THE GENEVA ASSOCIATION

INSURANCE FOR A BETTER WORLD

The role of insurance in mitigating social inequality

August 2020

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Kai-Uwe Schanz, Deputy Managing Director and Head of Research & Foresight

The Geneva Association

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Published by The Geneva Association—International Association for the Study of Insurance Economics, Zurich.

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Acknowledgements

This publication is a product of the Socio-economic Resilience work stream of The Geneva Association, co-sponsored by Christian Mumenthaler, CEO of Swiss Re, and Markus Riess, CEO of ERGO.

We are very much indebted to the members of the Working Group, established in support of the research activities of our Socio-economic Resilience work stream, namely Manuel Aguilera (MAPFRE), Matthew Blakely (RGA), Paul DiPaola (AIG), Naomi Graham (IAG), Arne Holzhausen (Allianz), Thomas Holzheu (Swiss Re), Kei Kato (Tokio Marine), Mehul Mehta (Chubb), Gisela Plassmann (ERGO), Gonzalo de Cadenas Santiago (MAPFRE), Flemmich Webb (Lloyd's) and Clarence Wong (Swiss Re).

Foreword

Social inequality was a pressing and growing ailment long before COVID-19 hit populations and economies the world over. The disease's expected, long-term social and economic impacts are a call to invigorate and recalibrate discussions to address the topic. This report explores and suggests an important role for insurers in tackling this challenge.

COVID-19 has brought on new, distressing manifestations of social inequality. Poorer communities are suffering a higher proportion of cases and deaths compared to the general population, plausibly linked to less access to high-quality healthcare, including testing, and a greater prevalence of underlying illnesses among these populations. Furthermore, many jobs deemed 'essential' are lower-income ones for which remote work, in general, is not an option.

In many countries, government budgets that were challenged before COVID-19 are now stretched to their limits. At the same time, the pandemic has pushed insurance protection, whether in the form of life, health or income, up the list of priorities for people. Regulators, too, are increasingly vocal in their support for inclusive insurance and the potential for insurance to help prevent and alleviate poverty.

The stage is now set for new public-private partnerships that leverage insurance as a critical part of the social safety net.

The insurance industry itself should stand ready to play its part. Protecting society and making it more resilient is intrinsic to the insurance business model. Plus, studies show that economic growth is adversely affected by inequality.

This report expounds specific insurance approaches and products that can both protect middle-class populations and better serve vulnerable segments of society as a means of reducing social inequality. At this momentous juncture for the world, it is our hope that insurers, policymakers, regulators and other stakeholders will heed the recommendations put forward in this report.

Jad Ariss
Managing Director

1. Executive summary

Rising levels of social inequality, in terms of income and wealth, have developed into a "defining issue of our time" (Barack Obama). The COVID-19 pandemic is adding to the challenge as it is likely to have long-lasting economic and social impacts on a global scale, including much-reduced fiscal leeway for governments to address social inequality and poverty going forward.

Liberalisation and deregulation have reduced inequality between countries but have translated into more unequal distribution within countries.

Catalysed by Thomas Piketty's best-selling book *Capital in the Twenty-First Century*, the notion of inequality has staged a spectacular march from the world of academia to the frontlines of politics. Having said this, a closer inspection of the relevant data reveals that rising income and wealth inequality is not a universal and ubiquitous trend but needs to be examined at the country level, with domestic policies arguably able to make a difference. The 1980s were a turning point for inequality, with major policy changes such as the Reagan-Thatcher reforms in the Western world and the beginning of liberalisation and deregulation in China and India. As a consequence, aggregate national wealth and income have grown significantly and inequality between countries has reduced. On the other hand, these reforms translated into a more unequal distribution within these countries.

For insurers, one of the most relevant aspects of social inequality is its impact on the stability and resilience of economies and societies. From a macro-level perspective, inequality affects an economy's capacity to develop smoothly across its path of potential growth and to minimise income and asset losses resulting from shock events. These effects are transmitted through less stable and dynamic economic growth, a higher vulnerability to financial crises and the risk of social unrest and political violence. Hence, it is in the insurance industry's enlightened self-interest to consider products and solutions which contribute to mitigating widening income and wealth parities.

From a 'micro' resilience angle, inequality influences the ability of individuals, households and businesses to withstand shock events, based on unequal access to (insurance) protection or an insufficient awareness of it (e.g. as a result of financial illiteracy). A prominent example is 'health inequality', with implications for life expectancies and health outcomes. Another example is unequal access to disaster risk protection: in the world's poorest countries virtually all natural catastrophe losses remain uninsured whereas in high-income countries this share (the 'protection gap') is below 50%. Climate change is expected to significantly exacerbate social inequality in low-income countries over the coming years and decades. In this context, climate risk insurance is an emerging area where innovative solutions are being designed to mitigate these effects.

Social insurance is widely used to redistribute wealth and income from the rich to the poor. While private insurance is not designed to address social inequality, its relevance for income and wealth distribution is obvious: when calamities like premature death or disability of the main breadwinner or job displacement strike, households lose income or the ability to earn income. Such shocks hit the poorest the hardest. Insurance benefits offer at least partial financial relief, the relative value of which is likely to be highest for less wealthy people. As such, from a public policy perspective, private insurance can be considered an effective tool to dampen social inequality.

Private-sector solutions also effectively complement redistributive social insurance programmes by providing personalised insurance packages and generally competitive premiums to customers. In addition, especially in developing countries, collecting premiums and submitting and settling claims through innovative ways (e.g. via mobile phones) can expand coverage beyond formal sector employees and include people who would otherwise be left out of social insurance programmes. More generally, in developing countries, standalone public schemes may not be the most effective way of covering individual risks because of weak fiscal and taxation capacities and a lack of trust in government-run programmes.

While it is intuitively plausible that private insurance can complement public programmes in alleviating the risk of impoverishment and widening income and wealth disparities, there is little research substantiating this hypothesis. Lee et al. (2017) have attempted a quantification of the link between private insurance market development and inequality, based on cross-country data. This research found that **life insurance** (which covers existential threats such as premature death and permanent disability) plays a more important role in the mitigation of social inequality than non-life insurance which, however, has been identified as more relevant for promoting economic growth.

> Life insurance plays a more important role than non-life insurance in mitigating social inequality, while non-life insurance is more relevant for promoting economic growth.

Country-specific research shows that surviving secondary earners without insurance are at a significantly higher risk of impoverishment than those with life insurance. Other research demonstrates the wealth- and income-stabilising role of retirement **annuities**. Households can achieve an increase in wealth due to an investment in annuities, reflecting the fact that without private annuities to insure against longevity risk, beyond that covered by first-pillar pension benefits, individuals would have to consume less before retirement and increase their savings and investments in liquid assets.

Another major and more recent risk facing an increasing number of households is job displacement. In principle, it could be tackled through (primarily) public-sector solutions, such as **wage insurance**, which would offer a temporary earnings supplement for workers facing a reduction in wages after re-employment. It is generally targeted at workers with low to medium earnings, and thus narrows the income gap between these workers and high-wage workers. Even though wage insurance has made it to the mainstream political debate (in the U.S., for example) its practical relevance remains limited. On the other hand, there are – still largely untested – private-sector concepts and ideas, such as **livelihood insurance**, aimed at covering long-term economic risks to individuals' paychecks for every major career and job category. In order to prevent the risk of moral hazard, livelihood insurance policies would have to be designed to insure individuals against an index of aggregate risks, such as an erosion of income of people in one's occupation.

> The post-COVID-19 environment is fertile ground for insurers to suggest new forms of involvement and partnerships with the public sector.

Especially in light of the fiscal dislocation brought about by COVID-19, private insurance solutions can potentially play a bigger role going forward in complementing public-sector schemes, for example through Public-Private Partnerships (PPPs), which have a proven track record of kick-starting commercially viable insurance schemes with private-sector participation. This prospect not only provides commercial opportunities for insurers but also underlines the insurance industry's role in stabilising economic growth and preventing social unrest and political violence.

In order to capture this potential, insurers are recommended to consider the following courses of action:

- ***Proactively engage with the public sector to examine complementary approaches to protection:*** The post-COVID-19 environment of severe fiscal constraints and citizens' heightened awareness of the value of life, health and income protection offer a fertile ground for insurers to suggest new forms of involvement and partnerships with the public sector.

- ***Accelerate efforts towards product innovation:*** In order to better serve customer segments, which are particularly vulnerable to adverse economic shocks, far-sighted insurers do more than simply downscaling traditional products. Innovative responses include parametric policies which are triggered by movements of an index and provide the insured with utmost clarity on payouts.

- ***Harness technology for inclusive insurance propositions, including informal sector workers:*** Technology can go a long way in promoting the appeal, affordability and accessibility of insurance products.

- ***Promote financial and insurance literacy with a view to alleviating inequality:*** The results of various empirical studies demonstrate the role of financial literacy in helping poor people improve their economic well-being, strengthen resilience and reduce poverty.

Policymakers and regulators may want to consider the following recommendations:

- ***Advanced economies – Harness private risk-pooling and transfer mechanisms to ease the growing pressure on public social security schemes:*** Here, in light of COVID-19, governments should proactively approach insurers and their associations to further explore concerted efforts towards promoting the sustainability of protection schemes. Such efforts should be based on mutual trust and the rule of law (contractual certainty).

- ***Developing economies – Narrowing gaps in social security through private insurance:*** The high degree of labour market informality and fiscal constraints in many low-income countries pose structural limits to funding and implementing government schemes. Introducing private-sector-driven risk transfer could help expand the reach of protection schemes.

- ***Policies and regulations conducive to financial inclusion:*** A number of supervisory authorities have committed to the objective of financial inclusion, i.e. to promoting the availability, affordability and equality of opportunities to access financial services such as insurance. For such commitments to be meaningful, regulatory incentives to foster the growth of inclusive insurance are indispensable.

Regulatory incentives are indispensable to fostering inclusive insurance.

2. Global patterns of income and wealth inequality

Rising levels of social inequality, in terms of income and wealth, have developed into a "defining issue of our time," as U.S. President Barack Obama stated back in 2013 (Sargent 2013). This phenomenon did not only inspire the international 'occupy' movement protests, starting in 2011, but also played a major role in democratic elections in the U.S. (Darvas and Efstathiou 2016) and other countries, both developed and developing.

Catalysed by Thomas Piketty's best-selling book *Capital in the Twenty-First Century*, published in 2014, the notion of inequality has staged a spectacular march from the world of academia to the frontlines of politics. At the same time, academic disagreements as to whether inequality has in fact risen as much as is claimed, or at all, continue unabated.[1]

The recent COVID-19 pandemic is another powerful catalyst to the debate and the relevance of the topic: the coronavirus outbreak is likely to have long-lasting economic and social impacts on a global scale, stemming from the direct and indirect effects of premature death and severe illness, changing human behaviours and the draconian transmission control policies of governments. With surging public debt, governments are expected to have less fiscal leeway going forward to address social inequality and poverty (World Bank 2020).

2.1. A high-level approach to measuring income inequality

One of the most established measures of inequality is the Gini coefficient.[2] Figure 1 compares recent levels of income inequality with those recorded one generation ago for a number of countries. Countries above the 45-degree line saw a rise in inequality as measured by the Gini coefficient; countries below experienced falling inequality.[3]

1 Auten and Splinter (2018), for example, reach a conclusion that is strikingly different from the conventional wisdom. They find that after adjusting for taxes and transfers, the income share of America's top 1% has barely changed since the 1960s.

2 The Gini index, or Gini coefficient, is a statistical measure of distribution developed by the Italian statistician Corrado Gini in 1912. It ranges from 0 to 1, with 0 representing perfect equality and 1 indicating perfect inequality. The Gini index can be represented graphically through the Lorenz curve, which describes income or wealth distribution by plotting the population percentile by income on the horizontal axis and cumulative income on the vertical axis. The Gini coefficient is equal to the area below the line of perfect equality, i.e. 0.5 minus the area below the Lorenz curve, divided by the area below the line of perfect equality.

