

# The future of taxation: Opportunities for the 2020s

14 February 2019

Over the four decades to 2019, taxes in OECD countries had remained roughly constant, both in terms of the sources that were taxed and the proportion of tax revenue to GDP. But this apparent stability had concealed serious threats to the nature of public finance. First, public expenditures had grown over that same period, particularly since the 2008-09 financial crisis, resulting in increased proportions of public debt to GDP. Second, and more to the point of this note, the traditional sources of taxation in the OECD, namely taxes on labour income and consumption, which together accounted for about 85% of tax revenue, had come under threat by various emerging technological and social phenomena.

For instance, some futurists, including Microsoft cofounder Bill Gates, projected that advances in automation technology would lead to wage stagnation or even large-scale unemployment, absent costly re-skilling, putting pressure on taxes sourced from labour income. Technological advancements had also contributed to the expansion of the gig economy, which was reshaping employment patterns and challenging traditional tax systems designed around salaried workers. Additionally, more consumption was occurring online and across borders, making it difficult to assess and collect value-added consumption taxes. In social trends, an ageing population meant there would be fewer people in the workforce to tax, relative to those expecting retirement benefits. Finally, the forty years through 2019 had also witnessed an increased concentration of wealth amongst a very small minority of the global population, making it more difficult for OECD democracies to continue politically justifying that labour, and not capital, should be the primary basis for taxation.

All of these changes suggested the need for a fundamental rethink of the tax system, particularly the sources of taxation. Operational experts in public finance pushed for new systems that could more effectively collect taxes in light of technological and social changes. Others, focused on comprehensive policy redesign, called for bold new ideas, such as a tax on job-replacing automation and a tax on global wealth.

This note briefly examines the situation as of 2019 and some options for the future of taxation in the 2020s, with a view toward enabling further conversation amongst an informed policy-making audience, not experts in taxation. Taxes in the early 21<sup>st</sup> century had many purposes, such as funding public services, changing behaviour, and enabling redistribution. Rather than debating these uses of taxes, or even the optimal level and rates of taxation, this note is grounded on the premise that nearly all governments raised at least some public revenue through taxation; the note then considers various existing and proposed sources of taxes that could be used to overcome expected threats to traditional sources of tax revenue. The discussion draws largely on data from OECD member states, but with policy implications worldwide.

## Overview of tax sources

Most OECD countries in 2019 levied taxes on the same sources, known as tax bases. These sources were the stocks and flows of labour and capital.<sup>a</sup> Labour stock referred to the total manpower available to a taxing authority. Labour inflows and outflows referred to personal income and consumption, respectively. Stocks of capital referred to accumulated wealth, real and financial. Flows of capital referred to investment returns as inflows and investment expenditures as outflows (such as expenditures on equipment expected to generate future returns). **Exhibit 1** illustrates different types of taxes across the flows and stocks of labour and capital. For example, the personal income tax was a tax on labour inflows; the value-added tax (VAT) was a tax on labour outflows; poll taxes were taxes on labour stock; the corporate income tax was a tax on capital inflows; the automation tax was a tax on capital outflows; and a real-property tax was a tax on capital stock.

## Optimal tax policy

In choosing how to tax across the stocks and flows of labour and capital, governments were influenced not only by political considerations, but also by optimal tax theory in contemporary neo-classical economics.

Optimal economic tax theory, largely attributed to the work of Nobelist James Mirrlees, maintained that since taxes change behaviour and distort otherwise voluntary exchange in the economy, a tax system should reconcile the efficiency costs of taxation with its equity benefits for society as a whole.

For a benevolent social planner, the simplest utilitarian approach to taxation – one yielding the greatest good for the greatest number – was to spread the burden of taxpaying equally throughout society by imposing a flat tax on every citizen. However, this approach, even discussed in the Old Testament, was deeply unpopular in modern liberal-democratic societies. Since citizens did not have the equal ability to pay such a tax, it was viewed as regressive. By proportion, a flat tax posed a greater burden on the poor than on the rich.

The problem for the social planner then became how to tax individual ability to pay, which could be assessed through proxies such as an individual's consumption, income, and wealth. But taxing these proxies could have distortionary effects in that higher taxes could reduce consumption and induce less effort to generate future income and wealth.

The distortionary effects across these categories varied, with taxes on capital stock and investments viewed as the most distortionary. Since capital stock and investments were central to economic output not just in the current period but in future periods as well, taxes on these bases were expected to diminish both current and future economic activity. Moreover, even small or short-term capital taxes in a jurisdiction could lead to capital flight, especially in a globalised world.

The implications of optimal economic tax theory were thus that taxing labour (e.g., personal income and personal consumption) was less distortionary than taxing capital stock and investments (e.g., corporate expenditures and financial and real property).

## Tax revenue in the OECD

In line with optimal economic tax theory, OECD countries relied on taxes on labour flows for the majority of their tax revenue. In the 1980-2015 period, taxes on individual income and consumption together accounted for 82-89% of all annual tax revenues in the OECD.<sup>1</sup> In

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<sup>a</sup> Stocks were discrete quantities in possession at a specific moment in time (e.g., end of the calendar year). Flows, in contrast, were transactions of quantities over a period of time (e.g., one year), and included both inflow and outflows.

contrast, taxes on capital, such as the corporate income tax and property tax, accounted for 13-17% of total tax revenue in the same period.<sup>2</sup> (See **Exhibit 2.**) However, the ways in which countries imposed taxes on categories within labour and capital varied widely. (See **Exhibit 3.**) For instance, countries with lower capability to gather information on individual income or countries with high levels of informality in the economy often derived a higher proportion of public revenue from consumption taxes.<sup>3</sup>

Across the OECD, these tax bases had remained relatively stable for many decades, translating to longstanding consistency in tax revenue as a share of GDP. (See **Exhibit 4.**) On average, tax revenue grew from around 30% of GDP in 1980 to 34% in 2000, where it then remained through 2015. However, there was variation across OECD countries: Denmark and France had the highest tax-to-GDP ratio of around 46% and Mexico had the lowest at 16.2%.<sup>4</sup>

## **Public expenditure and public debt in the OECD**

While tax revenue remained relatively stable in OECD countries, public expenditures had been on the rise. From 1980 to 2016, government expenditure grew from 35% to 42% of GDP.<sup>5</sup> This increase was largely driven by social spending, including healthcare.<sup>6</sup>

Between 1980 and 2016, the gap between public revenues and expenditures grew by two percentage points to reach 8%.<sup>7</sup> Countries had gradually begun to take on more debt to finance the increasing deficit, and from 1995 to 2016, the ratio of public-debt-to-GDP had increased by 20 percentage points.<sup>8</sup> These trends had intensified in the aftermath of the 2008-09 global financial crisis and the Eurozone crisis that began in 2009.

