

Public Sector Practice

How smart choices on taxation can help close the growing fiscal gap

The growing fiscal gap has policy makers in a difficult position. Swift action in a few areas can help them improve the operational efficiency of fiscal systems.

by Aurélie Barnay, Jonathan Davis, Jonathan Dimson, and Marco Dondi



Governments around the world have implemented a range of fiscal and debt measures to fund policy initiatives over recent decades. As a result, tax revenues as a proportion of GDP have risen four percentage points across Organization for Economic Cooperation and Development (OECD) countries since 1980. However, many governments remain inadequately funded. Despite higher tax revenues, spending is rising faster than income, leading to widening budget deficits and higher levels of debt.

Four distinct trends are playing out: increasing automation in the workplace, leading to pressure on employment; the evolution of global trade through the proliferation of e-commerce and digital business, raising questions over cross-border taxation; rising self-employment; and an aging population. Each of these could further widen the

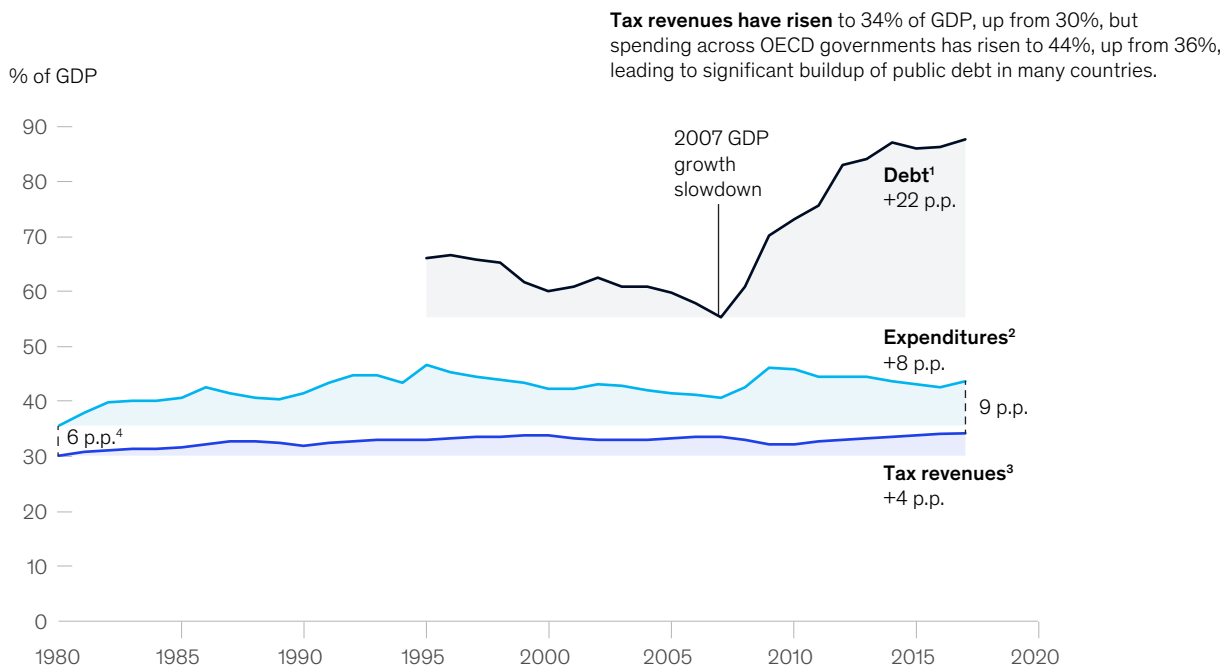
fiscal deficit in the years ahead. Moreover, we see all four accelerating, placing policy makers in an ever-tightening fiscal bind.

Basic economics provides two options for balancing the books: either increase revenues or decrease spending. This article focuses on options related to revenues and administration to improve the efficiency of collecting taxes.¹ With respect to policy, there are questions within the realm of taxation that will require consideration because the tax base upon which current policies were founded is changing. We explore the practical implications of several options. We also acknowledge the numerous consequential societal questions that are deeply entwined with tax policy, such as income inequality and the role of automation in future economic development. Understanding that the policy landscape is complex and challenging, we propose a set of actions that

¹ For more details on decreasing spending options, please refer to Rima Assi, Jonathan Dimson, Andrew Goodman, and Jens Riis Andersen, "Spending reviews: A more powerful approach to ensuring value in public finances," March 2019, McKinsey.com.

Exhibit 1

Over the past 37 years, average tax revenues in OECD countries have risen less than expenditure.



¹Gross debt of general government.

²Total expenditure of general government.

³Total tax revenues.

⁴Percentage point.

Source: Global Revenue Statistics database, OECD, accessed September 4, 2019, stats.oecd.org; National Accounts at a Glance database, OECD, accessed September 4, 2019, stats.oecd.org

governments can take to fundamentally improve the operational efficiency of fiscal systems and capture \$1 trillion of the existing \$5 trillion tax gap.²

The bottom line for governments is that there are no easy answers. Whether they seek to increase taxation or boost efficiency, they are likely to face headwinds. Still, decisive and rapid action is essential to optimize tax collections and keep pace with an inevitable rise in demand for services.