3 The Gini coefficients indicated are based on household survey data and, depending on data availability, capture either consumption, disposable income or a mix of the two.

The data reveals that rising income inequality is not a universal and ubiquitous trend but needs to be examined at the country level, with domestic policies arguably able to make a difference.

The distributional spread between the countries with the highest levels of inequality in Latin America and Sub-Saharan Africa, on the one hand, and the lowest-inequality countries in Scandinavia is eye-catching (see Figure 1). Income inequality is typically higher in developing and emerging economies than in advanced countries. The largest increases among major emerging markets, as measured by the Gini coefficient, were recorded in China and South Africa, with India also experiencing a notable increase. One developing region that bucked the trend and saw some decline in inequality was Latin America. By contrast, many advanced economies have experienced rises, albeit from much lower levels (Dervis and Qureshi 2016).

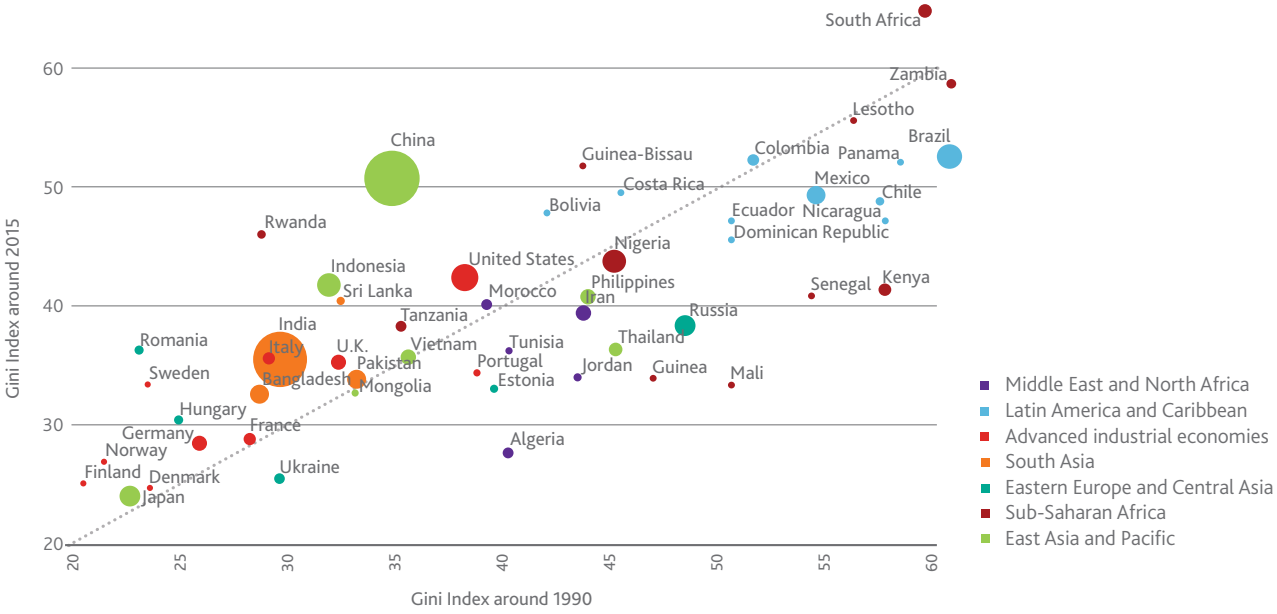
Income inequality is typically higher in developing and emerging economies than in advanced countries, with the largest recent increases occurring in China, South Africa and India.

Importantly, there were marked rises in inequality in some of the world's most populous countries, including China, India, the U.S. and Indonesia.[4] Since the early 1990s, the population-weighted Gini coefficient for these countries increased by a significant four percentage points, from 36.7 to 40.8. Conversely, the non-weighted rises and falls seen in the Gini index across all countries more or less cancel out. The average Gini coefficient for the countries plotted in Figure 1 even fell marginally from 39.6 to 38.6 (Hasell 2018). David and Shorrocks (2018) reach similar conclusions in their paper, which compares recent global trends in income and wealth inequality in the 21st century. Based on large income and wealth microdata samples and measured by the Gini coefficient, they find that inequality between countries accounts for about two thirds of global income inequality. They argue that since the beginning of this century, changes in countries' mean income and wealth, as well as population sizes, have reduced world inequality.

2.2. The pre-tax income share of the top 10%

Inequality trends look less benign when considering top pre-tax income shares, which are not distorted by redistribution effects through taxes and transfers (Figure 2). Alvaredo et al. (2018) estimate income per adult before taxes and government transfers, but including benefits from private and public retirement schemes. Their exploration of global inequality dynamics commences in 1980 because of data limitations. The 1980s were also a turning point for inequality, with major policy changes such as the Reagan-

Figure 1: Income inequality 1990 versus 2015 (based on disposable income or household consumption)



Source: Atkinson et al. 2017 and http://iresearch.worldbank.org/Povcalnet/home.aspx.

4 In many high-growth markets rising inequality is accompanied by a general increase in welfare for all citizens. China, for example, has seen the biggest ever success in poverty reduction (see IMF 2018).

Thatcher reforms in the Western world and the beginning of liberalisation and deregulation in China and India.

The income share of the top 10% earners has risen almost everywhere since 1980, with large variations across countries and regions.

Figure 2 shows that the income share of the top 10% earners has risen almost everywhere since 1980, albeit with large variations across countries and regions. In Europe, the rise was relatively moderate. In North America, India, China, and even more so in Russia, increases were more pronounced. By 2016, the top 10% income share amounted to about 41% in China, 46% in Russia, 47% in North America and 56% in India.

For these countries, Alvaredo et al. (2018) note a correlation between changes to inequality and significant policy shifts, and therefore conclude that '(…) inequality cannot be viewed as a mechanical, deterministic consequence of globalization or technological change, as most economic models assume'.

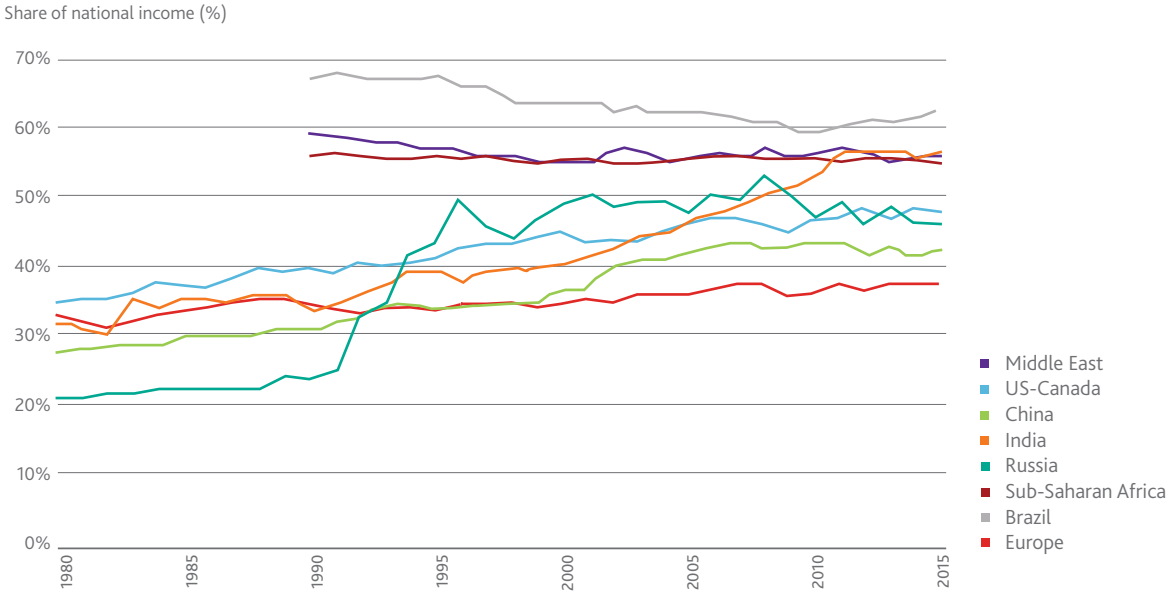
Consistent with Atkinson et al. (2017), Alvaredo et al. (2018) show that rising income inequality is not a universal global trend. According to their calculations, in the Middle East, Brazil and Sub-Saharan Africa, income inequality has remained relatively stable, albeit at extremely high levels, as these regions never went through the post-war phase of egalitarianism.

2.3. The distribution of wealth

Following the publication of Piketty's (2014) book, an increasing number of researchers have come up with new estimates of long-run trends in wealth concentration. These studies have also introduced new techniques to measure the distribution of wealth, such as the combination of income tax returns with survey data and macroeconomic data. However, severe limitations to measuring wealth remain, especially if it is held offshore. Zucman (2013) estimates this offshore share in wealth at 8% of the total. Despite these challenges, most sources suggest that wealth inequality has increased in many countries over the last decades, but at markedly different speeds (Alvaredo et al. 2018).

Figures 3 and 4 show the long-term evolution of the top 1% and top 10% wealth shares in the U.S., the U.K., France, China and Russia. When looking at recent decades, there is a massive rise in wealth concentration in the U.S., China and Russia. Increases in France and the U.K. were more modest. For China and Russia, the available data suggest a dramatic increase in wealth inequality over the last two decades. The top 1% wealth share almost doubled in both countries. Overall, wealth inequality appears to be similarly high in Russia and the U.S. while China ranks in between France and the U.S.

Figure 2: Top 10% income share across the world, 1980–2016



Source: Alvaredo et al. 2018[5]

5 The calculations are based on recent homogeneous administrative tax and national accounts data, produced for a number of countries in the World Inequality Database (www.WID.world) and avoiding the issue of under-reporting and non-response encountered in household survey data.

There has been a massive increase in wealth concentration in the U.S., China and Russia in recent decades; increases in France and the U.K. have been more modest.

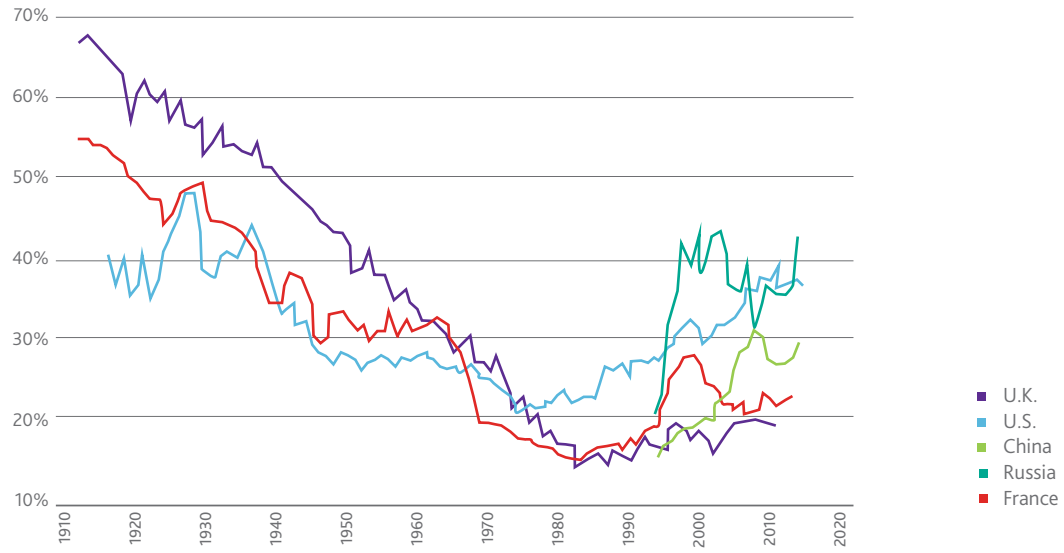
In France and the U.K., wealth inequality has increased at a slower pace than in the U.S. Some researchers attribute this to differences in housing price developments. Strong increases tend to boost the wealth share of the middle class, the wealth of which is often concentrated in real estate, while the upper classes mostly own financial assets.

