (assets or human capital) – known to economists as 'Solow-neutral'. Standard calculations of total factor productivity growth rule out this possibility, but it has been found to be an important contributor to economic growth.²⁷

²⁷ Michael Boskin and Laurence Lau, Generalized Solow Neutral Technical Progress and Postwar Economic Growth, NBER working paper 8023, 2000. <http://www.nber.org/papers/w8023.pdf>

Appendix 2: An overview of the US sharing economy

There is some evidence on the larger and more mature sharing economy in the US, although through surveys and individual studies rather than in official statistics. This evidence has coloured the UK debate, but the findings should not be simply carried over as the context of business and labour market regulation in the US differs from the UK.

Financial size

In the US the growth of the revenues in the sharing economy so far has been rapid. Research by sharing economy aggregator site Compare and Share concluded: "This new market is valued at \$15 billion in its first seven years, compared to the combined growth of Facebook, Google and Yahoo of \$11 billion over a comparable period."²⁸ We could cautiously interpret the financial valuation of these companies by investors as a projection of their future profitability: VentureBeat, an analyst of early-stage companies, calculates that 17 companies in this market have a valuation greater than \$1bn, of which 12 are based in the US, five of which have already gone through IPO.²⁹ Two of the three highest-valued private companies (known as "unicorns") are US-based Uber and Airbnb, with workspace-sharing unicorn We Work also valued at \$10bn.

How many take part?

Survey-based evidence shows that the US has (unsurprisingly) the largest number of sharers, though the proportion of consumers involved is no higher than in the UK.

Between October 2013 and January 2014, market researcher Vision Critical asked 90,112 consumers in the US, Canada and UK for their opinions on sharing.³⁰ It distinguished between non-sharers, re-sharers (people who sell used goods, for example on Craigslist or eBay) and neo-sharers (those who use innovative sharing economy services). Approximately one in four people across all three countries took part in the neo-sharing economy, and 60% of the population in the US (48% in the UK, where re-sharing is popular) were non-sharers.

While the number of users of sharing services was projected to grow, most of this was from re-sharers; between 3% and 5% of non-sharers expressed a desire to try a neo-sharing service, a proportion consistent across all three countries. The profile of neo-sharers is disproportionately young (48% of neo-sharers are 18-34, while they make up 23.5% of the US population, according to the US Bureau of Census figures for 2014).

In 2014, Havas Worldwide surveyed 10,514 consumers globally on their attitudes to consumption and sharing. Similar proportions of US and UK consumers said they were willing to share (52% agreed with the statement, "We would have a better society if people shared more and owned less," in the US, and 55% in the UK); but in the US more consumers have done so: 20% of US consumers had used a sharing service, compared with 16% in the UK.³¹

The most recent survey indicates the sharing economy has continued to grow in the US.³² Covering 3000 people in November 2015, 22% said they had offered at least one service, and 42% had used at least one service via an on-demand platform. Although 43% of those

²⁸ Compare and Share. "Sharing Economy Directory." 2015. Accessed December 12, 2015.

²⁹ Koetsier, John. "The Sharing Economy Has Created 17 Billion-Dollar Companies (and 10 Unicorns)." VentureBeat.com. June 4, 2015.

³⁰ Vision Critical. *Sharing Is the New Buying*. London, 2014.

³¹ Havas Worldwide. "The New Consumer and the Sharing Economy." June 26, 2015.

³² The On Demand Economy Survey, <http://www.burson-marsteller.com/ondemand/>

providing a service said they preferred it to a 'traditional' job, 68% agreed they had less of a financial safety net than in a conventional job.