## **Five major trends disrupting public finance**

As of 2019, several emerging social and technological forces were expected to disrupt the longstanding consistency of tax revenues and further drive up public expenditures in OECD countries. These trends included the adoption of automation powered by artificial intelligence (AI); self-employment and the gig economy; cross-border e-commerce; population ageing; and wealth concentration.

### *AI-enabled automation*

By 2019, a number of well-known tech experts, such as Tesla Motor's CEO Elon Musk, had predicted that the adoption of AI-enabled automation would lead to mass disruptions in employment.<sup>9</sup> A 2016 study by Oxford academics Carl Frey and Michael Osborne had projected that 47% of US jobs would be at high risk of automation within two decades.<sup>10</sup> This could, in turn, deplete the labour income tax base and create new demands on government to support displaced workers. However, as of 2019 the net effect of automation adoption remained subject to debate. For instance, a subsequent study from the OECD had estimated that only 9% of US jobs would be at high risk of automation within two decades.<sup>11</sup>

Some observers noted that economies had survived prior periods of technology-driven transformations and, after a phase of adjustment, overall employment rates had remained relatively stable.<sup>12</sup> Indeed, economist David Autor of the Massachusetts Institute of Technology observed that there was no evidence that the adoption of AI-based technologies would affect employment any differently.<sup>13</sup> In line with previous transformations, the adoption of new technology could bolster the economy by reducing the number of workers needed per output. This could lead to higher productivity, which was associated with higher wages and thus more consumption.<sup>14</sup>

However, other futurists, such as World Economic Forum Executive Director Klaus Schwab, had warned that AI-driven automation, along with other technological advancements, would pose different challenges than those seen in prior technological transformations.<sup>15</sup> Advanced

automation would be able to match, or even surpass, human performance in many complex, non-routine tasks,<sup>16</sup> potentially ushering in an unprecedented period of transformation in both manufacturing and service delivery.

There were also concerns that the benefits of automation would not be enjoyed equally. By some accounts, automation was expected to reduce the demand for low- and middle- skill workers while boosting demand for – and wages of – high-skill workers.<sup>17</sup> Many workers would likely have to change occupations (see [Exhibit 5](#)), with new jobs expected to require more social and interpersonal skills as well as more advanced levels of education.<sup>18</sup>

These changes to the workforce, if materialized, could threaten traditional tax systems that had long relied on labour income and consumption to raise revenue. It was estimated that in the US, replacing workers with automation could result in hundreds of billions – or even trillions – of dollars of lost tax revenue.<sup>19</sup> At the same time, automation adoption could intensify trends of wealth concentration as the owners of capital stood to gain a greater share of the value generated by automation relative to labour.<sup>20</sup>

### *Self-employment and the gig economy*

Tax systems, typically designed to tax the income of full-time, salaried employees, were being confronted with a rise in ad-hoc employment arrangements. Increases in self-employment, independent contracting, and so-called gig-working roles were expected to challenge how governments raised taxes while also boosting demands for public assistance.

Self-employment was not a new phenomenon, but it had become increasingly popular with the expansion of the gig economy.<sup>b</sup> As of 2017, 16% of all workers in the OECD were self-employed (including gig workers, temporary workers, and other independent contractors).<sup>21</sup> Moreover, participation in on-demand, independent contract positions was expected to rise. A survey of the US and EU-15 countries found that up to 45% of the working-age population would prefer independent work arrangements and were at least somewhat likely to pursue them.<sup>22</sup> (See [Exhibit 6](#).) This increase, if realised, could contribute to economic growth, potentially adding jobs and thus growing the income tax base. McKinsey Global Institute (MGI) estimates suggested that by 2025, 'online talent platforms' used in the gig economy could increase global GDP by 2% (US\$2.7 trillion) and add 72 million full-time equivalent positions.<sup>23</sup>

However, extensive changes from standard employment contracts to self-employment or other non-standard contracts threatened traditional sources of labour-based taxes.<sup>24</sup> First, self-employed workers had lower rates of tax compliance.<sup>25</sup> US Internal Revenue Service (IRS) data suggested that independent workers' tax compliance was between 56 and 62 percentage points lower than that of standard workers.<sup>26</sup> Second, workers on non-standard contracts were typically subject to lower tax rates than standard workers. In the UK, the lower national insurance (social security) contribution rates for the self-employed translated to £5 billion less in potential public revenue per year.<sup>27</sup>

A widespread shift to non-standard contracts could also increase demands on the public purse. Self-employed workers did not have access to many benefits enjoyed by standard workers, such as disability insurance or retirement funds, and were therefore more likely to rely on public social assistance. In the Netherlands, for example, non-standard-contract workers were nine times more likely to move from being employed to requiring social assistance than standard-contract workers, who were entitled to unemployment benefits.<sup>28</sup> Under a gig-economy model, governments risked bearing the costs of typical workplace benefits.<sup>29</sup>

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<sup>b</sup> While definitions of the gig economy varied, it was generally understood as self-employment enabled by a digital platform (e.g., Uber, Deliveroo) that connected workers to specific tasks on an as-needed basis (e.g., providing a ride, delivering take-out food). Gig workers were considered independent contractors as opposed to standard employees. See: 'It's a gig, but is it a job?' *OECD Observer*, No 305, Q1 2016.

## *Cross-border e-commerce*

Tax systems, designed on jurisdictional principles, typically allowed national authorities to levy and collect taxes on labour and capital, stocks and flows, within their physical borders.<sup>30</sup> However the expansion in cross-border e-commerce challenged these principles and created barriers for tax application, enforcement, and compliance.

Cross-border e-commerce referred to internet-enabled trade in goods and services between businesses and consumers (B2C) or businesses and businesses (B2B) from different countries. Such commerce, propelled by improvements in computing technology, allowed even small businesses to expand beyond their local markets. Nearly 12% of global trade in goods in 2016 was through cross-border e-commerce.<sup>31</sup> Research from DHL and International Post Corporation predicted that the volume and value of cross-border e-commerce would grow faster than domestic e-commerce.<sup>32</sup> (See **Exhibit 7.**)

The borderless, digital, and sometimes anonymous nature of e-commerce made it difficult to identify and tax cross-border transactions.<sup>33</sup> Expansion of e-commerce also led to the development of new business models that supported the sale and exchange of intangible goods and services (e.g., software, e-books) that were more susceptible to tax evasion. Traditional concepts of value creation and ownership were also challenged. For instance, it was possible to copy and distribute an electronic file of a song to consumers around the world at negligible costs, potentially diluting the ownership rights of copyright holders and depleting the taxable basis.<sup>34</sup> National tax codes especially for consumption taxes were still largely tied to the physical world and had not substantially evolved to account for these changes.

