5 Policy options for a stronger middle class in Germany

Valentina Sara Consiglio, Christian Geppert, Sebastian Königs and Anna Vindics

This chapter discusses policy options for a stronger middle class in Germany drawing on the findings from the statistical analysis presented in the previous chapters. It focuses on the following policy areas: i) strengthening the employability of middle-class workers, by expanding adult learning and building pathways into the middle class for the young generation; ii) supporting the creation of good-quality and future-oriented jobs by renewing Germany's infrastructure and improving working conditions and pay for care professionals; iii) boosting the disposable incomes of middle-class households by reducing their labour tax burden and enabling and incentivising women to expand their labour force participation.

5.1. Introduction

The previous chapters of this report have sought to give a comprehensive account of the situation of middle-class households in Germany. The middle-income group in Germany is smaller today than it was in the mid-1990s, as particularly the lower middle has shrunk in times of rising income inequalities in the late-1990s and early 2000s (Chapter 2). It has also changed its socio-demographic composition: young people find it harder than previous generations to make their way into the middle-income group, and in particular so if they have not completed post-secondary or tertiary education. Working couples still make up nearly half of middle-income households, but among them, the share of one-and-a-half earner couples has increased. This reflects the risen labour force participation among women, and underlines the importance of a second earner in the household for securing a middle-income position. Analysis of labour market outcomes of middle-income workers (Chapter 3) has shown that Germany – as many other OECD countries – has experienced occupational polarisation, and that this trend has equally affected the middle-income workers. It coincided with a shift of middle-income employment away from manufacturing towards public services, and a decline in job quality for middle-income workers, though largely before 2005. Forecasts suggest that structural change will continue to affect middle-income workers: about one-in-six of them work in jobs facing high risk of automation, and employment growth forecasts for the next decade point to further occupational polarisation. Income mobility has become less favourable since the late 1990s, with a loss of stability for people in the lower middle and reduced chances of reaching the middle for people on low incomes (Chapter 4). This is particularly the case for more disadvantaged labour market groups such as young people, migrants, and people in eastern Germany though also workers in "typical middle-class occupations" faced a strong decline in their chances of rising into the middle-income group.

This chapter discusses policies that could address some of the main challenges facing middle-class households in Germany. Section 5.2 looks at ways of strengthening the employability of middle-class workers. It discusses the role of the adult learning and training system in Germany for supporting the up- and reskilling of workers in a changing labour market, and discusses ways of helping more young people obtain the qualifications needed to build a successful career. Section 5.3 looks at measures to support the creation of good-quality and future-oriented jobs in Germany. It argues that greater public infrastructure investment could help Germany master the structural transformation of its economy, and that it could become an engine of middle-class job growth. It also discusses why improving job quality and pay for care workers could generate additional middle-class employment and pave a way into the middle class for current care workers. Section 5.4 proposes ways of boosting middle-class disposable incomes by looking at ways for Germany to reduce the tax burden on middle-class households, and enabling and incentivising women to increase their labour supply.

5.2. Strengthening the employability of middle-class workers

Already before the COVID-19 pandemic, labour markets in OECD countries were rapidly changing as a result of globalisation, digitalisation, and population ageing, with a profound impact on the type and quality of jobs available and the skills required to perform them. Previous OECD analysis has shown that more than half (54%) of jobs in Germany are at risk of significant change through automation over the next 15 years, one of the highest shares across OECD economies (Nedelkoska and Quintini, 2018[1]). About one-in-six middle-income workers in Germany work in jobs that face high risk of automation (Figure 3.11).

The COVID-19 crisis may reinforce some of these trends with still uncertain consequences for middle-class workers. While the labour market impact of the crisis has been more limited in Germany than in many other OECD countries (OECD, 2020[2]; 2021[3]), the public-health restrictions introduced to mitigate the pandemic have accelerated the digitalisation of the society and of many workplaces. The crisis may also lead to structural reallocation, possibly away from sectors such as on-site retail, air travel and hospitality, if some of the changes in consumption behaviour it brought about turn out to be permanent. Further profound

change is immanent given the urgent need for all OECD economies, including Germany, to transform into low-carbon societies within not even three decades.

The extent to which middle-class workers can reap the benefits of these transformations, or risk losing out from them, will heavily depend on whether they manage to develop, and maintain, skills over their work lives that are needed in those rapidly changing labour markets. Already today, seven-in-ten occupations that are in shortage in Germany require a high level of skills, one of the highest shares across OECD countries (OECD, 2021[4]).[1] Meanwhile, nearly half of all workers in middle-income households are in middle- or low-skilled occupations, as shown in Chapter 3 (Figure 3.2). Employment growth forecasts that pre-date the COVID-19 crisis point towards further occupational polarisation. This underlines that Germany – as other OECD countries – will need to upskill and reskill large parts of its workforce over the next decades to ensure that workers, companies and the economy can harness the benefits of those structural changes. Failure to do so will mean that workers will increasingly struggle to find jobs that match their skills, while employers will face troubles recruiting the talent they need. Such imbalances are costly for workers, employers, and society as a whole. They undermine the competitiveness of companies, depress workers' wages, job satisfaction, and career prospects, and hamper economic growth (OECD, 2019[5]).

The analysis presented in the statistical chapters of this report has also underlined – once more – the importance of equipping young people with an education and skills that are in high demand in a rapidly evolving labour market. Chapter 2 has illustrated that the middle-income group has shrunk from generation to generation, and that *at the same age* it was about 10 percentage points smaller for the generation of Millennials than for the baby boomers (Figure 2.11). This is mirrored in a disproportionate decline in the size of the middle-income group for young people, at nearly twice the rate than for the population overall (Figure 2.10). Perhaps more importantly, the analysis illustrated that particularly for the young generation education really is the key to accessing the middle-income group. Indeed, young people who have obtained a tertiary degree have not been affected to the same extent as other young people by the decline in the middle-income group. Meanwhile, the likelihood of making it into the middle-income group has declined sharply for those who only hold an upper-secondary or post-secondary non-tertiary education, and it plummeted for those without upper-secondary qualification (Figure 2.13).

This section discusses policy options to ensure that workers in Germany build the skills they need to succeed in a transforming labour market and generate a good income. It starts by looking at some of the challenges of Germany's adult learning system and by discussing how Germany can better enable and encourage middle-class workers to upskill, and reskill, throughout their working lives. This discussion draws heavily on a recent country study published as part of the OECD *Getting Skills Right* series (OECD, 2021[4]). The section then zooms in on the challenges that particularly young people have been facing with their transition into work during the COVID-19 pandemic.

5.2.1. Enabling and encouraging middle-class workers to upskill and reskill throughout their careers

In light of the rapid transformation facing OECD societies and labour markets, a good-quality education or vocational training obtained in young adulthood may often be no longer sufficient to guarantee a secure job and income for the entire working life. New job opportunities arise in occupations and industries that are different from those in which jobs are lost. Existing jobs will change, as well as the set of skills they require. Workers will therefore – much more than in previous decades – need to invest continuously in maintaining, updating, and expanding their skills over their working lives to ensure that their skills remain relevant. This will require strong foundational numeracy and literacy skills that are often essential for further training and that will only become more important with the digital transformation (OECD, 2020[6]).

Participation rates in adult education and training in Germany are lower than in peer countries

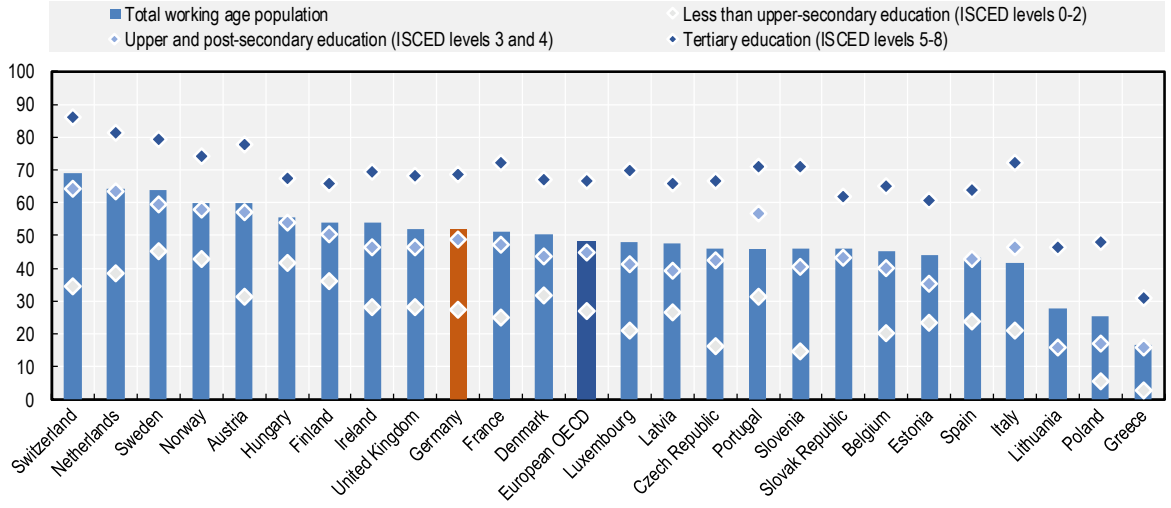
Germany has a strong skill development system. The country's 15-year-olds performed above the OECD average in the 2018 edition of the Programme for International Student Assessment (PISA), continuing a trend of significant improvement since 2000. Its adult population has above-average literacy and numeracy skills according to the OECD Survey of Adult Skills (PIAAC). Germany's strong and well-respected vocational education and training system is seen as one of the success factors behind these achievements (OECD, 2021[4]).

However, participation in learning beyond initial education lags behind comparable countries. Just over half (52%) of 25-64 year-olds took part in adult learning in Germany in 2016 (Figure 5.1). This places Germany slightly above the average across European OECD countries with available data. However, Germany lags behind other OECD countries with similar skill development systems, such as Austria, the Netherlands, and Switzerland, where 60% to 69% of adults took part in learning and training activities after their initial education. Across countries, training participation is inversely related to workers' skill level, meaning that low- and middle-skilled workers, who require most training, are least likely to participate. These gaps are among the highest in Germany across the OECD.

Comparatively low training participation rates in Germany are mirrored by lower total funding allocated to adult learning. Germany spent about 1.2% of GDP on adult education and training in 2009, the latest year with available estimates, compared to 1.5-2.2% in the Netherlands, Switzerland, Austria, and Denmark (FiBS/DIE, 2013[7]).[2]

Figure 5.1. Just over half of all working age adults in Germany participate in learning, less than in many peer countries

Participants in formal or non-formal learning in the past 12 months, age 25-64, by educational attainment level, 2016, as percentages



Source: OECD calculations based on the Adult Education Survey, 2016.

Shortage of time is the dominant factor preventing workers from participating in education or training in Germany

Low participation in adult learning in Germany is not primarily a question of costs. According to PIAAC data, only 9% of German adults consider the direct costs to be the main obstacle to their participation in adult education and training. This reflects that most spending on adult learning in Germany is financed by employers and the state, while training participants contribute only a very small share. Instead, shortage of time because of work (33%) and family responsibilities (15%) are reported as being the greatest obstacles to participation in adult learning (OECD, 2021[4]).

One reason behind citing time as a main barrier may be that Germany currently has no nationwide legislation on education and training leave. Most federal states have their own legislation or regulatory frameworks, which enable workers to take five days of paid education and training leave per year on average. This may be sufficient for shorter non-formal training courses. By contrast, it does not permit the take-up of longer adult learning opportunities, including the kind of substantial occupational retraining that may be needed in the context of digitalisation and structural change. Evidence from programme evaluations shows that programmes lasting one year or longer, typically vocational retraining courses, have larger effects on employment and wages than shorter courses (Bernhard, 2016[8]). To participate in longer training programmes, workers in Germany therefore often have to use either unpaid leave days or holidays, which increases the time investment and indirect financial costs associated with training and contributes to below-optimal participation.

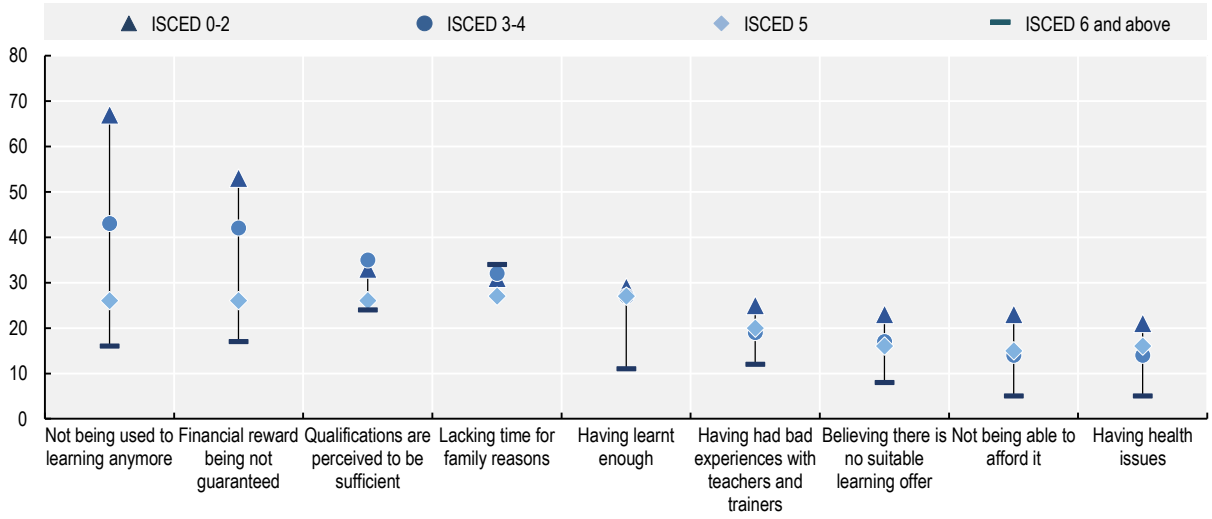
Finally, few workers benefit from the paid training leave: in the state of Baden-Württemberg, for example, only around 1% of workers entitled to paid training leave made use of it (Forschungsinstitut Betriebliche Bildung, 2019[9]). This may also reflect lack of awareness of available learning opportunities, the need for employer approval, and difficulties in access to training for workers in smaller companies, which have greater trouble finding a temporary replacement for staff on training leave. The recent Skills Development Opportunities Act (*Qualifizierungschancengesetz*) intends to increase training participation, also for those working in smaller businesses, but it only focuses on workers with a direct risk of dismissal.

Middle-skilled workers often do not see a need for training

Differences in workers' participation in training by skill level reflect different obstacles to training. For workers with medium to high levels of education, i.e. most workers in middle-income households, the lack of perceived need for training is an important obstacle (Osiander and Stephan, 2018[10]). Middle- to high-educated workers (ISCED 3-4 and 5) indicate that the main reasons for not participating in job-related education and training are not being used to learning anymore, the financial reward of training not being guaranteed, and the perception that their current qualifications are sufficient (Figure 5.2). More generally, a higher share of workers with lower qualification levels report barriers to training participation, including – perhaps counterintuitively – that they perceive their qualifications to be sufficient. This illustrates the importance of reaching out to workers to help them identify their learning gaps, educate them about the necessity to upskill and the potential benefits of training, and finally to guide them to suitable training programmes.

Figure 5.2. Many middle- to high-educated workers do not participate in training because they are not used to learning anymore or believe their qualifications to be sufficient

Self-reported reasons for not taking part in job-related education and training, by qualification level, 2017, as percentages



Note: ISCED 0-2 = No vocational qualification; ISCED 3-4 = Initial vocational degree (Lehre/Ausbildung/Fachschule); ISCED 5 = Graduate. degree or vocational equivalent (Meister/Techniker/Bachelor); ISCED 6 = Post-graduate degree (Master/Diplom or higher).
Source: OECD calculations (OECD, 2021[4]) based on Osiander and Stephan (2018[10]), *Gerade geringqualifizierte Beschäftigte sehen bei der beruflichen Weiterbildung viele Hürden*, https://www.iab-forum.de/gerade-geringqualifizierte-beschaeftigte-sehen-bei-der-beruflichen-weiterbildung-viele-huerden/, IAB-Forum; IAB online survey on CET.