Revenues rise, but not as much as spending

Tax revenues in OECD countries have risen slightly over the past 35 years. However, spending has risen

more, leading to widening deficits that governments have bridged with debt (Exhibit 1). OECD tax revenues were 34 percent of GDP in 2017. The relatively modest increase from 30 percent in 1980 is partly due to a decline in corporate tax rates in many countries. Spending, meanwhile, jumped to 44 percent of GDP in 2017, from 36 percent in 1980.³ Because of tax deficits and the effects of the 2008 financial crisis, the average ratio of gross debt to GDP rose from 66 percent of GDP in 1995 to 88 percent in 2017.⁴

Sources of tax revenue have remained stable over time (Exhibit 2). Over three decades, personal income and consumption together accounted

² The tax gap is the difference between the total amount of taxes owed to the government and the amount actually collected.

³ Global Revenue Statistics data set, OECD, 2018, stats.oecd.org; and national accounts at a glance data set, OECD, 2018, stats.oecd.org.

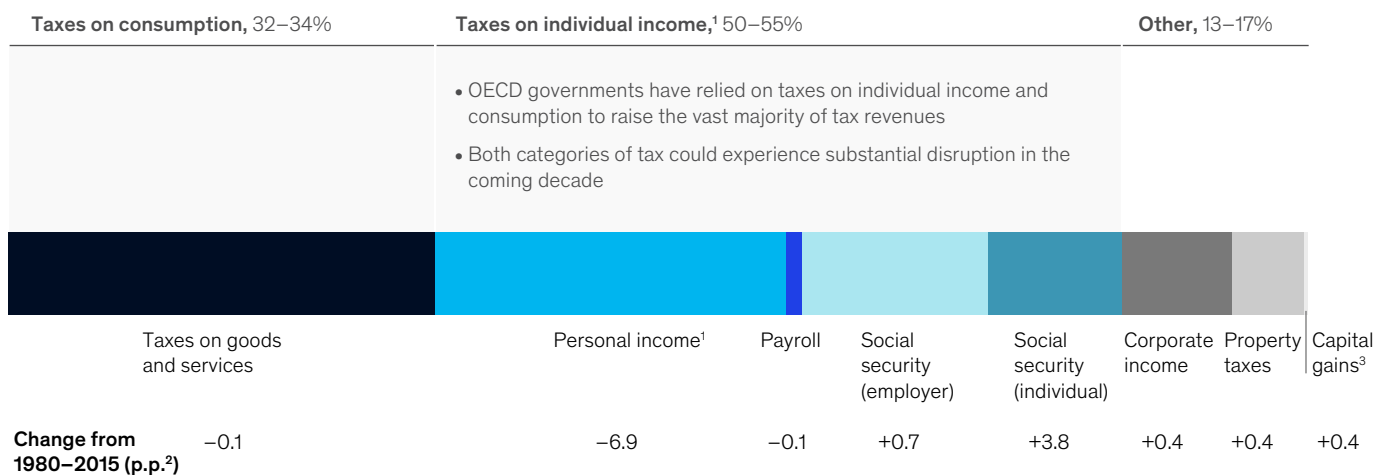
⁴ 1995 is the first year for which OECD-wide comparative data are available; debt includes gross debt of general government; national accounts at a glance data set, OECD, 2018.

Exhibit 2

While corporate and capital gains taxes can be under the media spotlight, 82 to 89 percent of taxes raised are on payroll or income and on consumption or excise duties.

Tax revenues by category, % of total tax revenue, OECD average

Average (1980–2015)



¹ Excludes individual capital gains.

² Percentage point.

³ Individual and corporate.

Source: Global Revenue Statistics database, OECD, accessed September 4, 2019, stats.oecd.org

We see several economic and social trends that are set to stem the flow of revenues over the coming years.

for 82 to 89 percent of revenues.⁵ The biggest single contributor was payroll and income tax, accounting for 50 to 55 percent of revenues (even though the contribution of personal income tax declined by nearly 7 percentage points). Consumption and excise duties remain little changed at 32 to 34 percent of revenues.⁶

Disruption on the horizon—four revenue headwinds

Despite some fluctuations, the fiscal picture has been notably stable for four decades. That said, there is no guarantee that the current situation will persist. In fact, we see several economic and social trends that are set to stem the flow of revenues over the coming years. These result from the impact of technology, the changing world of work, and shifting demographics in advanced economies. Four stand out as potentially significant:

- Increased automation in the workplace, leading to employment disruption
- Evolution of global trade
- Self-employment and the gig economy
- An aging population

Increased automation in the workplace

According to McKinsey Global Institute (MGI)

research, the impact of automation and artificial intelligence may require 3 to 14 percent of workers (and around a third in advanced economies) globally to switch jobs by 2030.⁷ Of course, the impact will vary from country to country depending on industry mix and pace of adoption. Industries such as accommodation and food services and manufacturing are particularly susceptible. In manufacturing, an estimated 60 percent of tasks and processes are likely to be undertaken by machines in the future. Jobs that require more pronounced human intervention, such as education, are less likely to be impacted. However, even relatively immune sectors will probably see more than a quarter of jobs disappear over the coming decade (Exhibit 3).

While automation reduces the need for employment, it also creates jobs. Many of the jobs seen today, from web designer to drone pilot, did not exist 25 years ago. From an income tax perspective, this would suggest automation is a benign phenomenon.