There was broad agreement that e-commerce, like conventional commerce, had to be taxed fairly and efficiently, but questions remained on how it would be implemented. A globally coordinated approach was needed to avoid double taxation and to minimise adverse, unintended consequences.<sup>35</sup> But such cooperation looked unlikely as of 2019, given broader geo-political schisms over trade deficits across countries.

## *Population ageing*

Population ageing was expected to increase pressure on public finances as the number of working-age adults declined relative to the number of older people, who paid fewer taxes and used more public services.<sup>36</sup> Due to falling fertility rates and rising life expectancy, older people were making up an increasing share of the population worldwide.<sup>37</sup> The UN estimated that the share of people over 60 years old would reach 21% by 2050, up from 9% in 1980.<sup>38</sup> The share of people over 80 years old – a group typically with greater care needs<sup>39</sup> – was expected to grow even faster.<sup>40</sup>

The ageing population meant that there would be fewer workers supporting relatively more pensioners. The old-age-dependency ratio (the number of people age 65 and over per 100 people aged 20 to 64) was on the rise. In the OECD, the average ratio grew from 20 in 1975 to 28 in 2015, and was projected to reach 53 by 2050.<sup>41</sup> (See **Exhibit 8.**) In anticipation of these changes, many countries were pursuing pension reforms, such as raising the retirement age.<sup>42</sup>

The needs of the ageing population were also expected to drive up public expenditure. According to baseline projections, the cost of ageing in the EU could increase from 25% of GDP in 2016 to nearly 27% in 2030.<sup>43</sup> The rising costs were driven primarily by healthcare and long-term care, with pension funding and life-long education also contributing.<sup>44</sup> Though there was some debate around the extent to which an ageing population would increase healthcare costs<sup>45</sup>, longer lives could lead to greater total lifetime healthcare expenditure, especially in scenarios where health statuses over time did not improve.<sup>46</sup>



The effect of this demographic change on public finances was captured by the fiscal support ratio, which represented the proportion that all other public expenditures would have to decrease to meet new needs that resulted from an ageing population, assuming constant public revenues.<sup>47</sup> From 2010 to 2050, the fiscal support ratio was projected to decrease by 11% in the United States and 26% in Japan.<sup>48</sup>

### *Increasing concentration of wealth*

In 2017, half of the wealth in the world was held by the top percentile of adults and nearly 88% was held by the top decile.<sup>49</sup> Within the top percentile, the world's wealthiest eight individuals held as much wealth as 3.6 billion people.<sup>50</sup> Geographically, North America and Europe, which collectively accounted for 17% of the world's adult population, together held 64% of the global wealth.<sup>51</sup> This massive concentration of wealth among the rich raised widespread concerns about the longstanding policy of taxing labour income over capital bases.

From an optimal tax theory perspective, this widening wealth inequality contributed to a widening of individual ability. Wealthy individuals had better access to health, education and entrepreneurship opportunities, and thus experienced higher social mobility. This potentially undermined future tax revenues from labour sources.

The growing wealth inequality also undermined meritocracy and allowed wealthy individuals to 'get a larger share of the pie rather than [increase] the size of the pie'.<sup>52</sup> Economist Thomas Piketty, in a widely discussed book, had argued that the private assets of wealthy individuals grew faster than the economy as a whole. Piketty claimed that the national-wealth-to-income ratio was growing in developed countries (see **Exhibit 9**).<sup>53</sup> These changes potentially presented a case for rethinking of policy on taxing capital sources.

Wealth inequality also had other fiscal consequences. Wealthy individuals were more likely to access specialist advice on mitigating and even evading taxes. In the United States, Economics Nobel laureate Paul Krugman reported: 'Since 1992, the IRS has been releasing income and tax data for the 400 highest-income filers. In 2008...these filers paid only 18.1 percent of their income in federal income taxes...When you bear in mind that the rich pay little either in payroll taxes or in state and local taxes—major burdens on middle-class families—this implies that the top 400 filers faced lower taxes than many ordinary workers.'<sup>54</sup> It was estimated that nearly 8%, or \$7.6 trillion, of the world's financial wealth was hidden in offshore tax havens.<sup>55</sup>

Public intellectuals like Nobel laureate Joseph Stiglitz and economist Branko Milanovic had also observed that unequal concentrations of wealth changed the nature of democratic society, giving rise to populist protests in several OECD countries.<sup>56</sup>

## **The future of taxation**

In light of the developments described above, governments in the OECD were confronted with rethinking long-standing policy on taxation sources. A combination of operational improvements to tax collection and major tax reform was increasingly gaining salience in the policy discourse.

### *Operational improvements*

Research from McKinsey & Company showed that there were opportunities for countries, particularly emerging economies, to boost tax revenue simply by improving the effectiveness of their tax systems. A 2008-09 benchmarking study on the performance of tax authorities across 13 countries, including Australia, Denmark and the United States, estimated that these 13 countries could collect an additional \$86 billion in direct tax revenues by improving performance in functional areas such as 'submissions processing, examinations, collections and taxpayer services.'<sup>57</sup>

Several countries focused their efforts on data-driven approaches such as the IMF's Tax Administration and Diagnostic Tool (TADAT) to understand relative strengths and weaknesses of their national tax systems before making improvements. TADAT was developed to provide participating countries with standardised information and recommend relative priorities and plans for tax reform.<sup>58</sup> As of mid-2018, 62 countries had completed TADAT assessments.<sup>59</sup>

Several countries had turned to the use of big-data technology to unlock more resources from existing tax systems. The Australian Taxation Office (ATO), for instance, employed a range of analytical tools and data-matching methods to accurately estimate wealth and undisclosed income of taxpayers.<sup>60</sup> Using data from insurance agencies, motor vehicle registration authorities and online sites such as eBay, the ATO developed more accurate assessments of tax obligations and improved audit and verification capabilities. These initiatives had led to nearly 1,500 new disclosures, covering \$866 million in assets and \$156 million in income in 2014.<sup>61</sup>

Countries such as Pakistan and Bangladesh addressed tax avoidance and evasion through a combination of incentives and insights from behavioural economics. A program that offered monetary and non-monetary incentives to property tax collectors in Pakistan reported a 46% increase in provincial tax revenues. Similarly, a program that publicised information on the tax compliance status of local businesses in Bangladesh saw a 17% increase in VAT revenues.<sup>62</sup>

Many countries also turned to global partnerships to close gaps in existing international rules and broaden their tax base. An outcome of such a partnership was the Base Erosion and Profit Sharing (BEPS) project. Launched in 2009, BEPS proposed changes to how global businesses documented, reported and filed taxes around the world. It introduced new rules including minimum standards for country-by-country reporting that gave tax administrators a more complete picture of the operations of global businesses.<sup>63</sup> It recommended changes to support more efficient collection of consumption taxes for cross-border transactions. As of January 2019, 127 countries had committed to implementing national measures in line with BEPS.<sup>64</sup>

While some tax experts hailed these initiatives, others pointed out that the scope for these measures to generate the scale of public-revenue increases needed in the 2020s, particularly in OECD countries with relatively higher levels of efficiency in tax collection, remained modest.