Career guidance can play an important role in promoting training participation, but the German career guidance landscape is difficult to navigate

International evidence suggests that career guidance for adults can improve their decision-making, raise their self-awareness, and boost their confidence and motivation to learn (Kidd, Jackson and Hirsh, 2003[11]; Maguire, 2004[12]; Bimrose, Barnes and Hughes, 2009[13]; European Commission, 2015[14]). It can also help match workers to more stable and future-oriented jobs. In Germany, learners have reported low payoffs after general job-related training, but larger effects after training for specific occupations such as health and care professions (Doerr, 2014[15]; Autorengruppe Bildungsberichterstattung, 2018[16]; Kruppe and Lang, 2015[17]). Active outreach and guidance during this process is essential, particularly as Germany has one of the lowest shares of adults across the EU who searched for information on learning opportunities in a given year (28%; OECD (2021[4])).

Germany's current career guidance landscape can be confusing to navigate and impedes equal opportunities across regions (OECD, 2021[4]). Structures and approaches across the country are diverse, provided by different government actors, social partners, chambers, education providers, as well as private and non-profit organisations. A common nationwide entry-point or streamlined one-stop-shops under a unified brand are missing that could direct users towards the most appropriate guidance opportunities. Particularly opportunities for reskilling are limited, which are essential for allowing workers to move between sectors. The situation has become somewhat easier to navigate from 2019 when Germany made the services of the federal public employment agency available also to employed workers. However, as the LBBiE programme *(Lebensbegleitende Berufsberatung im Erwerbsleben)* is being implemented in close co-operation with the existing guidance networks, the progress being made differs across federal states. To match resources to the larger target group Germany also increased the number of qualified

guidance staff, which is an important step towards a generalised adult learning culture. Still, there is plenty of scope to develop active outreach to workers who do not seek guidance and counselling independently because of a lack of awareness or interest in training.

Austria successfully increased participation in adult learning by introducing a national paid training leave

One way of addressing workers' lack of time for training can be to provide them with a right to more extensive paid training leave independent from the employer. The Austrian paid education leave (*Bildungskarenz*), introduced in 1998, is a prominent example (see Box 5.1).[3] It gives workers paid time off from work to pursue education and training (e.g. in foreign languages, short vocational courses) or formal studies (such as elementary, vocational or university education). Many workers use the measure for upskilling opportunities specific to the Austrian system, including to obtain their Master Craftsmen Qualification (*Meisterprüfung*). One strength of this policy is that it also supports job transitions rather than to focus only narrowly on direct employer needs.

To be eligible, workers need to have entitlements to unemployment benefits. Employees can pause their work contract for 2-12 months to pursue full-time training, or for 4-24 months for part-time training over the course of four years in total. On average, workers take up funding for approximately eight months (230 days). During the training, workers are compensated at the level of unemployment benefits, i.e. at 55% of net earnings with a minimum of EUR 14.53 per day. The policy is generally considered a success, with participation having gradually increased from around 1 500 to around 20 000 workers between in 2002 and 2016. Repeated adaptations of the programme, based on evidence and feedback, have been one reason for this success. According to the latest evaluation, 90% of beneficiaries were satisfied or very satisfied with their results following participation (OECD, 2021[4]).

There have been discussions about the potential benefits of introducing a similar scheme in Germany. A concrete option that has been proposed would be, for example, to provide every citizen with a Basic Education Income (Bildungsgrundeinkommen) of EUR 1 200 per month, paid for a period of up to 36 months while the person pursues further education or training over the course of their working life. This plan also foresees the reimbursement of direct training costs and the payment of additional supplements for workers with dependent children or other special circumstances (Zentrum Liberale Moderne, 2021[18]).

Box 5.1. Austria's full-time (*Bildungskarenz*) or part-time (*Bildungsteilzeit*) educational leave policy for employees

Austria provides employees with the possibility to draw on their unemployment benefit entitlements while pausing their employment contract for training purposes of two months to one year (4-24 months in case of part-time training) within a period of four years. The programme, originally introduced in 1998, gained wide popularity during the financial crisis, when many companies used it as a means of keeping their workers in employment, often in combination with short-term work. Participation then stabilised at a high level during the recovery. In 2016, 0.4% of the working-age adult population in Austria were enrolled in the programme, with 12 000 participants in full-time and 5 500 in part-time education or training. Women, people with Austrian citizenship, younger and higher-educated people are overrepresented among participants.

The programme is implemented by the Austrian public employment service (*Arbeitsmarktservice*, AMS) in co-operation with the national and regional administrations and social partners. The Ministry of Labour defines the broad goals of labour market policy every year. The administration of the paid educational leave programme is highly decentralised through one federal, nine state-level, and 98

regional bodies. Public and private learning providers deliver the training. Social partners are involved in decision-making and monitoring at all levels.

Workers apply for the measure directly via the AMS, either online or in person. The application includes a request form, as well as the written agreement between employee and employer on the workers' participation in the measure. Only 14% of employees participating in the programme reported that it was at least somewhat difficult to get employer approval. Employees are entitled to involve the work councils in the talks. Once the application has been approved, the financial support is paid directly to the worker. Average cost of the policy per participant is around EUR 4 000 for full-time and EUR 3 500 for part-time participants, including workers' forgone wages while on training.

Repeated adaptations of the programme, based on evidence and feedback, have been one reason for its success. Evaluations showed that in the early stages workers considered the benefit amount insufficient to compensate their income loss. In January 2008, the financial support was increased from a flat-rate tariff to the level of the unemployment benefit. Improvements in the access to the paid benefit further raised the programme's attractiveness. In 2013, paid educational leave was opened up to workers desiring to participate in training on a part-time basis. This step came in response to a 2011 evaluation that suggested that long full-time absences from work may have negative effects on employment outcomes or hours workers in the following years.

Source: OECD (2020[19]). "*Increasing Adult Learning Participation: Learning from Successful Reforms*", https://doi.org/10.1787/cf5d9c21-en.

Helping to identify learning needs, linking workers with appropriate education opportunities, and building a positive adult learning culture could bring substantial benefits

Many workers in Germany are not aware of the necessity to continue learning over the working life, nor are they able to identify the skills or qualifications needed to improve their labour market perspectives. Helping German middle-income workers to identify their learning needs, directing them to the appropriate training options, and encouraging take-up can therefore yield substantial benefits. Outreach through the workplace can be effective in engaging adults in learning, and trade unions can provide a bridging function between employers and employees (OECD, 2019[20]). Such approaches are being trialled by social partners in Germany, such in case of the training mentors (*Weiterbildungsmentoren*) in the chemical industry.

One good international practice is the UK's Unionlearn programme, a long-standing initiative to improve learning opportunities for employees (OECD, 2021[4]). Almost every union is involved in the programme, while services are open to all workers in the covered sectors or firms, even if they are not union members themselves. Union learning helps workers build their confidence as learners and to develop work-related skills. The programme is run by the UK Trade Union Centre, which trains Union Learn Representatives in each company. Their role is to promote the value of learning in enterprises, support adults in identifying their training needs, and arrange learning opportunities. Representatives help break down barriers to learning by negotiating with employers about time for learning, providing access to learning resources, and building learner confidence through peer-to-peer support. Unionlearn has trained more than 40 000 Union Learn representatives and supported close to 3 million workplace learners since its inception in 2006. The programme engaged learners from across the occupational spectrum, with a third of them in managerial or professional roles. Union learning also engaged typically hard-to-reach groups such as older workers and learners from minority ethnic groups.

Evaluations of the Unionlearn programme have demonstrated its high return on investment and tangible benefits for all stakeholders (Dean, 2018[21]; Stuart, 2016[22]). Through participation, 19% of learners achieved higher qualification levels. The learner survey confirmed that the support of Unionlearn representatives, information from union events, and promotional materials were key ways of engaging

leaners in learning activities. Union learning also stimulates enthusiasm and demand for learning; nine-in-ten participants reported that they were interested in further learning. Employers find that Unionlearn contributes to a wide range of organisational benefits. The programme therefore also effectively raises awareness among employers and contributes to a supportive adult education culture. Most recent estimates suggest that GBP 1 of public investment is returned 3.6-fold.

Structural transformation changes skill demand and is likely to amplify regional labour market imbalances, but Germany lacks forward-looking skills management

The structural transformation facing the German economy will have a strong geographic dimension, changing, and likely amplifying, existing regional labour market imbalances. According to projections (Hummel et al., 2021[23]), the eastern German states could lose between 15 and 20% of their current jobs by 2040 with only relatively modest job creation over the same period. This reflects demographic trends, coupled with changes in industry structure, notably the decline of manufacturing (incl. construction). Meanwhile, the city-states of Berlin and Hamburg can expect net job creation of around 5%. Such large changes will likely bring about major swings in the skills supplied and demanded in local labour markets.

However, Germany lacks integrated, forward-looking skills management that could shed light on such regional skill imbalances. For example, while several instruments incentivise vocational upskilling, there are no public financial incentives for workers at either federal or regional level to train for shortage occupations or to acquire in-demand skills (OECD, 2021[4]).[4] This may be to the disadvantage particularly of less well-connected regions, which face greater difficulty in attracting skilled labour to adjust for changing skill needs. Good-quality information on regional skill needs, and shortages, is the first step to steer investment towards in-demand skills and promote labour mobility. The German public employment service reports annually on labour shortages by occupation, but without providing detailed geographic breakdown (Bundesagentur für Arbeit, 2021[24]). Its research institute, the IAB, carries out regional projections of future labour demand and supply by occupation and state (Hummel et al., 2021[23]), however, not necessarily in a format best suited to inform the decision making of social partners, adult learning providers and career guidance counsellors (Patscha et al., 2017[25]).

Skill forecasting can effectively take place at the regional level by bringing together social partners, industry organisations, education and training providers, with national and regional authorities including the public employment service. In Sweden, for example, regional skills platforms connect stakeholders to help anticipate and resolve skill shortages (CEDEFOP, 2017[26]). Employers can report their skills needs and work with education providers and public authorities to adapt vocational education programmes and improve data collection. Regional governments usually chair the platforms, but actors are flexible in coming up with the tools, approaches and activities needed to improve local co-ordination, dialogue and knowledge accumulation (Swedish Agency for Economic and Regional Growth, 2016[27]). In 2019, experimentation started with sporadic and narrower, industry-specific initiatives such as the Qualification Networks (*Qualifizierungsverbünde*) in the Baden-Württemberg region, which is currently in a pilot phase.

In a decentralised country, such as Germany, a challenge can be to make sure that the harmonised information needed for cross-regional policy co-ordination is available at national level. For this purpose, France commissioned a government think-tank, *France Stratégie,* to improve the coherence of skill assessment exercises that are happening in parallel at national, regional and sectoral level. Since 2015, the Employment and Skills Network (*Réseau Emplois Compétences*) facilitates the creation of a common methodological framework for regional and sectoral skill anticipation studies (OECD, 2019[5]). It brings together stakeholder representatives, including from the regions, for thematic meetings and working groups to develop guidelines for actors on the ground (France Stratégie, 2021[28]).

Timely regional data on the demand and supply of skills is particularly important to mitigate the regional imbalances that arise from structural transformation. This may mean, for example, providing targeted support to workers with skills that are at risk of becoming outdated and obsolete. Evidence shows that

such workers are less likely than others to participate in training or to use guidance services themselves. In Germany, workers in occupations with a medium or high risk of automation are 20 percentage points less likely to participate in training than workers facing low risk of automation (OECD, 2021[4]). Preventing such workers from becoming unemployed is better for their employment prospects, earnings trajectories and human capital, while it is also less costly for the public budget than providing support after dismissal (Quintini and Venn, 2013[29]). Identifying workers with potentially outdated skills is particularly effective, when it is on a group basis, for instance at firms or sectors that are facing declining demand or high risk of automation. The Swedish Job Security Councils, which provide targeted support to workers at risk of collective dismissal, are a very interesting example in this respect (Box 5.2).[5]

Box 5.2. The Swedish Job Security Councils (*Trygghetsråden*)

The Swedish Job Security Councils (*Trygghetsråden*), introduced in the 1970s at the wake of the oil crisis to support employees at risk of collective dismissal. The first agreements were a result of negotiations between employers associations and trade unions and were seen as complements to the public employment service. Councils target workers employed in a company, or part of a company, closing down or restructuring for technological or economic reasons, with the aim of helping them transition into a new job before a dismissal takes place.

Workers supported by the councils receive a dedicated coach and a range of personalised services, including guidance and advice, training, financial support and business start-up support. Support is provided for a period of six to eight months. Workers do not have to be trade union members to benefit from the councils' services. The councils' track record is remarkable: 74% of workers supported by the councils leave their company towards a new job or further training; 70% of those who find work manage to maintain or increase their salary in the process.

The Job Security Councils are financed through an employer levy of 0.3%. They are run by social partners based on sectoral or cross-sectoral collective agreements (*Omställningsavtal*) and exist in all sectors of the Swedish economy.

Source: OECD (2019[5]). "*Creating responsive adult learning systems*", https://www.oecd.org/els/emp/adult-learning-systems-2019.pdf, Diedrich and Bergstörm (2006[30]), "*Job security councils in Sweden*", http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.546.8348&rep=rep1&type=pdf

5.2.2. Building pathways into the middle class for the young generation

Most young people in Germany have a smooth school-to-work transition, and Germany fares well on youth labour market outcomes in international comparison. Against the background of falling unemployment rates in Germany, also labour market outcomes for young people have continuously improved since 2005 up until the COVID-19 crisis. In 2020, 9.4% of 15-24 year-olds were not in employment, education or training (NEET) in Germany, 1.1 percentage points more than the pre-crisis 2019 value, but much below the OECD average of 16.1%.[6] While fewer young people in Germany obtain a tertiary-level qualification than in most other European countries – 35% of 25-34 year-olds in 2020, compared to 45% in the EU and OECD on average (OECD, 2021[31]) – this also reflects the strong position of Germany's vocational education system.

Still, about one-in-seven (13%) young people between 25 and 34 in Germany do not have an upper-secondary qualification. In a knowledge-based economy like Germany, these young people often face greater difficulties in establishing themselves in the labour market and building a career. Indeed, young people without an upper-secondary qualification were three times more likely to be unemployed or inactive than their peers with an upper-secondary or post-secondary degree in 2020 (OECD, 2021[31]).

Also their chances of reaching the middle-income group have been dwindling, as seen in Chapter 2. Given the strong relation between educational outcomes and the socio-economic background of students, it is a matter of fairness and efficiency alike to ensure that every young person has the opportunity to obtain at least an upper-secondary qualification. It is also an economic imperative, given demographic change and the growing shortage of skilled labour in Germany.

The COVID-19 crisis led to drop in the availability of apprenticeship places – and in the number of applicants

The COVID-19 crisis risks having lasting effects on the employment perspectives of a whole cohort of young people who are unfortunate enough to graduate from school and enter the labour market at the height of the crisis.[7] In Germany, the direct labour market impact of the crisis has been modest so far in international comparison also for young people: the unemployment rate of 15-24 year-olds rose from 6.2% to 8.0% between February 2020 and its peak in December 2020; in May 2021, it stood at 7.5%, the fourth lowest value across OECD countries (OECD, 2021[3]).

Young people interested in taking up an apprenticeship seem to have been affected more.[8] By the start of the training year in September 2020, the number of apprenticeship positions offered by companies had declined by 7.3% relative to the previous year, and the number of applicants was down by 7.6%. Monthly evidence up to May 2021 suggests that both the number of applications and places available had not recovered to pre-crisis levels (OECD, 2021[32]).[9] Survey data from the IAB Business Panel (Bellmann et al., 2021[33]) show that particularly small companies, and those in sectors most heavily affected by the crisis (notably in hospitality) have indicated to reduce apprenticeship places. Uncertain business prospects and financial difficulties were cited as the main reasons. The German Government reacted in July 2020 with the "*Ausbildung sichern*" ("Securing apprenticeships") programme, which provides financial incentives to small and medium-sized enterprises affected by the crisis that maintain or increase the number of apprenticeship places or that take over apprentices from insolvent businesses. The scheme was extended to 2021/22 and will receive EUR 500 million of funding in 2021. The most recent data show a further strong drop in the number of apprenticeship starts in September 2021, by 8.3%, with a more modest decline in the number for places offered (-3.6%) (Bellmann et al., 2021[34]).

