IT'S TIME TO MODERNIZE MEASURES OF GROWTH

Rebecca Riley

Economic assessments may miss important changes in a rewired, data-driven economy

Assessments of the world's economies may be off by trillions of dollars. The existing metrics for GDP, consumer prices, productivity, and the like are struggling to match the rapid pace of change in technology, business models, and consumer behavior in today's data-driven economy. Continued innovation in measurement systems is needed to avoid a growing gap between what is measured and the new increasingly diverse economic reality we are living.

Without accurate information on the true state of the economy, economic policymakers will be left in the dark, uncertain when to step on the gas to counter a recession or pump the brakes to slow inflation. Without detailed information on the structure of the economy, they can't know how best to promote economic growth for all. This is more than a little bizarre in a digital world characterized by abundant new data that could help in monitoring the economy and in guiding action by central bankers, fiscal watchdogs, and economic policymakers at large.

It's time to rethink the critical infrastructure of key economic statistics. This means that our economic concepts need to keep up with the changing times, developing data and methods to measure these concepts, and embedding them in the production of core economic data. It also means tapping into new sources of information.

As promising as this may sound, it's important to acknowledge the significant hurdles to harnessing new data sources and developing meaningful and trustworthy economic statistics. And yet, as many advances already achieved show, overcoming the obstacles promises real benefits in the form of better economic policymaking.

The rewired economy

Decision-makers rely on economic statistics to provide a map of the economy. National statistical agencies produce the core economic accounts of nations based on concepts articulated in the United Nations System of National Accounts (SNA), the global benchmark. Similarly, inflation measurement is guided by the IMF's consumer price manual.
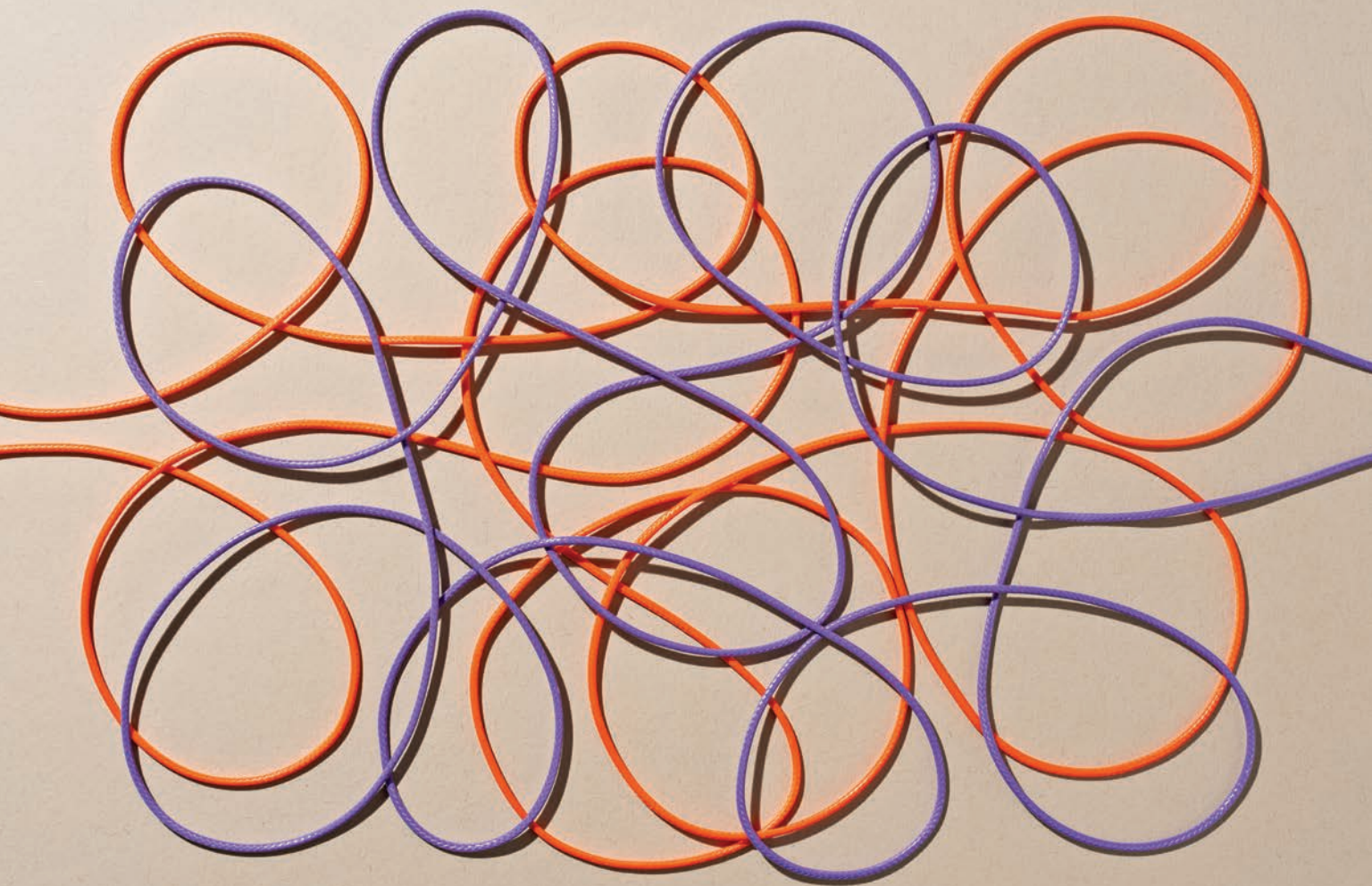
The resulting economic statistics are written into official policies and underpin policy assessments and budget forecasts. These statistics also guide interest rate policy and adjustments to welfare payments and business contracts.