### *Bold new policy ideas*

Even as some countries were implementing operational improvements to tax collection, policy commentators were urging governments to consider radical rethinks of tax design. These bold new tax policies involved shifting the focus away from taxing labour, as implied under the prevailing optimal tax theory, toward taxing capital sources. Two such proposals that had generated much attention were an automation tax and a global wealth tax.

#### **Automation tax**

A tax on job-replacing automation, colloquially known as a 'robot tax', had increasingly come to the forefront of public debate since 2017. Some policymakers had proposed the idea, such as Member of European Parliament Mady Delvaux<sup>65</sup> and French socialist Benoît Hamon,<sup>66</sup> and Microsoft co-founder Bill Gates had championed the robot tax in a widely-cited interview.<sup>67</sup>

An automation tax would largely reverse tax systems' preference for taxing labour more than capital. Many tax systems incentivised the use of productivity-enhancing automation through tax credits and capital allowances for the development and purchase of technology.<sup>68</sup> At the same time, they imposed taxes on human workers, such as income tax and social security contributions, adding to the overall costs of hiring an employee.<sup>69</sup> These tax arrangements, along with the declining costs of technology, were seen to make automation more attractive than hiring human workers. It was estimated that in the US, a human welder would cost a

company \$25 per hour (including wages and benefits), whereas an automated welder would cost \$8 per hour, with maintenance and operational costs amortised over several years.<sup>70</sup> At a minimum, some proposed, an automation tax could bring tax neutrality between workers and machines.<sup>71</sup>

The potential impact of an automation tax was widely debated. Proponents like Gates thought the tax would bring both economic and social benefits. Not only could it compensate for the loss of personal income tax resulting from widespread job displacement, it could also slow the adoption of automation, allowing workers to gain the new skills needed to find new jobs, he claimed.<sup>72</sup> To this end, some supporters preferred a version of an automation tax that connected tax receipts with programmes for training and reskilling workers.<sup>73</sup>

Economics Nobelist Robert Shiller also added that an automation tax would be a more politically acceptable way to tax high-income earners. He observed that 'while this would not tax individual human success, as income taxes do, it might in fact imply somewhat higher taxes on higher incomes, if high incomes are earned in activities that involve replacing humans with robots.'<sup>74</sup> Shiller concluded that '[a] moderate tax on robots, even a temporary tax that merely slows the adoption of disruptive technology, seems a natural component of a policy to address rising inequality.'<sup>75</sup>

However, opponents saw an automation tax as detrimental to economic growth. Former US Treasury Secretary Larry Summers described Gates' robot tax as 'profoundly misguided' and as 'protectionism against progress'.<sup>76</sup> An automation tax would deter investment in capital, stifle innovation, and likely harm a country's international competitiveness.<sup>77</sup> Moreover, it could prevent the adoption of technology that would make human workers more productive and boost economic growth overall. Summers questioned the premise of the proposal: 'why tax in ways that reduce the size of the pie rather than ways that assure that the larger pie is well distributed?... Surely it would be better for society to instead enjoy the extra output and establish suitable taxes and transfers to protect displaced workers?'<sup>78</sup>

Some onlookers were also concerned about the issues of implementing an automation tax, such as how to define what automation should be taxed. Some challengers pointed to job-replacing technologies of the past to highlight the complications of developing a definition. Said one venture capitalist, 'The first case in modern history of this was the power loom. Is this a robot or just a tool, a slightly more sophisticated hammer in a sense? Likewise farming equipment reduced the need for farm labour. Should we tax every tractor?'<sup>79</sup> Opponents also questioned if a definition would encompass hardware as well as software, since software – such as Gates' Microsoft programmes – could also displace workers.<sup>80</sup> And even if a definition was agreed upon, an automation tax could be complex to administer and ensure compliance. Explained one economist, 'There are endless possibilities for evading and gaming that kind of system; for example, by incorporating the 'robot', however that is defined, into other kinds of capital equipment.'<sup>81</sup>

### Automation tax proposals

A variety of automation tax designs had been proposed. One suggestion was to reduce the tax incentives for automation by lowering tax breaks for capital investment.<sup>82</sup> In 2017, South Korea became the first country to implement a version of an automation tax by using this approach. The tax reduced the previous 3-7% deduction for automation investments by up to 2%.<sup>83</sup> Another approach proposed was to make robotic technology more expensive to purchase, for instance by increasing its VAT.<sup>84</sup>

Still another proposal was to use the salaries of displaced workers as a base on which companies paid an automation tax. A Spanish union had suggested that corporations make social security contributions on behalf of workers replaced by robots, with levels potentially based on the displaced workers' salaries.<sup>85</sup> However, critics noted that it could be difficult to



link automation with specific salary losses since, for instance, one robot might replace tasks across several jobs but not one whole job.<sup>86</sup>

An alternative approach was to increase corporate taxes on the gains companies earned from replacing human workers with automation. This could be done by linking corporate taxes to a ratio of profit-to-total-employee-expenses<sup>87</sup> (or a ratio of revenue-to-employees).<sup>88</sup> If a company's ratio exceeded a government-determined industry benchmark, implying greater automation of the workplace, it would be subject to a higher tax. Companies would therefore be incentivised to create jobs rather than adopt more automation.<sup>89</sup>

### **Global wealth tax**

The idea to tax wealth or capital over labour was certainly not novel. But approaches tried in the past to tax wealth creation (e.g., profits), wealth transfer (e.g., inheritance taxes), or wealth appreciation (e.g., capital gains) had proven in some instances to be inefficient and distortionary. Studies had pointed to wealth taxes leading to declines in investment, employment, wages, and national output, and many European countries abolished wealth taxes from the 1980s.