The drop in the number of apprenticeship applications cannot be explained simply by demographic factors and should therefore be reason for concern. The reduction by 50 000 in the number of apprenticeship contracts signed in 2020 suggests that many young people have either postponed their application, decided to remain in school, or given up discouraged. This would imply a surge in the number of young people without qualification for the current school-leaving cohort unless if Germany finds a way of bringing these young people back into the vocational training system (Forstner, Molnárová and Steiner, 2021[35]). This will be challenging also because when re-applying those young people will have to compete for apprenticeship places with a new cohort of applicants who will have just left school.

A vocational training guarantee could ensure that every young person gets the chance to obtain a qualification

One option of ensuring that every young person gets the chance to obtain a qualification is through a vocational training guarantee, as it exists in Austria since 2008 (see Box 5.3). Under the Austrian *Ausbildungsgarantie* scheme, every young person below the age of 25 is entitled to an apprenticeship place. Young people who cannot find an apprenticeship position with a company can obtain their vocational qualification in "supra-company" workshops through an accredited training provider. This provider takes on the role of the company in offering to the young person the practical training foreseen as part of the apprenticeship, which – depending on the model – is complemented by extended placements in co-operating companies. For the duration of the training, apprentices can keep applying with companies and – once successful – switch to a "regular" apprenticeship. Graduates complete the training programme

with a standard apprenticeship certificate for the chosen occupation. The cost of the programme amounts to EUR 13 225 per person per year (Wieland and Härle, 2020[36]). Of these costs, 90% are paid for by the Austrian public employment service from means of the unemployment insurance fund, while the remainder is covered by the regions.

The available evidence on the impact of supra-company training is rather encouraging. Participation rates have risen since introduction of the scheme, from 5.6% to 7.7% between 2009 and 2018 (Schlögl et al., 2020[37]). Nearly three-in-four (72%) of trainees completed their apprenticeship, compared to 86% of young people in a regular dual vocational training. Out of the cohort of graduates in 2018, more than half (56%) were in employment – in many cases another apprenticeship – three months after graduation. Among former participants, the average gross annual income of graduates exceeded that of non-graduates by nearly 50% (Wieland and Härle, 2020[36]). Simulations suggest that a similar policy could substantially increase the supply of skilled labour in Germany, and that the financial benefits would exceed costs within relatively short time (Forstner, Molnárová and Steiner, 2021[35]).

Box 5.3. Supra-company training under the Austrian vocational training guarantee

Under the Austrian vocational training guarantee (*Ausbildungsgarantie*), introduced in its current form in 2008, every young person up to the age of 25 years is entitled to an apprenticeship offer. Young people who do not manage to find a regular apprenticeship with a company can receive their vocational training through supra-company training (*Überbetriebliche Lehrausbildung, ÜBA*). The ÜBA gives these young people a career perspective while supplying the labour market with qualified workers. In 2019, the ÜBA accounted for 9% of all apprentices in their first training year in Austria, about 3 100 young people in total.

The ÜBA is designed explicitly as a back-up option, or safety net, for young people who do not receive any offer of company-provided training in spite of having made adequate attempts. To qualify, a young person who has trouble finding an apprenticeship, or who dropped out of an apprenticeship, has to register with the Austrian public employment service (*Arbeitsmarktservice*, AMS), and provide proof of unsuccessful application attempts. The young person then participates in an orientation and preparation course with a duration of at least ten weeks. This course combines career guidance with socio-pedagogical support, skills profiling, and an assessment of the young persons' life circumstances. Before and during this course, the AMS actively supports the young person in finding a regular company-based apprenticeship. Only if this search remains unsuccessful the young person transitions into the ÜBA. The ÜBA is formally equivalent to company-provided training and leads to the same qualification. It always also includes company-provided practical training components, and ÜBA apprentices attend standard vocational education schools.

The ÜBA's explicit target is to help the young apprentices transition into regular company-based apprenticeships, and the system is designed such incentivise such transitions. Apprentices in the ÜBA receive a lower compensation than other apprentices, between EUR 354 in the first training year and EUR 818 in the third year. Supra-company training providers, which can be for-profit or not-for-profit, receive a financial reward for each trainee who transitions into a company. While young people can complete the entire apprenticeship in an ÜBA, about half of them transition into a company during the initial year of training. An important element of the programme has been that it was developed jointly with the social partners, who remain actively involved in its design and implementation. The qualifications offered by the ÜBA are chosen depending on skill demand using labour force data, and negotiated with the social partners.

While no rigorous impact evaluation of the ÜBA has been carried out to date, the available statistics on training and employment outcomes are encouraging. Of the trainees who left an ÜBA between 2015

and 2020, about 23% graduated with a vocational qualification, and a further 42% transitioned into company-based training. The remaining 34% dropped out. Of those trainees who completed the entire three-year training period in the ÜBA, nearly 72% obtained their qualification, compared to 86% among company-based apprentices. Three months after graduation, more than half (56%) of ÜBA participants were in employment in 2018 (41% in apprenticeships, 15% in non-subsidised employment); the remainder were registered as unemployed (28%) or out of the labour force (16%). The average gross income of former ÜBA participants with qualification was about 50% higher than for young people without qualification, though of course the young people in those groups are not entirely comparable.

The costs of the programme, about EUR 13 200 per trainee per year excluding the costs of attending the vocational training school, are largely covered by the AMS, with about 8% on average taken over by the regions. Estimations from a microsimulation model suggest that in the framework of the German training system, a vocational training guarantee that provides training to about 10 000 graduates per year could reduce unemployment rate by 0.09 to 0.17 percentage points and produce a long-term gain in GDP of 0.26 to 0.49%.

The effects of a vocational training guarantee may be particularly beneficial in times of economic crisis, as during the current COVID-19 crisis, when companies are more hesitant to take on apprentices. In such times, the vocational training guarantee can help stabilise the supply of apprenticeship places and hence ensure the qualification of young people.

Source: Wieland and Härle (2020[36]). "*Die Ausbildungsgarantie in Österreich: Funktionsweise, Wirkungen, Institutionen*", http://dx.doi.org/10.11586/2020051; Forstner, Molnárová and Steiner (2021[35]). "*Volkswirtschaftliche Effekte einer Ausbildungsgarantie: Simulation einer Übertragung der österreichischen Ausbildungsgarantie nach Deutschland*", https://www.bertelsmann-stiftung.de/de/publikationen/publikation/did/volkswirtschaftliche-effekte-einer-ausbildungsgarantie-all.

5.3. Creating good-quality, future-oriented jobs

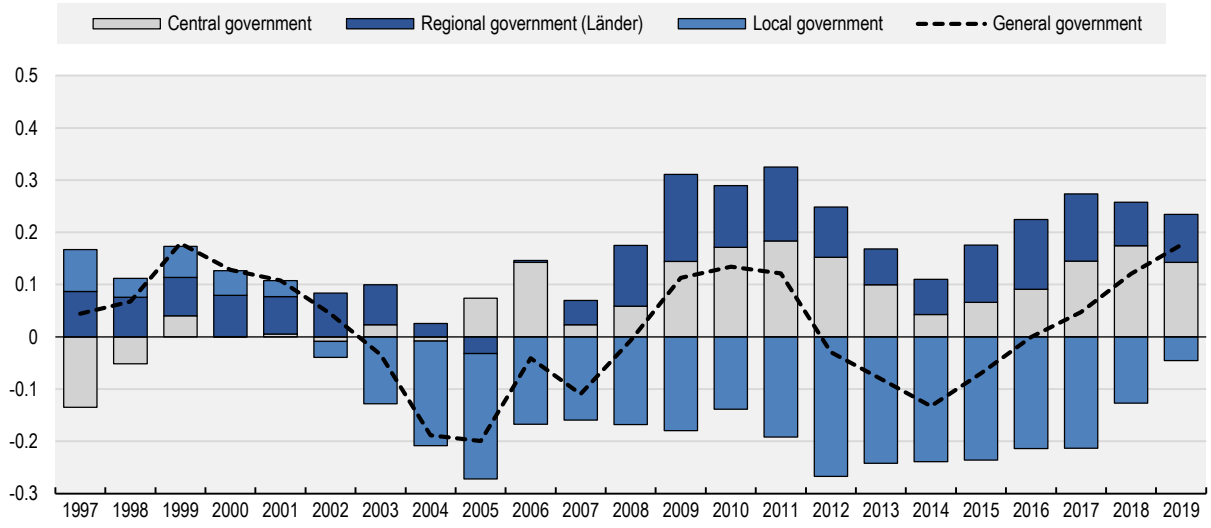
The structural transformation facing the German economy over the coming decades is not only a challenge to middle-class employment, as described in Section 5.2, but also can represent an occasion for the creation of attractive middle-class jobs. To successfully master the challenges arising from demographic change, the digital transformation, and the need to transition into a zero-carbon economy, Germany will have to modernise its economy and public infrastructure in the coming decades (OECD, 2020[6]). Population ageing will not only alter the structure of Germany's workforce, and the skills it supplies to the German economy, but also boost the demand for the services that an older population requires, including health care and long-term care. With the right policy choices, these processes provide the potential for additional good-quality, future-oriented middle-class jobs.

5.3.1. Creating middle-class jobs by investing in public infrastructure

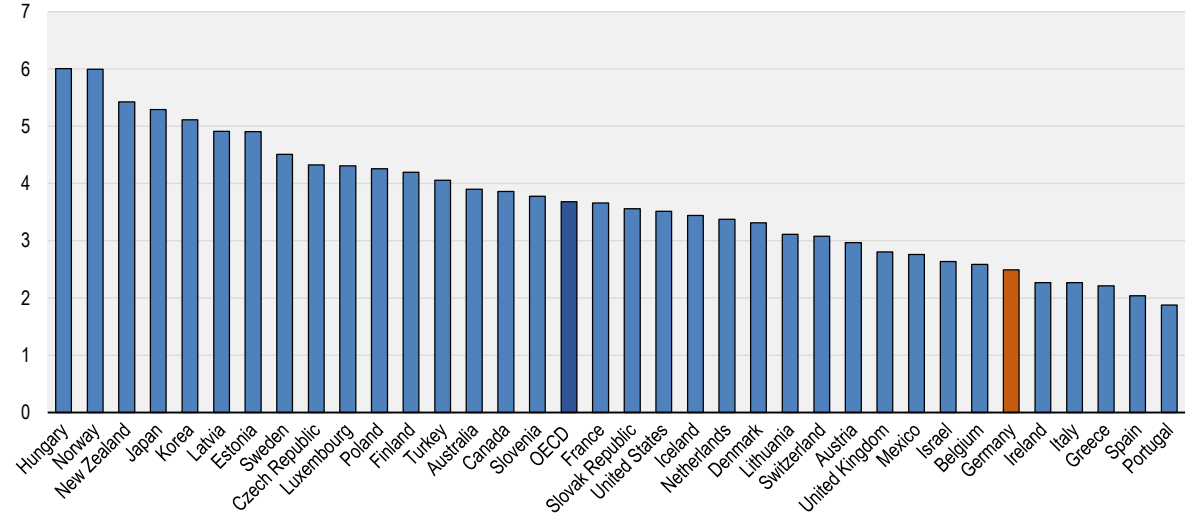
Infrastructure investment over the last two decades has been low in Germany, with stretches of negative net public investment in the mid-2000s and mid-2010s (Figure 5.3). And while Germany has stepped up public investment since 2014, including in its educational infrastructure and energy grid, general government investment remains at one of the lowest rates across OECD countries, at 2.5% of GDP in 2019 (3.7% in the OECD on average). This has created a considerable backlog, with substantial investment needed in digital infrastructure, social housing, and child care and education infrastructure. Large investments will be required also to decarbonise Germany's economy, notably into its electricity grid and into low-emissions transport infrastructure.

Figure 5.3. Public investment in Germany has been low

Panel A. Net public investment by level of government, % of GDP, Germany, 1997-2019



Panel B. General government investment , % of GDP, selected OECD countries , 2019 or latest



Note: In Panel A, public investment is defined as public gross fixed capital formation less depreciation. In Panel B, general government investment is the cumulative investment of the central, regional and local governments.
Source: OECD (OECD, 2020[6]) based on OECD National Accounts and Economic Outlook database.

The public infrastructure investment needed for Germany to master the structural transformation of its economy has the potential to become an engine of employment growth, and to create quality middle-class jobs. Investment in digital infrastructure – including in broadband internet and better mobile connectivity outside urban areas – could help boost the productivity and innovative capacity of companies in Germany, hence contributing to job creation including in rural areas (OECD, 2020[6]). The renewal of key public infrastructure in Germany, also as part of the greening of Germany's economy, would directly create many jobs, including in structurally weaker regions. Indeed, several OECD countries have announced investments in public infrastructure to boost job creation as part of their post-COVID-19 recovery plans. Most notably, the US American Jobs Plan foresees public infrastructure spending of about USD 2 trillion, or about 9.5% of 2020 GDP, by 2030 to address some of the same key challenges facing also the German economy (The White House, 2021[38]). In particular, the US plan focuses on funding

climate and clean-infrastructure projects in regions that are lagging or affected by the transition to clean energy, the creation and improvement of caregiving jobs, and investments in transport infrastructure, the electric grid, and broadband internet in all parts of the country. Already before the crisis, France announced a *Grand plan d'investissement*, to invest EUR 57 billion over 2018-22 to respond to the country's four major challenges: carbon neutrality, skills and employment, better competitiveness through innovation, and digitalisation (French Government, 2017[39]).

5.3.2. Improving the working conditions and pay of care professionals

Care professions will likely experience substantial employment growth over the coming years and decades. In health care and long-term care, qualified staff were already in short supply in Germany's booming labour market prior to the COVID-19 crisis (Rothgang, Müller and Unger, 2012[40]; Bundesagentur für Arbeit, 2020[41]), and the demand is projected to grow further as the German care workforce will need to support the large retiring baby boomer generation (Blum, Offermans and Steffen, 2019[42]; OECD, 2020[43]). Estimates from 2012 suggested that the number of people in need of care would rise from 2.3 to 3.4 million between 2009 and 2030, causing an additional demand for up to 0.5 million long-term care workers (Rothgang, Müller and Unger, 2012[40]). More recent figures show that the number of people in need of long-term care had already risen to 4.1 million by 2019, lifting the number of people in need of care per care worker from about 1.8 to about 2.4 (Bundesministerium für Wirtschaft and Energie, 2020[44]; Statistisches Bundesamt, 2021[45]).[10] The result may be labour shortages in health care and long-term care all across Germany, with the situation predicted to be particular severe in eastern Germany (Berlin, Brandenburg, Mecklenburg-West Pomerania and Saxony; Hummel et al. (2021[23])). According to a recent OECD survey, about 60% of Germans are concerned that their older family members or themselves will not be able to access good-quality long-term care (OECD, 2021[46]). In the child care sector, many facilities are already understaffed, and the demand for qualified staff will further grow as a result of rising participation rates in early childhood education and care (ECEC), the shift towards full-day care, more flexible opening hours (see also Section 5.4), and larger birth cohort sizes in recent years (Warning, 2020[48]; OECD, 2020[47]). Germany may need close to half a million new ECEC staff by 2030, which far exceeds the expected number of appropriately qualified graduates over the same period (OECD, 2019[49]).

These developments could be an opportunity for the creation of a large number of middle-class jobs. Occupations in nursing are one of the largest groups of associate professionals, who account for a growing share of middle-income jobs particularly among women (see Chapter 3, Figure 3.4 and Annex Table 3.A.1). In Germany, most of the health care professionals are nurses, representing higher skill levels than in other countries. Health and personal care assistants are important groups among the lower-skilled service and sales workers, many of whom live in middle-income households. Further job growth in caring professions will create additional employment opportunities for middle-income workers, and notably in occupations that are heavily female-dominated and – at least in parts – still difficult to automate (Nedelkoska and Quintini, 2018[1]).

However, for the care sector to become a job engine for good middle-class employment, Germany will need to substantially boost job quality in these professions, and particularly so in long-term care. The low attractiveness of care professions is one reason for the current staff shortages, and it will increasingly become a challenge as the demand for qualified labour rises.

