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Realising and expanding
opportunities in the United
States

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Jonathan Millar,
Douglas Sutherland**

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By Damien Azzopardi, Jonathan Millar and Douglas Sutherland

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Abstract/résumé**Realising and expanding opportunities in the United States**

Measures that enable the acquisition of new skills and reduce mismatches between the demand and supply of existing skills can boost US economic growth and make its benefits more inclusive. Although overall schooling performance has generally improved over time, many disadvantaged students still fail to achieve basic numeracy and literacy. Many parents are denied the opportunity to make their most productive contribution to the economy due to a lack of paid parental leave provisions, publicly-funded childcare and early-childhood education. Discrimination against individuals on the basis of race and gender or those with criminal records can also create barriers to opportunity. Some geographic areas of the country are performing very well, while others are being held back by governance structures that are ill-equipped to deal with economic, social, and environmental challenges. Getting the right policies and infrastructure in place in a timely manner can expand opportunity in these areas

This working paper relates to the 2016 OECD Economic Survey of the United States (www.oecd.org/eco/surveys/economic-survey-united-states.htm).

JEL classification codes: J24, J6, J7, R5

Keywords: productivity, skills, mobility, discrimination, regions

Concrétisation et amélioration des chances aux États-Unis

La croissance économique des États-Unis peut être stimulée et rendue plus inclusive au moyen de mesures qui favorisent l'acquisition de nouvelles compétences et réduisent l'inadéquation entre les compétences existantes offertes et celles demandées. Bien que les résultats scolaires dans leur ensemble se soient globalement améliorés au fil du temps, de nombreux élèves défavorisés ne parviennent toujours pas à acquérir les compétences élémentaires en calcul et à l'écrit. De nombreux parents sont privés de la possibilité d'apporter à l'économie la contribution la plus productive possible en raison de l'absence ou du manque de congés parentaux rémunérés, de services d'accueil des jeunes enfants à financement public et de structures d'éducation préscolaire. Les discriminations fondées sur la race ou le sexe, ou celles qui s'exercent à l'encontre des personnes ayant des antécédents judiciaires, peuvent aussi limiter l'accès aux chances. Certaines zones géographiques du pays sont très prospères, tandis que d'autres sont handicapées par des structures de gouvernance inadaptées aux défis économiques, sociaux et environnementaux à relever. Pour améliorer les chances dans ces différents domaines, il conviendrait de mettre rapidement en place des politiques et des infrastructures appropriées.

Ce Document de travail se rapporte à l'Étude économique de l'OCDE des États Unis 2016 (www.oecd.org/fr/eco/etudes/etude-economique-etats-unis.htm).

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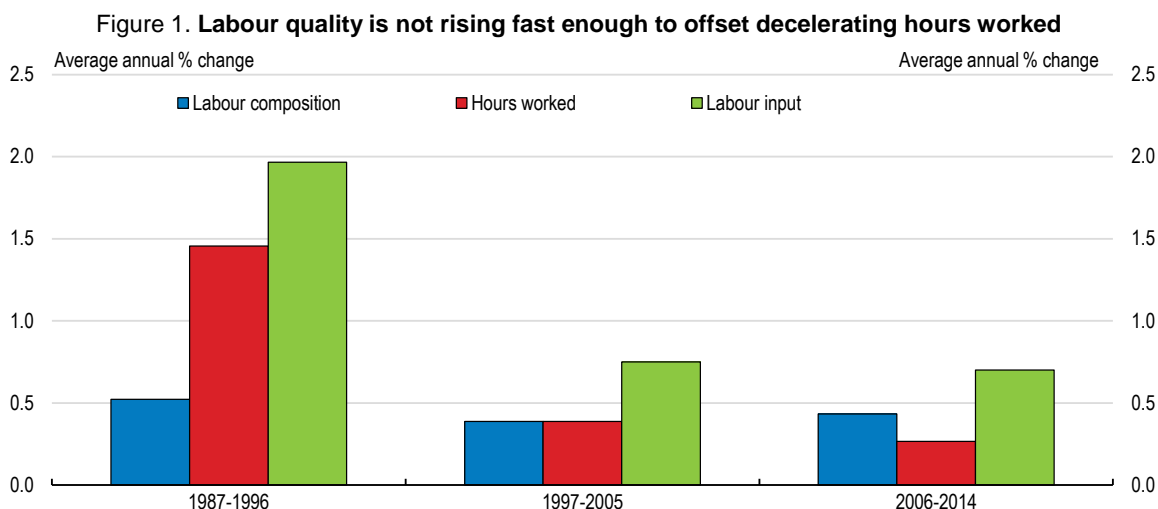
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REALISING AND EXPANDING OPPORTUNITIES IN THE UNITED STATES