However, following the 2008-09 financial crisis, there had been renewed political interest in wealth taxes. The United Nations in 2012 called for a 'Billionaire Tax' of 1% on individual wealth above \$1 billion to purposely create 'additional and more predictable financing' for global development goals.<sup>90</sup> That same year Warren Buffet reprimanded US lawmakers for giving tax cuts to billionaires like him and called for a minimum tax rate of 30% on incomes between \$1 million and \$10 million.<sup>91</sup> More recently, in 2017 the IMF, dismissing earlier claims about the negative effects of wealth taxes, argued that advanced economies could raise the top marginal tax rates for income and wealth without impeding economic growth.<sup>92</sup>

Piketty's popular 2014 book also gave a fillip to wealth taxes. In his book, Piketty called for a progressive global wealth tax, the basic version of which imposed a tax of 1% on net worth between \$1.3 million and \$6.5 million, and 2% tax on net worth above \$6.5 million.<sup>93</sup> Piketty's tax was distinctly global: it would have to be adopted by all countries for it to be effective, failing which capital would simply flee to non-compliant countries.

Several experts, including economists Richard Bird and James Galbraith, dismissed Piketty's idea as utopian.<sup>94</sup> The levels of cooperation that were required for a global tax appeared unrealistic, they argued.<sup>95</sup> Despite strong commitment to tackle tax evasion, countries appeared reluctant to cede control to a 'supranational tax authority'.<sup>96</sup>

An alternative proposal was a national tax on the global wealth of citizens. (Global wealth included wealth in all forms within and beyond national borders.) US Senator Elizabeth Warren was one of the main proponents of this idea in the United States. Warren's proposal featured a 2% annual wealth tax on US citizens and US residents with a net worth of \$50 million or more, and a 3% annual tax on net worth of \$1 billion or more. Economists Emmanuel Saez and Gabriel Zucman estimated that a Warren tax could generate \$2.75 trillion over 10 years.<sup>97</sup> Unlike Piketty's idea, a national wealth tax (or a Warren tax in the United States) would be administered nationally by each country. This would allow countries to retain fiscal sovereignty, allaying concerns of external interferences in domestic tax administration.

Under this proposal, countries would have to determine the global wealth of citizens, a process that was fraught with challenges. In addition to information on global assets and liabilities, tax administrators would also need valuation tools for a range of asset classes (e.g., currency, stocks, real estate, art, jewellery and pension funds) to calculate net worth. This too would require cooperation among national tax authorities.

Many like Warren were hopeful that cooperation was possible at this level. Countries agreeing to share financial information through the use of bilateral Tax and Information Exchange Agreements (TIEAs) was seen as a promising start. Similarly, the adoption of common reporting standards for financial institutions by more than 100 countries was an important step towards greater transparency. Many believed that the scope of other existing arrangements could also be extended. For instance, as part of the US government's Foreign Account Tax Compliance Act (FATCA), US citizens were required to report foreign financial wealth above \$10,000.<sup>98</sup> This required all financial institutions, US and non-US, expecting to do business with US entities to maintain and report financial wealth details to US tax authorities.<sup>99</sup>

To curb evasion of a wealth tax in the United States, Warren proposed an increase in funding for the US Internal Revenue Service (the US tax authority) and mandatory audits across a certain fraction of high-net-worth individuals. Warren also suggested a one-time tax penalty for those individuals with net worth above \$50 million who tried to renounce their US citizenship in light of the tax.<sup>100</sup>

### Alternative forms of taxing wealth

In the absence of globally coordinated wealth databases, tax administrators would have to estimate global assets and liabilities based on individual self-declarations. A method to improve the reliability of these self-declarations came from law professor Eric Posner and political economist Glen Weyl. They suggested a Common Ownership Self-Assessed Tax (COST) where individuals and businesses would pay taxes on self-assessed values of private property (land and other assets) with the condition that they would be required to sell their assets at those same valuations to any buyer. Adopted from principles in Athenian democracy, this approach was expected to deter individuals from undervaluing assets to avoid the risk of a sale at a lower value. Posner and Weyl argued that individuals who were keen to hold on to their assets would self-assess a high valuation and pay the corresponding higher taxes.<sup>101</sup>

Another suggestion to capture increases in wealth concentration was a tax on the value of land.<sup>102</sup> Since land value often increased with public investments in surrounding infrastructure, many believed that an annual tax on land value (without considerations to the value of buildings or investments on the land) would not only increase revenue but also allow the government to recoup its initial investments.<sup>103</sup> Land assets, unlike many other forms of wealth, were identifiable, immovable and difficult to conceal, thus making tax administration relatively straightforward.

Economists generally agreed that a tax on the unimproved value of land would encourage optimal use of land assets and curb speculative holding.<sup>104</sup> But crucially, only in places where land ownership was concentrated among fewer high-income households could a tax on land-value be expected to be progressive and a credible way to address housing and wealth inequalities.<sup>105</sup>

Though less susceptible to evasion, taxing land was not without administrative shortcomings. Countries would have to set up a land valuation system that could reliably assess the value of land separate from the value of buildings on the land. Valuations were technically complex. There were different methods and the choice of method inevitably created winners and losers among landowners.<sup>106</sup> For this reason, land valuations were controversial, with wealthy landowners lobbying against land-value taxes.<sup>107</sup>

### Looking ahead

As the third decade of the 21<sup>st</sup> century approached, the forty years of stability in the sources and levels of tax revenue in OECD countries was expected to be disrupted. A number of emerging social and economic trends threatened the labour tax base that made up nearly 85% of public revenue in OECD countries. Among the likely causes for this disruption were rapid

automation, less structured employment arrangements, cross-border e-commerce, population ageing, and wealth concentration. How these various factors would affect tax revenues was not entirely clear, with the effects of some factors such as automation being especially difficult to predict. What was certain was that existing models of tax collection were under strain and that governments urgently needed to evaluate a range of operational and strategic alternatives to the status quo.

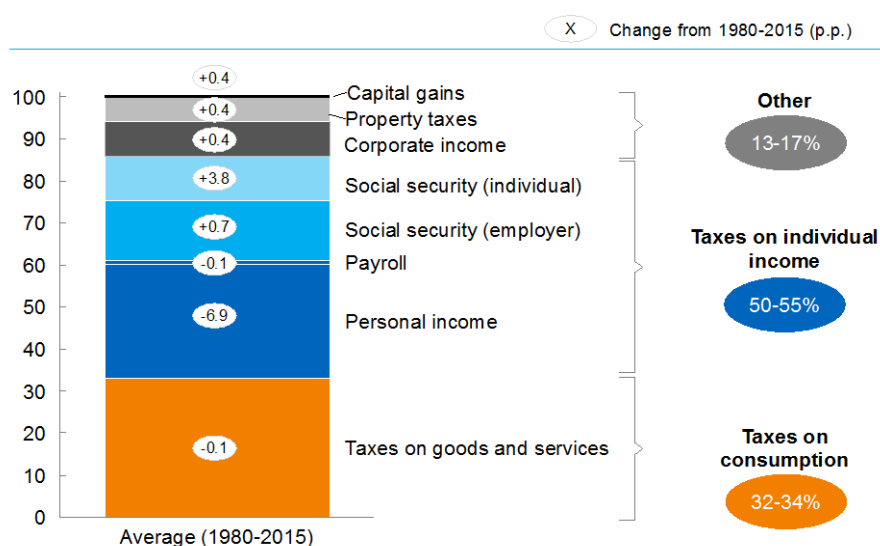
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**Exhibit 1** Taxonomy of tax bases, 2018

	Labour	Capital
Stocks	Poll tax Tithes	Wealth tax Property tax
Flows	Inflow Income tax Social security tax	Corporate income tax
	Outflow Consumption tax (VAT, sales tax)	Payroll tax Automation tax

Source: Casewriters.