Generally speaking, wealth inequality in Western Europe is significantly lower today than it was a century ago. By contrast, wealth inequality in the U.S. and Russia seems to have almost returned to their respective levels of a century ago. A main reason for this divergence is that Western European countries have seen the development of a strong middle class which did not exist on the eve of World War 2.

2.4. Drivers of inequality

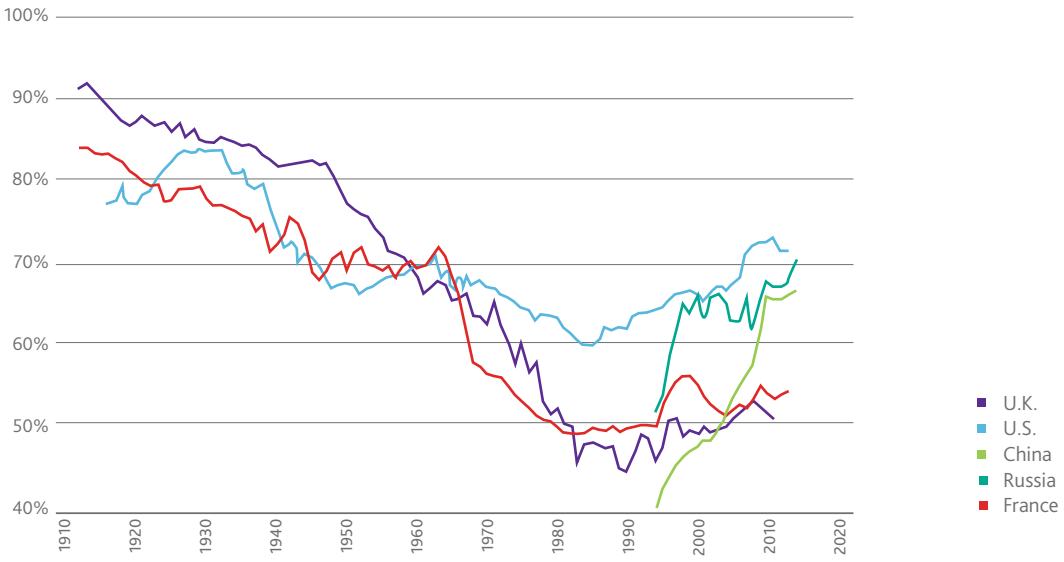
As previously discussed, a clear distinction needs to be made between inequality at the global and national levels. From a global perspective, technology has greatly reduced the costs of transportation and communication. New

Figure 3: Top 1% wealth shares



Source: Alvaredo et al. 2018 and Zucman 2019

Figure 4: Top 10% wealth shares



Source: Alvaredo et al. 2018 and Zucman 2019

and open markets have emerged, helping lift hundreds of millions of people out of poverty. However, within and between countries, inequality has risen in recent decades (Dabla-Norris 2015). Technological advances and trade liberalisation are blamed most often but, as shown below, other drivers such as financial globalisation, easing of labour market regulations, inefficient redistributive public policies and poor access to education matter greatly, too.

In OECD countries, technological advancement is the single greatest contributor to rising income inequality, according to the OECD.

Technological change is one of the drivers. Advances in IT in particular have enabled quantum leaps in productivity, but have also driven up the skill premium, exacerbating labour income inequality. In addition, many jobs are being eliminated through automation (see section 4.5. for potential insurance solutions). OECD (2011) identifies technological advances as the single most important contributor to rising income inequality in OECD countries.

Another driver is the **globalisation of international trade**. On the one hand, trade is an undisputed engine for growth and productivity gains. Anderson (2016), for example, suggests that multilateral trade liberalisation under the auspices of the World Trade Organization (WTO) has contributed substantially to global economic welfare. On the other hand, it is often viewed as driving inequality by putting a massive burden on unskilled labour in advanced countries (Bourguignon 2015; Autor 2018).

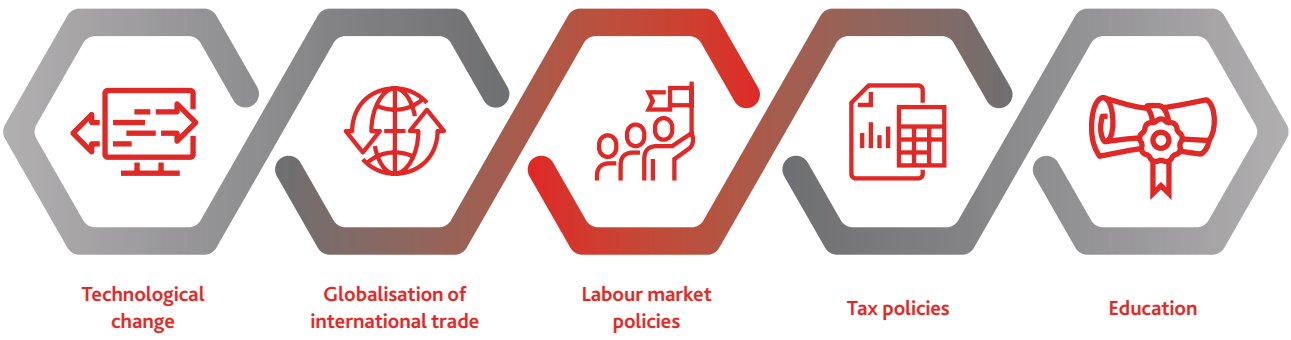
More **flexible labour markets** can foster economic efficiency by reallocating resources to more productive firms and projects, also mitigating the risk of long-term unemployment. However, greater flexibility tends to present challenges for low-skilled workers (Alvaredo et al. 2013). Other studies highlight the role of part-time and temporary employment in driving labour income inequality in some advanced economies (OECD 2012). In general, empirical evidence suggests that labour market interventions (such as minimum wages, unionisation and social security contributions) lead to a more equal income distribution (Calderón and Chong 2009).

Governments in advanced economies tend to mitigate income inequality through **redistributive policies** such as progressive taxes, public retirement benefits or, more specifically, caps on top management remuneration. However, the progressivity of tax systems has declined in some advanced economies over the past few decades, translating into lower effective tax rates for high-income households (Alvaredo et al. 2018).

Education is another important driver of income inequality as it determines occupational options and the level of pay. Research shows that 'sticky floors' matter greatly. Children with a disadvantaged background struggle to move up the social ladder. According to OECD (2018), four-in-ten people with poorly-educated parents have lower secondary education themselves, and only one-in-ten continues on to tertiary education – compared to two thirds of children with highly-educated parents.

Only one out of 10 children with poorly-educated parents continue on to tertiary education compared to two thirds of children with highly-educated parents.

Figure 5: Drivers of inequality



Source: Adapted from Dabla-Norris 2015

3. A risk and resilience perspective on inequality

For insurers, one of the most relevant aspects of social inequality is its impact on the stability and resilience of economies and societies. From a macro-level perspective, this report looks at how inequality affects an economy's capacity to develop smoothly across its path of potential growth and to minimise income and asset losses resulting from shock events. From a 'micro' resilience angle, it explores how inequality influences the ability of individuals, households and businesses to withstand shock events. In this context, the report places a special spotlight on the relationship between unequal access to or availability of insurance protection on the one hand and inequality in income and wealth distribution on the other.

For insurers, one of the most relevant aspects of social inequality is its impact on the stability and resilience of economies and societies.

3.1. Inequality and macro-level resilience

3.1.1. Inequality and economic growth

Conventional wisdom has it that a higher degree of social equality would come at the expense of overall economic performance. This thinking is based on the potential trade-off between efficiency and equality. Okun (1975) argues that income equality promoted through redistribution leads to inefficient outcomes because of administrative costs and lower incentives to work. Benhabib (2003) shows that during the second half of the 20th century, income inequality, on the back of a higher propensity to save for high-income persons, would lead to higher aggregate investment levels, with a positive effect on economic growth. In the same vein, Forbes (2000), using a sample of 45 countries across the 1966–1995 time period, finds a positive relationship between a country's degree of income inequality and its economic growth.

More recently, there is a growing consensus that 'greater equality and improved economic performance are complements' (Stiglitz 2016), especially when looking at alternative performance measures, rather than GDP. 'What matters is whether growth is sustainable, and whether most citizens see their living standards rising year after year' (ibid).

Ostry et al. (2014) find that lower net income inequality is robustly correlated with more rapid and more durable growth for a given level of redistribution. Dabla-

Norris et al. (2015) calculate that a one percentage point increase in the income share of the top 20% of earners is accompanied by a 0.1% reduction in GDP growth in the following five years. On the other hand, a one percentage point increase in the income share of the bottom 20% was found to be associated with a 0.4 percentage point gain in economic growth. Supporting these findings, OECD (2014) suggests that income inequality has a negative and statistically significant impact on medium-term growth. An increase in inequality by three Gini percentage points would drag down economic growth by 0.35 percentage points per year for 25 years. The forces at work in this context include a lower prevalence of social and political conflicts and more equal opportunities in education, i.e. the accumulation of human capital.

Research shows that income inequality has a negative and statistically significant impact on medium-term economic growth.

Rising income inequality may also exacerbate other types of inequality, e.g. in terms of education or opportunities. For instance, Cingano (2014) finds that growing income inequality dents both the quantity and quality of education of individuals with a poor parental background. By slowing human capital accumulation by disadvantaged individuals, income inequality impairs social mobility and hampers skills development to the detriment of economic growth and labour productivity (Stiglitz 2012).

3.1.2. Inequality and the probability of financial crises

A growing body of evidence suggests that stagnant incomes of the poor and middle class favour the probability and severity of financial crises. Exploring the origins of the global financial crisis in 2008, some scholars argue that increasing income disparities in the U.S. gave rise to political pressures which were accommodated by easier credit. The subsequent credit boom, particularly among the lower and middle classes, eventually led to the financial crisis in the U.S. which spread to the rest of the world (Rajan 2010; Kumhof et al. 2015; Stockhammer 2015).

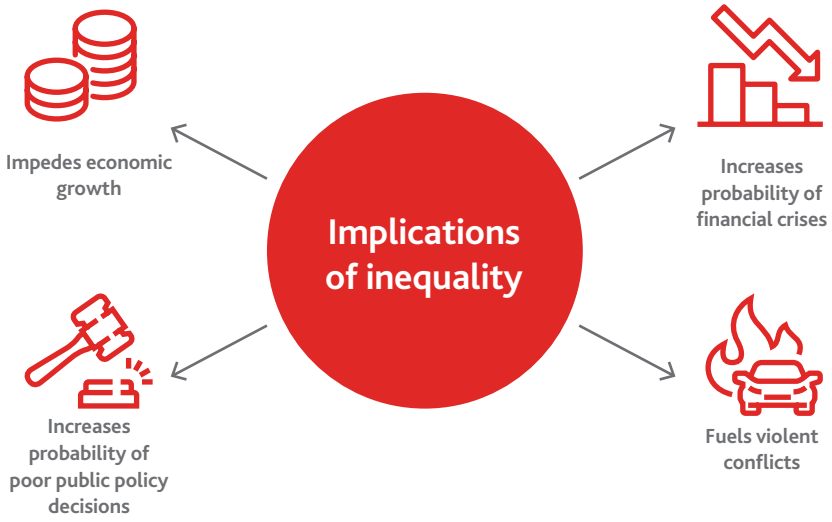
3.1.3. Inequality and the potential for violent conflicts

Dabla-Norris et al. (2015) argue that extreme inequality may damage trust and social cohesion, preparing the ground for violent conflicts which undermine consumer and investor sentiment. Bardhan (2005) shows that inequality makes it considerably more difficult to resolve disputes. As shown by UNESCO (2016), there is a growing consensus that whereas inequality between individuals or households (vertical inequality) does not affect the risk of conflict, systematic inequality between segments of society, typically culturally-defined, e.g. by ethnicity, race or religion (horizontal inequality), does.