By Damien Azzopardi, Jonathan Millar and Douglas Sutherland¹

Actions that enable skill acquisition and eliminate obstacles to employment will foster opportunities for individuals to participate more fully in the economy. Although increased educational attainment can improve employment opportunities, policy should also emphasise the acquisition of portable, adaptable skills and dismantle barriers that prevent workers from obtaining jobs where their skills are most highly valued. Barriers such as needless variations in occupational licensing across jurisdictions and discrimination against people on the basis of race, gender or criminal records inhibit the efficient matching of employee skills with employer needs in the labour market. Opportunities can also be hindered by ineffective governance structures across cities and states that fail to use local resources in a way that nurtures development and enables residents to fulfil their potential.

Measures to support the acquisition of skills needed in the modern economy and to remove barriers to job matching could help support growth both by boosting labour market participation and by unleashing productivity gains. Available estimates show that aggregate US labour input, which includes inputs to production from both human capital services and hours worked, has been decelerating since the late 1990s (Figure 1). Although the quality of the workforce has continued to improve, this trend has been insufficient to offset an ongoing slowdown in overall hours worked (Figure 1). Working against the drag on overall economic growth from the deceleration in labour input would require some combination of raising labour supply (such as by boosting labour market participation and reducing underemployment) or accelerating labour quality (such as by enabling investments in skills and improving attainment in compulsory education).



Note: Changes in overall labour input equal changes in both hours worked and a labour composition effect that accounts for overall changes in workers' experience, education and gender.

Source: BLS (Bureau of Labor Statistics) multifactor productivity database.

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This chapter discusses ways that policymakers might help boost skills, raise employment and reduce job mismatch, with the topic selection largely guided by areas where the United States appears to be lagging behind the OECD's best performers. Addressing these issues would not only help enlarge the overall economic pie, but would have wider effects on well-being and economic inclusiveness. The chapter first looks at education and retraining before turning to barriers to employment from discrimination and other sources. The chapter then focuses on geographical dimensions by examining how improvements in infrastructure and governance might help enable opportunity.

Skills and opportunity

Raising attainment in compulsory education

Skills acquired through education and training help enable students to succeed. Good schools help equip students with the necessary skills to find well-remunerated employment and to ascend the income scale. For this reason, using policy tools to improve educational attainment is an important means to promote opportunity, reduce income inequality and facilitate inter-generational income mobility. Income mobility across generations is especially low in the United States in comparison with many other OECD countries (Box 1), and tends to be especially weak in areas with poor performing schools, higher poverty rates, wider inequality, and residential segregation by income and race (Chetty and Hendren, 2015). Differences in school quality across areas suggest that not all children are provided with the same opportunity to succeed, which contributes to widening income inequality.

National evidence does point to gradual improvements in overall student performance in compulsory education (K-12), at least until relatively recently. Enrolment and graduation rates have increased over time and the quality of schooling, as measured by the National Educational Assessment Program scores for mathematics and literacy, has been improving steadily (Figure 4, panel A). The poorest performing US states have been catching up, on average, over the past few decades, although wide geographical differences in performance remain (Figure 5). However, progress in overall educational attainment appears to have stalled of late. In comparison to other OECD countries, student attainment is around average as measured by PISA (Figure 4, panel B), while skills in the adult population, as measured by the OECD's Programme for the International Assessment of Adult Competencies (PIAAC), are relatively low on average and widely dispersed (Figure 4, Panel C).