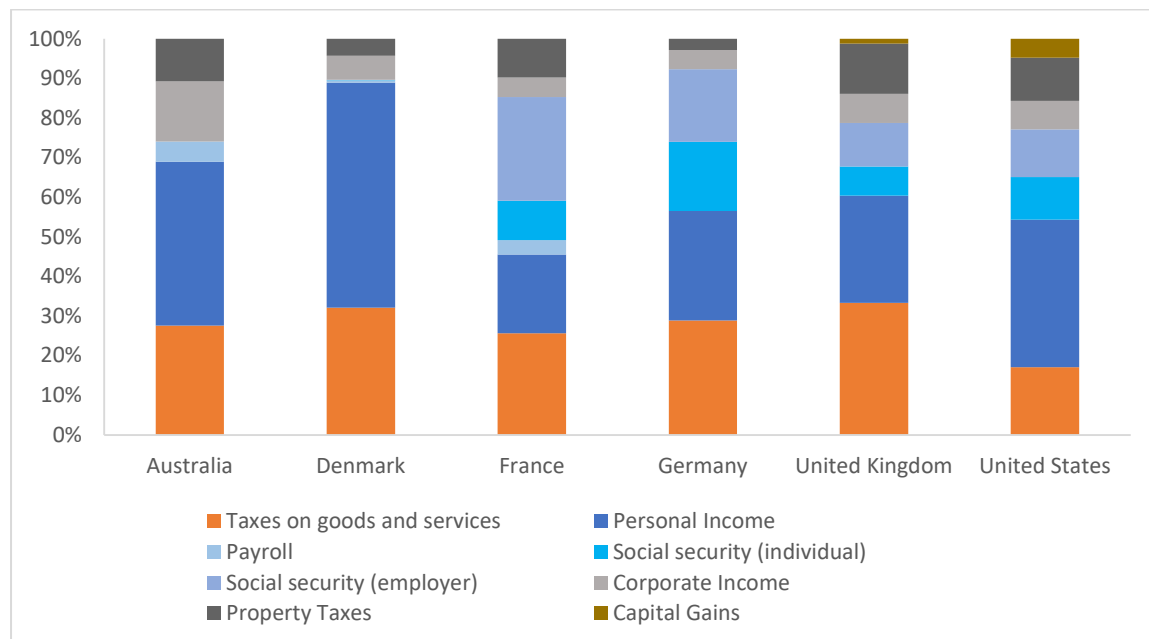
**Exhibit 2** Tax revenues by category, % of total tax revenue, 1980-2015



Source: OECD Global Revenue Statistics Database.

Note: Capital gains estimates include individuals and corporates. Estimates for person income tax and taxes on individual income exclude individual capital gains.

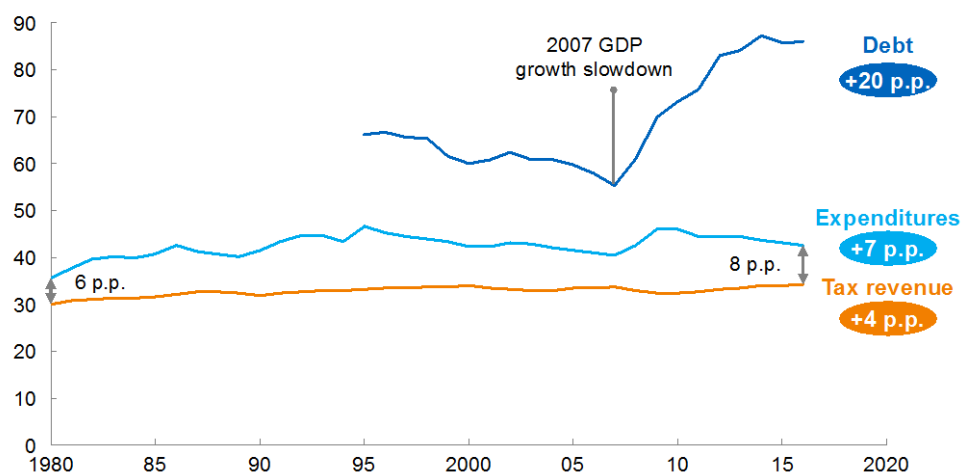
**Exhibit 3** Sources of revenue for select OECD countries, 2015



Source: OECD Global Revenue Statistics Database.

Note: Capital gains estimates include individuals and corporates.

**Exhibit 4** Tax revenue, expenditures and debt over time, % GDP, 1980-2016



Source: OECD (2018): Global Revenue Statistics Data Set; OECD (2018): National Accounts at a Glance Data Set

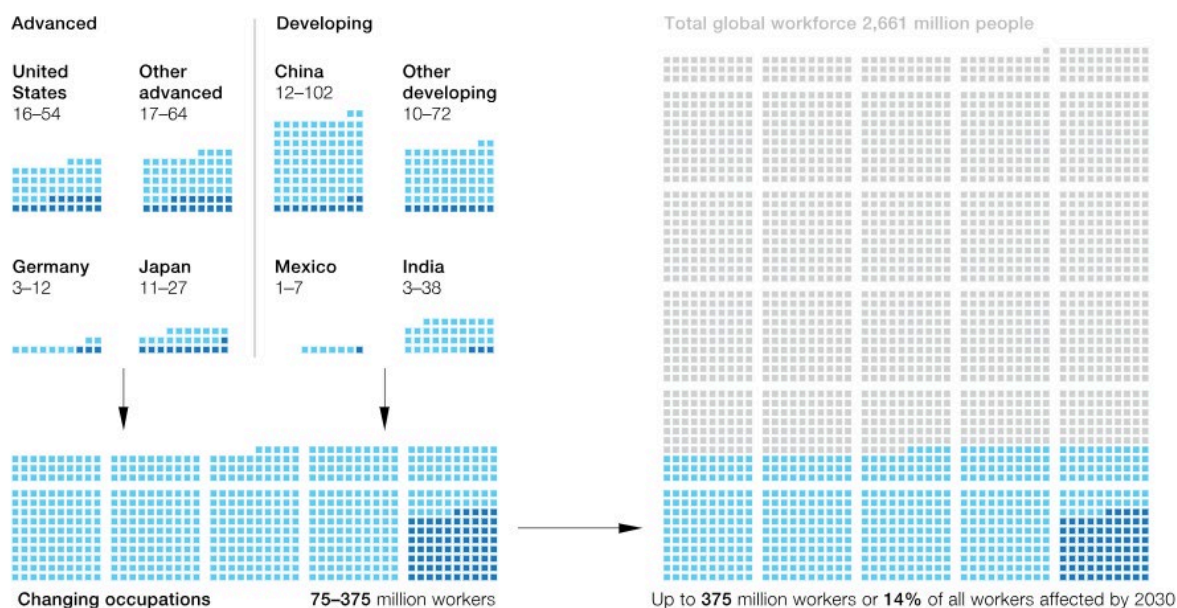
Note: Debt and expenditure estimates reflect consolidated central, state and local government accounts, social security funds and non-market institutions controlled and financed by government entities.