However, two significant unknowns are the pace of change and the impact on wages. As automation accelerates, jobs are being replaced more quickly. It is incumbent on employees to retrain, and there is a danger that this process may lag the automation juggernaut. This necessary friction may present a temporary threat to net employment levels. In addition, there are likely to be sector-specific impacts, with automation leading to significant

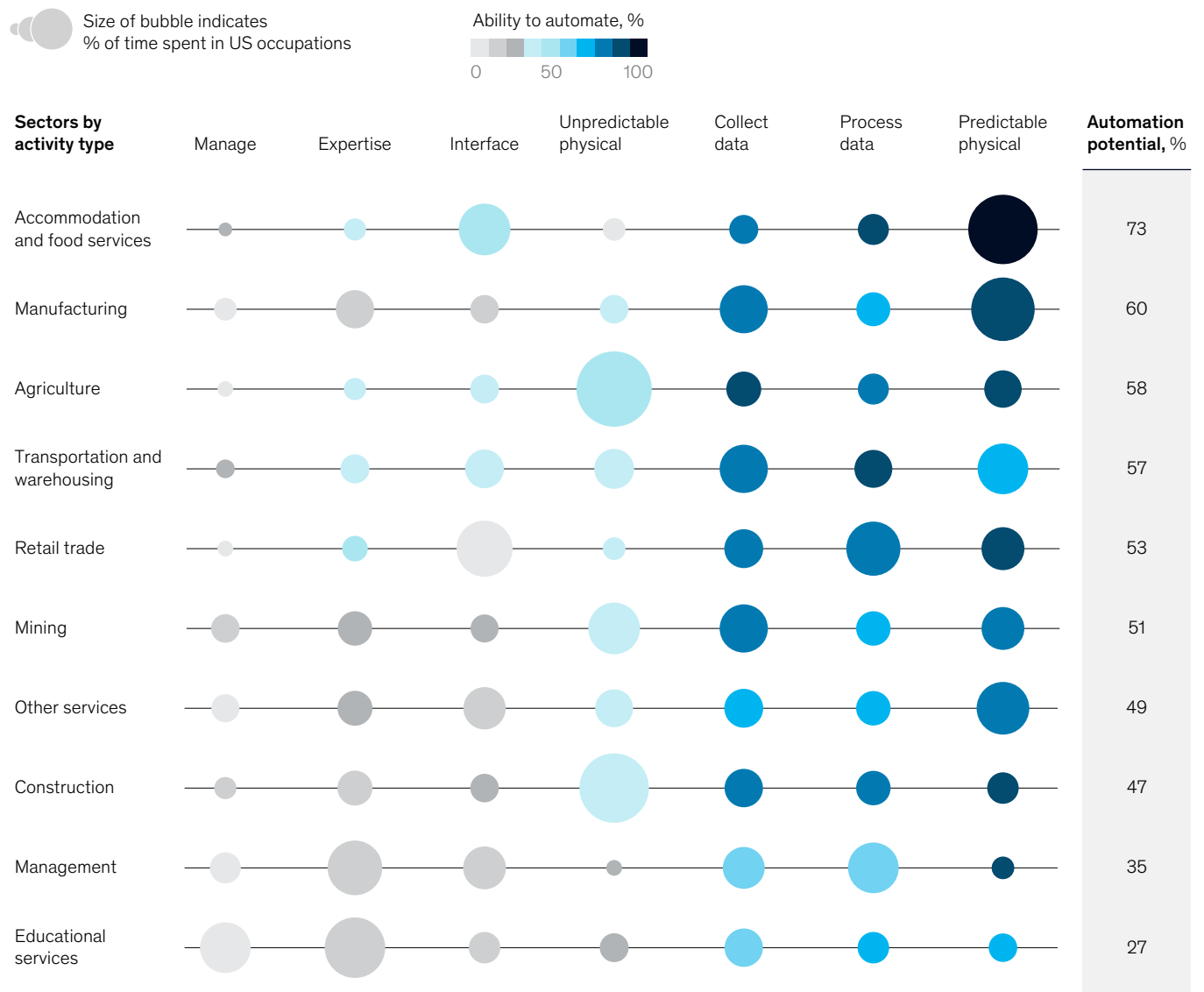
⁵ Excluding individual and corporate capital gains but including taxes on income from labor and other sources, social security, and payroll taxes; Global Revenue Statistics data set, OECD, 2018.

⁶ Global Revenue Statistics data set, OECD, 2018.

⁷ For the full report, see "Jobs lost, jobs gained: Workforce transitions in a time of automation," McKinsey Global Institute, December 2017.

Exhibit 3

Automation will require about 15 percent of workers globally to switch occupations.



Note: Cost estimate includes adoption of artificial intelligence.
 Source: US Bureau of Labor Statistics; McKinsey Global Institute analysis

wage pressure in some sectors where middle-income is disappearing. If automation were to trigger a downward shift in wages in some sectors, it could mean lower income tax and consumption tax revenues in the longer term. On the other hand, if displaced workers are retrained and given new

skills, automation could lead to an overall increase in the quality of jobs with potentially higher wages.