Poor working conditions and low pay for caring professionals make it hard to attract qualified staff

Pay is low in many caring professions. A long-term care nurse working full-time earned a median salary of about EUR 2 900 gross per month, about EUR 150 less than occupations of comparable skill level, and EUR 400, or 12%, below the median wage of full-time employees in Germany (Bundesagentur für Arbeit, 2020[41]; Carstensen, Seibert and Wiethölter, 2020[50]). Long-term care assistants, who like nurses hold a

vocational upper-secondary qualification in Germany, earned a median gross salary of EUR 2 000 per month end-2018, about 10% below the average for comparable assistant occupations (Bundesagentur für Arbeit, 2020[41]).[11] However, the salaries of long-term care professionals vary substantially across, and even within, federal states, causing uncertainty for care workers. Child care professionals also earn relatively low wages in Germany, and they usually do not receive any salary during the first two to three years of their vocational education (Warning, 2020[48]). Health care workers receive substantially better salaries: in 2018, their median salary was about 20-30% higher than in long-term care, and slightly above the median across all sectors in Germany (Carstensen, Seibert and Wiethölter, 2020[50]). During the COVID-19 pandemic, the German Government announced a gradual rise in the minimum wages of nursing assistants and care workers with three-year apprenticeships. The Concerted Action Care (Konzertierte Aktion Pflege) aims to improve conditions for long-term care workers, including by increasing salaries and the earnings of apprentices. Although welcome steps, these steps alone are unlikely to be sufficient to address the existing challenges (Rocard, Sillitti and Llena-Nozal, 2021[51]).

Care professions also suffer from unattractive working conditions. In child care, fixed-term contracts are widespread at the start of workers' careers: more than half of new hires on jobs that offer full social protection initially receive only a temporary contract, compared to less than 40% among all occupations (Warning, 2020[48]). In long-term care and health care, a disproportionate share of workers are employed part-time (56% and 43% of all workers, compared to 29% among all sectors), with one of the main reasons for part-time work being the high work strain from shift work and overly dense work schedules when working full-time (Bundesagentur für Arbeit, 2020[41]; DBFK, 2019[52]). A challenge common to all care professions is the limited access to training and the low potential for career development (OECD, 2020[47]; 2020[43]).

The COVID-19 pandemic has exacerbated some of these challenges. While Germany's physical health infrastructure has proven quite robust to the challenges of the pandemic, caring professionals were heavily affected. The high pressure on health care services, particularly during the second pandemic wave in autumn and winter 2020, worsened existing problems of under-staffing and markedly increased the share of workers reporting mental strain (Eggert and Teubner, 2021[53]). The risk of infection increased reported stress, including for child care workers.[12] Frontline workers' exposure to the COVID-19 virus also lead to increased sickness absences that exacerbated staff shortages (Rocard, Sillitti and Llena-Nozal, 2021[51]).

The low attractiveness of the care professions partly reflects weak worker bargaining power in the absence of collective bargaining agreements (CBAs). CBAs can set the framework for concrete measures to improve the pay, training and working conditions of care workers, and guarantee a better enforcement in labour contracts (OECD, 2020[43]). More than other OECD countries, Germany experienced a weakening of trade unions since the middle of the 20th century, a trend that also applied to care professionals (Schnabel, 2016[54]). Today, only one-in-ten long-term care workers are members of a trade union (Schroeder, 2018[55]). Professional representation of care workers is traditionally low in Germany, and a renewed attempt to negotiate a CBA for long-term care workers failed in first quarter of 2021. In the Netherlands, CBAs in the health care and long-term care sectors – negotiated between trade unions and employer associations – are declared universally binding (FBZ, 2021[56]). By setting standards, CBAs protect workers with a weaker bargaining position and reduce earnings inequalities (cf. OECD (2018[57])).[13] Salaries for long-term personal care workers and nurses are 20 to 25% higher in the Netherlands than in Germany, and the share of temporary contracts is about 10 percentage points lower (OECD, 2020[43]). In some other countries, collective agreements also include additional leave days and death insurance for health care workers. A big step towards better pay for long-term care professionals in Germany is a recent legislative change, according to which long-term care providers will have to pay according to CBAs to continue qualifying for reimbursements through the public long-term care insurance.[14]

The skills required in caring professions are in short supply in Germany

An additional reason for the labour shortages in caring professions, besides the low attractiveness of some of these occupations, is that the level of skills sought after by employers often exceeds that of available applicants. According to PES data (Bundesagentur für Arbeit, 2020[41]), a significant number of jobseekers indicated an interest in working in the care sector prior to the COVID-19 crisis when demand for care workers was high. In long-term care, the number of jobseekers even exceeded the number of vacancies by about one-third in 2019. However, the qualifications requested in the vacancy were usually higher than those of the available jobseekers. In long-term care, 90% of jobseekers did not possess the vocational degree for care nurses required in two-thirds of all vacancies; 60% of jobseekers in long-term care and 28% in health care did not even possess the vocational qualifications for the lower-skilled position of care assistants. This underlines that – besides raising the attractiveness of care professions – Germany will need to invest in the up- and reskilling of workers to equip them with the qualifications required in the care sector.

Indeed, Germany carried out far-reaching changes in the vocational education of health and long-term care workers in 2017. With the start of 2020, health care and long-term care were integrated into one single vocational degree.[15] This change should facilitate moves between the different care sectors for future generations of care workers, thereby allowing Germany to react more flexibly to changes in labour demand. This should contribute to reducing labour shortages. Training costs were scrapped, and a minimum wage introduced for trainees in vocational education. No such minimum wage still exists for trainees in child care vocational education. Germany also introduced a bachelor in care, already common in other countries, to strengthen skill development at tertiary level in the health and long-term care sectors (OECD, 2020[43]). However, it will take a few years before those changes in training policy will meaningfully affect labour supply.

Raising the profile and pay of care occupations requires greater public spending

Improving the attractiveness of care occupations, including for middle-class workers, will require Germany to increase public expenditures. This is true not least because since the public sector is the largest employer of care professionals in Germany, spending increases could directly translate into better working conditions and higher wages for care workers. Public spending on long-term care in Germany has risen over the last decade, from 1.1% to 1.6% of GDP between 2010 and 2019. But it remains much below the levels achieved in Belgium and Denmark (both 2.3%), Sweden (2.7%), and the Netherlands and Norway (3.1%; OECD (2021[58])).[16] This is true even though the share of elderly people in the population is much higher in Germany than in any of these countries (OECD, 2021[59]). There may generally be public support for increasing public spending on long-term care. Evidence from the most recent OECD *Risks that Matter* survey indicate that 36% of Germans would agree to pay an additional 2% of taxes if they were allocated to long-term care (OECD, 2021[46]). Public expenditures for ECEC in Germany are around the OECD average of 0.7%, but much below the values obtained in France (1.3%), and some of the Nordic countries (1.3-1.8% in Denmark, Norway, Sweden, and Iceland; see Section 5.2 and OECD (2020[60])).

An interesting example in this respect is Japan. Facing similar demographic challenges, the country started to raise spending on long-term care, with an average real annual increase of 4.6% between 2005 and 2015, compared to only 3.3% in Germany. Additional expenditures in Japan, in particular on technology, target both process optimisation and higher labour supply through better working conditions. For example, the usage of care robots to lift patients, and of advanced sensor technique to automatically identify certain care needs, has the potential to reduce physical work strain and increase process efficiency for care professionals. While technology diffusion in the sector remains low to date (Braeseke et al., 2019[61]; OECD, 2020[43]), particularly the use of the sensor technique may hold promise for the long-term care sector in Germany (Beck et al., 2013[62]).[17]

5.4. Boosting middle-class disposable incomes

Weak income growth for low- and middle-income households over the last two decades has been a key factor in explaining the shrinking of the German middle class. As detailed in Chapter 2 (Figure 2.4), the median disposable household income in Germany has stagnated between 2000 and 2015 in real terms, though the picture has looked brighter in recent years. However, in spite the uptick in disposable incomes since 2015, the living standards of middle-income households have risen only little compared to the early 2000s. This long period of stagnating incomes is partly a consequence of low, or even negative, real earnings growth for the median earner over the same period, as shown in Chapter 3 (Figure 3.9). It is consistent with a broader trend across a range of other OECD countries, where income and earnings growth have been weak for the lower half of the distribution (see also Chapter 2, Annex Figure 2.A.1. and OECD (2018[63])).

Those trends are probably part of the reason for a widespread sentiment in many OECD countries, including in Germany, that taxes are too high for lower- and middle-class households. OECD calculations based on data from the International Social Survey Programme for 2016 show that around half of people in Germany, and across OECD countries, find that taxes for middle-income households are "too high" or "much too high" (48% of respondents in Germany, 51% across 25 OECD countries on average). Even around three-in-four respondents (75% in Germany, 72% in the OECD on average) find taxes too high for low-income households.[18] Meanwhile, recent results from the OECD *Risks that Matter* Survey indicate that, on average, 58% of middle-income households in OECD countries consider that they do not receive a fair share of public benefits for the taxes and social-security contributions that they pay (OECD, 2019[64]).

However, the analysis in Chapter 2 calls for a more differentiated view (see Figure 2.9). Working-age middle-income households indeed contribute much more in income taxes and social security contributions than they receive in cash benefits, but the reverse is true for elderly middle-income households, who receive most of their income from public pensions. Also, while income taxes and contributions exceed cash benefits receipt for the mid middle and upper middle, households in the lower middle-income group are net beneficiaries. In other words, considerable income redistribution takes place also *within* the middle-income group.

This section discusses different policy options to boost disposable incomes of the German middle class. It takes a close look at the tax burden on labour income in Germany, drawing on simulations from the OECD Tax-Benefit model, and discusses options for relieving pressure on middle-income households. It then discusses measures that could help further raise labour force participation – and hours worked – of women in Germany, which would increase household labour income and boost incomes.

5.4.1. Reducing the labour tax burden for middle-class workers

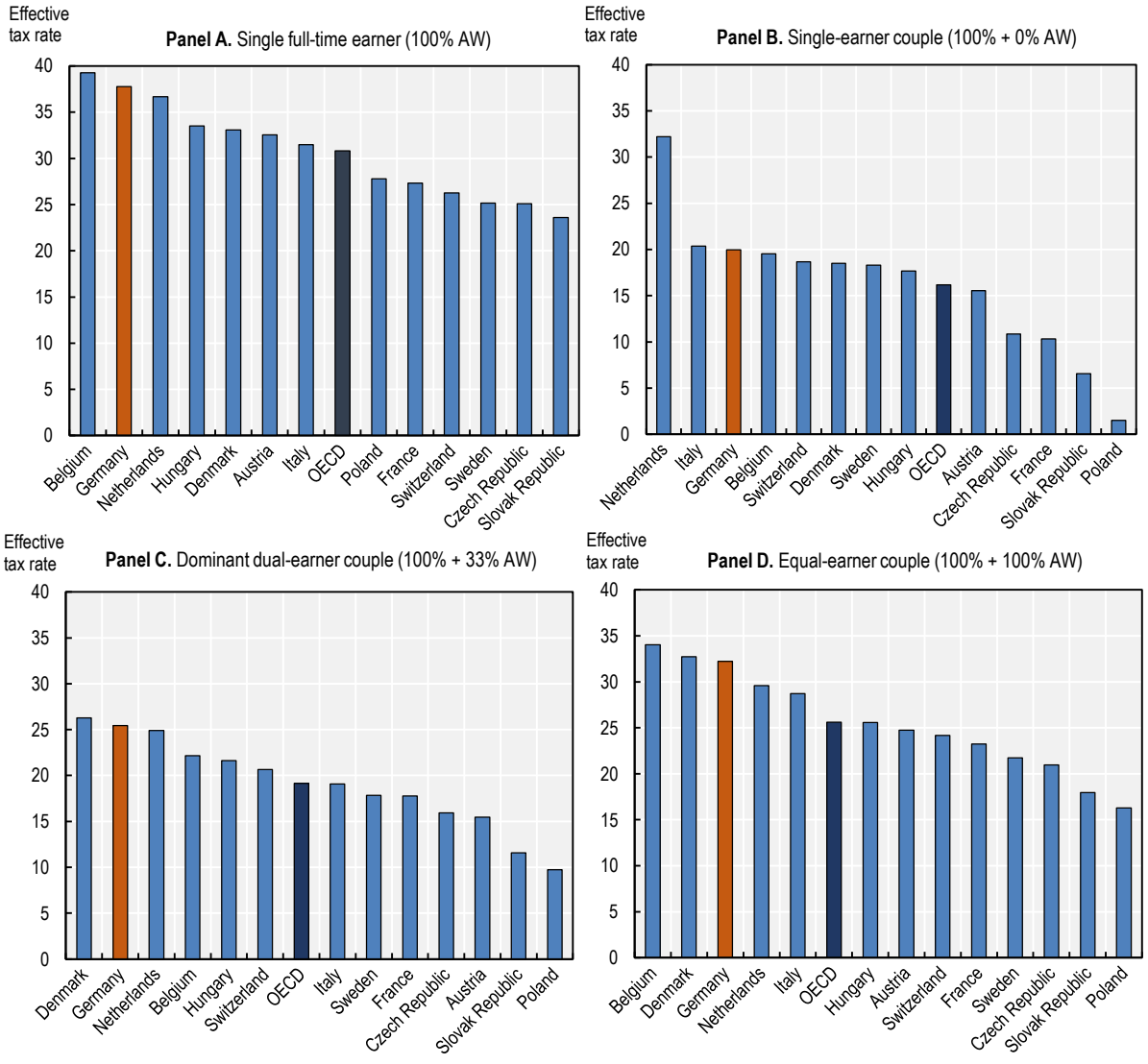
The effective tax rate for middle-income earners is high in Germany in international comparison

Middle-income households in Germany face a comparatively high effective net tax rate on their labour income. For a single person without children earning the average wage (AW) in Germany in 2021, deductions for income taxes and social-security contributions net of benefits equalled 38% of gross household income (Figure 5.4, Panel A).[19] This is higher than for a selection of comparable European countries, including Austria, Denmark, the Netherlands, France, and Sweden. Germany also has one of the highest effective net tax rates for couples in that income range (Figure 5.4, Panel B, C and D). This is true particularly for couples where partners have similar earnings (see Figure 5.4, Panel D, "equal dual-earner couples" at 100%+100% of the AW), while "traditional" single-earner couples fare better (Figure 5.4, Panel B). This is a result of joint income taxation with the option of the income splitting for

married couples in Germany, see discussion below. Those results hold for couples with and without children.

Figure 5.4. Middle-income earners face a high effective net tax rates in Germany

Effective tax rates as a percentage of gross household earnings, by household type, selected OECD countries, 2020 (preliminary 2021 results for Germany)



Note: The effective tax rate is the share of gross income that is due to the government as income tax and employee social-security contributions, minus social benefits received. Single-earner couples have an income of 100% of the average wage. Dominant dual-earner couples have an income of 100%+33% of the average wage, where the second earner is assumed to work one-third of the time at 100% of the AW. Equal dual-earner couples have an income of 100%+100% of the average wage. The couples are assumed to have two children aged 4 and 6; the single full-time earner is assumed to have no children. Childcare costs and benefits are not included. "OECD" gives the unweighted average across 33 OECD countries in 2020 (2021 for Germany).
Source: OECD Tax-Benefit model (version 2.3.2.), www.oecd.org/social/benefits-and-wages.