3.1.4. Inequality and the quality of public policy choices

In addition to adversely affecting growth drivers, inequality could also favour poor public policy choices. For example, inequality can result in backlashes against growth-promoting economic deregulation and liberalisation policies and strengthen those who advocate protectionism and a bigger role of the public sector in the economy. Also, an excessively powerful high-income elite

Figure 6: Socio-economic implications of inequality



Source: Adapted from Dabla-Norris 2015

could scale back the provision of public goods, such as infrastructure and healthcare, that boost productivity and growth but disproportionately benefit the poor (Claessens and Perotti 2007).

> The single most important driver of insurance market growth and development is economic growth.

These macro-level resilience implications of social inequality also drive the 'business case' for insurers to design products and solutions which contribute to mitigating wide income and wealth parities:

- Economic growth is widely accepted as the single most important driver of insurance market growth and development (Enz 2000). Thus, insurers have every interest in a smooth and sustainable trajectory of economic growth.
- As major institutional investors, insurers are disproportionately affected by financial crises. As life insurers, they also suffer greatly from disruptions to yield patterns, as seen after the global financial crisis in 2008. Therefore, insurers should seek to mitigate any inequality-related risks to financial market stability.
- It goes without saying that political violence is detrimental to business sentiment and adversely affects insurers, too. As writers of political violence insurance, insurers have an additional interest in preventing social inequality from escalating into political violence.

3.2. Inequality, unequal access to protection and micro-level resilience

In addition to affecting macroeconomic parameters, inequality influences the micro-level ability of individuals, households and businesses to weather shocks. The following section elaborates on two examples to illustrate the relationship between social inequality and access to or availability of (insurance) protection.

3.2.1. Health inequality

Healthcare is a prime example for illustrating the relationship between social inequality and resilience. 'Health inequality', i.e. differences in health status, is generally attributed to three related factors. The first and most obvious is disparities in health patterns, such as different rates of asthma, cancer, diabetes, heart disease, etc. The second is disparities in care, including access to hospitals, clinics, skilled professionals, medical technology, etc. The third is inequality in health insurance and the financial means to pay for well-being. Such disparities, including access to health insurance, are also considered a major reason why U.S. life expectancy trails many comparably developed and wealthy nations (The Harvard Gazette 2016).

In this context, Dickman et al. (2017) show that differences in life expectancy have been widening in the U.S., with the wealthiest Americans now living 10–15 years longer than the poorest. The authors also attribute this gap to the fact that, despite coverage gains from the Affordable Care Act, almost 30 million Americans remain uninsured.

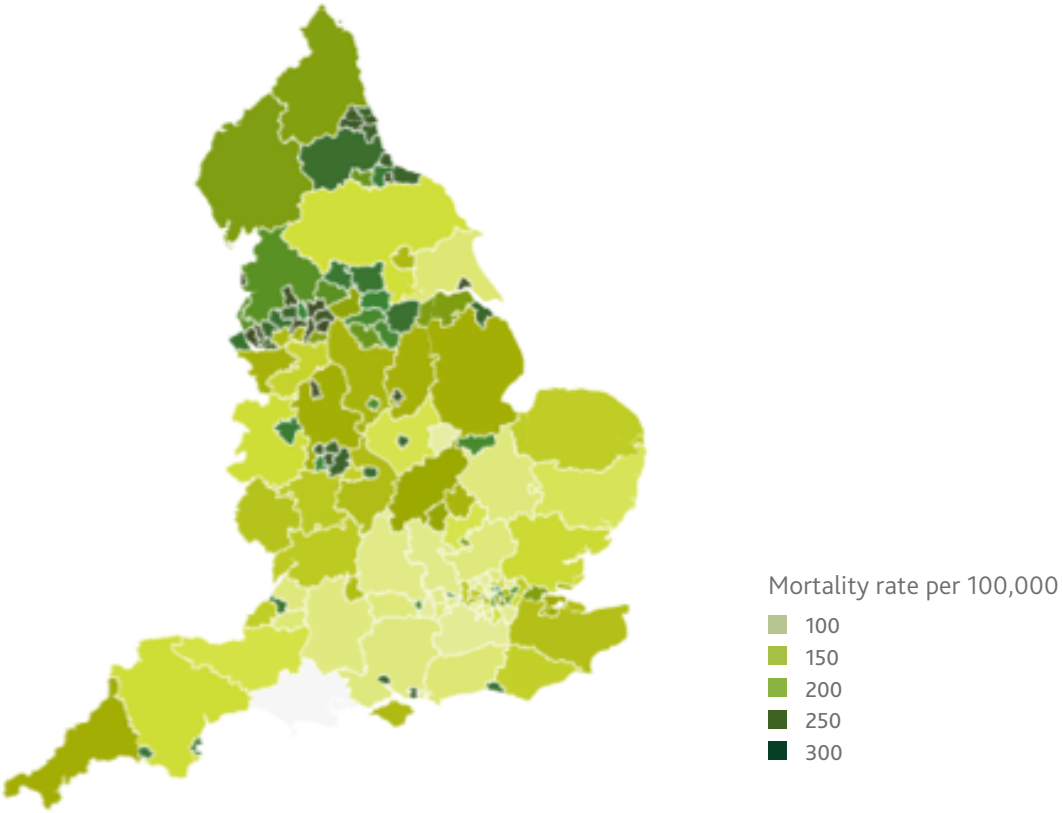
> In the U.S., racial and ethnic minority women are more frequently diagnosed with breast cancer at a later stage of the disease than white women. Half the time, a lack of insurance is the reason.

Another example from the U.S. is the disparity in breast cancer detection. Analysing data from almost 200,000 women, researchers found that racial and ethnic minority women are more frequently diagnosed at a later stage of the disease than white women, and that a lack of insurance 'mediated half of the disparity' (Ko et al. 2020).

Evidence from the U.K. also confirms the prevalence of health inequality. In England, in 2017, males in the most deprived areas were 4.5 times more likely to die from an avoidable cause than males in the least deprived areas. Females in the most deprived areas were 3.9 times more likely to die than those in the least deprived areas (The King's Fund 2020; the study provides similar evidence for life expectancy, long-term health conditions and mental ill-health; see Figure 7).

The most recent example is the coronavirus pandemic. Data for a number of countries suggest that those in lower economic strata were much likelier to catch the disease, not only because they had to accept a higher exposure to the virus to sustain their living, but also due to the fact that higher rates of chronic health conditions such as diabetes or heart disease had made them more vulnerable. Mortality rates were also significantly higher for low-income segments of the population. In addition, they were disproportionately affected by loss of income or healthcare as a result of quarantines and lockdowns (The Economist 2020; ONS 2020).

Figure 7: Mortality rate from causes considered preventable by local authority in England, 2016



Source: The King's Fund 2020

Alvarez et al. (2017) offer an interesting perspective on developing countries. Based on Gini coefficients from the Standardized World Income Inequality Database (SWIID) for 35 lower-middle income countries and World Health Survey (WHS) data on insurance, they found that income inequality at the national level was directly associated with 'ineffective' insurance, defined as 'nominal insurance coverage that does not protect beneficiaries from having to borrow or sell personal items to pay for health services, having an untreated medical condition, or delivering a child outside a skilled health facility'. They hypothesise that, despite the growth in health insurance coverage as a result of Universal Healthcare expansion and increasing per-capita incomes, there is still inequality in access to financial protection such as health insurance (e.g. cover for critical illnesses or large medical bills) that is reflective of underlying income and wealth inequalities.

In developing countries, inequality at the national level is directly associated with 'ineffective' health insurance.

3.2.2. Unequal access to disaster risk protection

In the context of natural disasters, including those which are exacerbated by anthropogenic climate change, unequal access to property insurance and income protection following natural disasters can have significant societal implications. Catastrophe risk not only causes costly fluctuations in welfare but also perpetuates poverty as personal or family assets have to be sold off in response to serious shocks, undermining the scope for future asset accumulation. This vulnerability is particularly acute with respect to climate change. The poorest segments of the population in developing countries tend to be hit hardest by climate change because they have a higher exposure to its impacts and have fewer coping capacities. As a result, climate change 'will not only worsen poverty but also affect the dynamics of poverty, particularly by causing people to fall into or back into poverty' (Hallegatte et al. 2016). In general, social inequality is likely to be exacerbated by the continued vulnerability to disasters for those countries, communities, households and businesses that have only limited opportunities to mitigate their risks and strengthen their resilience (UNISDR 2015).[6]

6 See section 4.6. for the role of (micro)insurance in poverty mitigation and prevention.

The poorest segments of the population in developing countries tend to be hit hardest by climate change because they have a higher exposure to its impacts and have fewer coping capacities.

Table 1 demonstrates the consequences of unequal access to disaster risk protection from an economic point of view. Protection gaps, i.e. uninsured catastrophe losses as a share of total economic losses, are a function of income per capita. For the world's poorest countries, the protection gap is close to 100%. This precarious lack of resilience helps to understand why global policy efforts in the areas of disaster risk reduction and mitigation focus on lower- and lower-middle-income countries.

Table 1: The natural catastrophe insurance protection gap 2019 for different country income groups[7]

Income group	Overall losses (in USD billion) for 2019	Insured losses (in USD billion) for 2019	Insurance protection gap (uninsured losses as a share of overall losses)
High-income countries	105.3	54.6	48.1%
Upper-middle-income countries	27.6	0.9	96.6%
Lower-middle-income countries	27.2	0.6	97.8%
Low-income countries	3.4	0.02	99.3%

Source: Munich Re's NatCatSERVICE

An old vs. new facade

7 Based on the World Bank's most recent country classification, low-income countries exhibit a GDP per capita of roughly less than USD 1,000, lower-middle-income countries of between USD 1,000 and USD 4,000, upper-middle-income countries of between USD 4,000 and USD 12,000 and high-income countries of above USD 12,000.

4. How insurance can mitigate exposures that exacerbate inequality

As explored in the previous section, social inequality can adversely affect the shock resilience of individuals and economies at large. With that link in mind, the following section discusses the role of insurance in indirectly alleviating social inequality by covering exposures that may plunge middle-class individuals and families into poverty or prolong poverty among the lowest segments of the income and wealth pyramid, especially in the absence of any meaningful social safety nets.

> Insurance can indirectly alleviate social inequality by covering exposures that may plunge middle-class individuals and families into poverty or prolong poverty for those at the bottom of the income and wealth pyramid.

Before addressing specific exposures, this section covers the fundamental differences between social and private insurance and areas in which private insurers may effectively complement government-sponsored (redistributive) schemes. This examination is all the more relevant as COVID-19 is expected to impair governments' capacities to fight severe inequality.

4.1. Private-sector insurance versus social insurance

As opposed to social insurance schemes, private insurance is not designed to mitigate social inequality through wealth transfers. Having said this, the vital role of private insurance in risk management and transfer suggests its relevance for income distribution (Beck et al. 2007; Bonfiglioni 2012). When shocks hit, households lose income or the ability to earn income. Households may cut back on consumption, reduce investments in education (which impairs social mobility) or sell productive assets such as land and livestock. The effects on income and wealth inequality are obvious.

How can private insurance complement social schemes in a meaningful way? This question is of increasing relevance as pressure on public finances has been growing for quite some time.

First, the most specific feature of social insurance is that it is mandatory and universal (Pestieau 1995), except, of course, for informal workers and some of the self-employed. However, the question of whether individuals are to be insured is different from the question of who is to provide the insurance. 'The view that society must take measures to ensure that everyone is insured against certain major risks does not, in itself, imply that the government should directly provide that insurance' (Stiglitz 1983).

At the same time, compulsion is not sufficient to characterise social insurance. In many countries, car insurance and fire insurance are compulsory but provided by private-sector insurers. This leads to an additional peculiarity: social insurance involves some redistribution and, more often than not, is not based on actuarial principles. Compared with compulsory social insurance schemes, private insurance results in smaller risk pools. In risk-based schemes, premiums reflect individual risks and are not driven by a person's income. In such schemes, the relatively small risk pools make cross-subsidisation between different risk groups more challenging than in social insurance systems, raising concerns about equity (The Geneva Association 2019).