Evolution of global trade

The trade landscape is evolving. Trade in cross-border services, for example, is growing more

than 60 percent faster than trade in goods, based on MGI estimates. We estimate that services (including gross services trade, services embedded in goods trade, intangibles provided to foreign companies, and free cross-border digital services) account for more than half of the value added in overall trade.⁸

Data are a valuable commodity. Global value chains are being reshaped by cross-border data flows and new technologies, including digital platforms, the Internet of Things, automation, and artificial intelligence. The use of cloud computing has accelerated, with more than 50 percent of businesses using cloud computing services in 2018 in countries such as Finland and Denmark. In

some scenarios, these technologies could dampen trade in goods and boost trade in services over the coming decade.

These shifts, which are often directly or indirectly related to the digital economy, have an impact on tax revenues. For example, a growing number of businesses have an economic presence in a jurisdiction but limited physical presence, making it difficult to apply existing tax regimes. The growth of digital platforms disrupts the way companies do business and the way consumers buy goods and services. Digital marketplaces are expected to account for \$5.1 trillion of annual transactions by 2020, of which cross-border transactions will comprise around 20 percent (Exhibit 4).⁹

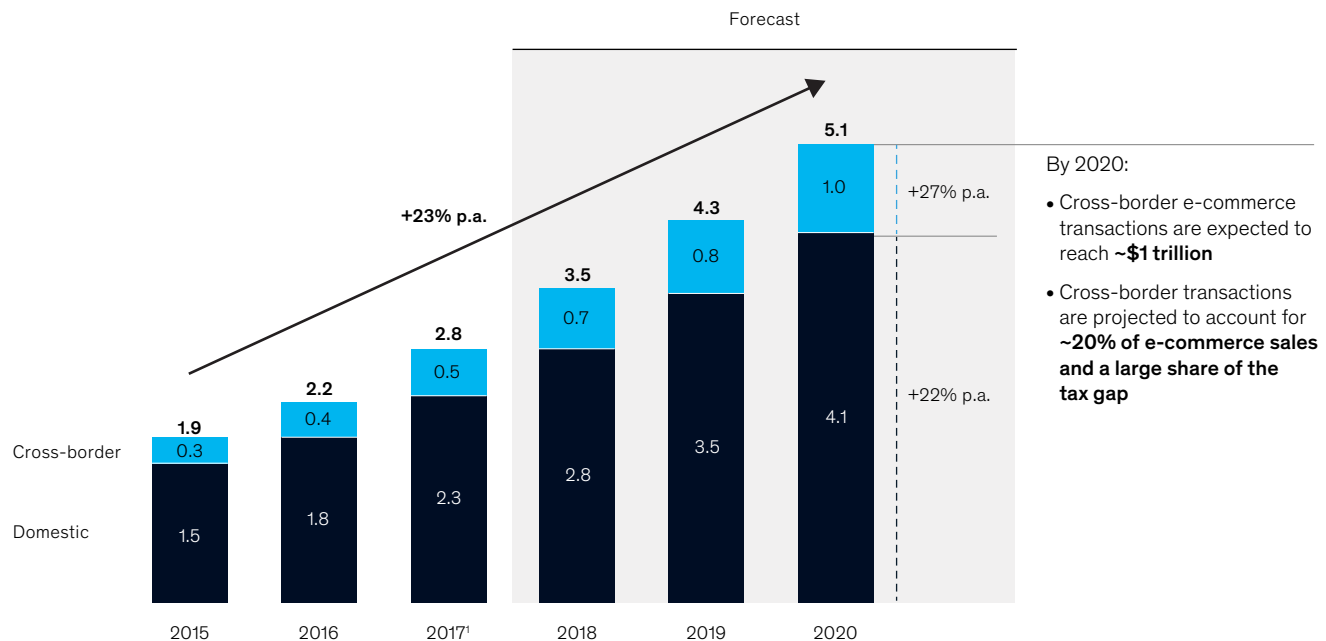
⁸ For the full report, see "Globalization in transition: The future of trade and value chains," McKinsey Global Institute, January 2019.

⁹ *Global cross-border B2C e-commerce market 2020: Report highlights & methodology sharing*, AliResearch, April 2016, unctad.org.

Exhibit 4

Cross-border, direct-to-consumer transactions comprise a rapidly growing share of e-commerce and are typically less effectively taxed than domestic consumption.

Global direct-to-consumer e-commerce transaction volume, \$, trillions



Note: Figures may not sum to 100%, because of rounding.

¹2017 numbers not available and have been estimated based on five-year compound annual growth rate.

Source: AliResearch; for more, see "Globalization in transition: The future of trade and value chains," McKinsey Global Institute, January 2019; UNCTAD; Universal Postal Union; World Trade Report 2018; McKinsey Global Institute analysis

Taxation of e-commerce presents a significant challenge. EU member states are losing up to approximately €3.8 billion annually in missing VAT on B2C supplies of goods that cross borders (intra-European Union and imports). The incomplete levying of VAT on postal shipments into the European Union triggers up to an additional €1 billion in lost income per year for member states.¹⁰

Self-employment and the gig economy

More people are working for themselves, either as a contractor to several companies or a single company. This emerging gig economy accounts for an estimated 28 percent of EU and US employment. The proportion would rise to 46 percent if everyone had their preferred working arrangement, according to MGI research (Exhibit 5).¹¹