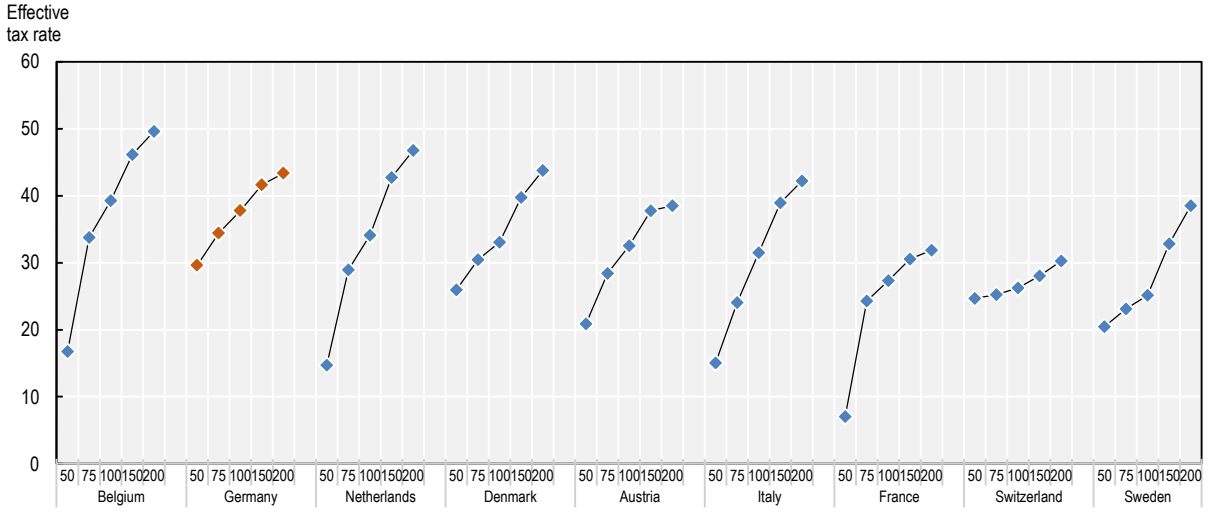
High effective tax rates for middle-income earners reflect what is commonly referred to as the *Mittelstandsbauch*, the middle-class bulge. Once a person's income exceeds the basic tax-exempt amount,

about EUR 9 700 in 2021, marginal tax rates rise steeply at low to middle income levels before flattening out rather quickly at higher incomes. This leads to a rapid rise in the average tax burden for many low- and middle-income earners, such that incentives to increase earnings are weak (Peichl, Buhlmann and Löffler, 2017[65]). Weak progressivity in the upper parts of the German income tax schedule result from a series of reforms around the turn of the millennium that substantially reduced top marginal income tax rates.[20] Also, the threshold values of the German income tax brackets – unlike the basic tax-exempt amount – are not adjusted systematically for inflation or wage growth. Households with low and middle earnings therefore reach these higher marginal tax rates more quickly than they used to as a result of bracket creep (*Kalte Progression*; Beznoska and Hentze (2017[66])). Employee social-security contributions are relatively high in Germany across earnings levels (OECD, 2021[67]), and they make up the bulk of labour taxes paid by low-income earners (OECD, 2018[68]).

As a result, effective tax rates, which account for social-security contributions and benefits received, are quite compressed in Germany in international comparison (Figure 5.5). They are much higher than in most peer countries at low earnings levels (50-75% of the AW), among the highest at middle earnings (100% of the AW), but flatten out at higher earnings levels (above 150% of the AW). A single earner at 200% of the AW faces a lower effective net tax rate in Germany than in Belgium and the Netherlands, broadly on par with Denmark and Italy. For couples with uneven earnings levels (not shown in Figure 5.5), tax progressivity is further lowered by the spousal income splitting rule (*Ehegattensplitting*), see the discussion below.

Figure 5.5. The German tax schedule leads to high effective tax rates for lower- and middle-income earners while progressivity at the top is low

Effective tax rate for a single person without children as a percentage of gross earnings (100 = AW), selected OECD countries, 2020 (preliminary 2021 results for Germany), as percentages



Note: The effective tax rate is the share of gross income that is due to the government as income tax and employee social-security contributions, minus social benefits received. Results for Switzerland only take account of taxes, not of non-compulsory tax payments.
Source: OECD Tax-Benefit model (version 2.3.2.), www.oecd.org/social/benefits-and-wages.

Germany could reduce the tax burden for middle-class workers by increasing progressivity and changing its tax mix away from labour taxation

The above analysis indicates that there is scope for reducing the tax burden on labour income for middle-income households in Germany. This could happen through a combination of different measures:

- *Increasing the progressivity of the tax schedule for labour income:* Germany could reduce the income tax burden on low- and middle-income earners by easing the steep increase in marginal tax rates in the lower parts of the tax schedule. This could be done by lifting the lower threshold values of the income tax bracket that applies to middle-income earners, and by moving towards a more linear increase in marginal tax rates between the lowest rate and the top rate, currently 14 and 42%. Such measure would also benefit – and indeed benefit most strongly – high-income earners, who would pay the same lower rates on the respective parts of their income earned. They could therefore be complemented – and partly financed – by an increase in marginal tax rates at the top, where the German tax schedule is currently not very progressive.[21]
- *Lifting social-insurance contribution ceilings*: Germany is one of only five OECD countries – besides Austria, the Netherlands, Spain, and Sweden – where employee social insurance contributions are capped at below 250% of average earnings, at 159% in 2020 (OECD, 2021[69]). This limits the financial contribution that high-income earners make to the social insurance system.[22] Lifting these contribution ceilings, along with maximum benefit amounts, where applicable, would help generate additional resources to finance the system, particularly in those parts – like health care and long-term care insurance – where the benefit entitlements are largely independent of the level of contributions paid. The additional resources could help reduce, or at least stabilise, high employee social contribution rates.
- *Shifting the tax burden away from labour income towards other types of taxes:* Germany holds an (upper-)mid-table position in tax revenue as a share of GDP, but the tax wedge on labour for the average worker is the second highest across OECD countries (OECD, 2020[70]; 2021[69]). Reducing taxes on labour income while strengthening capital income taxation and removing exemptions to inheritance taxation would relieve the tax burden on middle-class households (OECD, 2020[6]). Stronger environmental and property taxation could also contribute to a more efficient, sustainable, and employment-friendly tax mix, though their implications for middle-class budgets may be more ambiguous.

5.4.2. Enabling and incentivising women to expand their labour market participation

Germany experienced strong growth in female labour force participation over the last decades. Since 2005, the employment rate of women has increased by 13 percentage points in the age group of 15-64 year-olds. At 73%, it was only little lower than the employment rate of men (79%) in 2020 (OECD, 2021[71]).[23] However, more than one-in-three women in Germany worked part-time in 2020, the fifth-highest rate across the OECD (OECD, 2021[72]). This includes a greater share of women than men employed in so-called *Minijobs,* i.e. marginal jobs with earnings up to EUR 450 per month that are exempt from income taxation and nearly all employee social-security contributions (Consiglio and Göbler, 2021[73]).[24] Women are also more likely to be overqualified for their job (Statistisches Bundesamt, 2021[74]), and a greater share of tertiary-educated women than men work in medium- rather than high-skilled occupations (Bönke, Harnack and Wetter, 2020[75]). As a result, women in Germany earn only about half as much as men over their lifetime (Bönke, Harnack and Wetter, 2020[75]), and the gender gap in labour income in Germany is one of the largest among European OECD countries (OECD, 2018[76]).

By enabling, and incentivising, women to work more hours, and to remain in – or return to – employment after childbirth, Germany could help households increase their income from work. This would strengthen the income position of middle-income households, and it could help low-income households rise up into

the middle-income group. Chapter 2 shows that one-and-a-half earner couples have become more likely to be in the middle-income group in Germany, and that two-earner couples increasingly find themselves in the high-income group (see Chapter 2, Figure 2.12). This underlines the importance of second earners for the income status of a household.

The German tax-benefit system creates substantial financial work disincentives for second earners, who are still in large majority women

Besides high effective tax rates on many middle-income earners, the German tax system – which taxes couples jointly – also comes with low work incentives for second earners to take up work or increase earnings by working more hours or moving to better-paid jobs (Böhmer et al., 2014[77]; Peichl, Buhlmann and Löffler, 2017[65]; OECD, 2017[78]; OECD, 2018[68]; Blömer and Peichl, 2020[79]). This particularly affects women, who are in many cases the second earners in a household, and it is one explanation for high rates of part-time work among women (see Chapter 3).

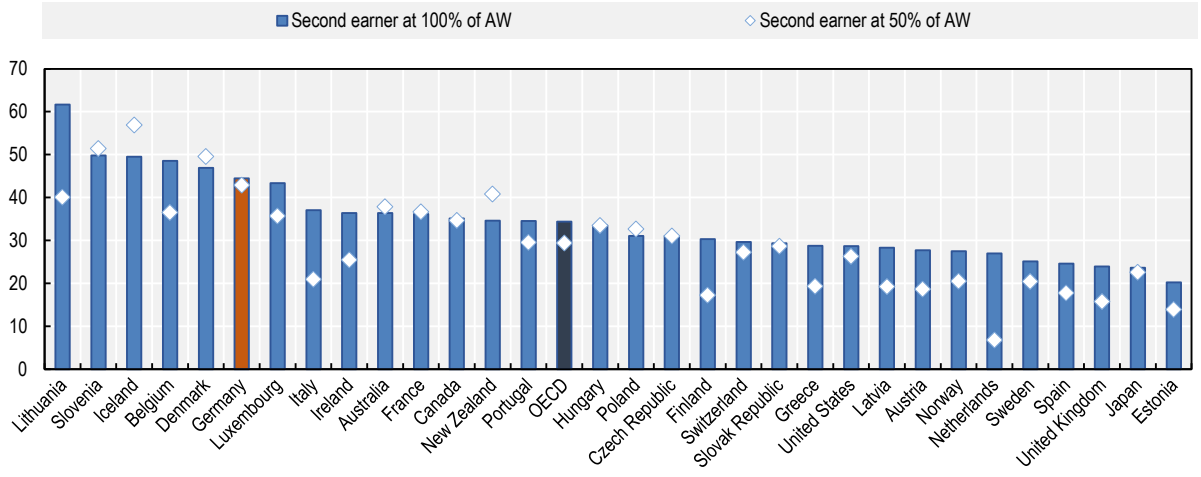
A common way of quantifying incentives to take up work is by looking at the participation tax rate (PTR), i.e. the share of gross earnings that people who take up work pay in form of income taxes and social-security contributions net of social benefits. In Germany, a household in which a person takes up work and in which there is already a person earning 100% of the AW pays nearly half of their additional earnings in net taxes. If the second earner starts working at 50% of the AW (e.g. in a half-time job paying the AW), the PTR equals 43%; if the second earner starts working at the full AW, the PTR is even slightly higher at 45% (Figure 5.6, Panel A). For comparison, across OECD countries on average, second earners face PTRs of 29% and 34% when starting to work at 50% and 100% of the AW. In the Netherlands, a second earner taking up work at 50% of the AW faces a PTR of only 7%.

And second earners in Germany not only face low work incentives when deciding *whether* to take up work, but also *how much* to work, i.e. both at the *extensive* and *intensive* margin. More specifically, the German tax system favours couples with unequal earnings over those where both partners earn similar levels. This is illustrated in Panel B of Figure 5.6, which shows the effective tax rate for couples with total earnings of 200% of the AW, partitioned differently between the two partners. Again, among a selection of European countries, Germany has the second highest effective tax rate for a two-earner couple (here: without children) with both partners earning 100% of the AW. However, the effective tax rate declines as earnings between the partners become more unequal – from 38% for an equal-earner couple to 35% for a dominant dual-earner couple where the second earner only contributes 25% of the AW – even as the couple's total earnings remain constant at 200% of the AW. In most other countries shown, the effective tax rate *rises* as earnings are distributed more unequally (as in Belgium, Denmark, the Netherlands, Austria, Italy, and Sweden), or is largely independent from the partition of earnings between the two partners, as in Central European countries (Hungary, Poland, the Czech Republic, and the Slovak Republic). Only France and Switzerland show a similar pattern as Germany.

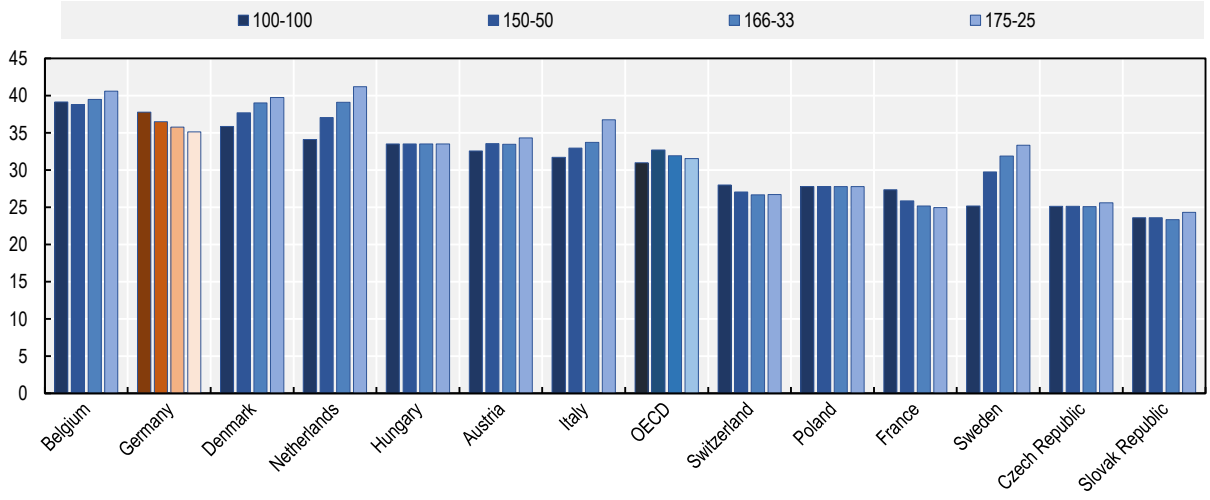
Couples' option of carrying out income splitting (*Ehegattensplitting*) is the main source of those work disincentives for second earners in Germany (Blömer, Brandt and Peichl, 2021[79]). The German income tax system allows married couples to split the sum of earnings (and other income) equally between partners before calculating the payable income tax. Because the income tax formula is progressive, this reduces couples' tax rates, except for couples where the partners have equal earnings. The system hence rewards couples for having unequal earnings. For the second earner, income splitting implies that the marginal tax rate when increasing earnings, for example by working additional hours, is much higher than if incomes were assessed separately. A 2018 report on reform options for the taxation of married couples reported that in 90% of tax-splitting couples the woman was the second earner (Wissenschaftlicher Beirat beim Bundesministerium der Finanzen, 2018[80]). An additional source of work disincentives for second earners is the free coverage of non-working spouses through the public health insurance (OECD, 2018[68]).

Figure 5.6. Second earners in Germany have weak incentives to take up work or to increase earnings

Panel A. Participation tax rates for secondary earners who start working at 50% and 100% of the average wage (AW), couple with two children, 2020



Panel B. Effective tax rates as a percentage of gross household earnings, two-earner couples with different earnings partitions, selected OECD countries, 2020 (100 = AW)



Note: In both panels, couples are assumed to have two children aged 4 and 6. "OECD" gives the unweighted average across 32 OECD countries in 2020 (2021 for Germany). In Panel A, calculations are for a primary earner with earnings at 100% of the AW. The participation tax rate gives the difference in the net income for the couple with and without the earnings of the second earner after accounting for changes in taxes, social-security contributions and social benefits. Panel B presents the effective net tax burden for two-earner couples without children with earnings at 100% and 100%, 150% and 50%, 166% and 33%, and 175% and 25% of the AW. The second earner is assumed to work part-time at 100% of the AW. Countries are sorted in descending order of the effective net tax burden for equal-earner couples (100+100).
Source: OECD Tax-Benefit model (version 2.3.2.), www.oecd.org/social/benefits-and-wages.

Potential reforms of the income splitting rule have been hotly debated for decades. Replacing the joint assessment of married couples by a simple separate assessment of each partner would eliminate the differences in effective tax rates between the first and the second earner, but such a reform would not be constitutional (OECD, 2016[81]). A number of alternatives have been proposed, including the so-called *Realsplitting* (see, most recently, Blömer, Brandt and Peichl (2021[79])), which finds application in the taxation of divorced couples, an individual taxation with a transferable basic tax allowance, or an additional

tax allowance for couples. Even some of the less far-reaching of those reform scenarios promise stronger work incentives for second earners, a modest rise in female employment rates, and notable increases in women's hours worked (Bach et al., 2020[82]). Health insurance premiums could be related to the number of adults in a household (OECD, 2018[68]).