Although the public sector is in a better position than private insurers to tolerate the risk of moral hazard, governments have less financial incentive to incentivise behavioural change.

From an economic point of view, market failures offer explanations as to why the public sector should organise risk transfer on behalf of individuals. Three examples are most frequently mentioned:

- ***Social risks*** which are difficult to diversify and affect large parts of society, such as large-scale natural disasters and economic recessions
- ***Moral hazard*** which arises when insured individuals engage in riskier behaviour or seek more treatment knowing that they are insured (Pauly 1974). The public sector faces the same tradeoffs between risk reduction and incentives but is in a better position than the private insurance market to tolerate this risk.
- ***Adverse selection*** occurs if, due to information asymmetries, private insurance offerings attract mainly high-risk individuals (Arrow 1963). The resultant premium escalation further discourages 'low-risk' individuals from joining the risk pool. By making insurance compulsory the problem of adverse selection can be avoided by making low-risk individuals pay for high risks.

Regardless of these market failures the question as to whether or not public provision will be an improvement remains unresolved. Some economists argue that there are cases where social insurance is inferior to even poorly-working private insurance arrangements. For example, moral hazard may be an even more significant problem for social insurance schemes because there is less financial incentive for governments to incentivise behavioural change (Stiglitz 1983).

On the benefits side, private insurance may offer personalised insurance packages and generally competitive premiums to its customers according to their risk profile. In addition, collecting premiums through innovative ways (e.g. via mobile phones) can, in principle, expand coverage beyond formal sector employment and include people who would otherwise be left out of social insurance programmes (World Bank 2010).

Also, in developing countries, standalone public schemes may not be the most effective way of covering individual risks. First, weak taxation capacity is a major constraint on social insurance systems. People's ability and willingness to buy protection through competitive insurance premiums may be far greater than their governments' capacity to mobilise tax revenues. Second, there tends to be a lack of trust in government-run programmes, given the deficits in transparency and political stability. And third, public subsidies in those countries often do not reach the poor, who remain exposed to severe financial risks. Having said all this, for private insurance to make sense, loadings for administrative costs and profits need to remain below the risk premium that risk-averse individuals are willing to pay (The Geneva Association 2019). Against this backdrop, more PPPs should be developed, enabling larger risk pools, improved data analytics and efficiency, a better alignment of interests and still some level of subsidisation to ensure broader inclusion.

PPPs could enable larger risk pools, improved data analytics and efficiency, a better alignment of interests and still some level of subsidisation to ensure broader inclusion.

4.2. The relationship between private insurance market development and income inequality

While it is intuitively plausible that private insurance can complement public schemes in mitigating the risk of impoverishment and widening income and wealth disparities, there is little research substantiating this hypothesis. Khan et al. (2002) explored the impact of the social insurance system on income distribution, using data for 25 cities in Sweden, and found that the Gini coefficient (see section 2) is 15% lower when insurance payments are included in income. Further decomposition by type of payment suggests that disability pension payments have the largest redistributive effect on income inequality.

Lee et al. (2017) have attempted a quantification of the link between private insurance market development and inequality. Based on an analysis of 13 countries, their empirical research found that life insurance may be able to reduce income disparity more than non-life insurance in most countries, except low-income countries. Hence, life insurance (which covers existential threats such as premature death, permanent disability and old-age poverty) seems to play a more important role in the mitigation of social inequality than non-life insurance which, however, has been found to be more relevant for promoting economic growth.[8]

Against this backdrop, the following sections explore the income and wealth-protecting role of insurance on the basis of a number of key risks facing households and individuals:[9]

- Premature death and disability (of the main breadwinner)
- Increased longevity and old-age poverty
- Job displacement.

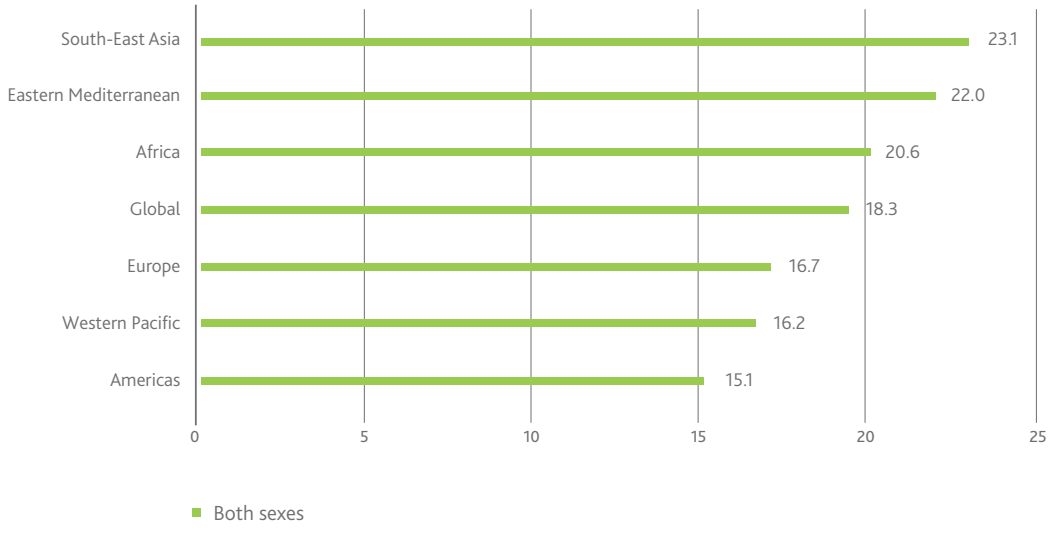
4.3. Addressing premature death and disability risks

4.3.1. Relevance of the topic

The risk of premature death remains significant. In Europe, for example, the probability of dying between ages 30 and 70 from any of cardiovascular disease, cancer, diabetes or chronic respiratory disease is close to 17% (Figure 8).

> The probability of dying prematurely from non-communicable disease is highest in low- and lower-middle-income countries.

Figure 8: Probability (%) of dying between age 30 and exact age 70 from any of cardiovascular disease, cancer, diabetes or chronic respiratory disease; data as of 2016 for WHO regions



Source: Global Health Observatory data (World Health Organization)

8 The initial sample for this study contained information on 50 countries, but just 13 countries were chosen due to discontinuity or a lack of annual data. They are Argentina, Brazil, Canada, Chile, Colombia, Denmark, Finland, Germany, Norway, Sweden, United Kingdom, United States and Venezuela.

9 Premature death and disability are the most disruptive risks to household income, with a wide variety of insurance solutions in place. Job displacement is emerging as a risk of increasing importance but, as outlined in section 4.5., insurance-based remedies are still in their infancy.

Although Non-Communicable Diseases (NCDs) are often associated with a more prosperous lifestyle, the probability of dying prematurely from cardiovascular disease, cancer, diabetes and chronic respiratory disease is highest in low- and lower-middle-income countries, especially in the WHO regions of Southeast Asia (which includes India, for example) and Eastern Mediterranean (which includes Egypt, for example) (Figure 8).

Disability is also a widespread and yet frequently underestimated phenomenon. In the European Union, for example, 17.3% of those aged 16 to 65 are disabled. The labour market participation rate of the severely and moderately disabled is 30.7% and 58.2%, respectively (ANED 2019). WHO (2011), based on 2004 data, estimates the global prevalence of disability among persons 15 years and older at about 19%.

4.3.2. Types of premature death and disability protection

Outside the realm of individual insurance, there are four main types of protection that offer replacement income to families that suffer premature death or disability: state-sponsored social security, collective insurance, workers' compensation and precautionary savings (International Labour Organization 2017; Zurich 2015).

In most mature economies, the government insures residents against death and disability. Those who are not covered by social insurance can apply for means-tested social assistance. Cash benefits for people with impaired lives are offered in nearly all advanced economies. However, many contributory public-sector schemes are insufficient – and in the red – which explains why governments are interested in minimising claims and exploring alternative funding options.

Under collective agreements, employers offer insurance for death and disability as part of second-pillar occupational pension systems that mainly provide retirement benefits. These are increasingly structured as defined contribution accounts which mark a shift away from typically more generous, but less sustainable, defined benefit schemes where payouts are based on an employee's final salary.

Work-related impairments or deaths are commonly compensated under laws that hold employers collectively or individually liable for health and safety at work. Such disability and death benefits tend to be more generous than non-work-related ones. Nearly all national regimes limit protection to those in formal employment.

Finally, there are precautionary savings which most countries tax-incentivise. This is particularly important in developing countries where public schemes are rudimentary but, increasingly, also in advanced economies where public finances are under growing strain and private insurance is unavailable to fill the void. Public social expenditure among OECD member states has risen from 15.4% of GDP in 1980 to more than 20% in 2018 (OECD Social Expenditure Database). Governments, particularly in the developed world, have reacted by restricting the number of new claimants and reducing the scope of work-incapacity benefits (Zurich 2015).

Regardless of these various protection mechanisms, the premature death or severe disability of the main breadwinner can have disastrous economic and financial consequences for the survivors and dependents. Only to a limited extent are the latter entitled to public support which, in many countries, is only available to those whose partners have contributed to schemes through formal, full-time employment. Especially in emerging economies, qualifying for state benefits is challenging, given the large number of informal sector and part-time workers (Zurich 2015). Even in some advanced countries, such as Anglophone member countries of the OECD, disability benefits are relatively low, entailing a significant risk of massively lower standards of living for affected families (ABI 2014) – and creating a potential role for private-sector insurance.

> **In many developing and some advanced countries, disability benefits are relatively low, putting affected families at risk of significantly lower living standards – and creating a potential role for private-sector insurance.**

Research shows that the purchase of life insurance has a positive impact on an individual's living standards compared to those without such protection. For example, based on data from the University of Michigan's Health and Retirement Study (HRS), Bernheim et al. (2003a) compare the changes in the standard of living for households following the death of a spouse, with and without life insurance. They found that 33% of surviving secondary earners without insurance are at risk of significant financial deterioration. With life insurance, however, this proportion drops by more than a quarter to 24%.

In a companion paper, Bernheim et al. (2003b) found in their broader study of U.S. adults of all ages that 'Taking into account actual levels of insurance coverage, poverty rates would have been 10.45% among surviving wives and 4.16% among surviving husbands (…). Ignoring insurance, poverty rates would have been 13.17% among surviving wives and 4.26% among surviving husbands.' Thus, insurance keeps more than 2.5% of surviving secondary earners above the poverty level.

After the death of a spouse, insurance keeps more than 2.5% of surviving secondary earners in the U.S. above the poverty level.

Cordon et al. (2008) found that one third of U.K. households drops into a lower income quintile after an unexpected adult death and 20% fall into poverty.

4.3.3. Insurance solutions

From that perspective the value of **term life insurance** is intuitively appealing: it guarantees to pay a specific sum to a family upon the death of its main income earner, affording the survivors a measure of protection against the adverse financial consequences of premature death. In the same vein, life insurance can also mitigate the financial disruption to businesses caused by the death of key employees.