The data-driven digital economy has transformed the way we produce goods and services and how we consume them. In essence, technological advances have rewired our economy, but we've been slow to rewire our economic statistics, which leaves huge blind spots for decision-makers.

It doesn't take much to get a sense of the disconnect. Producers and consumers use data-driven digital technologies every day to create new and enhanced products and services such as ride-sharing apps, social media platforms, AI-enhanced software, and online marketplaces. The world's biggest companies by market capitalization are almost exclusively data-reliant global tech companies. Much of this new economic activity goes uncounted or is invisible in economic metrics.

For example, one hallmark of the data-driven digital economy is its reliance on intangibles such as software, marketing databases, and companies' "organization capital" (the structure, processes, and culture that allow them to operate efficiently). In many advanced economies, businesses invest at least as much in intangibles as they do in buildings and factories, which no doubt runs into hundreds of billions of dollars and more likely trillions.

But official measures of productivity and GDP don't fully reflect these intangibles. Conference Board economist Carol Corrado and her research colleagues estimate that fully half of intangible investments in advanced economies are essentially data investments that economic accounts are only starting to include as part of an update to the SNA this year. These would add substantially to our understanding of the drivers of productivity growth.

The rising importance of intangible investment, in combination with the globalization of production, poses a separate set of difficulties in measuring national output. For example, the use of intangibles by multinational enterprises has led to profit shifting to minimize tax obligations, with ownership of intellectual property and revenue from it transferred

to low-tax countries. This can result in production inputs being counted in one country while the associated revenues are counted somewhere else.

Macroeconomic aggregates

Researchers have demonstrated the importance of these issues for macroeconomic aggregates such as GDP, trade balances, and productivity by reapportioning the output of multinationals across countries in line with employment or sales. In some small and open economies, such as Ireland and Denmark, statistical agencies increasingly look to a broader set of data to draw a picture of economic health, complementing GDP with other national accounts aggregates and indicators that are less sensitive to the effects of globalization.

Calculations of real GDP and real household consumption are a basis for estimating changes in average material living standards. Increases in real GDP are intended to capture gains in the quantity and quality of goods and services rather than increases in monetary value alone. But measuring the quality of products is notoriously elusive, particularly when rapid innovation leads to new or improved products that replace old ones.

Consider the information and communications services industries, for example. They rely heavily on data and digital technologies, and we would expect them to record strong, innovation-led growth. And yet, measured productivity in those sectors stagnated substantially in several advanced economies during the decade after the 2008 financial crisis, contributing to a slowdown in global growth.

Research by UK Office for National Statistics economist Richard Heys, in collaboration with engineers and academics, led in 2021 to a new approach. The research suggests that actual growth in the telecommunications industry was more in line with what would be expected because of a sharp fall in quality-adjusted prices. This finding, implemented alongside other methodological advances, shaved a quarter of a percentage point off the estimated slowdown in UK productivity growth during that decade. National statistical agencies have taken a range of approaches to adjusting for quality gains in digital products, which has affected the balance of measured inflation and economic growth within countries and the comparability of these statistics across countries.

The challenge of accurately measuring the quality of production takes on a particular twist in a data-driven digital world. Many digital services are essentially consumed for free and hence are simply not counted in household consumption. For example, consumers use search engines, social media,

DATA

50%

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and open-source software at zero monetary cost. But the value of these digital services is far from zero, based on experiments that ask consumers how much they would be willing to pay for them.