The regulatory environment

The regulatory environment in the US has largely accommodated the business models of sharing economy entrepreneurs, which affects the way services are provided: for example, Uber's internal data shows drivers in the US working, on average, 10 hours per week (and the average is falling), while in the UK the average is 25 hours. One reason for this, Uber claims, is that in the US it is cheaper and less time-consuming to become an Uber driver: in London, drivers currently need an enhanced criminal records check (£44), to undergo a medical, take a topographical skills test at an accredited centre, and obtain a private hire license (£114), meaning more London Uber drivers are committed to driving as their main employment activity. Therefore, a consequence of regulation is that Uber operates on a different business model in the UK compared to the US. The labour market context is also different, including the conditions of work and pay in alternative occupations. This means that effects on the labour market for drivers in the two countries are not directly comparable.³³

In the US the Federal government has signalled that it will continue to encourage a light regulatory touch for shared economy services, although there are currently court cases testing the applicability of existing labour regulations. In June 2015 the Federal Trade Commission (FTC) conducted a public workshop consultation on how best to adapt existing regulation for the sharing economy. It reviewed more than 2,000 submissions. Commenting on the outcome in October 2015, FTC chair Edith Ramirez said that any targeted regulatory measures in the sharing economy, "Should be no greater than necessary to address [consumer safety]."³⁴ The FTC is clear that, if local laws restrict entry to the market for shared economy services and have no obvious benefit for consumers, it would apply pressure to remove those restrictions. The FTC has, "Cautioned state and local governments not to impose legacy regulations on new business models simply because they happen to fall outside of existing regulatory schemes," and that, "If there is no public policy rationale justifying regulation, policymakers should allow competition to proceed unfettered."

Impacts

The US experience with more mature platforms and more numerous studies offers some evidence of the impact of the sharing economy, in particular on the substitution effect of the sharing economy (how much existing consumer activity or employment it replaces) and on the income effect (how much activity or employment it creates because using a service is cheaper, or because a flexible way of providing a service is seen as an opportunity by working people).

Is the sharing economy substituting for incumbents or expanding the market?

For example, in San Francisco, research conducted by the Municipal Transport Authority (which had tried to block Uber in 2010) reported the number of monthly rides per taxicab declined from 1,424 per month in March 2012 to 504 in July 2014, interpreted as a 65% decline in the established taxi industry as a whole³⁵. Yet Yellow Cabs, San Francisco's largest cab company, reported a 29% decline in the number of dispatch calls it received in this period, although also a 3% rise in the number of metered fares it took between October 2012 and October 2014³⁶. So bookings declined, but fares did not. Yellow Cab argued that the SFMTA

³³ Transport for London. "Apply for a Private Hire Driver Licence." 2015.

³⁴ Ramirez, Edith. "Keynote Remarks of 42nd Annual Conference on International Antitrust Law and Policy, Fordham Law School." US Federal Trade Commission, 2015.

³⁵ Kwong, Jessica. "Report Says SF Taxis Suffering Greatly." The San Francisco Examiner, September 16, 2014.

³⁶ Kwong, Jessica. "SF Taxi Decline Debunked by Cab Companies." The San Francisco Examiner, November 17, 2014.

data was probably skewed by comparing different seasons, comparing per-taxi rather than the entire market, and using only 15% of the total available data.

Therefore San Francisco's taxi data may indicate changing use patterns in the city rather than one type of service directly crowding out another, something that Uber also claims for San Francisco airport taxis: its internal data shows that, when Uber and Lyft were allowed to tout for business at San Francisco airport, all taxicab usage increased. Uber claims this is because fewer people now park at the airport.

There is similar evidence of changing use patterns in New York. An analysis of a dataset covering more than 1.1 billion taxi trips in the city from January 2009 through June 2015 released by the New York City Taxi & Limousine Commission showed an increase in Uber trips, a bigger increase in the use of green taxis in the outer boroughs, and a flat-to-declining number of yellow taxi rides. In Manhattan, the number of Uber rides increased but reached just 15% of the total number of rides.³⁷

For some services, the sharing economy seems to be creating a substitute for some types of consumer, but not others. A 2015 study from Boston University School of Management³⁸ looking at the impact of Airbnb on the Texas hotel industry compared 3,000 hotels and almost 14,000 Airbnb listings, comparing across similar regions in which Airbnb activity is high and low. It concluded: "Where Airbnb supply is highest, the impact on hotel revenue is roughly 8-10%." But it also found the effect is not evenly distributed: Airbnb substitutes for mid-price, economy and budget hotels, but seemed to have no impact on the demand for luxury and business accommodation.