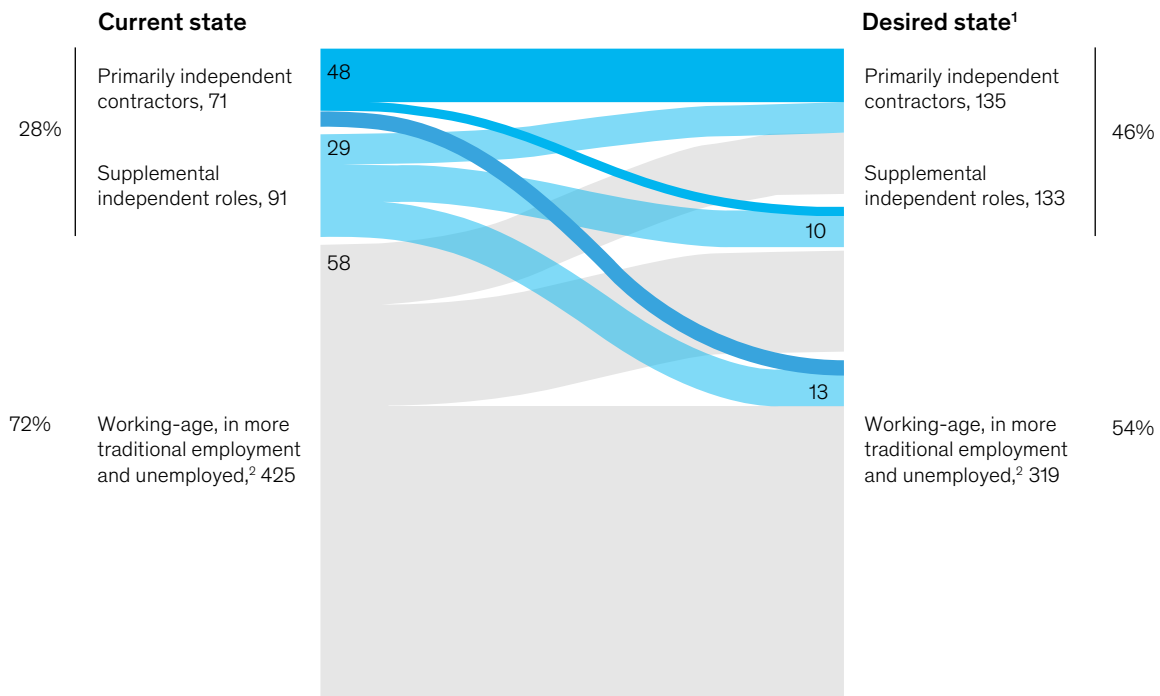
¹⁰ *Impact assessment*, commission staff working document, December 12, 2018.

¹¹ For more, see "Independent work: Choice, necessity, and the gig economy," McKinsey Global Institute, October 2016.

Exhibit 5

The emerging gig economy is reshaping the nature of employment and challenging tax collection.

Potential transitions within the working-age population, million in US and EU



¹ Combined with at least "somewhat likely" to pursue.

² Includes people in traditional jobs, people not working, and those who stated they would like to be independent but also indicated they were not likely to pursue the option.

Source: For more, see "Independent work: Choice, necessity, and the gig economy," McKinsey Global Institute, October 2016; Internal Revenue Service, tax gap estimates for tax years 2008–10

However, the gig economy creates challenges for tax authorities. First, independent workers are generally less compliant than their employed peers, and in some countries are required to pay less taxes. Evidence from the US suggests that workers subject to limited information reporting, such as the self-employed, have an around 50 percentage point lower rate of tax compliance than traditional workers. There are also ongoing legal debates in some jurisdictions over whether gig economy workers are employees for the purposes of worker classification and social security contributions.

The aging population

The elderly population is defined as people aged 65 and over, while the elderly dependency

ratio is the ratio between the elderly population and the working age (15–64 years) population (Exhibit 6). The elderly population has expanded steadily over the past 30 years, due to factors including better diet, education, and healthcare. The number of working age people, on the other hand, has remained flat or has risen slightly, depending on the individual country. The result has been a rising dependency ratio.