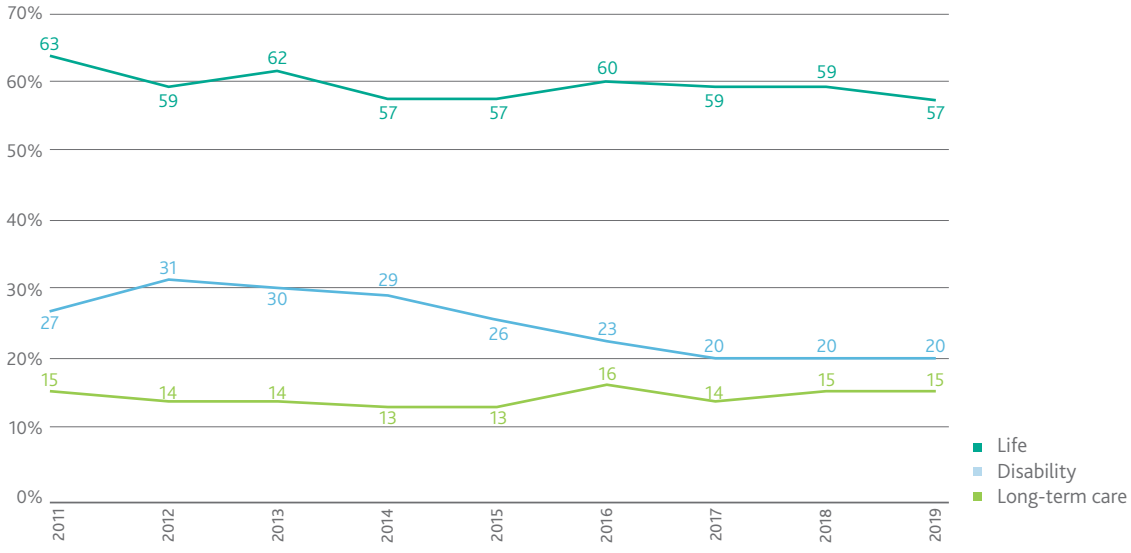
Having said this, life insurance take-up rates remain low. In the U.S., for example, market penetration for term life insurance (including group coverage) among adults is just 57%, with a declining trend over the past decade (LIMRA 2019).[10] The estimated U.S. mortality protection gap[11] widened by 25% between 2001 and 2016 to around USD 25 trillion (Swiss Re 2018).

Insurance solutions to a loss of income resulting from premature death or disability include term life insurance and disability insurance. However, take-up rates and penetration are relatively low.

Ownership levels for disability insurance (DI) are as low as 20%, a significant decline compared with a decade earlier.[12] Long-term care (LTC) insurance market penetration currently stands at 15%, with no major changes over the past 10 years (LIMRA 2019; see Figure 9).

A lack of general life insurance knowledge leads many people to overestimate the cost of and, as a result, underutilise term life insurance. When asked to estimate the cost of a USD 250,000 term life policy for a healthy 30-year-old, over half of the respondents said USD 500 per year or more – more than three times the actual cost (LIMRA 2019).

Figure 9: Insurance ownership trends among adults in the U.S.



Source: LIMRA 2019

10 See The Geneva Association (2020) for an in-depth empirical and theoretical analysis of the main reasons for the low take-up of life insurance.

11 Defined as 'the difference between the amount needed to substitute a household's future income in the event of death of the/a major breadwinner, and the existing resources available to repay outstanding debts and maintain the living standards of remaining household members in such a scenario'.

12 See The Geneva Association (2020) for some of the behavioural patterns underlying low-take-up rates.

In the U.S., the need for mortality protection is particularly evident for younger widows with children. Weaver (2010) shows that the social security survivor benefits received by between 22 and 37% of widows were below the poverty threshold.

Primarily in the form of credit cover, life insurance also plays an important role in protecting the most vulnerable and low-income segments of developing country populations. Credit life insurance covers the outstanding principal and interest of a loan if a borrower (e.g. a smallholder) dies. For the insured household, this cover settles the debt of a borrower, except for hospital, funeral and burial costs (which can be part of enhanced credit life solutions), upon their death without causing financial strain to the deceased's family. With credit life insurance, the survivors are spared the need to sell inventory and liquidate productive assets at discounted prices in order to service the unpaid loan (ILO 2012).

Other studies highlight the benefits from private long-term disability insurance (LTDI). For the U.S., Anand and Wittenburg (2017) show that an expansion of LTDI access (currently covering about one third of U.S. industry workers through employer sponsorship) could enhance workers' cash benefits in the event of disability. Increased penetration of LTDI plans that offer return-to-work services could also reduce reliance on Social Security Disability Insurance (SSDI) and other public benefits.

More specifically, Anand and Wittenburg (2017) found that people with LTDI access were more likely to work full time, be employed by larger companies and enjoy relatively high wages, with a mitigating effect on income inequality.

The average employer cost of providing LTDI to workers ranges from 0.3% to 0.6% of wages, compared with the employer share of the current SSDI payroll tax of 0.9%. The authors also show that, although access rates have been increasing slightly over time, the majority of workers do not have LTDI access.

4.4. Addressing the risk of old-age poverty

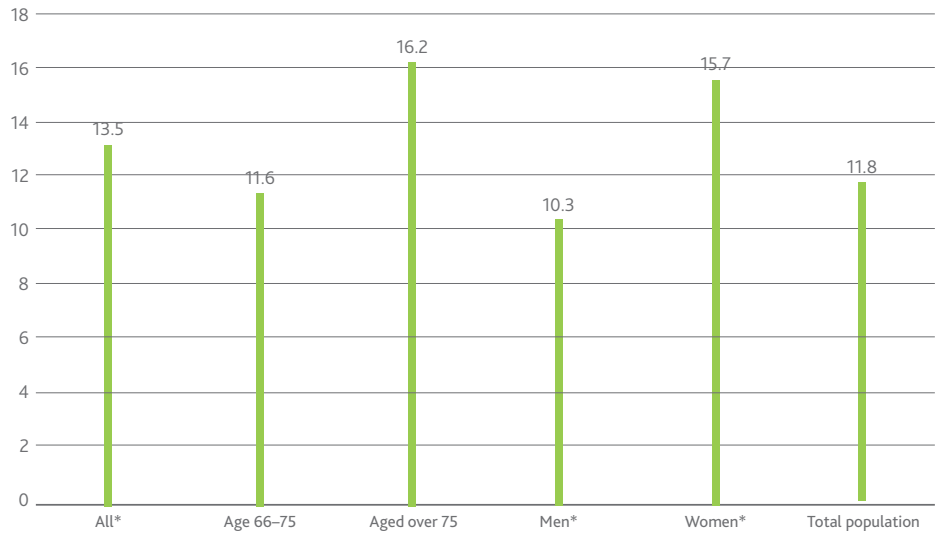
4.4.1. Relevance of the topic

Ageing poses a significant, additional risk to individuals of becoming or remaining poor. In later stages of life, people reduce their working hours or stop working altogether because of retirement benefits or growing health issues. Those who need or prefer to continue working are likely to earn lower salaries. In countries without high coverage and adequate benefits provided through social security systems, individual assets and savings are generally not sufficient to protect older people from vulnerability to economic insecurity and the risk of poverty.

Data for the OECD countries reveal that 13.5% of individuals aged over 65 live in relative income poverty, defined as having an income below half the national median household disposable income (Figure 10).

In OECD countries poverty among the 'younger old' (aged 66–75) is less frequent than among the 'older old' (aged 75 and over), who are more likely to have outlived their savings. The OECD average poverty rates for these age groups are 11.6% and 16.2%, respectively.

Figure 10: Average old-age poverty rates in the OECD (36 member countries)



*Source: OECD (2019a) * older people aged over 65*

The difference between the two is particularly pronounced in Korea (20.4 percentage points) where the pension system guarantees a higher pension income to younger generations. In addition, individual pensions are indexed to less than earnings growth, which lowers the relative value of pensions compared to earnings when retirees get older.

Older women are at greater risk of poverty than older men: the average old-age poverty rates for women and men in the OECD amount to 15.7% and 10.3%, respectively. This pattern primarily reflects lower earnings-based pension income and longer life expectancy for women (OECD 2019a).

4.4.2. Types of old-age income protection

Financial security in old age is an integral aspect of individual well-being. Pensions, therefore, are designed to offer people this peace of mind once they can no longer earn their living. In principle, this economic security could be provided by either the public or the private sector. In the former case, pensions could be financed by the state from general revenues or mandatory levies on a pay-as-you-go (PAYG) basis. Alternatively, pensions could be fully funded through individual contributions which accumulate assets. Such pension benefits could be determined according to a formula (defined benefit (DB)) or be a function of the amount of assets accumulated (defined contribution (DC)).

In practice, virtually all national pension systems combine all these elements. Public pensions are typically DB in nature and financed on a PAYG basis. However, increased longevity and the rapid ageing of populations have been eroding the financial sustainability of PAYG DB public systems. Against this backdrop, many countries have encouraged supplementary pensions to alleviate the pressure on public finances and to raise the overall level of benefits (OECD 2018).

The OECD distinguishes between four main sources of income on which older people draw: public transfers from government or social security institutions, occupational transfers from former employers, capital (e.g. private pensions) and post-retirement work. For the OECD countries as a whole, public transfers (e.g. earnings-related pensions) account for 58% and occupational transfers represent 8% of older people's incomes. With shares of more than 84%, the over-65s who are most reliant on public transfers live in Hungary and Belgium. The other extreme is Mexico, where public transfers represent only 8% of old-age income. Occupational transfers are of particular importance in the Netherlands, with a share of 38% of total income (Figure 11).

Figure 11: Income sources of people older than 65 (2016 or latest available year)

Source: OECD 2019a

Overall, at 24% the share of work exceeds the contribution from occupational transfer by a factor of three. Even in wealthy countries such as Japan and the U.S., older people rely on work for more than 30% of their income, reflecting a higher, normal pension age or the desire to fill gaps in contribution histories. As far as capital (mostly private pensions) is concerned, Canada leads the pack, with a share of 40% of all income sources of older people. At more than 20%, Denmark and New Zealand also exhibit above-average shares of capital (OECD 2019a).

4.4.3. Insurance solutions

Figure 12 shows that assets earmarked for retirement make up more than the overall economy in eight OECD countries. In these countries, the private life insurance industry accounts for a particularly high share of GDP (see Swiss Re 2019a for country-specific life insurance penetration levels).

Having said this, even in some of these countries many workers enter retirement with little or no financial assets. Even many of those with significant savings have no protection against uncertain lifespans, especially the risk of outliving their savings.

Insurers offer **annuities** to cover this longevity risk, providing a stream of monthly income in exchange for a premium. The annuity protects people from outliving their savings or assets by pooling the experience of a large group of people and paying benefits to those who live longer than expected out of premiums of those who die early (Munnell et al. 2019).

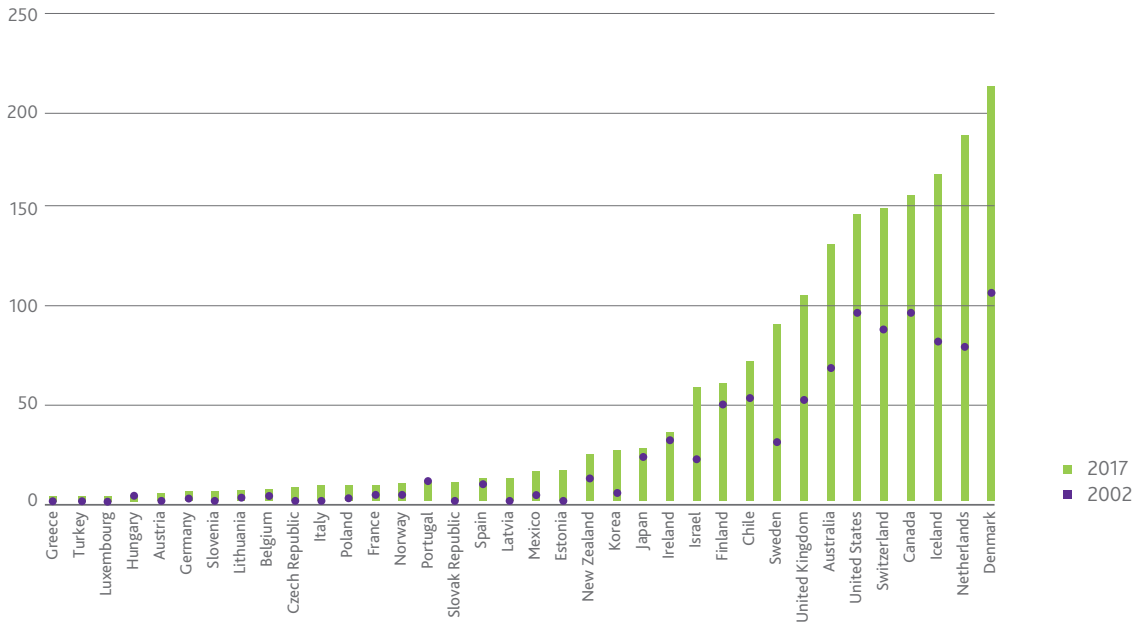
Annuities, which protect people from longevity risk by providing regular monthly income in exchange for a premium, remain puzzlingly unpopular with employers and individuals.