These performance benchmarks continue to show significant heterogeneity in attainment and skills across individuals. Importantly, many students still fail to achieve basic numeracy and literacy, particularly amongst students from disadvantaged backgrounds. For example, in standardised tests from 2015, 52% of black 8th grade students scored below "basic" for mathematics and 42% for reading, well above the national averages of 33% for mathematics and 29% of reading. Although still inadequate, these scores represent considerable improvement from the early 1990s, when the proportion of such students failing to achieve "basic" numeracy or literacy was closer to four-fifths. Lower scores on these tests are clearly related to poorer employment outcomes: Individuals lacking basic skills are much more likely to be unemployed and are more susceptible to job losses—especially around economic downturns. Against this background, there appears to be high economic returns to improving attainment in compulsory K-12 education—especially at the low end of the attainment scale.

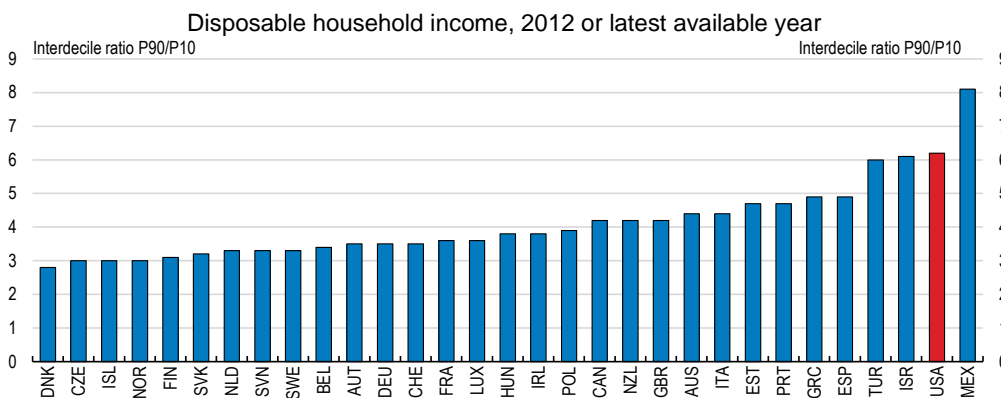
The *Every Student Succeeds Act* of 2015 replaced the nationwide K-12 standards in *No Child Left Behind*, and gives States control in setting their own educational objectives. By setting ambitious targets, States can help ensure that their students are well prepared for the job market and can help narrow geographic differences in attainment. An important aspect of the new law is increased State accountability for educational outcomes, including an intervention requirement for underperforming schools. However, there is as yet no evidence of the impact of the Act and States will need to resist the temptation to revert to less demanding standards.

Box 1. Inter-generation income mobility

Disparities in disposable income are especially wide in the United States by OECD standards. US estimates of two widely-used measures of income inequality, the Gini coefficient and the decile ratio (which measures disparities between the top and bottom deciles of the income distribution) are amongst the highest in the OECD (Figure 2). Both of these measures have also been rising over time. This growing and significant income and wealth inequality would be less worrisome if it were paired with high income mobility (i.e. if people could improve their relative position through innovation and entrepreneurship rather than purely through inheritance or rent-seeking behaviour). However, differences in earnings between rich and poor families are not only wide, but persistent across generations—especially in comparison with other OECD countries (Corak, 2013; Figure 3 left panel). Much of this persistence is explained by relative stability of family income across generations in the upper half of the income distribution (Mitnik *et al.*, 2015). Indeed, the probability of a child in a low-income family ascending the income scale in adulthood to become a high-income household is small: Only 7.5% of children from families in the lowest income quintile ascend to the highest income quintile, and fewer than 20% even ascend to the upper 40% of the income distribution (Chetty *et al.*, 2014). In Canada, 13.5% of children born in low-income families rise up the income ladder (Reeves, 2016)

Previous *Economic Surveys* have discussed growing income inequality in the United States, recommending, *inter alia*, extending the earned income tax credit and raising the national minimum wage. Addressing disparities in the quality of K-12 education would also complement these approaches.