The Organisation for Economic Co-operation and Development's Paul Schreyer developed a way to conceptualize these services. He includes the use of social media as an input for digitally enabled leisure services and incorporates that value into an extended measure of economic activity. Experimental estimates suggest that the nominal value of digital leisure services produced by households is large. Preliminary research on the UK put it at 8 percent of nominal GDP.

Households also use free digital services to carry out activity that previously might have taken place in the market economy, where they would be counted in GDP, such as making travel arrangements. Another activity is voluntary household production of software and advice material. An accurate assessment of the scale of this kind of activity requires good information on households' use of time.

Harnessing new data

The data-rich economy needs rewired economic statistics to reflect new realities. An update to the SNA this year—the first since 2008—is a welcome effort that seeks to better capture macroeconomic developments, like digitalization and globalization, while taking into account environmental sustainability and well-being.

But there is another set of challenges. Today's economy provides a raft of opportunities in the form of new data collected through people's interactions with digital systems. These could help make economic statistics more timely, accurate, and granular. To do that, though, will take significantly expanded capabilities and potentially heavy up-front costs in an environment of constrained resources and competing incentives.

Directing new data sources toward the public good may call for data-sharing agreements or changes in legislation, investment in technologies for data processing, and trusted institutions. New forms of data that yield meaningful and trustworthy economic statistics demand investment in the development of new economic and statistical methods, proofs of concept, and data exploration methods.

This is already happening with consumer price indices, among the most closely watched indicators for inflation. Traditionally, government agencies build these indices using data obtained from monitoring retailers' prices and through surveys of consumers about spending. This is costly. It is

also getting harder as people become less willing to respond to surveys.

Increased use of barcodes and scanners by retailers and the prevalence of online data are changing the game, though. During the past decade, statistical agencies in The Netherlands, Australia, and Canada have gradually incorporated point-of-sale data into consumer price indices. The statistical agency in the UK is also making progress in this area. The collection of such data allows for timelier and more accurate measurement of inflation; moreover, these developments may also enable statistical agencies to better capture the experiences of consumers in different parts of the country and at different income levels. Underpinning these advances lies a barrage of technical gains in handling large-scale and inherently messy data, as illustrated by Kevin Fox and colleagues at the University of New South Wales and the UK Economic Statistics Centre of Excellence.

One of the main benefits of private sector data for mapping and tracking the economy is the potential to improve the timeliness and granularity of economic indicators. This was particularly evident during the pandemic. There was demand for high-frequency evidence on economic developments at both national and local levels. Statistical agencies and researchers embraced private sector data to fulfill that demand. Partially offsetting the benefits are statistical noise, the potential for double counting, and inadequate samples that could mask economic signals.

Researchers have explored these issues by benchmarking private sector data against representative national statistics, highlighting necessary adjustments and the value added by complementary data sources. Others have highlighted the benefits of linked administrative and survey data, as well as the potential of AI-assisted surveys. The production of key economic statistics is likely to draw increasingly on a range of data sources from the private sector, public administrative systems, and surveys in a blended approach shepherded by national agencies.

The way forward

It is time to strengthen investment in our economic statistics infrastructure. We may be losing our ability to monitor the economy and make informed decisions because trillions of dollars of economic activity may be unmeasured or measured in insufficient detail. The importance of addressing this issue should not be understated, and neither should the challenges.

The obstacles include overcoming bureaucratic inertia, paying for the overhaul of economic

accounting systems, and carrying out coordinated actions. If we don't make headway on trusted statistics produced by national agencies with statistical rigor in an accountable, transparent manner—with impartiality and equal access—there will be plenty of noise to fill the gap in today's data-rich world.

What might lie ahead? The 2025 revision to the SNA and updates to the IMF's balance of payments manual are a starting point and will be most effective if implemented widely by statistical agencies around the world. But the issues involved suggest that statistical agencies cannot be expected to resolve the problems on their own. The COVID-19 pandemic showed us what can be achieved through coordination and leadership. Advancing economic statistics in a data-rich and digital economy calls for collaboration between public and private sector data owners, and across government agencies, supported by legal and technical frameworks. Collaboration between statistical agencies internationally and with university academics is necessary as well.

Some of this is happening at the margins. Examples include the Economic Statistics Centre of Excellence at Kings College London, established by the UK Office for National Statistics; the Economic Measurement Research Institute at the National Bureau of Economic Research in the US; the work of the Centre for Applied Economic Research at the University of New South Wales in Australia; and the Measurement in Economics Chair at the Paris School of Economics, supported by the national statistics agency, in France. Economists and statisticians would be wise to adopt such collaboration. **F&D**

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