Benefits for consumers

The study of Austin's hotel rooms implies that in the short run the sharing economy may (unsurprisingly) create the largest behaviour change for price-sensitive customers.

A study from NYU's Stern Business School³⁹ compares two years of data from the US auto industry with transaction-level data from Getaround, a large peer-to-peer car-sharing service, reaches a similar conclusion: "below-median income consumers will enjoy a disproportionate fraction of eventual welfare gains... through broader inclusion, higher quality rental-based consumption, and new ownership facilitated by rental supply revenues." It found that consumers with below-average incomes were almost twice as likely to use the service (30% versus 18%) or give up car ownership.

There is no strong evidence so far that shared services have forced demand-based price changes in the traditional economy, although there are many anecdotal reports of local effects. This lack of data might be because many services are either price-regulated (taxis), or because shared services are an imperfect substitute (municipal bicycles cannot provide the flexibility of bicycle ownership).

Ultimately, the combination of matching technology and efficiency may have remarkable effects on pricing for commodity services. The same Morgan Stanley research that points out that cars are used 4% of the time predicts that community provision of autonomous vehicles, ordered on demand, would reduce cost per mile in the US to "as low as \$0.25 or roughly one-tenth the cost of a traditional taxi."⁴⁰ This is speculative, though Uber reports the fastest

³⁷ Schneider, Todd. Analyzing 1.1 Billion NYC Taxi and Uber Trips, with a Vengeance. November 17, 2015.

³⁸ Byers, John, Davide Proserpio, and Georgios Zervas. "The Rise of the Sharing Economy: Estimating the Impact of Airbnb on the Hotel Industry." Boston University School of Management Research Paper No. 2013-16 (May 7, 2015).

³⁹ Sundararajan, Arun and Samuel P Fraiberger. "Peer-to-Peer Rental Markets in the Sharing Economy." NYU Stern School of Business Research Paper October 6, 2015.

⁴⁰ Jonas, Adam. *Shared Autonomy: Put This Chart On Your Wall, It's My Sad Life*. New York: Morgan Stanley Research, 2015.

take-up it sees in urban areas is among low-earners and young people, with a corresponding decline in the desirability of car ownership among young people⁴¹.

Effect on work and incomes

Effects on labour supply are hard to measure because this is a decentralised market, which may include retirees and others working a few hours a week. Therefore many of the people who supply labour are not counted in existing labour market surveys in the US, just as in the UK. Similarly, we know little about the people who earn income from the activity, notably their other sources of income or data about their age and social status.

We also know little about flexible working, although relatively few US workers identify as contingent or self-employed. The most recent official measure for the US was the survey of "contingent workforce", workers "who do not expect their jobs to last or who reported that their jobs are temporary," in the US Bureau of Labor Statistics Current Population Survey. It was last conducted in 2005, however. In 1995 this category accounted for between 2.2% and 4.9% of the workforce. By 2005 was between 1.8% and 4.1%. BLS figures also report self-employment in the US at between 10% and 12% in the decade to 2014, with a slight downward trend.⁴²

However, one area in growth in new forms of labour supply is apparent is the number of "1099 contractors" in the US. The proportion of the workforce receiving a 1099 form from the IRS, which is automatically generated by contingent work including in the sharing economy, has been rising in the US. A 2014 analysis of records by ZenPayroll, which prepares accounts for small businesses, suggests 10.3 million US workers were 1099 contractors (out of a workforce of 156 million), or 6.6% of the labour force. In major cities, the rise in 1099 contracts has been extremely rapid: comparing Q3 2013 to Q3 2014, the fraction of 1099 contractors in New York rose from 11% to 15.4%, in Los Angeles from 8.7% to 22.7%, in San Francisco from 9.9% to 14.7%, and in Austin 10.3% to 22.5%.⁴³

Economists Jonathan Hall and Alan Krueger published an Uber-funded paper in 2015 analysing its driver data.⁴⁴ It used a survey of 601 active drivers conducted in December 2014 by Benenson Strategy Group to discover who is driving for Uber and why. They found that for most drivers Uber acted either as a bridge between jobs or an informal income supplement (Uber says many of its drivers work simultaneously for competitor Lyft).