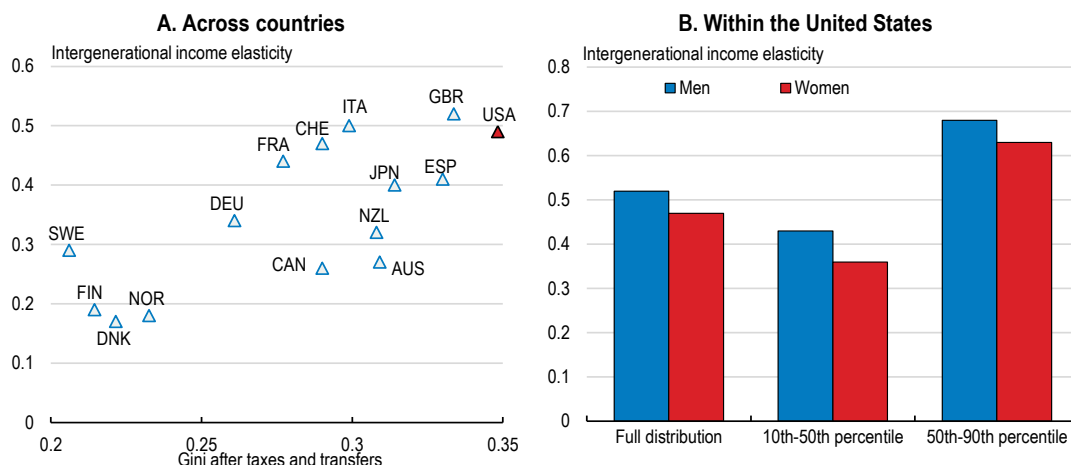
Figure 2. Income inequality is pronounced in the United States



Source: OECD Income Distribution and Poverty dataset

Figure 3. Intergenerational income mobility is comparatively low

Intergenerational earnings elasticity: estimates from various studies



1. The height of each bar measures the extent to which sons' earnings levels reflect those of their fathers. The estimates are the best point estimate of the intergenerational earnings elasticity resulting from an extensive meta-analysis carried out by Corak (2006) and supplemented with additional countries from d'Addio (2007). The choice of empirical estimates in this meta-analysis is motivated by the fact that they are based on studies that are similar in their estimation technique, sample and variable definitions. The higher the value, the greater is the persistence of earnings across generations, thus the lower is the intergenerational earnings mobility.

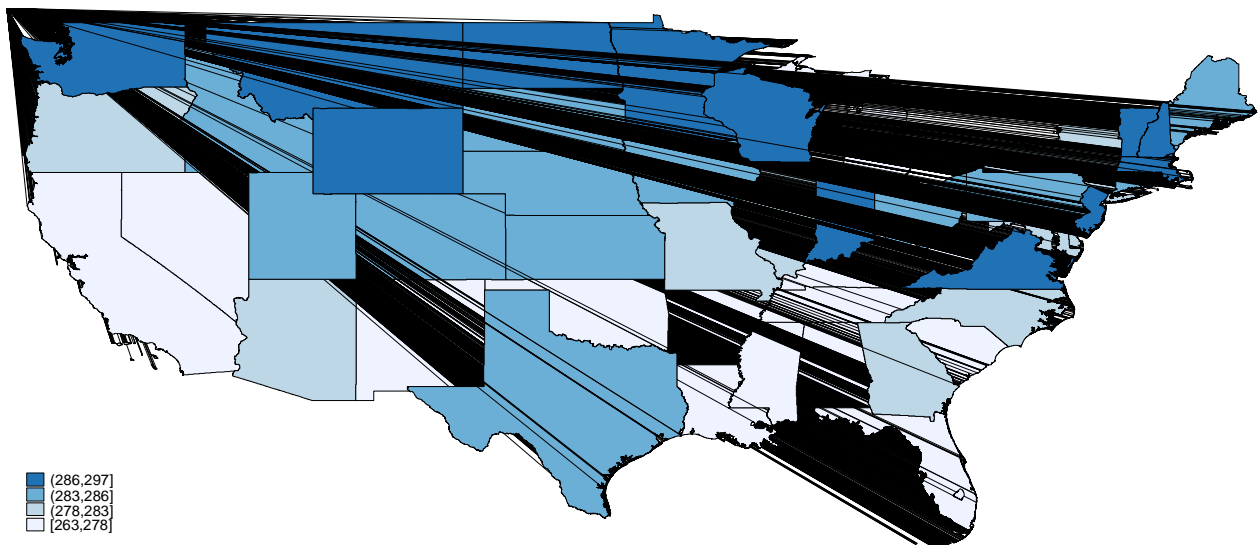
Source: D'Addio (2007) left panel, Minik et al (2015) right panel

Figure 4. Education performance has improved though skills remain weak on average



Source: NAEP, OECD PISA, and Broecke et al. (2016)

Figure 5. Educational performance is mixed across the US

State average numeracy score for 8th grade students

Note: Darker-shaded States have a higher average Score. Map generated using publicly available files from the National Weather Service

Source: NAEP.