Minijob regulations are an additional source of disincentives to take up regular employment

Minijobs are a second salient feature of the German tax-benefit system that generates incentives for second earners to work few hours. They are exempt from income taxation and nearly all employee social-security contributions up to an earnings level of EUR 450 per month. Given the statutory minimum wage in Germany of EUR 9.60 per hour (since July 2021), a *Minijobber* can work for a maximum of about 11 hours per week. Minijobs are very widespread: between over 6 and 7 million people in Germany were employed in Minijobs each quarter between 2005 and early 2020 (Consiglio and Göbler, 2021[73]; Minijob-Zentrale, 2021[83]).

While the absence of a tax and contribution burden, and the low amount of paperwork required to create and maintain Minijobs, make Minijobs very attractive for both employers and employees, they can trap workers in low-paid employment offering little to no perspective of earnings progression and no social-insurance entitlements. This is because they create disincentives to raise earnings beyond the EUR 450 threshold by increasing wages or hours worked. So-called *Midijobs*, which are subject to income taxation and partial social-security contributions, smooth the transition to regular employment for earnings levels between the EUR 450 Minijob-threshold and EUR 1 300, from where full social-security contributions are due. However, a discontinuity exists at EUR 451, where the rate of social-insurance contributions payable jumps from 0 to 11%, which corresponds to over EUR 500 per year. The interaction with the tax splitting exerts a particularly strong disincentive for Minijobbers who are second earners to increase earnings. This is because the absence of taxes and social-security contributions in the Minijob is particularly beneficial when the alternative is standard employment, at presumably relatively low earnings, burdened by higher taxes because of the spousal income splitting (Blömer and Peichl, 2020[78]). While Minijobs had been meant serve to as stepping stones into standard employment, evidence suggests that they are not, in particular for female Minijobbers: three-in-four of those without additional regular employment remain in the Minijob for more than three years (Wippermann, 2012[84]).

During the COVID-19 crisis, a particular concern has been that Minijobs have much weaker job security than regular employment, and that they come with little social-protection coverage. Minijobbers have suffered heavy employment losses during the current crisis. Between December 2019 and December 2020, 900 000 jobs were lost in the commercial sector, a decline by over 13%. Women have been more affected than men (-14 vs. -11%), and job losses were most dramatic in hospitality (-50%) and culture and entertainment (-39%).[25] The number of Minijobs has rebounded since, but it remained 10% below its pre-crisis value in June 2021 (Minijob-Zentrale, 2020[85]; 2021[83]). This is consistent with the large job losses for (mostly low-income) Minijobbers shown in Chapter 3, Figure 3.13. Those trends partly reflect that Minijobbers did not have access to *Kurzarbeit* (short-time work) during the crisis, which is being financed through the German unemployment insurance system. Minijobbers are also not covered by unemployment benefits. The loss of a Minijob therefore often implies a painful drop in household income. Around 60% of Minijobbers live in households with a net income below EUR 2 000 (Consiglio and Göbler, 2021[73]).

For the above reasons, there appears to be a strong case for limiting the scope of Minijobs. Indeed, there have been calls for a stepwise phasing-out of Minijob regulations, possibly complemented by a new regime targeted more closely to pupils, students, and retirees (Rat der Arbeitswelt, 2021[86]). According to simulations, a policy reform that would abolish the special regulations for Minijobs by introducing low social-security contributions from the first Euro earned, and lower the effective tax and contribution rate for low-income earners up until a gross monthly wage of EUR 1 800, could bring significant gains in regular

part-time employment (Krebs and Scheffel, 2021[87]). An alternative could be to maintain Minijobs for activities carried out in private households, where labour law tends to be more difficult to monitor and enforce than in the commercial sector. This would reduce the risk of pushing these jobs into informality (Weber, 2020[88]), and private households currently only account for a fraction of all Minijobs (see footnote 25).[26] According to a recent microsimulation study (Blömer, Brandt and Peichl, 2021[79]), a comprehensive joint reform of the spousal income splitting and the Minijobs could move an additional 100 000 women into employment without burdening public budgets.

Access to flexible, good-quality institutional child care remains an obstacle to paid work and career progression for mothers in Germany

Germany has made substantial efforts over the last decade to expand access to institutional child care with a view to raising female labour force participation and providing greater flexibility to working parents. An important step has been the introduction in 2013 of a legal entitlement of a formal child care solution for 1-3 year-olds irrespective of whether or not their parents work. Empirical evidence suggests that the legal entitlement indeed had a positive effect on kindergarten attendance of three-year-olds as well as on maternal employment (Bauernschuster and Schlotter, 2015[89]). More recently, through the Good Kindergarten Act (*Gute-KiTa-Gesetz*), the German Government committed to providing EUR 5.5 billion in federal funding by 2022 to improve child care quality, reduce fees, and adapt childcare to local needs across the German *Länder*. Germany has also been massively investing in expanding afternoon education and care for school-aged children, notably through the expansion of all-day schools, an important factor given that school in Germany traditionally ends around lunchtime. This includes a new legal entitlement to all-day care for children of primary school age introduced stepwise starting in 2026. Also, formal afternoon care for primary-school children has been found to significantly increase maternal labour supply (Gambaro, Marcus and Peter, 2018[90]; Krebs et al., 2019[91]). Also, the 2020 crisis recovery package foresaw additional federal funds for the expansion of early childhood education and full-time schooling in 2020/21. A challenge for the rapid expansion of full-day care in Germany has been that early childhood education and care (ECEC) and primary schooling fall under the authority of the communes and regions in Germany, who are keen to maintain responsibility for how funding is allocated, meaning that larger investments by the federal government are usually preceded by long negotiations.

Germany's large investment in ECEC have led to an impressive rise in participation rates, particularly among the very youngest (OECD, 2018[92]):

- *Participation rates are high in Germany for 3-5 year-olds*. 95% of them participated in pre-primary education in 2018, an increase of 7 percentage points since 2005. This figure puts Germany above the OECD and the EU averages of 87% and 89%, though in a number of European countries, such as Belgium, Denmark, France and the United Kingdom, enrolment is quasi-universal with rates of close to 100%.
- *Participation rates rapidly increased for 0-2 year-olds, but remain much below those of other European countries.* More than one-in-three (38%) of them were enrolled in ECEC services in 2018, more than double the rate in 2005 (17%;). Enrolment lies slightly above the OECD average (36%), but substantially below the rates of around 55-65% attained in neighbouring countries such as Belgium, Denmark, France, and Luxembourg.

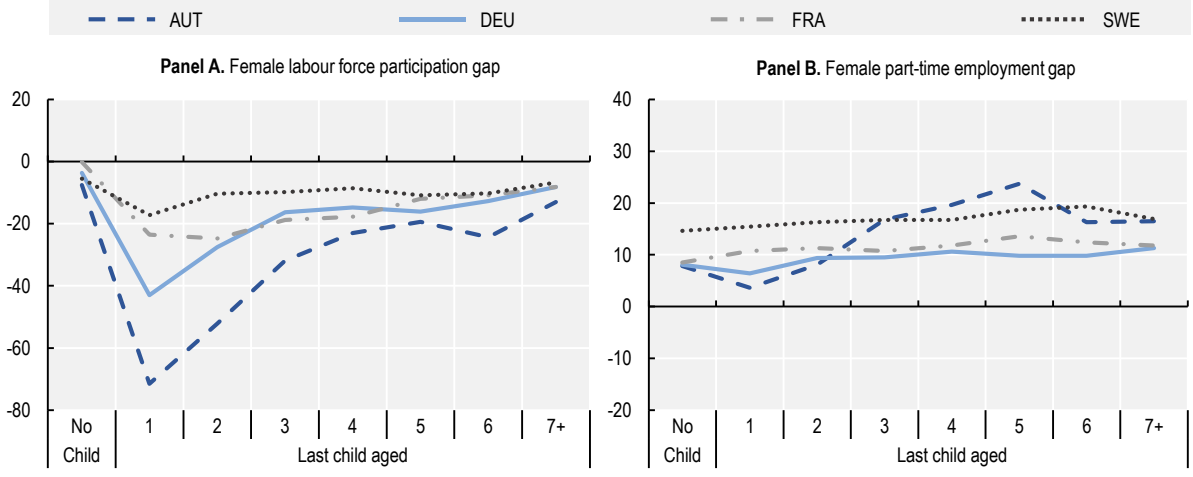
Insufficient provision of flexible child care services for the very youngest therefore remains a factor limiting mothers' employment (Blömer et al., 2021[93]; Barisic and Consiglio, 2021[94]). Full-time work requires full-time child care solutions, but in particular in western Germany institutional child care still lacks or is insufficiently flexible. In spite of the legal entitlement introduced in 2013, the share of parents in Germany who desired a child care solution for their 0-3 year-old exceeded the share of enrolled children by 15 percentage points in 2019, with the gap reaching nearly 20% in a few western German regions. Among parents with a child in formal child care in Germany, over half indicated that they required a child care

solution outside of core opening hours, but only a fraction of child care facilities in western Germany operate before 7am and after 5.15pm. (BMFSFJ, 2020[95]). The shortage of qualified child care workers is a constraint for the further rapid expansion of child care services. And in spite of Germany's large recent investments in all-day primary schools, the lack of afternoon education and care remains a major obstacle to full-time employment for parents of school-aged children.

Childbirth consequently often has a lasting effect on mothers' labour market trajectories in Germany. Earlier OECD research, carried out for the *Employment Outlook 2018* (OECD, 2018[96]), shows that Germany is among the OECD countries where childbirth is associated with the largest drop in female labour force participation, particularly while the child is young (Figure 5.7, Panel A). In the year after childbirth, labour force participation of women drops by 43 percentage points relative to that of men. Only in the third year after childbirth, the drop in labour force participation approaches the value observed in France, and only after six or seven years the one for Sweden. Meanwhile, childbirth does not appear to be associated with a strong rise in part-time work of women relative to men (Figure 5.7, Panel B). Low labour force participation rates of women after childbirth are one explanation for the large gap in lifetime earnings between women and men, and between mothers and women without children (OECD, 2018[96]; Bönke, Harnack and Wetter, 2020[75]; Barisic and Consiglio, 2021[94]).

Figure 5.7. Childbirth has a lasting effect on mothers' labour market trajectories

Percentage point marginal effect of childbirth on labour force participation and part-time work, women without and with children (by age of their youngest child) compared to men, mid-2000s to mid-2010s



Note: The panels show marginal effects from country-specific probit regression models that including female cross-effects and control for age groups, educational attainment, partnership status, health status and a time trend. Results are for 20-64 year-olds. For further details, see OECD (2018[96]).
Source: OECD (2018[96]) using data from EU-SILC and national household surveys.

A further expansion of institutionalised child care in Germany will likely require raising public expenditures for ECEC, and compared to others Germany indeed still has scope for increasing spending. In 2017, Germany spent around 0.7% of GDP on ECEC, a little below the OECD average. Some Nordic countries (Denmark, Iceland, Norway, and Sweden) and France spend about two to three times as much relative to their GDP (OECD, 2020[60]).

5.5. Conclusions

Drawing on the statistical analysis presented in the previous chapters, this chapter proposes different policy options for a stronger middle class in Germany:

Strengthening the employability of middle-class workers is one field of action: Germany's economy will face profound structural transformation over the next years and decades because of automation and the green transition. Middle-class workers will have to upskill, and reskill, over their working lives to reap the benefits of these transformations, rather than to lose out from them. This will require Germany to expand adult education, for example through more extensive paid training leave and better career guidance. The young generation deserves particular attention: it has been disproportionately affected by the decline in the middle-income group in Germany, and the COVID-19 crisis will likely increase the share of young people who leave school without qualification. To provide a professional perspective to those young people, and to pave them a path into the middle class, Germany needs to ensure that every young person in Germany gets the chance to obtain an upper-secondary qualification. An interesting policy option in this respect is a vocational training guarantee, as it exists in Austria.

Germany could also do more to *create good-quality, future-oriented jobs for middle-class workers*. Public infrastructure investment has been low in Germany for decades. Greater investments into Germany's digital infrastructure, social housing, child care and education infrastructure, and investments into the green transition, could directly create many middle-class jobs, including in structurally weaker regions, and help boost productivity. Improving the working conditions and pay of care professionals could be a further way of creating quality middle-class jobs in Germany. Care professions will likely experience substantial employment growth over the coming years and decades, but poor working conditions and low pay make it hard to attract qualified staff. Raising the profile and pay of care occupations requires greater public spending, not least because the public sector is the largest employer of care professionals in Germany. Evidence from other OECD countries, including the Netherlands, shows that collective bargaining can play an important role in raising job quality in the care sector.

There is also scope for Germany to take measures that *raise the disposable incomes of middle-class households*. Effective tax rates for middle-income earners are high in Germany in international comparison, reflecting the steep rise in marginal rates in the lower parts of the income tax schedule and high employee social-insurance contributions. Germany could reduce the tax burden for middle-income workers by increasing the progressivity of the tax schedule, i.e. by easing the steep increase in the lower parts and raising marginal rates at the top. Also shifting the tax burden away from labour income towards other forms of taxation, notably by strengthening capital income taxation and removing exemptions to inheritance taxation, could contribute to relieving middle-income households. Moreover, there remains clear scope in Germany for boosting household earnings by further raising labour force participation of women, many of whom work part-time in Germany. This could be done by increasing work incentives for second earners through a reform of the income splitting rule for married spouses and of the *Minijobs* regulations, and by further expanding access to flexible, good-quality childcare.

References

Andrews, D. et al. (2020), "The Career Effects of Labour Market Conditions at Entry", *Australian Treasury Working Paper*, No. 2020-01, https://treasury.gov.au/sites/default/files/2020-06/p2020-85098-202006.pdf. [112]

Autorengruppe Bildungsberichterstattung (2018), *Bildung in Deutschland*, http://dx.doi.org/10.3278/6001820fw. [16]

Bach, S. et al. (2020), "Reform des Ehegattensplittings: Realsplitting mit niedrigem Übertragungsbetrag ist ein guter Kompromiss", *DIW Wochenbericht*, Vol. 87/41, pp. 785-794, http://dx.doi.org/10.18723/diw_wb:2020-41-1. [83]

Barisic, M. and V. Consiglio (2021), *Women in the German labor market: The cost of being a mother*, Bertelsmann Stiftung, Gütersloh, https://www.bertelsmann-stiftung.de/de/publikationen/publikation/did/women-in-the-german-labor-market-en. [95]

Bauernschuster, S. and M. Schlotter (2015), "Public child care and mothers' labor supply—Evidence from two quasi-experiments", *Journal of Public Economics*, Vol. 123, pp. 1-16, http://dx.doi.org/10.1016/j.jpubeco.2014.12.013. [90]

Beck, S. et al. (2013), *Mit Robotern gegen den Pflegenotstand*, Stiftung Neue Verantwortung, Berlin. [62]

Bellmann, L. et al. (2021), *Der Mangel an Bewerbungen bremst die Erholung am Ausbildungsmarkt*, https://www.iab-forum.de/der-mangel-an-bewerbungen-bremst-die-erholung-am-ausbildungsmarkt/. [34]

Bellmann, L. et al. (2021), *Jeder zehnte ausbildungsberechtigte Betrieb könnte im kommenden Ausbildungsjahr krisenbedingt weniger Lehrstellen besetzen*, https://www.iab-forum.de/jeder-zehnte-ausbildungsberechtigte-betrieb-koennte-im-kommenden-ausbildungsjahr-krisenbedingt-weniger-lehrstellen-besetzen/. [33]

Bernhard, S. (2016), "Berufliche Weiterbildung von Arbeitslosengeld-II-Empfängern. Langfristige Wirkungsanalysen", *Sozialer Fortschritt*, Vol. 65/7, pp. 153-161, http://dx.doi.org/10.3790/sfo.65.7.153. [8]

Beznoska, M. and T. Hentze (2017), *Die Einkommensteuer im Zeitverlauf: Belastungswirkungen für verschiedene Haushaltstypen*, Institut der deutschen Wirtschaft, Köln. [66]

BIBB (2020), *Datenreport zum Berufsbildungsbericht 2020: Ratgeber zur beruflichen Weiterbildung*, https://www.bibb.de/dokumente/pdf/bibb_datenreport_2020.pdf. [103]

Bimrose, J., S. Barnes and D. Hughes (2009), *Adult career progression and advancement: a five year study of the effectiveness of guidance,*, http://www2.warwick.ac.uk/fac/soc/ier/publications/2008/eg_report_4_years_on_final.pdf. [13]