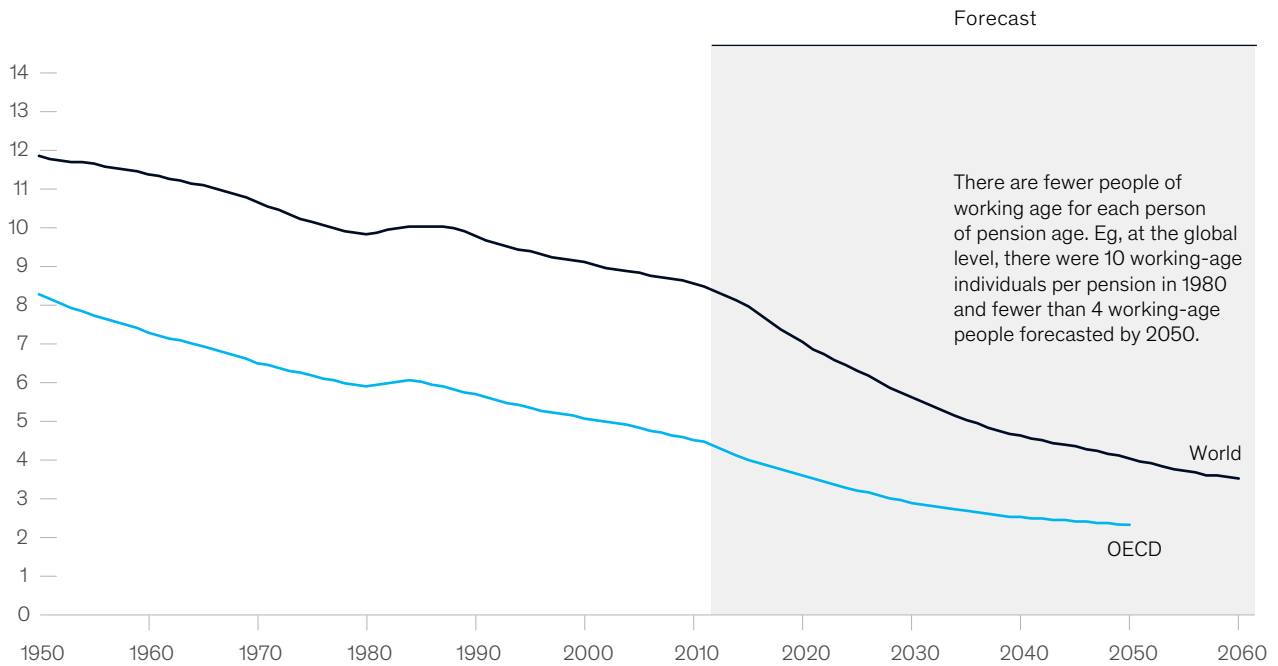
Put another way, there were ten working individuals per person over the age of 65 in 1980, and the number is expected to fall to six by 2030 and less than four by 2050.¹² Naturally, as the dependency ratio rises, demand for social services will put further pressure on revenues to support citizen service delivery.

¹²Historical population data and projections (1950-2050), OECD, accessed August 23, 2019, stats.oecd.org.

Exhibit 6

The population is aging, and the dependency ratio is rising.

Dependency ratio, Working age (15–64) to pension age (65+) population



Source: Historical population data and projections (1950–2050), OECD, accessed September 4, 2019, stats.oecd.org

Options for moving forward

Governments can close the widening gap between revenues and expenditures in a variety of ways through tax revenues, nontax revenues, and spending optimization.¹³ In addition, some governments are either implementing or considering approaches based on monetary finance.¹⁴

In respect to revenues, there are two key areas of potential focus. The first is policy change, which can realize significant inflows but is often tough to negotiate and time-consuming to implement. Another, more universal, solution is to collect taxes more efficiently. There are a range of tools that governments can use to optimize operations, many of which have substantial upsides.

Changes to the tax base and policy options

Academics, economists, and experts have proposed numerous options for aligning the tax code to current and future trends, and some governments are passing legislation to implement these ideas. As the trends outlined above play out, the taxable base of economic activity will change. Below are a couple of initiatives that policy makers are considering adopting, which are presented without any recommendation or appraisal.

- **Addressing base erosion due to global tax competition:** the OECD/G20 inclusive framework on base erosion and profit shifting has been established to seek global consensus on how to allocate global profits (and the right to tax them) and provide mechanisms for transparency and cooperation among global tax authorities.
- **Taxing the digital economy:** with the growth of the digital economy, goods and services are routinely delivered across borders without

any domestic intermediary. Global finance ministers are engaged in active dialogue around what ground rules should govern taxation of these activities.

Societal change and the role of tax policy

Taxation is much more than a fiscal discipline. Indeed, some of the most consequential questions that societies face revolve around national tax policies. To cite a few examples:

- **Income inequality:** MGI has identified a trend of stagnating median incomes among six OECD countries, and other research institutions have found similar trends.¹⁵ Meanwhile, profit margins are rising, especially among superstar companies, and inequality has been increasing in advanced countries, with wealth being much more concentrated than income.¹⁶ In this context, a number of academics and policy makers have suggested policies to shift taxes toward wealth instead of annual income, some with the intent to limit rents and idle wealth, while others with the objective of wealth redistribution.
- **Automation and economic development:** some tax policy proposals target automation to capture its externalities, particularly regarding reskilling impacted workers. However, several OECD countries suffer from low productivity growth, and these automation taxes could reduce capital investment needed to boost innovation and productivity growth.
- **Climate change:** taxation is often considered a powerful tool to curb carbon emissions. For example, Sweden has introduced carbon taxes, starting with a carbon tax on energy production of about €24 per ton of CO₂ equivalent in 1991, later upgraded to €114 per

¹³ For more, see Rima Assi, Jonathan Dimson, Andrew Goodman, and Jens Riis Andersen, "Spending reviews: A more powerful approach to ensuring value in public finances," March 2019, McKinsey.com.

¹⁴ Monetary finance is the creation of currency by the central banks that was injected into the economy in exchange for some intangible government asset. Governments around the world have historically used this approach to finance war and react to economic crises, with the post-2008 quantitative easing as the most common example. But some governments have used similar approaches in a more conventional way, such as Japan, where the Bank of Japan has created more than 100 percent of Japan's GDP worth of debt, and China, in which state-owned banks can refinance themselves at the People's Bank of China by issuing perpetual bonds. An emerging school of economic thinking called modern monetary theory is proposing this route to enable higher government spending and faster growth.