The pronounced heterogeneity in US educational attainment may partly reflect substantial differences in resources across schools. For example, instructional spending per student in Arizona (USD 4 100 per student) is less than half the level in Vermont (USD 11 000) (Schanzenbach *et al.*, 2016). While boosting school funding has not always yielded commensurate improvements in performance (Hanushek, 1997), targeted interventions in under-performing schools may help offset difficulties faced by particular institutions. For example, teacher shortages appear to be especially severe in less-advantaged schools in the United States (OECD, 2015b). Resource disparities across school areas can often arise because school funding schemes are largely based on local property tax collections and on state-level revenues from income and sales taxes, and thereby tend to allocate more funding to higher-income areas. While state and federal transfers are already targeted to reduce these disparities, effectively tackling underperformance will likely require further levelling of the playing field in the most disadvantaged areas.

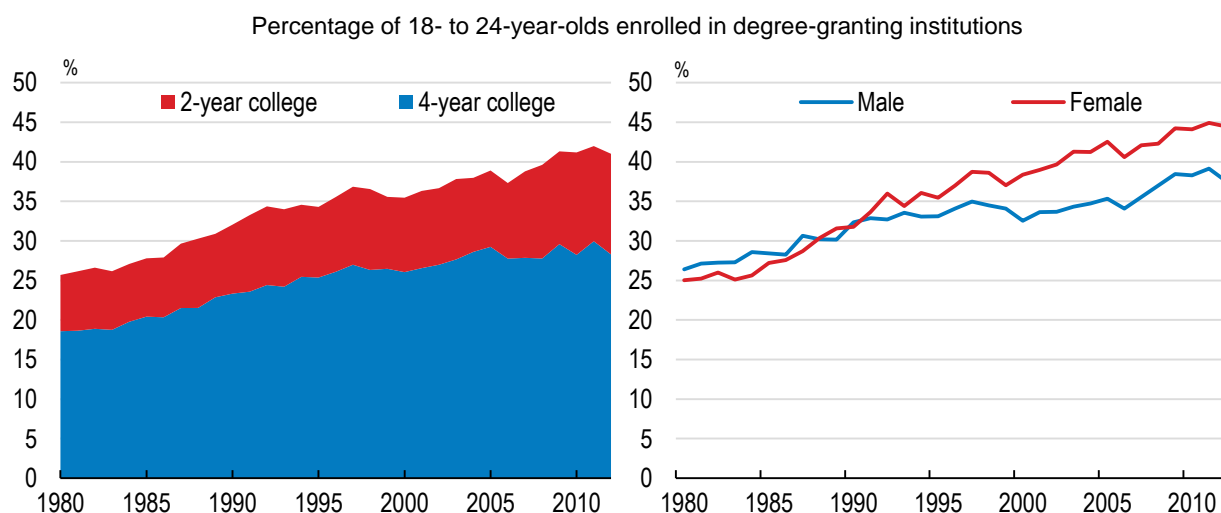
Improving access to higher education and post-secondary training

Evidence suggests that the educational system may not be turning out enough workers with the skills needed to flourish in the modern economy. To be sure, the U.S. has many of the finest institutions of higher education in the world, which helps satisfy the demand for highly skilled graduates from firms at the global productivity frontier. However, research (Hulten and Ramey, 2015) and survey evidence suggest that these outflows are insufficient to keep up with demand for certain skills: For example, the Dice-DFH measure of mean vacancy duration increased by 10 days to 26 working days between 2009 and early 2016, with open positions in health services taking almost 50 working days to fill. By contrast, open positions in construction took 13 working days to fill.

The United States has made significant progress in expanding student enrolment in post-secondary programmes, which has risen quite strongly since 1980 (Figure 6). This has contributed to an increase in the share of the population gaining college degrees. Expansion has also led to progress in broadening access to post-secondary education, with enrolment rates of Black and African American and Hispanic and Latino students rising rapidly over the past decade and with an increasing share of women entering higher education. Women also appear to graduate at higher rates than men, perhaps, in part, because men's

weaker performance in compulsory education leaves them less adequately prepared to continue into higher education (Hulten and Ramey, 2015). Although the majority of students attend traditional 4-year colleges, over time the share attending 2-year often vocationally-orientated colleges has also grown.