Blömer, M., P. Brandt and A. Peichl (2021), *Raus aus der Zweitverdienerinnenfalle: Reformvorschläge zum Abbau von Fehlanreizen im deutschen Steuer- und Sozialversicherungssystem*, Bertelsmann Stiftung, Gütersloh, https://www.bertelsmann-stiftung.de/de/publikationen/publikation/did/raus-aus-der-zweitverdienerinnenfalle-all. [80]

Blömer, M. et al. (2021), *Zwischen Wunsch und Wirklichkeit: Unter- und Überbeschäftigung auf dem deutschen Arbeistmarkt*, Bertelsmann Stiftung, Gütersloh, http://dx.doi.org/10.11586/2021019. [94]

Blömer, M. and A. Peichl (2020), *Für wen lohnt sich Arbeit? Partizipationsbelastungen im deutschen Steuer-, Abgaben- und Transfersystem*, Bertelsmann Stiftung, Gütersloh. [79]

Blum, K., M. Offermans and P. Steffen (2019), *Situation und Entwicklung der Pflege bis 2030*, Deutsches Krankenhausinstitut, Düsseldorf. [42]

BMAS (2021), *Fachkräftemonitoring, Institut für Arbeitsmarkt- und Berufsforschung (IAB)*, https://www.bmas.de/DE/Arbeit/Fachkraeftesicherung-und-. [101]

BMFSFJ (2020), *Kindertagesbetreuung Kompakt: Ausbaustand und Bedarf 2019*, Bundesministerium für Familie, Senioren, Frauen und Jugend, https://www.bmfsfj.de/blob/jump/156672/kindertagesbetreuung-kompakt-ausbaustand-und-bedarf-2019-ausgabe05a-data.pdf. [96]

Böhmer, M. et al. (2014), *Gesamtevaluation der ehe- und familienbezogenen Maßnahmen und Leistungen in Deutschland*, Prognos AG, Berlin. [77]

Bönke, T., A. Harnack and M. Wetter (2020), *Wer gewinnt? Wer verliert? Die Entwicklung auf dem deutschen Arbeitsmarkt seit den frühen Jahren der Bundesrepublik bis heute*, Bertelsmann Stiftung, Gütersloh, http://dx.doi.org/10.11586/2019014. [75]

Bovenschulte, M. et al. (2021), *Potentials of Care 4.0 for Long-Term Care: Results, practical examples, recommendations for action*, Bertelsmann Stiftung, Gütersloh, https://www.bertelsmann-stiftung.de/fileadmin/files/user_upload/Potentials_of_Care_4.0__Focuspaper_final.pdf. [110]

Braeseke, G. et al. (2021), *Potenziale sozialer Innovationen in der ambulanten Langzeitpflege:*, Bertelsmann Stiftung, Gütersloh, https://www.bertelsmann-stiftung.de/fileadmin/files/user_upload/Potenziale_sozialer_Innovationen_in_der_ambulanten_Langzeitpflege_IGES_Studie.pdf. [111]

Braeseke, G. et al. (2019), *Einsatz von robotischen Systemen in der Pflege in Japan mit Blick auf den steigenden Fachkräftebedarf: Kurzfassung*, IGES Institut GmbH, Berlin, https://www.bmwi.de/Redaktion/DE/Publikationen/Studien/einsatz-von-robotischen-systemen-pflege-japan.pdf?__blob=publicationFile&v=4. [61]

Bundesagentur für Arbeit (2021), "Fachkräfteengpassanalyse 2020", *Berichte: Blickpunkt Arbeitsmarkt*. [24]

Bundesagentur für Arbeit (2020), *Auswirkungen der Corona-Krise auf den Arbeits-und Ausbildungsmarkt*, https://statistik.arbeitsagentur.de/Statistikdaten/Detail/202011/arbeitsmarktberichte/am-kompakt-corona/am-kompakt-corona-d-0-202011-pdf.pdf?__blob=publicationFile&v=1. [100]

Bundesagentur für Arbeit (2020), *Berichte: Blickpunkt Arbeitsmarkt – Arbeitsmarktsituation im Pflegebereich*, Statistik der Bundesagentur für Arbeit, Nürnberg. [41]

Bundesministerium für Wirtschaft and Energie (2020), *Gesundheitswirtschaft - Fakten und Zahlen: Ergebnisse der Gesundheitswirtschaftlichen Gesamtrechnung, Ausgabe 2019*, Bundesministerium für Wirtschaft and Energie, Berlin, https://www.bmwi.de/Redaktion/DE/Publikationen/Wirtschaft/gesundheitswirtschaft-fakten-und-zahlen-2019.pdf?__blob=publicationFile&v=32. [44]

Carcillo, S. et al. (2015), "NEET Youth in the Aftermath of the Crisis: Challenges and Policies", *OECD Social, Employment and Migration Working Papers*, No. 164, OECD Publishing, Paris, https://dx.doi.org/10.1787/5js6363503f6-en. [99]

Carstensen, J., H. Seibert and D. Wiethölter (2020), *Entgelte von Pflegekräften, 2. April 2020*, Institut für Arbeitsmarkt und Berufsforschung, Nürnberg, http://213.241.152.197/arbeitsmarktdaten/Entgelte_von_Pflegekraeften_2018.pdf. [50]

CEDEFOP (2017), *Skills anticipation in Sweden*, https://skillspanorama.cedefop.europa.eu/en/analytical_highlights/skills-anticipation-sweden. [26]

Consiglio, V. and K. Göbler (2021), *Minijobs in Deutschland: Die Entwicklung und Struktur einer umstrittenen Beschäftigungsform*, https://www.bertelsmann-stiftung.de/de/publikationen/publikation/did/minijobs-in-deutschland-all. [73]

DBFK (2019), *Teilzeit = Ressource bei Fachkräftemangel? - Ergebnisse einer Online-Umfrage vor dem Hintergrund des Pflegepersonalstärkungsgesetzes PpSG*, Deutscher Berufsverband für Pflegeberufe, Berlin, https://www.dbfk.de/media/docs/download/Allgemein/Broschuere_Teilzeitumfrage_2019-10_10_web.pdf. [52]

Dean, A. (2018), *The Future of the Union Learning Fund An Independent Review with Specific Recommendations for Government*, https://www.tuc.org.uk/sites/default/files/2020-11/TheFutureUnionLearningFund.pdf. [21]

Diedrich, A. and O. Bergström (2006), *The Job Security Councils in Sweden*, http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.546.8348&rep=rep1&type=pdf. [30]

DJI and RKI (2021), *Quartalsbericht 1/2021 der Corona-KiTa-Studie*, https://www.dji.de/fileadmin/user_upload/abt2/KiTaCo/CoKiTa_Quartalsbericht_I_2021.pdf. [98]

Doerr, A. (2014), "Employment and Earnings Effects of Awarding Training Vouchers in Germany", *Discussion Paper*, Vol. No. 14-065/IZA Institute, http://ftp.zew.de/pub/zew-docs/dp/dp14065.pdf. [15]

Eggert, S. and C. Teubner (2021), *ZQP-Analyse: Die SARS-CoV-2-Pandemie in der professionellen Pflege: Perspektive stationärer Langzeitpflege und ambulanter Dienste*, https://www.zqp.de/wp-content/uploads/ZQP-Analyse-Corona-Langzeitpflege.pdf. [53]

European Commission (2015), *An in-depth analysis of adult learning policies and their effectiveness in Europe*, https://op.europa.eu/en/publication-detail/-/publication/c8c38dc9-89d0-11e5-b8b7-01aa75ed71a1/language-en. [14]

FBZ (2021), *Cao Verpleeg-, Verzorgingshuizen en Thuiszorg (VVT)*, https://www.fbz.nl/caos/verpleeg-verzorgingshuizen-en-thuiszorg/. [56]

FiBS/DIE (2013), *Developing the adult learning sector. Annex to the final report*, http://lll.mon.bg/uploaded_files/financingannex_en.pdf. [7]

Forschungsinstitut Betriebliche Bildung (2019), *Evaluation des Bildungszeitgesetzes Baden-Württemberg BzG BW*, https://www.f-bb.de/fileadmin/Projekte/BZG/Evaluationsbericht_BzG_BW_f-bb.pdf. [9]

Forstner, S., Z. Molnárová and M. Steiner (2021), *Volkswirtschaftliche Effekte einer Ausbildungsgarantie: Simulation einer Übertragung der österreichischen Ausbildungsgarantie nach Deutschland*, Bertelsmann Stiftung, Gütersloh, https://www.bertelsmann-stiftung.de/de/publikationen/publikation/did/volkswirtschaftliche-effekte-einer-ausbildungsgarantie-all. [35]

France Stratégie (2021), *Réseau Emplois Compétences - Feuille de Route 2021-2022*, https://www.strategie.gouv.fr/sites/strategie.gouv.fr/files/atoms/files/rec_-_feuille_de_route_8.pdf. [28]

French Government (2017), *The Big Investment Plan 2018-2022*, https://www.gouvernement.fr/en/the-big-investment-plan-2018-2022. [39]

Gambaro, L., J. Marcus and F. Peter (2018), "School entry, afternoon care, and mothers' labour supply", *Empirical Economics*, Vol. 57/3, pp. 769-803, http://dx.doi.org/10.1007/s00181-018-1462-3. [91]

Genda, Y., A. Kondo and S. Ohta (2010), "Long-Term Effects of a Recession at Labor Market Entry in Japan and the United States", *Journal of Human Resources*, Vol. 45/1, pp. 157-196, http://dx.doi.org/10.3368/jhr.45.1.157. [105]

Hummel, M. et al. (2021), "Qualifikations- und Berufsprojektion bis 2040 nach Bundesländern: Demografie und Strukturwandel prägen weiterhin die regionale Entwicklung der Arbeitsmärkte", *IAB-Kurzbericht*, Vol. 1/2021, https://www.iab.de/194/section.aspx/Publikation/K210111G1E. [23]

Kahn, L. (2010), "The long-term labor market consequences of graduating from college in a bad economy", *Labour Economics*, Vol. 17/2, pp. 303-316, http://dx.doi.org/10.1016/j.labeco.2009.09.002. [104]

Kidd, J., C. Jackson and W. Hirsh (2003), "The outcomes of effective career discussion at work", *Journal of Vocational Behavior*, Vol. 62/1, pp. 119-133, http://dx.doi.org/10.1016/s0001-8791(02)00027-1. [11]

Krebs, T. and M. Scheffel (2021), *Raus aus der Minijobfalle: Reformen zur Entlastung geringer Einkommen und ihre Auswirkungen auf Beschäftigung, Wachstum und Verteilung sowie öffentliche Finanzen*, Bertelsmann Stiftung, Gütersloh, https://www.bertelsmann-stiftung.de/de/publikationen/publikation/did/raus-aus-der-minijobfalle-all. [88]

Krebs, T. et al. (2019), *Zwischen Bildung und Betreuung: Volkswirtschaftliche Potenziale des Ganztags-Rechtsanspruchs für Kinder im Grundschulalter*, Bertelsmann Stiftung, Gütersloh, https://www.bertelsmann-stiftung.de/de/publikationen/publikation/did/zwischen-bildung-und-betreuung-1. [92]

Kruppe, T. and J. Lang (2015), "Weiterbildungen mit Berufsabschluss Arbeitslose profitieren von Qualifizierungen", *IAB Kurzbericht*, Vol. No. 22/2015/IAB, http://doku.iab.de/kurzber/2015/kb2215.pdf. [17]

Maguire, M. (2004), "Measuring the Outcomes of Career Guidance", *International Journal for Educational and Vocational Guidance*, Vol. 4/2-3, pp. 179-192, http://dx.doi.org/10.1007/s10775-005-1022-1. [12]

Minijob-Zentrale (2021), "Aktuelle Entwicklungen im Bereich der Minijobs - 2. Quartalsbericht 2021", Deutsche Rentenversicherung Knappschaft-Bahn-See, Essen, https://www.minijob-zentrale.de/DE/02_fuer_journalisten/02_berichte_trendreporte/quartalsberichte_archiv/2021/2_2021.pdf?__blob=publicationFile&v=2. [84]

Minijob-Zentrale (2020), "Aktuelle Entwicklungen im Bereich der Minijobs - 4. Quartalsbericht 2020", Deutsche Rentenversicherung Knappschaft-Bahn-See, Essen, https://www.minijob-zentrale.de/DE/02_fuer_journalisten/02_berichte_trendreporte/node.html. [86]

Nedelkoska, L. and G. Quintini (2018), "Automation, skills use and training", *OECD Social, Employment and Migration Working Papers*, No. 202, OECD Publishing, Paris, https://dx.doi.org/10.1787/2e2f4eea-en. [1]

OECD (2021), *Continuing Education and Training in Germany*, Getting Skills Right, OECD Publishing, Paris, https://dx.doi.org/10.1787/1f552468-en. [4]

OECD (2021), *Education at a Glance 2021: OECD Indicators*, OECD Publishing, Paris, https://dx.doi.org/10.1787/b35a14e5-en. [31]

OECD (n.d.), *Employment rate* (indicator), https://dx.doi.org/10.1787/1de68a9b-en. [71]

OECD (2021), *Main Findings from the 2020 Risks that Matter Survey*, OECD, http://dx.doi.org/10.1787/b9e85cf5-en. [46]

OECD (2021), *OECD Employment Outlook 2021: Navigating the COVID-19 Crisis and Recovery*, OECD Publishing, Paris, https://dx.doi.org/10.1787/5a700c4b-en. [3]

OECD (2021), *OECD Health Statistics - Health expenditure and financing*, http://dx.doi.org/10.1787/health-data-en. [58]

OECD (2021), *OECD Labour Force Statistics - Elderly population*, https://data.oecd.org/pop/elderly-population.htm. [59]

OECD (2021), *OECD Tax Database - Table III.2. Employer social security contribution rates*, https://stats.oecd.org/Index.aspx?DataSetCode=TABLE_III2. [67]

OECD (n.d.), *Part-time employment rate* (indicator), https://dx.doi.org/10.1787/f2ad596c-en. [72]

OECD (2021), *Taxing Wages 2021*, OECD Publishing, Paris, https://dx.doi.org/10.1787/83a87978-en. [69]

OECD (2021), "What have countries done to support young people in the COVID-19 crisis?", *OECD COVID-19 Policy Brief*, https://doi.org/10.1787/ac9f056c-en. [32]

OECD (2020), *Building a High-Quality Early Childhood Education and Care Workforce: Further Results from the Starting Strong Survey 2018*, TALIS, OECD Publishing, Paris, https://dx.doi.org/10.1787/b90bba3d-en. [47]

OECD (2020), "COVID-19: From a health to a jobs crisis", in *OECD Employment Outlook 2020: Worker Security and the COVID-19 Crisis*, OECD Publishing, Paris, https://dx.doi.org/10.1787/cea3b4f4-en. [2]

OECD (2020), *Increasing Adult Learning Participation: Learning from Successful Reforms*, Getting Skills Right, OECD Publishing, Paris, https://dx.doi.org/10.1787/cf5d9c21-en. [19]

OECD (2020), "Is Childcare Affordable?", *Policy Brief on Employment, Labour and Social Affairs*, https://www.oecd.org/els/family/OECD-Is-Childcare-Affordable.pdf. [60]

OECD (2020), *OECD Economic Surveys: Germany 2020*, OECD Publishing, Paris, https://dx.doi.org/10.1787/91973c69-en. [6]

OECD (2020), *Revenue Statistics 2020*, OECD Publishing, Paris, https://dx.doi.org/10.1787/8625f8e5-en. [70]

OECD (2020), *Who Cares? Attracting and Retaining Care Workers for the Elderly*, OECD Health Policy Studies, OECD Publishing, Paris, https://dx.doi.org/10.1787/92c0ef68-en. [43]

OECD (2019), *Getting Skills Right: Creating responsive adult learning systems*, http://www.oecd.org/els/emp/adult-learning-systems-2019.pdf. [5]

OECD (2019), *Getting Skills Right: Making adult learning work in social partnership*, https://www.oecd.org/els/emp/adult-learning-work-in-social-partnership-2019.pdf. [20]