## Exhibit 5 Number of workers worldwide who may need to switch occupational categories due to automation adoption, 2016-30

Number of workers needing to move out of current occupational category to go find work, 2016-30 (trendline scenario)<sup>1</sup>

■ Midpoint automation ■ Additional from rapid automation adoption (each block = 1 million workers)

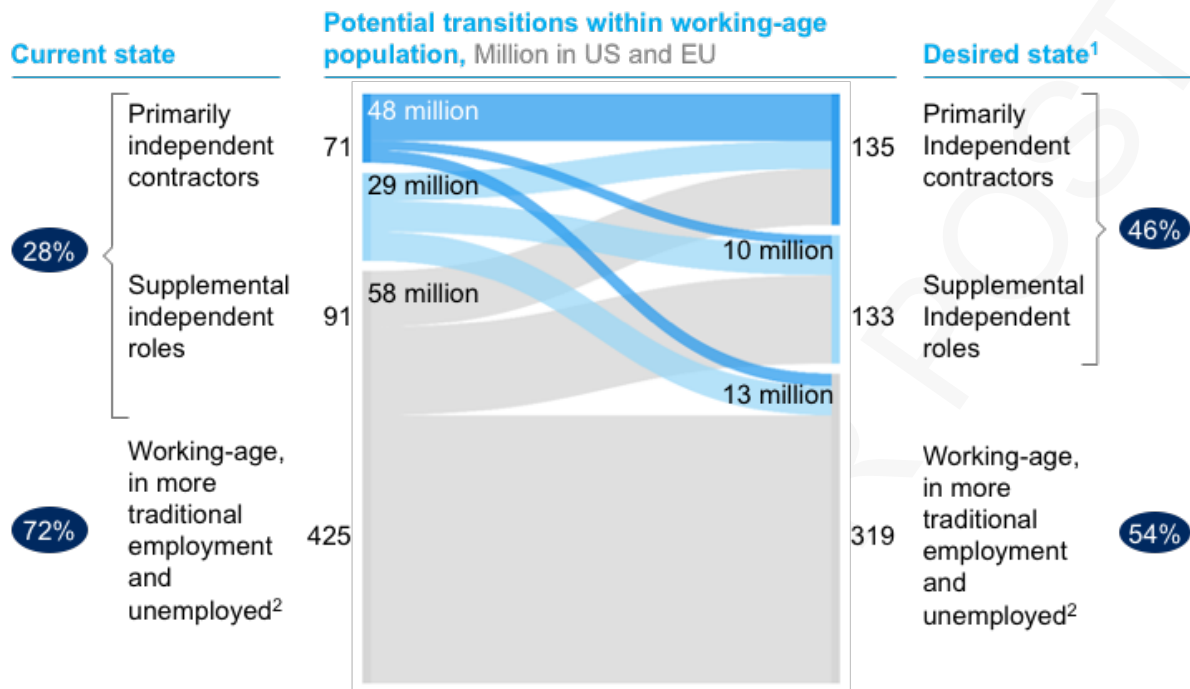


<sup>1</sup> Some occupational data projected into 2016 baseline from latest available 2014 data.

McKinsey&Company | Source: US Bureau of Labor Statistics; McKinsey Global Institute analysis

Source: McKinsey Global Institute, 'Jobs lost, jobs gained: What the future of work will mean for jobs, skills, and wages', November 2017, <https://www.mckinsey.com/featured-insights/future-of-work/jobs-lost-jobs-gained-what-the-future-of-work-will-mean-for-jobs-skills-and-wages>, accessed January 2019.

**Exhibit 6** Potential transition to independent work given worker preferences and likelihood of change, US and EU-15, 2016



Source: James Manyika, Susan Lund, Jacques Bughin, Kelsey Robinson, Jan Mischke, and Deepa Mahajan. 'Independent Work: Choice, Necessity, And The Gig Economy.' McKinsey Global Institute, October 2016, p. 72, available at <https://www.mckinsey.com/featured-insights/employment-and-growth/independent-work-choice-necessity-and-the-gig-economy>, accessed January 2019.

Note: EU-15 include the following 15 countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom.

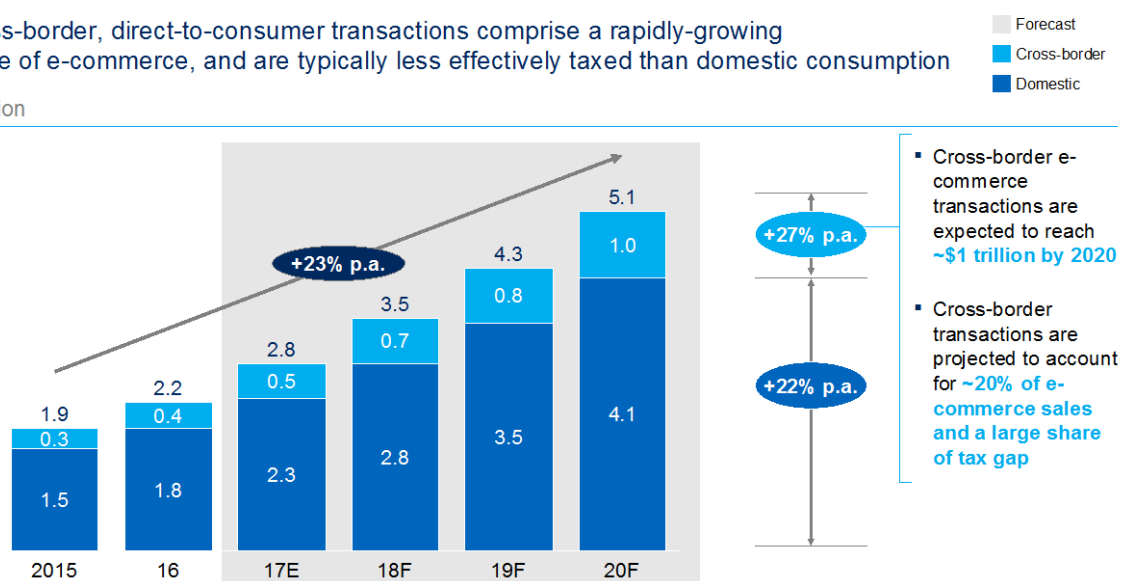
<sup>1</sup> Desired state includes respondents who initiated that they were 'somewhat likely' or 'very likely' to pursue their state preferred work arrangement.