Hall and Krueger report that Uber drivers were better educated than either taxi drivers in general or the population average (36.9% have a college degree, compared to 14.9% of taxi drivers and 25.1% of the working population); more likely to be female than taxi drivers (13.8% compared to 8% and 47.4%), and younger (49.2% under 40, compared to 28.4% of taxi drivers and 48.4% of the working population). Half had never worked as a driver before, 71% said they were better off since they started using some time to drive for Uber, and 73% valued the flexibility of their working hours.

The report used the Uber data to claim that its drivers earned, on average, \$6 per hour more than taxi drivers. This conclusion has been criticised for comparing a gross revenue figure to

⁴¹ We don't know if this widely-reported change in tastes (if it exists in the population as a whole) is reflected in sales. J. D. Power and Associates reports that car purchases by "Generation Y" – born in the 1980s and 1990s – declined until 2010. This was widely attributed to emerging "sharing economy" habits. But, since then, their share of purchases has risen by a third to 27%. Therefore the decline may also be attributable to effects of the economic downturn at the time. See: Thompson, Derek. "Millennials Are Boring Suburbanites, Just like Their Parents." *The Atlantic*, April 21, 2015.

⁴² See *Workers and the Online Gig Economy*, Jane Dokko, Megan Mumford, and Diane Whitmore Schanzenbach, The Hamilton Project, December 2015. Jane Dokko, Megan Mumford, and Diane Whitmore Schanzenbach

⁴³ ZenPayroll. *The 1099 Economy Is Real and Growing Fast*. Gusto.com, 2014.

⁴⁴ Hall, Jonathan V and Alan B Krueger. "An Analysis of the Labor Market for Uber's Driver-Partners in the United States." Working Papers (Princeton University Industrial Relations Section), no. 587 (2015).

taxi drivers' net earnings:⁴⁵ Uber counted fares only, not the costs of using your own car. In the US 90% of taxi drivers typically rent a vehicle, and so a taxi driver's expenses do not explicitly include depreciation (although it is implicitly included in the rent they pay for the vehicle). Using the Internal Revenue Service depreciation figure of 57c per mile, the Center for Economic Policy Research claimed that, "If Uber drivers average more than 11 miles per hour, they are less well-paid than their counterparts working for traditional cab companies."⁴⁶ Both the report and the critique assume that Uber drivers face a straight choice between driving for Uber or a taxi firm. From the survey data, however, it is apparent that many US Uber drivers in the US see the activity as a flexible income supplement.

Similarly, Gene Sperling, a former director of the National Economic Council, published a 2013 study of the host population of Airbnb in five US cities.⁴⁷ The typical host made \$7,530 additional income (an average of 66 days renting) annually. He argued that, while recorded US median household income had stagnated since 2001 (\$52,770 in 2013 compared to \$56,451 in 2001, measured in 2014 dollars), the supplementary income of Airbnb hosts restored their incomes as if income growth had continued at the 1967-2001 average (though, clearly, this does not scale to the whole economy: the entire population could not all rent rooms to each other for 66 days a year).

US research therefore offers some insights into the economic potential of the sector, to be translated only with caution to the UK; but it too runs into the problem of inadequate economic data.

⁴⁵ Peterson, Andrea. "The Missing Data Point from Uber's Driver Analysis: How Far They Drive." Washington Post, January 22, 2015.

⁴⁶ Baker, Dean. "Center for Economic and Policy Research: Ubernomics." January 23, 2015.

⁴⁷ Sperling, Gene. How Airbnb Combats Middle Class Income Stagnation. San Francisco, CA: Airbnb.com, 2015.

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