OECD (2019), *Good Practice for Good Jobs in Early Childhood Education and Care*, OECD Publishing, Paris, https://dx.doi.org/10.1787/64562be6-en. [49]

OECD (2019), *Individual Learning Accounts : Panacea or Pandora's Box?*, OECD Publishing, Paris, https://dx.doi.org/10.1787/203b21a8-en. [108]

OECD (2019), *Main Findings from the 2018 Risks that Matter Survey*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9266e48a-en. [64]

OECD (2019), *OECD Employment Outlook 2019*, OECD, http://dx.doi.org/10.1787/9ee00155-en. [102]

OECD (2018), "Decoupling of wages from productivity: what implications for public policies?", OECD Publishing, Paris, https://dx.doi.org/10.1787/eco_outlook-v2018-2-3-en. [63]

OECD (2018), "Enrolment rate in early childhood education", *Students* (database), http://dx.doi.org/10.1787/ce02d0f9-en. [93]

OECD (2018), *OECD Economic Surveys: Germany 2018*, OECD Publishing, Paris, https://dx.doi.org/10.1787/eco_surveys-deu-2018-en. [68]

OECD (2018), *OECD Employment Outlook 2018*, OECD Publishing, Paris, https://dx.doi.org/10.1787/empl_outlook-2018-en. [57]

OECD (2018), *OECD Employment Outlook 2018*, OECD, http://dx.doi.org/10.1787/empl_outlook-2018-en. [97]

OECD (2018), "Starting close, growing apart: Why the gender gap in labour income widens over the working life", in *OECD Employment Outlook 2018*, OECD Publishing, Paris, https://dx.doi.org/10.1787/empl_outlook-2018-10-en. [76]

OECD (2017), *Dare to Share: Germany's Experience Promoting Equal Partnership in Families*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264259157-en. [78]

OECD (2016), *OECD Economic Surveys: Germany 2016*, OECD Publishing, Paris, https://dx.doi.org/10.1787/eco_surveys-deu-2016-en. [82]

Oreopoulos, P., T. von Wachter and A. Heisz (2012), "The Short- and Long-Term Career Effects of Graduating in a Recession", *American Economic Journal: Applied Economics*, Vol. 4/1, pp. 1-29, http://dx.doi.org/10.1257/app.4.1.1. [106]

Osiander, C. and G. Stephan (2018), *Gerade geringqualifizierte Beschäftigte sehen bei der beruflichen Weiterbildung viele Hürden*, https://www.iab-forum.de/gerade-geringqualifizierte-beschaeftigte-sehen-bei-der-beruflichen-weiterbildung-viele-huerden/. [10]

Patscha, C. et al. (2017), *Kompetenz- und Qualifizierungsbedarfe bis 2030 - Ein gemeinsames Lagebild der Arbeitsgemeinschaft für Fachkräfte*, Bundesministerium für Arbeit und Soziales der Bundesrepublik Deutschland, Berlin. [25]

Peichl, A., F. Buhlmann and M. Löffler (2017), *Grenzbelastungen im Steuer-, Abgaben- und Transfersystem: Fehlanreize, Reformoptionen und ihre Wirkungen auf inklusives Wachstum*, Bertelsmann Stiftung, Gütersloh. [65]

Perez, C. and A. Vourc'h (2020), "Individualising training access schemes: France – the Compte Personnel de Formation (Personal Training Account – CPF)", *OECD Social, Employment and Migration Working Papers*, No. 245, OECD Publishing, Paris, https://dx.doi.org/10.1787/301041f1-en. [109]

Quintini, G. and D. Venn (2013), *Back to Work: Re-employment, Earnings and Skill Use after Job Displacement*, https://www.oecd.org/employment/emp/Backtowork-report.pdf. [29]

Raaum, O. and K. Røed (2006), "Do Business Cycle Conditions at the Time of Labor Market Entry Affect Future Employment Prospects?", *Review of Economics and Statistics*, Vol. 88/2, pp. 193-210, http://dx.doi.org/10.1162/rest.88.2.193. [107]

Rat der Arbeitswelt (2021), *Arbeitswelt-Bericht 2021*, Rat der Arbeitswelt: Geschäftsstelle für die Arbeitsweltberichterstattung in Deutschland, Berlin, https://www.arbeitswelt-portal.de/fileadmin/user_upload/awb_2021/210517_Arbeitsweltbericht_bf.pdf. [87]

Rocard, E., P. Sillitti and A. Llena-Nozal (2021), "COVID-19 in long-term care: Impact, policy responses and challenges", *OECD Health Working Papers*, No. 131, OECD Publishing, Paris, https://dx.doi.org/10.1787/b966f837-en. [51]

Rothgang, H., R. Müller and R. Unger (2012), *Themenreport „Pflege 2030": Was ist zu erwarten - was ist zu tun?*, Bertelsmann Stiftung, Gütersloh. [40]

Schlögl, P. et al. (2020), "Supra-company apprenticeship training in Austria: a synopsis of empirical findings on a possibly early phase of a new pillar within VET", *Empirical Research in Vocational Education and Training*, Vol. 12/1, http://dx.doi.org/10.1186/s40461-020-00102-y. [37]

Schnabel, C. (2016), "/ Heft 6 / Gewerkschaften auf dem Rückzug? Mythen, Fakten und Herausforderungen", *Wirtschaftsdienst*, Vol. 96/6, pp. 426-432. [54]

Schroeder, W. (2018), *Interessenvertretung in der Altenpflege*, Springer Fachmedien Wiesbaden, Wiesbaden, http://dx.doi.org/10.1007/978-3-658-19407-9. [55]

Statistisches Bundesamt (2021), *Pflegebedürftige insgesamt*, https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Gesundheit/_Grafik/_Interaktiv/pflege-beduerftige-insgesamt.html;jsessionid=A9ED115E260B5872AF4AD6166BB2ED9A.live731. [45]

Statistisches Bundesamt (2021), *Unter- und Überqualifikation*, https://www.destatis.de/DE/Themen/Arbeit/Arbeitsmarkt/Qualitaet-Arbeit/Dimension-6/unter-ueberqualifikationl.html. [74]

Stuart, M. (2016), *Evaluation of the Union Learning Fund Rounds 15-16 and Support Role of Unionlearn.*, https://www.unionlearn.org.uk/sites/default/files/publication/ULF%20Eval%201516%20FINAL%20REPORT.pdf. [22]

Swedish Agency for Economic and Regional Growth (2016), *Regionala kompetens-plattformar - En översikt av utvecklingsprojekten mellan 2013–2017*, https://tillvaxtverket.se/download/18.71bd393115a3b4b405e20140/1487259449955/Regionala%20kompetensplattformar%20.pdf?_x_tr_sl=sv&_x_tr_tl=en&_x_tr_hl=fr&_x_tr_pto=nui. [27]

The White House (2021), *Fact sheet: The American Jobs Plan*, https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/31/fact-sheet-the-american-jobs-plan/. [38]

Warning, A. (2020), *Engpässe werden immer stärker sichtbar: Rekrutierungssituation im Beruf der Erzieherin/des Erziehers*, IAB, Nürnberg, http://doku.iab.de/kurzber/2020/kb0220.pdf. [48]

Weber, E. (2020), "Minijobs sind aus der Zeit gefallen", *Süddeutsche Zeitung*, https://www.sueddeutsche.de/wirtschaft/forum-minijobs-sind-aus-der-zeit-gefallen-1.5093131. [89]

Wieland, C. and N. Härle (2020), *Die Ausbildungsgarantie in Österreich: Funktionsweise, Wirkungen, Institutionen*, Bertelsmann Stiftung, Gütersloh, http://dx.doi.org/10.11586/2020051. [36]

Wippermann, C. (2012), *Frauen im Minijob: Motive und (Fehl-)Anreize für die Aufnahme geringfügiger Beschäftigung im Lebenslauf*, Bundesministerium für Familie, Senioren, Frauen und Jugend, https://www.bmfsfj.de/resource/blob/93862/4ba520100f0bde228598d1271c32cfd4/frauen-im-minijob-data.pdf. [85]

Wissenschaftlicher Beirat beim Bundesministerium der Finanzen (2018), "Zur Reform der Besteuerung von Ehegatten", *Gutachten des Wissenschaftlichen Beirats beim Bundesministerium der Finanzen*, https://www.bundesfinanzministerium.de/Content/DE/Standardartikel/Ministerium/Geschaeftsbereich/Wissenschaftlicher_Beirat/Gutachten_und_Stellungnahmen/Ausgewaehlte_Texte/2018-09-27-Gutachten-Besteuerung-von-Ehegatten.html. [81]

Zentrum Liberale Moderne (2021), *Das Bildungsgrundeinkommen - Vorschlag für eine neue Weiterbildungsfinanzierung*, https://libmod.de/neue-studie-zum-bildungsgrundeinkommen/. [18]

Notes

[1] These statistics are based on the OECD *Skills for Jobs* database, which defines skills as either in shortage or in surplus. Imbalances are measured following a two-step approach. First, an "occupational shortage indicator" is calculated, based on the analysis of the wage growth, employment growth, hours worked growth, the unemployment rate and the change in under-qualification. For each country, long-run trends are compared to the economy-wide trend. Based on the O*NET database, the "occupational shortage indicator" is then used to build indicators of skills shortages and surpluses. High-, medium- and low-skilled occupations are ISCO occupational groups 1 to 3, 4 to 8 and 9 respectively.

Occupational bottlenecks pre-crisis have been largest in medical and care professions, information technology, construction, and skilled trades occupations (Bundesagentur für Arbeit, 2020[99]). Forecasts predict that these will remain bottlenecks also in the future along with occupations related to mechatronics and automation technology (BMAS, 2021[100]). Demographic change will further change skill needs by changing the demand for goods and services, and hence qualified labour, notably by increasing the demand for health care professionals and personnel in elderly care (OECD, 2019[101]).

[2] Adult education and training comes in various forms in Germany. An estimated 18 000 providers in Germany mostly provide a mix of job-related and general training. Private providers make up the largest share (40%) comprising both commercial (23%) and non-profit (17%). This is followed by adult education institutions run by social groupings, such as churches, trade unions, foundations or other associations (18%); adult education centres (16%); and business-oriented institutions run by run by chambers, professional organisations or individual businesses (13%). Public vocational or higher education institutions make up only a small share (11%) (BIBB, 2020[102]).

[3] Individual learning accounts, as they exist in France, are an alternative way of giving workers more control over their training (OECD, 2019[107]; Perez and Vourc'h, 2020[108]). The European Commission recently launched a public consultation on individual learning accounts as part of the European Skills Agenda.

[4] The new LBBiE *(Lebensbegleitende Berufsberatung im Erwerbsleben*) programme currently implemented by the PES aims to focus more on shortage occupations.

[5] In Australia, the Stronger Transitions Package targets workers in five regions particularly impacted by structural change with poor employment opportunities. It includes a set of interventions that come into action before redundancies have taken place, including comprehensive skills assessments; job search preparation; resilience training; language, literacy and numeracy support; digital literacy training; exploring self-employment options, and industry work experience (OECD, 2019[5]).

[6] The NEET rate is a better summary indicator of joblessness among young people than the youth unemployment rate, because it also accounts for young people who are *inactive*, i.e. not actively looking to find work (Carcillo et al., 2015[98]).

[7] Studies spanning Europe, Australia, North America and Japan show that labour market entry during an economic downturn can reduce earnings for up to ten years after graduation (Raaum and Røed, 2006[106]; Genda, Kondo and Ohta, 2010[104]; Kahn, 2010[103]; Oreopoulos, von Wachter and Heisz, 2012[105]; Andrews et al., 2020[111]).

[8] A few OECD countries, such as Switzerland, have managed to maintain the number of apprenticeships during the crisis. France experienced even a 40% rise in apprenticeship starts in 2020, in large part due to policies to promote the hiring of apprentices (OECD, 2021[32]). In France, the *1 jeune 1 solution* (1 young person 1 solution) is a youth employment strategy for the COVID-19 recovery with the aim of providing an offer to every young person in need of support. It includes a range of different measures, including hiring subsidies for full-time employment and apprenticeships, strengthened employment support, and training for disadvantaged young people. The package was launched in July 2020 with an initial budget of EUR 6.7 billion that was later expanded to EUR 9 billion.

[9] School-based vocational training appears to have been less affected by the drop in applications. This may partly reflect the fact that some of the qualifications, such as for child care and health care workers, have gained in relevance through the crisis.

[10] The rapid increase in the number of people in need of care partly reflects also extensions in coverage and the introduction of a new legal definition of being in need of care (Braeseke et al., 2021[110]).

[11] For comparison, a single person requires a monthly disposable income of EUR 1 500 to make it into the lower middle-income group according to the definition used in the previous chapters.

[12] By contrast, a majority of child care workers reported that delivering good care did not become more difficult than before the COVID-19 crisis despite the additional duties stemming from hygiene and work and safety protocols. This may reflect the fact that the number of children in day care was reduced to about 80% in 2020 and further to about 50% in the first months of 2021 as part of the mitigation measures (DJI and RKI, 2021[97]).

[13] The Dutch CBAs also guarantee occupational pensions to all workers with large employer contributions of 12.5%, about double the rate that care workers in the public sector in Germany receive.

[14] The legislation also foresees introduction of a nationwide minimum required number of caretakers per patient, though the further details are yet to be agreed.

[15] Child health care, which had previously also been a separate qualification, was co-integrated with the vocational education for (general) health care and long-term care.

[16] Unlike for the other countries listed (except Belgium), data for Germany do not include spending on social long-term care. Also, German data may underestimate inpatient long-term care spending, because they do not include the cost of pharmaceuticals delivered to long-term care residents in inpatient settings, and cover a more limited set of medical / nursing services.

[17] For case studies of the use of innovative technologies in long-term care in Germany and abroad, see also Bovenschulte et al. (2021[109]).

[18] Only a minority (10% in Germany, 20% in the OECD) find taxes too high for high-income households.

[19] The 2021 numbers presented for Germany in this sub-section are based on preliminary calculations using and AW of EUR 52 770 per year. They account for the suspension of the solidary surcharge (*Solidaritätszuschlag*) for the majority of taxpayers in Germany from January 2021. The solidarity surcharge is a supplement on income taxes introduced in 1991 to cover the costs of the German reunification.

The effective tax rate is given by the sum of income taxes and social security contributions paid minus any social transfers received.

[20] These reforms pushed the top marginal income tax rate (*Spitzensteuersatz*) down from more than 50% to 42% (since 2005), thereby heavily compressing the range of tax rates at the top. At the same time, the lower threshold for the top income bracket was lowered to about EUR 58 000 in 2021, only around 108% of average gross earnings. A “rich tax” (*Reichensteuer*) of 45% applies to very high incomes of more than EUR 250 000 a year.

[21] Indeed, Peichl, Buhlmann and Löffler (2017[65]) estimate that high-income earners would be the largest beneficiaries of such a reform. The reason is that they would pay the same reduced marginal tax rate on the part of their income that is below the threshold for the top tax bracket.

[22] For earnings-related benefits, such as public pensions and unemployment benefits, a contribution ceiling may be justified on grounds that high-income earners may not have to be covered with their full earnings

to be sufficiently protected. However, for schemes such as health and long-term care insurance, contribution ceilings imply that high-income earners do not participate with their full earnings in the redistributive scheme, a deviation from the principle that people contribute according to their financial strength.

[23] The gender gap in employment rates in Germany is much small than in the OECD on average (59% for women and 73% for men), but remains higher than in some Nordic countries (Iceland, Norway, Sweden), in the Baltics (Estonia, Latvia, Lithuania) and in Israel.

[24] 59% of all Minijobbers, and 61% of Minijobbers below the age of 65, were women in June 2021 (Minijob-Zentrale, 2021[83]).

[25] Besides Minijobs in the commercial sector there is a much smaller number of Minijobs in private households. They have been much less affected by the crisis, and accounted for about 5% of all Minijobs in June 2021 (Minijob-Zentrale, 2021[83]).

[26] Indeed, Minijob regulations seem to have had some success at bringing marginal jobs in private households out of informality, with the number of Minijobs in private household having tripled between 2005 and 2019 from about 100 000 to 300 000 (Minijob-Zentrale, 2021[83]).