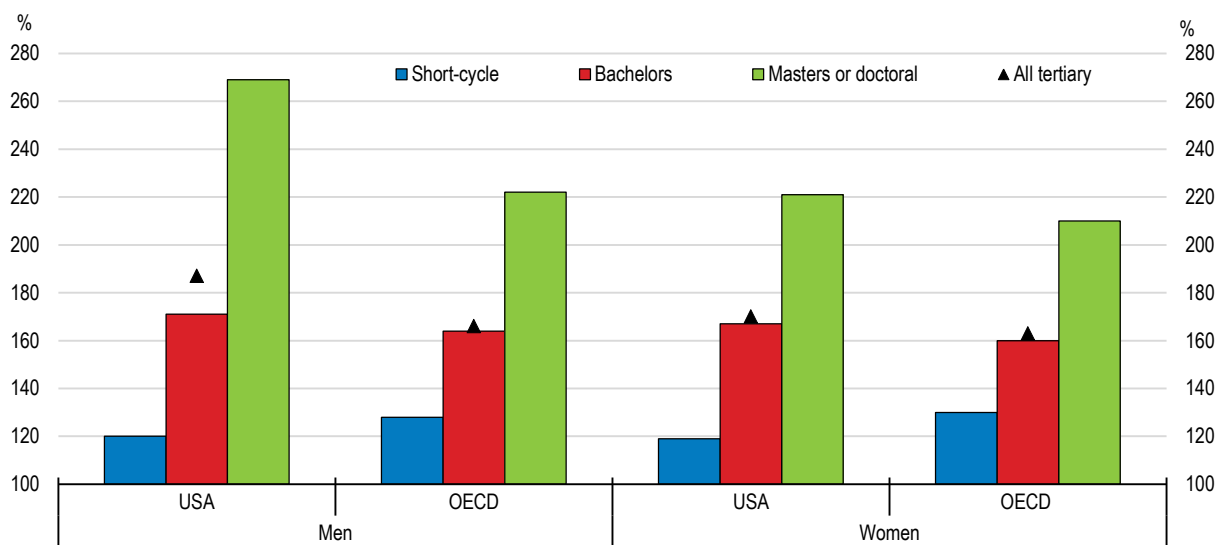
Figure 6. **Enrolment in higher education has risen**



Source: Digest of Education Statistics.

The individual returns to investment in education have been substantial on average, both in terms of raising earnings and employment and in reducing the risk of unemployment. The skill premium, calculated as the ratio of median hourly earnings for college graduates to workers who only completed high school, rose rapidly in the 1980s and has remained roughly stable at around 90% (James, 2012). In 2015, the employment rate for persons who had only completed high school was 54%, compared to an employment rate of 72% for persons with Bachelor's degrees and unemployment rates amongst college graduates (2.6%) are around three percentage points lower than those with only high school education. In comparison with other OECD countries, the wage premium has been larger for males, particularly for those obtaining Masters or Doctoral degrees (Figure 7). Women with college education appear to be considerably underrepresented amongst those earning more than twice the median income (OECD, 2015b). In addition, the wage premium for vocational programmes is generally less than elsewhere in the OECD and less likely to boost relative earnings. For instance, around 50% of workers who completed vocation programmes (but not higher degrees) earn above median earnings, whereas the OECD proportion is 10 percentage points higher.

Figure 7. Wage premia for college are varied



Source: OECD, Education at a Glance 2015.

Higher education has been an important driver of inter-generational income mobility: Children from lower-income families have been much more likely to move out of the bottom income quintile if they have completed a higher education degree (80%) than otherwise (55%) (Isaacs, Sawhill and Haskins, 2008). The rising supply of college graduates from all backgrounds would, other things being equal, reduce the college wage premium by helping to satisfy strong demand for skills, thereby helping to narrow some measures of income inequality. However, colleges vary substantially in quality and many students receive a smaller wage premium on completion of their studies, with students from disadvantaged backgrounds in particular appearing to obtain lower returns (Hershbein, 2016).