Despite their guarantee to ensure lifetime income, annuities remain puzzlingly unpopular, both with employers and individuals (The Geneva Association 2020). This is particularly true for deferred income annuities which address longevity risk, e.g. for someone aged 80 who runs out of money and would have to rely on minimum social security benefits. Older people's vulnerability to old-age poverty has been further aggravated by the shift towards DC pensions, which transfer investment risk to the beneficiaries (Baily and Harris 2019; Munnell et al. 2019).

Older people's vulnerability to old-age poverty has been further aggravated by the shift towards defined contribution pensions, which transfer investment risk to the beneficiaries.

Previously common DB pensions and today's DC plans offer different types of protection against old-age poverty.

Figure 12: Total assets in funded and private pension arrangements (2002 versus 2017, in percent of GDP)



Source: OECD 2018

DB pensions pay a lifelong annuity to the retiree and generally also to his or her surviving spouse. Annuitised DC plans offer very similar benefits. However, most people prefer not to annuitise their DC assets and rather draw down the balance to cover living expenses, accepting the risk of running out of funds at an advanced age (see Panis and Brien (2015) and The Geneva Association (2020) for some of the main reasons). Scott et al. (2020) link this outcome to income inequality. They show that optimal consumption in the life cycle model declines with age. This finding has major implications for optimal retirement saving, especially for lower-lifetime earnings segments of the population. For them, the authors suggest, it is optimal to spend their retirement wealth well before death and to live on social security contributions alone after that. For very low earners it may not make sense at all to engage in retirement saving.

In principle, annuities are simple products, shifting longevity risk from individuals to insurance companies which absorb the risk by pooling across large groups of customers. A straightforward income annuity offers the customer a certain life-long income stream per month in exchange for a lump-sum payment. However, most annuity products are significantly more complex. Some of them, for example, offer an accumulation phase whereby the customer's premiums are invested in mutual funds or other financial instruments, the value of which can change over time. Also, the underlying investments in these annuities can vary, such as with indexed annuities and variable annuities (Munnell et al. 2019).

Research shows that a U.S. household headed by a 65-year old in good health enjoys a 16% increase in the household's financial and housing wealth from investing in annuities.

The wealth-stabilising role of annuities is plausible. Yogo (2009) even shows that a U.S. household headed by a 65-year-old in good health experiences a 16% increase in the household's financial and housing wealth by investing in annuities. The author uses the biannual University of Michigan HRS surveys from 1992 to 2006 to examine the benefits from private annuities above the implicit annuitisation through social security and employer-sponsored DB pension plans. The 16% gain reflects that without private annuities to insure against longevity risk beyond what is covered by social security, individuals would have to consume less before retirement and to save more.

4.5. Addressing the risk of job displacement

Contrary to premature death and disability, the risk of job displacement as a threat to income security is a relatively recent phenomenon. Even though it has been growing steadily, insurance-based mechanisms to mitigate the risk of job displacement are still in their infancy, at the conceptual stage.

4.5.1. Relevance of the topic

The world of work is undergoing profound changes, driven by technological progress and global connectivity. In addition, new business models (e.g. the sharing economy) and evolving worker preferences (e.g. towards gig work) are contributing to the emergence of new forms of work. Certain jobs and tasks are bound to disappear, whereas others are emerging (OECD 2019b).

Similar to previous waves of automation and robotisation, more recent technological advancements, such as in artificial intelligence (AI), have created widespread fear of job loss and a further exacerbation of social inequality. On the one hand, this can create significant opportunities in terms of increases in productivity, especially among the low skilled. On the other hand, a potential lesson from the Industrial Revolution is that, even though automation eventually expands the overall size of the economic pie, it is likely to boost inequality in the short run, by forcing some people into lower-paid jobs (ILO 2018).

Some projections are daunting. Frey and Osborne (2013), one of the most frequently cited papers in academic history, suggest that 47% of American jobs are at high risk of automation by the mid-2030s. The authors modelled the characteristics of 702 occupations and classified them according to their 'susceptibility to computerisation'. The model concluded that occupations including those in office administration, sales and various service industries fell into the 'high risk' category. They conclude that 'recent developments in machine learning will put a substantial share of employment, across a wide range of occupations, at risk in the near future'.

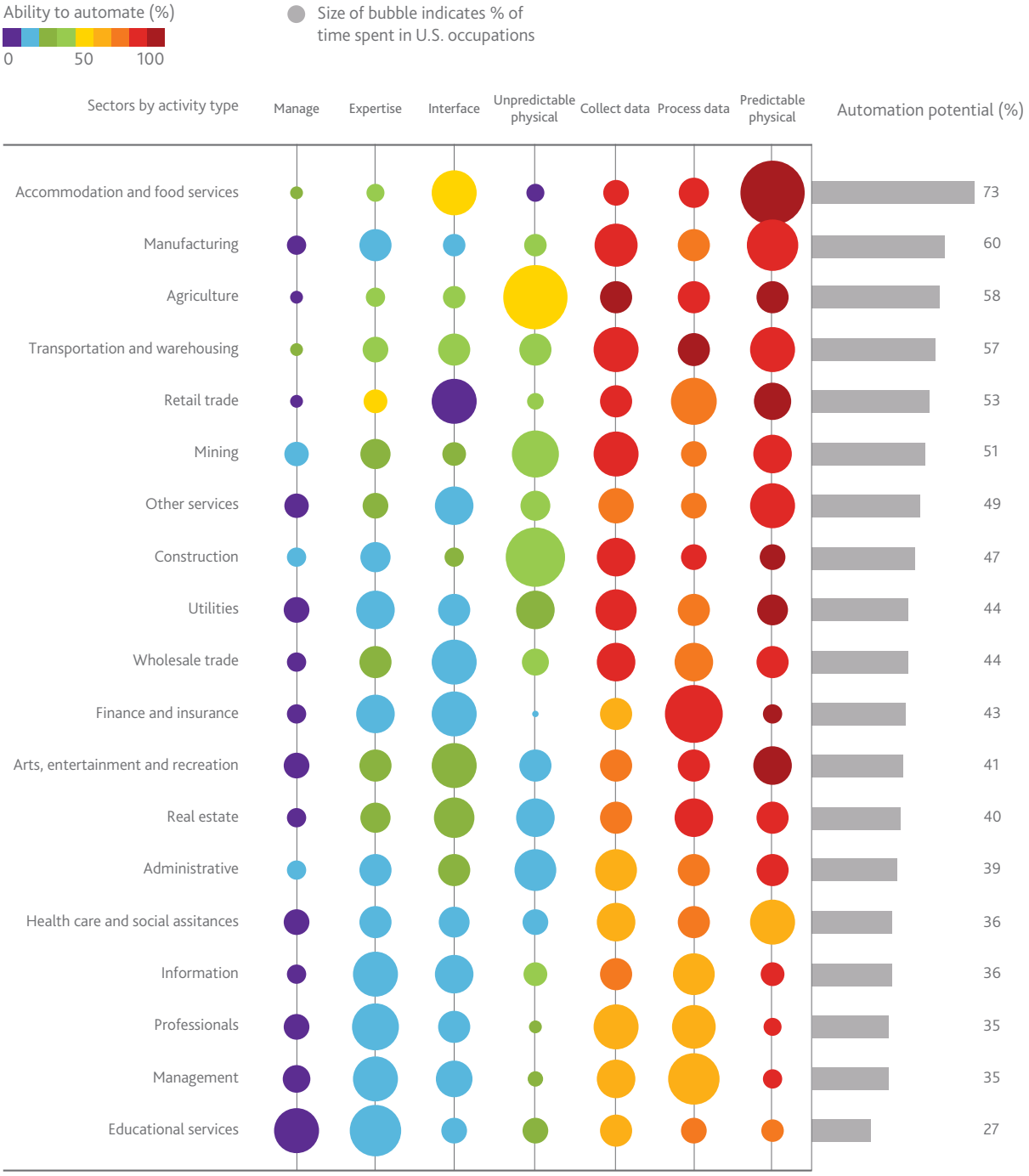
The implications of automation for social inequality could be dramatic. Some economists worry about 'job polarisation' and 'workforce bifurcation', where middle-skill jobs (e.g. in manufacturing) are decreasing whereas both low-skill and high-skill jobs are growing (see Peugny (2019) for a European perspective).

Similarly, McKinsey (2017) assesses the number and types of jobs that could be lost to automation and finds that, in about 60% of occupations, at least one third of the constituent activities could be automated, heralding

substantial workplace transformations and the risk of displacement for many workers. Activities found most susceptible to automation include physical ones in predictable environments, such as operating machinery. Collecting and processing data are two other categories of activities where machines are increasingly taking over. Based on a midpoint scenario, 400 million workers around the globe could face displacement by 2030. Figure 13 illustrates the potential of automation for various sectors of the economy.

According to McKinsey, the job activities most at risk of redundancy due to automation include operating machinery and collecting and processing data.

Figure 13: Potential for automation across sectors



Source: McKinsey 2017

The earnings risks associated with job displacement are real, as shown by the U.S. Bureau of Labor Statistics (2018): of the 1.8 million long-tenured displaced workers who lost full-time wage and salary jobs during the 2015–17 period and were reemployed in January 2018, 49% earned less than they did at their lost job – and 27% reported a decline in earnings of 20% or more.

4.5.2. Insurance solutions

The following section focuses on protection options for workers who are displaced from their jobs by automation or other socio-economic trends and forced to accept lower-paying jobs as a consequence. It explores the role of private insurance as a tool for mitigating such risks, either standing alone or in combination with public-sector responses. Contrary to the previously discussed role of private insurance in covering premature death, disability and old-age poverty, private-sector responses to job displacement are still in their infancy and largely at a conceptual stage.[13]

Most existing programmes, including retraining and unemployment insurance, do too little to help displaced workers whose new jobs pay substantially less than their old ones. Unemployment insurance, for example, compensates for lost income during (a limited time of) unemployment but not for reduced income after re-employment. Against this backdrop, LaLonde (2007) proposes to shift resources from existing programmes to a displacement insurance scheme which would offer a multi-year earnings supplement for workers facing a long-term reduction in wages. Such a scheme could ease workers' fears of job and income loss and increase public acceptance of economic policies that promote liberalisation and deregulation.

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More recently, **wage insurance** has gained more prominence as part of the debate on how to deal with risks arising from earnings and job losses due to technological advances. In January 2016, in his final State of the Union address, former President Obama endorsed a nation-wide wage insurance programme for the U.S., designed to protect the middle-income labour force.

Wage insurance could reduce income inequality, accelerate the re-employment process, alleviate workers' anxiety, act as an automatic stabiliser in times of crisis and promote retraining for new careers. However, problems associated with moral hazard, adverse selection and a lack of reach and inclusiveness remain.

The benefits of wage insurance include the following (LaLonde 2007; Almeida 2017):

- It reduces income inequality. Wage insurance targeted at workers with low to medium earnings narrows the income gap between these workers and high-wage workers.
- It accelerates the re-employment process by providing incentives to the unemployed to accept new jobs more quickly. By making payments only when people find a new job or are being trained for one, wage insurance discourages long periods of joblessness and may relieve the burden on unemployment insurance or social welfare programmes.
- It alleviates workers' anxiety about economic change by covering them against future losses in earnings if they have to accept a lower-paying job in order to re-enter the labour market.
- It acts as an automatic stabilizer in times of crisis. Following a recession, laid-off workers usually have an especially difficult time finding new employment that pays a similar salary to their previous one. This fact contributes to stagnant middle-class incomes and ultimately slows the process of economic recovery.