<sup>2</sup> 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.

**Exhibit 7** Global direct-to-consumer e-commerce transaction volume, 2015-2020

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

\$ trillion

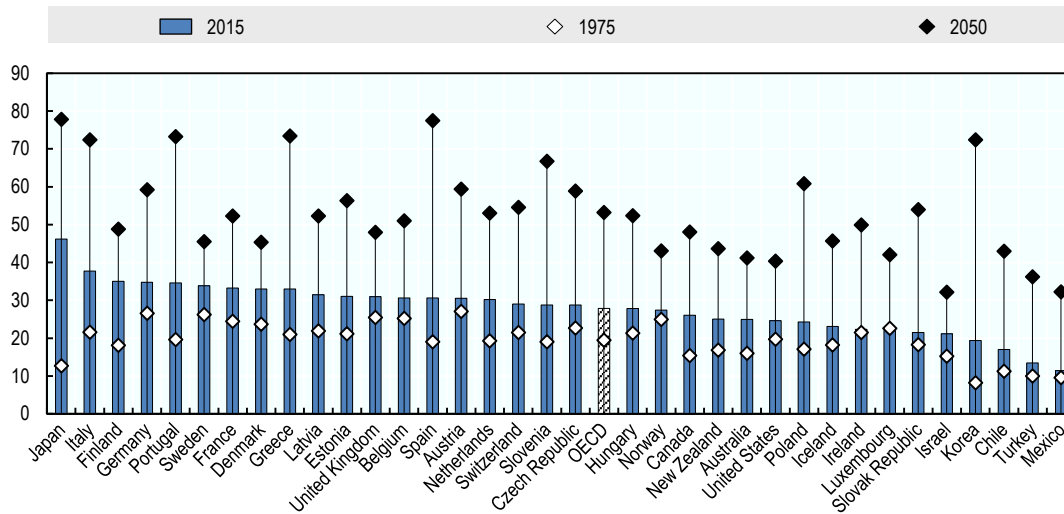


Source: McKinsey. 'Globalization in Transition: The Future of Trade and Value Chains.' McKinsey & Company, January 2019, Exhibit 26, p.74, <https://www.mckinsey.com/featured-insights/innovation-and-growth/globalization-in-transition-the-future-of-trade-and-value-chains>, accessed February 2019.

Note: 2017 numbers not available and has been estimated based on 5-year CAGR. Figures may not sum to 100% because of rounding.

**Exhibit 8** Old-age dependency ratio in OECD countries, 1975, 2015, and 2050**Figure 1.1. The old-age dependency ratio will almost double in the next 35 years on average**

Number of people older than 65 years per 100 people of working age (20-64), 1975-2050

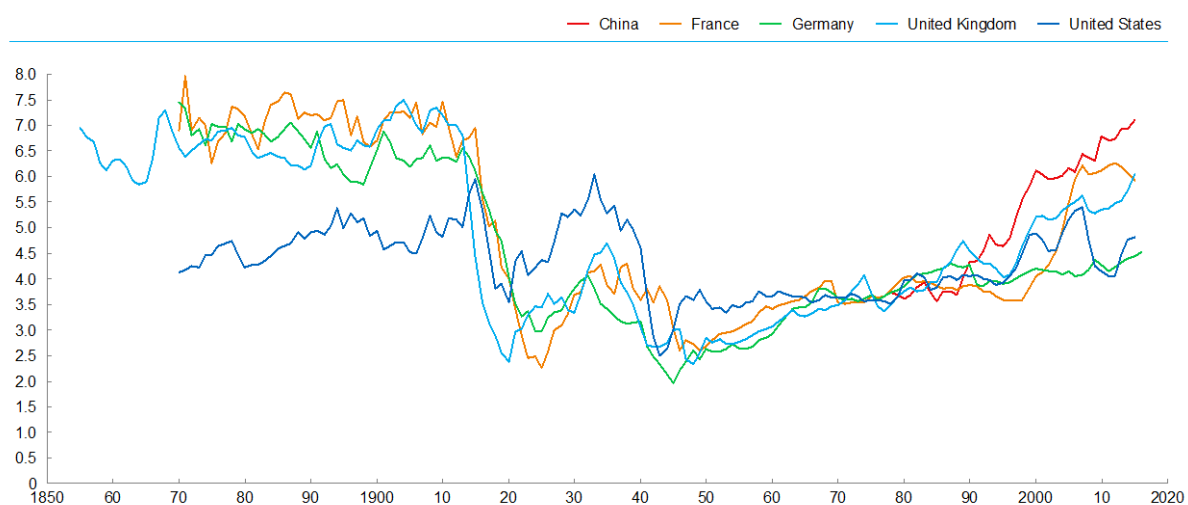


Note: The projected old-age dependency ratios differ based on the sources used. This report is based on UN data for comparison reasons. The largest differences are the following: according to Eurostat the old-age dependency ratio (65+/20-64) would increase by 39 and 19 percentage points between 2015 and 2050 in Spain and Austria, respectively, against 47 and 29 points with UN data. On the other hand, it would increase in Latvia by 33 points based on Eurostat against only 21 points with UN data.

Source: United Nations World Population Prospects: The 2017 Revision.

Source: *Pensions at a Glance 2017: OECD and G20 Indicators*, OECD Publishing, Paris, 2017, p. 19, [https://doi.org/10.1787/pension\\_glance-2017-en](https://doi.org/10.1787/pension_glance-2017-en).

**Exhibit 9** Ratio of net national wealth to income for leading economies, 1850-2015



Source: Thomas Piketty and Gabriel Zucman. 'Capital is back: Wealth-Income ratios in Rich Countries 1700-2010.' Series updated by Luis Bauluz; Piketty, Thomas; Yang, Li and Zucman, Gabriel (2016). Capital Accumulation, Private Property and Rising Inequality in China, 1978-2015; accessed via WID World, October 2018.



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