The expansion of higher education enrolment has been accompanied by an expansion of student debt (Box 2). In part this has reflected increasing costs. Since the early 1980s, college fees have risen steadily, making college education increasingly expensive. Whereas the annual fees for private non-profit college was equivalent to a quarter of median household disposable income in the early-1980s, these costs are now approaching 60%. Fees are smaller for public schools and 2-year colleges, but have been increasingly equally rapidly. In some cases, students accumulate debt without seeing commensurate benefits, often because a significant share of college students fail to complete their studies. This is especially true for those enrolled in private for-profit education institutions, which have expanded their footprint dramatically over the past twenty years. While completion rates at private for-profit institutions were always lower than other types of educational institutions, they have recently dropped below one-third after having been around one-half at the end of the 1990s.

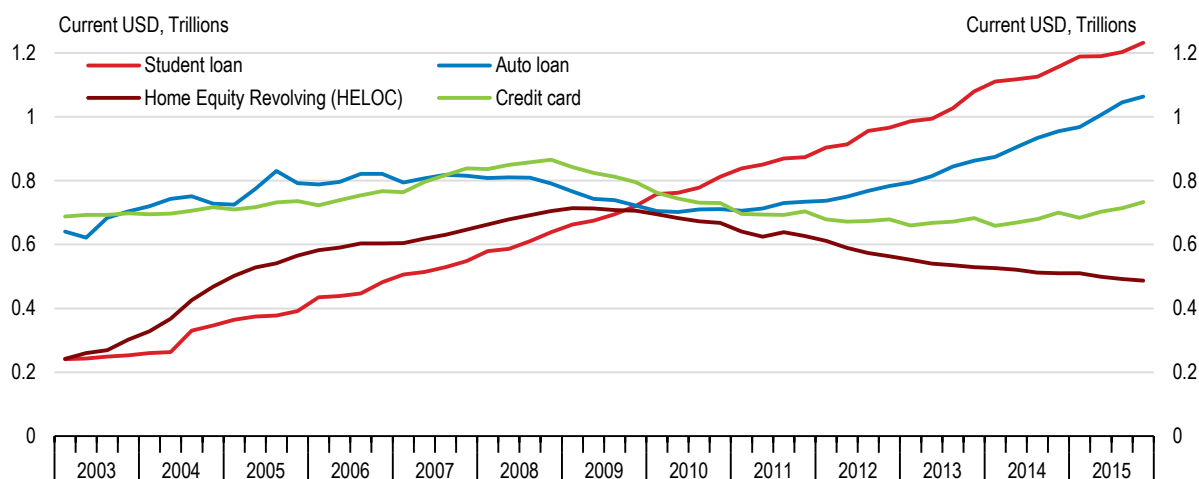
Against this background, whilst college education can be an important driver for income mobility, the outcomes are mixed and the cost have increased, which can leave some students burdened with debt repayments without enjoying much boost to earnings capacity. In this respect, the recent actions by the authorities to ensure that students are more aware of the possible consequences by providing information on college performance are welcomed.

Box 2. Student loans

Student loan balances represent investments in education that enhance earnings power. Rising costs of college education combined with increased enrolment in degree-granting institutions has contributed to the total outstanding balance of student loans tripling to USD 1.2 trillion over the past decade (Figure 8). For the overwhelming majority of students the amounts borrowed remain relatively modest, with around 70% of undergraduates in the early 2000s borrowing USD 10 000 or less (Dynarski, 2016) and the lengthening tenor of loans has helped keep debt repayment as a share of income relatively constant (Akers and Chingos, 2014).

Some students nonetheless get into financial difficulties, often when they have relatively little borrowing, which can arise when students drop out. Default rates are more likely for students who attended private for-profit schools or community colleges (Looney and Yannelis, 2015). As debt discharge is rare, students – or their families who can borrow on the student’s behalf – can be burdened for a considerable time. Since 2009, income-contingent repayment options have been available and terms were eased in 2014 to lower the maximum repayment to 10% of discretionary income and to reduce the forgiveness time to 20 years. Take-up for these types of loans was initially modest, but now accounts for one in five borrowers with federally managed debt. The administration has made some important steps recently by reporting the debt and employment outcomes of previous cohorts of students at individual institutions, thereby boosting accountability. Furthermore, the *Gainful Employment* rule acts to limit the ability of students to obtain federal loans when they are enrolled on-all programmes at for profit institutions and on non-degree programmes at public and non-profit institutions that are unable to demonstrate that their entering students will earn enough after graduation to justify tuition costs.