13 This publication disregards protection challenges presented by the emerging gig economy: gig workers often miss out on employer-provided benefits and therefore assume levels of personal risk generally unseen in more traditional labour markets. With little access to traditional employee benefits like disability protection, worker's compensation or pension contributions, and often without any insurance to cover liability claims related to their activities, gig workers are particularly vulnerable to loss of income and, in extremis, the risk of impoverishment. The COVID-19 crisis has boosted awareness of such protection gaps. The Geneva Association will publish a report on this complex issue in 2021.

- It promotes retraining for new careers by offering a buffer during which workers can learn new skills in industries that are performing strongly and recruiting.

The limitations of wage insurance include the following (LaLonde 2007; Almeida 2017):[14]

- ***Moral hazard:*** Insured workers who know that an eventual wage loss in the case of re-employment will be (at least partially) covered by insurance may have an incentive to take a lower-paying and less demanding job than the one they lost. This problem can be mitigated by limiting the duration of the benefits; taking a lower-paid job will not be beneficial for the worker in the medium to long term.

- ***Adverse selection:*** If provided privately, based on voluntary enrollment, workers with particularly insecure jobs will be most likely to sign up for wage insurance. This issue will raise the cost of providing wage insurance and further discourage low-risk workers from enrolling. For private-sector providers, carefully designing and pricing the coverage is essential. For government schemes, adverse selection can be overcome by making the scheme universally compulsory.

- ***Reach:*** Wage insurance programmes would not provide much help to erratically employed and informal sector workers.

Against this backdrop, the choice between public and private provision of wage insurance is critical. Governments may have to play an important role given their ability to circumvent challenges such as adverse selection. Having said this, private providers may come into play, for example to complement the share of lost earnings covered by the state. Employers could also offer wage insurance as a part of their benefits packages, similar to disability and health insurance.

In his 2004 book The New Financial Order: Risk in the 21st Century, Robert J. Shiller (Sterling Professor of Economics at Yale), proposed an extended form of wage insurance, which he coined 'livelihood insurance'. As opposed to assuring temporary wage levels, **livelihood insurance** aims at covering long-term economic risks to individuals' paychecks for every major career and job category.

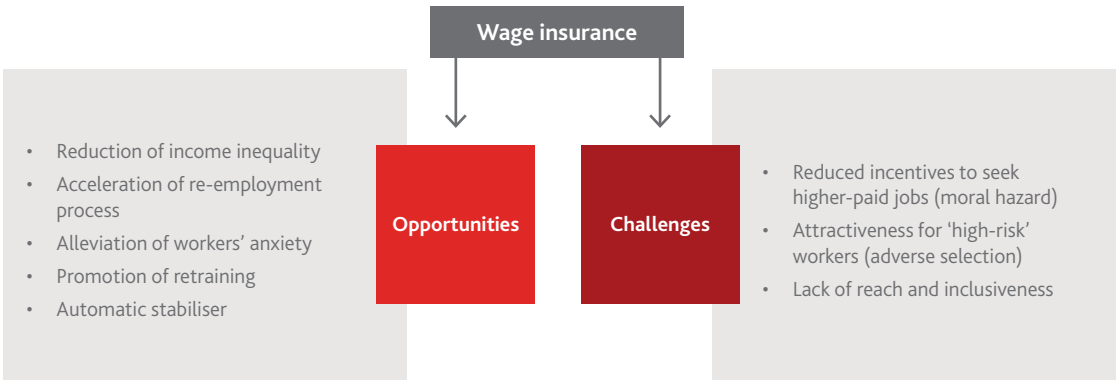
> Livelihood insurance, a concept proposed by Robert J. Shiller, addresses the risk of structural income erosion across different occupations.

Shiller argues that private insurance policies should address all major risks to the livelihoods of individuals and families. Therefore, livelihood insurance can be considered essential to risk management and should fall within the domain of the private sector, rather than the government.

Shiller's livelihood insurance proposal differs from existing insurance policies, such as disability insurance or life insurance, in that it targets losses to livelihoods from all causes, not just a list of named disasters.

Traditional risks covered by insurance tend to occur suddenly and catastrophically. Livelihood insurance, on the other hand, applies the concept of insurance to a slow erosion in people's earnings power over years or decades,

Figure 14: Opportunities and challenges presented by wage insurance



Source: The Geneva Association, based on Almeira 2017

14 There are strong analogies with (private) unemployment insurance. It is typically provided publicly as part of social insurance, primarily because of significant information asymmetries. Moral hazard arises because unemployment insurance distorts incentives in labour markets; adverse selection occurs because limited information prevents insurers from charging higher premiums to higher-risk individuals. Also, (mandatory) public programmes are able to pool resources across larger groups than private insurance.

protecting some of the most important assets held by virtually every worker.

Conventional insurance policies typically give the policyholder the option to cancel at any time and stop paying the premium. Such policies reflect the fact that insured risks are usually of a sudden and catastrophic nature, such as fires or premature deaths. 'But this kind of policy will not work for losses about which information gradually and cumulatively unfolds through time, such as the erosion of compensation accruing to a particular career' (Shiller 2004). Therefore, livelihood insurance should be designed for longer periods, e.g. by requiring an upfront payment.

As with most market-based insurance solutions, with livelihood insurance insurers must also find an effective route to preventing moral hazard. Most importantly, livelihood insurance policies would have to be 'designed to insure individuals against an index of aggregate risks, over which there is no individual control and hence about which there is no individual moral hazard' (Shiller 2004). For example, an individual could buy insurance against an erosion of income of people in his or her occupation, or with his or her job history or educational characteristics. If triggered, this income stream would continue for as long as the index stays down. Moreover, to prevent moral hazard, policyholders would only be reimbursed for a portion of their own income drop, maintaining an incentive to work hard.

Livelihood insurance offers another major advantage. Since the premium is market-driven, it would convey relevant information and signals: the premium would be higher in occupations for which the market expects pressure on wages. Such signals would help and incentivise workers to anticipate job or income losses before they actually occur.

In summary, livelihood insurance is a concept worth exploring, with the aim of harnessing insurance to hedge the risk of structural income erosion across different occupational groups.

4.6. Inclusive insurance

Whereas the insurance solutions examined in the previous sections primarily cater to the needs of the middle class, new and different forms of insurance have been developed to reach the unserved, underserved, vulnerable or low-income segments, especially in developing and emerging markets. Such products are known as 'inclusive insurance' and range from microinsurance for the poorest to new products and services for those who are at the threshold of entering the middle class and have not been served by traditional insurance (IIF 2018).

Microinsurance is a relatively well-developed concept which offers risk-pooling products that are designed (in terms of price, coverage, distribution and marketing) for low-income individuals and families, tackling some of the micro-level resilience issues discussed in section 3 of this report. It specifically caters to those people who are generally ignored not only by mainstream commercial insurance but also social insurance schemes covering formal sector employees (ILO 2012).

Low-income households are particularly vulnerable to risks and economic shocks. By helping those households manage risk, microinsurance can make a major contribution to resilience in developing countries. It benefits from the fact that even in low-income countries and among low-income populations, risk pooling and informal insurance are not entirely new concepts. Informal risk-sharing schemes have been around for generations, even in almost inaccessible rural areas.

Main exposures covered by microinsurance include illness, accidents, disability, death, children's education, loss of property, risk of loan, crop risk and livestock risk (Milliman 2020). Climate risk greatly exacerbates some of these exposures and has given rise to the development of dedicated climate risk insurance products (IIF 2016; Allianz 2016).

More recently, microinsurance has expanded to a wider notion of inclusive insurance aimed at all those who have

not been served by traditional insurance, including the lower-middle class, while continuing to cater to vulnerable and low-income populations (IIF 2018). The market is believed to be 'on the verge of a new, significantly more inclusive equilibrium' (IIF 2018), driven by online and mobile channels which bring down the cost of distribution and claims settlement (The Geneva Association 2016).

Table 2 summarises microinsurance penetration ratios by region and peril. Latin America stands out as the region with the highest level of coverage. Globally, an estimated 400 million lives are covered by microinsurance (Microinsurance Network 2019).

Table 2: Lives covered by microinsurance as a percentage of the total population (most recent data)

Region	Total	Accident	Agriculture	Credit life	Health	Life accident	Life	Property
Asia and Oceania	4.36%	1.87%	0.60%	No data	0.74%	No data	2.14%	0.18%
Africa	5.77%	1.16%	0.10%	1.44%	0.79%	3.13%	4.09%	0.41%
Latin America and the Caribbean	8.55%	3.4%	0.37%	3.32%	1.27%	4.90%	5.37%	0.37%

Source: Microinsurance Network 2019 http://worldmapofmicroinsurance.org/

Livestock farmer in Samburu, Kenya

5. Recommendations

In most advanced economies, social insurance and protection schemes are in place to mitigate social inequality. For a number of reasons (mentioned below), private insurance solutions can potentially play a bigger role going forward in complementing public-sector schemes. This prospect comes not only with commercial opportunities but also underlines the insurance industry's role in stabilising economic growth, defusing financial crises and stemming social unrest and political violence.

For insurers, capturing this potential is a complex task: on the one hand it entails entering existing 'markets' in a different way (e.g. by absorbing additional longevity risk hitherto covered by public pension schemes); on the other hand the challenge is about creating entirely new markets, e.g. for hundreds of millions of unserved informal workers in developing countries. For policymakers and regulators, this dual challenge necessitates tailored and measured approaches and responses.

For insurers, the following courses of action are worth considering:

- ***Proactively engage with the public sector to examine complementary approaches to protection:*** The post-COVID-19 surge in public debt will exacerbate pre-existing strains on social security systems while citizens' expectations of the public sector as well as their awareness of the value of life, health and income protection have increased as a result of the COVID-19 crisis. This is a fertile ground for insurers to suggest new forms of involvement and partnerships with the public sector.

- ***Accelerate efforts towards product innovation:*** In order to better serve customer segments which are particularly vulnerable to adverse economic shocks, far-sighted insurers should do more than simply downscale traditional products. Innovative responses include, for example, parametric policies which are triggered by movements of an index and provide the insured with utmost clarity on payouts.

- ***Harness technology for inclusive insurance propositions, including informal sector workers:*** Technology can go a long way in promoting the appeal, affordability and accessibility of insurance products. Technology-based approaches can also overcome one of the most relevant issues with many low-income customers: a lack of trust in existing institutions.

- ***Promote financial and insurance literacy with a view to alleviating inequality:*** The results of various empirical studies demonstrate the role of financial literacy in helping poor people improve their economic well-being, strengthen resilience and reduce poverty (see ADBI (2020) in the context of a major developing country). In low-income countries in particular, building financial literacy is a prerequisite to building new insurance markets.

Policymakers and regulators should consider the following recommendations:

- ***Advanced economies – Harness private risk-pooling and transfer mechanisms to ease the growing pressure on public social security schemes:*** Also in light of COVID-19, governments should proactively approach insurers and their associations to further explore concerted efforts towards promoting the sustainability of protection schemes. Such efforts should be based on mutual trust and the rule of law (contractual certainty).

- ***Developing economies – Narrowing gaps in social security through private insurance:*** The high degree of labour market informality and fiscal constraints in many low-income countries pose structural limits to funding and implementing government schemes. Introducing private-sector-driven risk transfer could help expand the reach of protection schemes.

- ***Policies and regulations conducive to financial inclusion:*** A number of supervisory authorities have committed to the objective of financial inclusion, i.e. promoting the availability, affordability and equality of opportunities to access financial services such as insurance. For such commitments to be meaningful, regulatory incentives to foster the growth of inclusive insurance are indispensable.

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Private insurance, though not designed to address social inequality per se, can offer financial relief when certain calamities strike that cause households to lose income or the ability to earn income. Such shocks hit the poorest the hardest. This report details specific insurance approaches and products that can complement public social protection schemes by protecting middle-class populations and better serving vulnerable segments of society as a means of reducing social inequality.

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