¹⁵ For the full report, see "Inequality: A persisting challenge and its implications," McKinsey Global Institute, June 2019.

¹⁶ For more, see "Superstars: The dynamics of firms, sectors, and cities leading the global economy," McKinsey Global Institute, October 2018.

The gap between government revenues and spending has widened and is likely to continue to do so. There are several operational measures that can help reclaim up to \$1 trillion of an around \$5 trillion tax gap.

ton. In 1992, Sweden also introduced a tax on nitrogen oxide emitted from fuels, which has also increased over time. From 1991 to 2018, Sweden displayed a 26 percent reduction in carbon emissions.

- **Public health:** taxing sugar, tobacco, alcohol, and any substance recognized as damaging to health may spur people to make better health choices and reduce the burden on public health systems. Obesity, smoking, and alcohol together had an economic impact of almost 8 percent of global GDP in 2012.¹⁷ A review of studies by the World Health Organization and the World Bank Group concluded that taxation has been the most effective intervention for reducing tobacco demand.¹⁸

The operational route: a trillion-dollar revenue prize

The gap between government revenues and spending has widened and is likely to continue to do so. The onus, then, is on tax authorities to act now. There are several operational measures that

can help them reclaim up to \$1 trillion of an around \$5 trillion tax gap without policy change (Exhibit 7).¹⁹

Digitizing the tax collection process is one of them. Countries are considering and enacting far-reaching reforms to the administrative tax collection framework. These reforms move from voluntary tax returns filed by individuals and companies to fully digital interactions where collections are automated and the tax authority has full insight into digital flows. As an example, new digital capabilities have enabled fully electronic invoicing, along with real-time cash register reporting, which allows tax authorities to accept payments in the moment and have full, up-to-date insights into VAT due, making examination easier.

Optimize registration, submissions, and filings

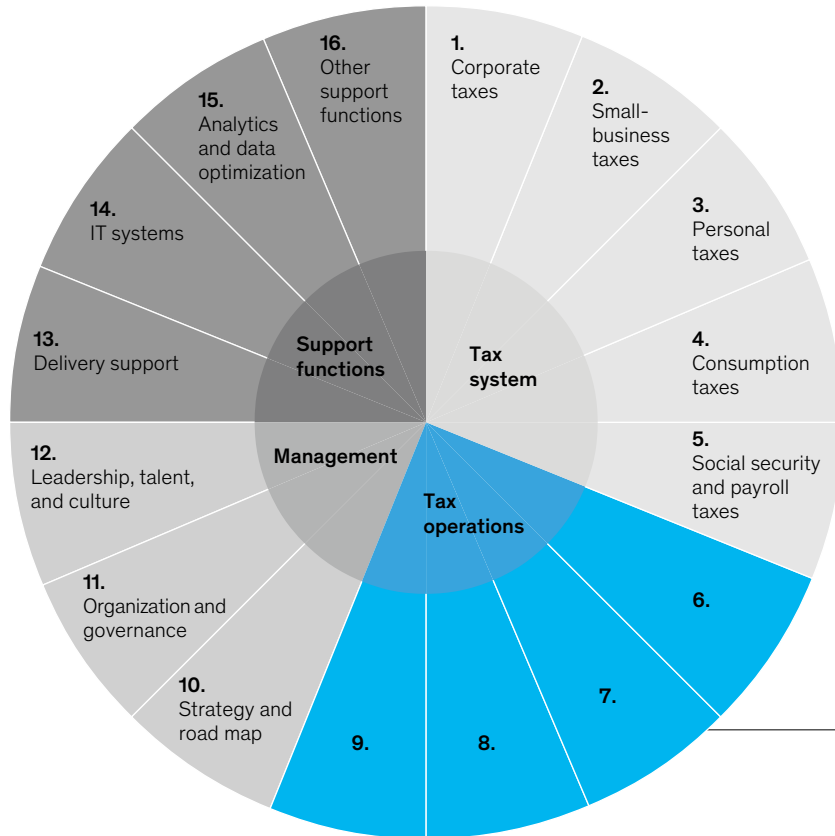
A relatively simple mechanism is to encourage registration through marketing campaigns aimed at hot spots in the informal economy. Call centers and training sessions for intermediaries may also play a role in raising awareness around filing

¹⁷ For more, see “How the world could better fight obesity,” McKinsey Global Institute, November 2014.

¹⁸ *World Bank Blogs*, “Taxation: Most effective but still the least-used tobacco control measure,” blog entry by Patricio V. Marquez, July 19, 2017, blogs.worldbank.org; for a related discussion of policy options for closing the fiscal gap, see Sarah McAra, Vidhya Muthuram, and Karthik Ramanna, *The future of taxation: Opportunities for the 2020s*, University of Oxford, bsg.ox.ac.uk.

¹⁹ Susan Cunningham, Jonathan Davis, and Thomas Dohrmann, “The trillion-dollar prize: Plugging government revenue leaks with advanced analytics,” January 2018, [McKinsey.com](https://www.mckinsey.com).

There are several operational moves tax authorities should consider to reclaim around \$1 trillion of the almost \$5 trillion global tax gap.



Illustrative examples of initiatives

- 6 Registration, submissions filing**
 - Enlarge base through proactive registration
 - Increase e-filing to 100% electronic
 - Introduce account managers for large taxpayers
- 7 Compliance and audit**
 - Improve audit strategy and operating model
 - Increase compliance through communications
 - Segment taxpayers, eg, by types of tax
 - Optimize audit processes, including analytics
 - Improve case selection with advanced analytics
 - Further integrate data with third parties
 - Optimize performance management
- 8 Collections and disputes**
 - Forecast losses and act predelinquency
 - Improve debtor segmentation with analytics
 - Improve contact and treatment strategies
- 9 Taxpayer service**
 - Develop a customer experience strategy
 - Optimize call centers
 - Improve digital offerings, eg, online payments

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Source: Tax accelerator, McKinsey Global Public Finance Practice

and compliance requirements. In one example, Singapore launched a highly influential SMS text service to send information and reminders to file and pay (see sidebar “Singapore authorities launch a highly influential SMS text service”).

In addition, a highly digitalized and standardized submission process can be helpful. This process should use technologies including optical character recognition and digital voice recognition. E-filing, pre-filing, and e-invoicing can also help boost efficiency. McKinsey research shows that a tax administration accrues the full benefit of e-filing only when it reaches close to 100 percent e-filing.

These initiatives should be accompanied by strong data protection and cybersecurity.

Finally, cashless economies can boost revenues by undermining the shadow economy. In one example, Sweden saw VAT receipts rise steadily after introducing a range of measures to encourage cashless transactions, including new record-keeping requirements and noncompliance fines for cash transactions in some industries, cash banned on public transport, and encouraging the use of mobile payment platforms. In May 2017, the Swedish Tax Agency also introduced a mandatory transmission system for taximeters in the taxi

Singapore authorities launch a highly influential SMS text service

The Inland Revenue Authority of Singapore used SMS texts to send information and reminders. The content and timing of the messages were designed to nudge taxpayers to comply; late filers were reminded to file on time to avoid penalties, and individuals were provided with payment reference numbers so they could make payments without referring to their tax assessment. In 2015, the Revenue Authority sent around 6 million SMS messages. More than 95 percent of customers agreed that the service was timely and met their needs.

industry to transmit data to a certified accounting center for taxi businesses, supervised by the Swedish Transport Agency.

Upgrade compliance and audit

When it comes to auditing, authorities may wish to develop new target operating models for allocated cases based on handpicked parameters. They should begin by creating dedicated audit teams, staffed by legal and tax experts empowered to roll out streamlined tools and processes, and backed by best-in-class performance management techniques. Authorities should use end-to-end talent and communication strategies to support efforts that improve compliance.

Tax authorities can prioritize investment in data and analytics with the aim of spotting anomalies more effectively. They may wish to work with third parties and to access external data to improve insight. The tools are now available off the shelf to transition from simple risk analyses to sophisticated risk engines. These can be used to help identify potential candidates for audits and contribute to increasing audit revenues and reducing fraud (see sidebar “An OECD tax authority scaled up its audit process”).

Improve collections and resolve disputes

Advanced analytics are a key tool that can help authorities segment taxpayer subgroups and improve forecasting and predelinquency actions. Authorities can seek to standardize contact and treatment strategies, targeting tax offices with the largest outstanding debts (see sidebar “A European tax agency used advanced analytics to predict insolvencies”).

Streamline taxpayer services

The taxpayer experience can be optimized across channels, so the process is as easy and convenient as possible. Authorities should offer accessible digital solutions, both online and mobile, backed by information resources that help taxpayers understand their liabilities. Singapore chatbot Ask Jamie uses its natural language processing engine to understand the questions typed by the public and respond with an appropriate answer.

The digital economy, demographic change, and accelerating automation are piling pressure on

An OECD tax authority scaled up its audit process

In most countries, only a small proportion of tax payers is audited annually. An OECD tax authority used new data sources and advanced analytics to recalibrate its audit process and raise more than \$400 million. The authority applied advanced analytics techniques to identify around 100 predictors of tax fraud and error. The changes were implemented in just six weeks. As a result, the authority was able to target its efforts more accurately. Alongside the new models, the authority worked to streamline processes and increase automation, leading to significant efficiency gains. The result was a two- to threefold rise in revenue per audit.

A European tax agency used advanced analytics to predict insolvencies

A European tax agency used advanced analytics to predict business insolvencies and time-to-pay adherence. The aim was to reduce a €4.5 billion annual tax gap caused by insolvency. The agency built two core logistic regression models to estimate the likelihood of promise adherence and delinquency among small and medium enterprises. This involved upskilling staff and analyzing value-added income and corporate taxes. Through its new approach, the agency was on track to achieve more than €500 million in impact.

governments that are already struggling to manage a widening gap between income and expenditure. There is no panacea to address these dynamics. However, tax authorities can take relatively simple actions. A first step is to upgrade operational capabilities, probably using many of the same technologies that are reshaping the commercial landscape. Of course, governments may wish to support these via legislation and many options are being considered. The bottom line in both cases is the same: fiscal frameworks require urgent modernization to remain fit for purpose.

For a related discussion of policy options for closing the fiscal gap, see Sarah McAra, Vidhya Muthuram, and Karthik Ramanna, *The future of taxation: Opportunities for the 2020s* by the University of Oxford.

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