Figure 8. **Student loans have become a much more important element of household debt**
Household debt balances



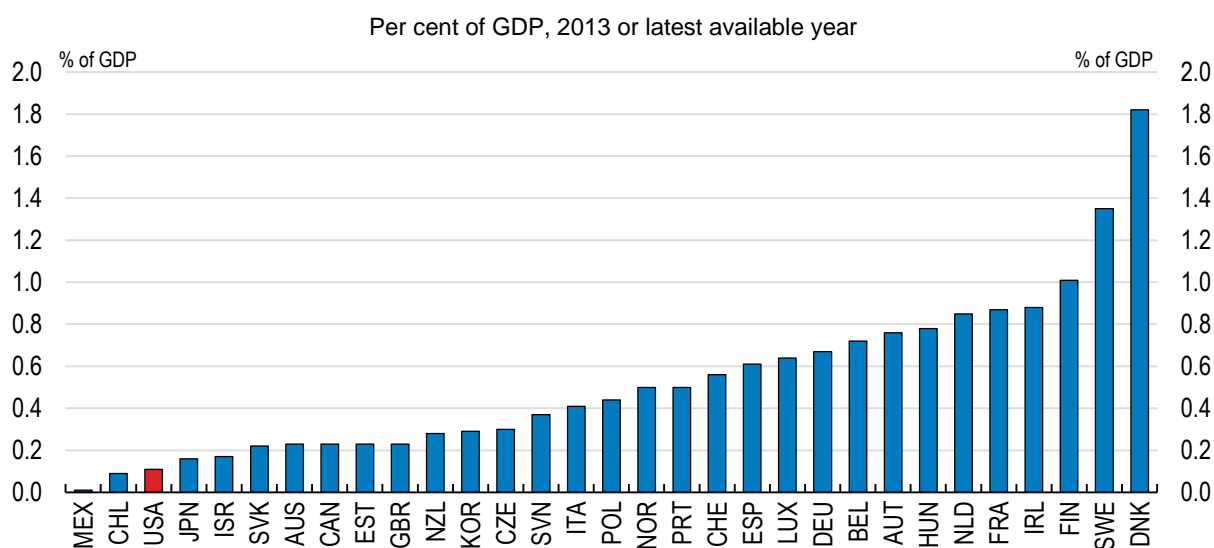
Source: Federal Reserve Bank of New York.

Given the tendency for skill demands to shift over time, another important way to enable workers is to provide opportunities to retrain or enhance existing training. For example, technological advances and foreign trade contribute to a process of job displacement, reducing demand for some types or jobs while creating opportunities in other areas. The hollowing out of demand for many repetitive and programmable jobs, displacing many workers from middle income occupations, creates a need to acquire new skills in order to regain employment or limit wage losses between the old and new jobs. Such displacement is likely to continue, as the McKinsey Global Institute (2015) has estimated that around 10% of middle-skill jobs could be lost over the next decade. Although these job losses are painful for those that experience them, these developments also help pave the way for high-paying jobs in information technology and other fields and also provide broader economic benefits such as lower prices for many consumer goods. With the pace of such displacements arguably hastening, public workforce policy will have to be stepped up to help displaced workers find new opportunities and minimise the personal cost of job losses, forestall hysteresis-type effects, and work against widening income inequality.

There are a wide variety of programmes which target people who have either lost their jobs or are threatened by job loss from opening up international competition (including trade adjustment assistance). *The Workforce Innovation and Opportunity Act* of 2014 put greater emphasis on one-stop centres achieving results for jobseekers and businesses, providing career services, education and training and other support services. The Administration has also been working to expand apprenticeships and encouraging businesses to increase training of their workforces (“Upskill initiative”), including in technology fields (“TechHire”).

In comparison with other OECD countries, overall resources devoted to active labour market policies in the U.S. are meagre (Figure 9). Except for trade-related cases, displaced workers would usually be eligible for very little training. Furthermore, programmes tend to have stringent eligibility criteria and uncertain funding streams. Many jobseekers would benefit from professional training counselling and recent innovations in the training field, including worker pre-assessment, stackable training and skill credentials as well as strong employer involvement and a link to the local job market (OECD, 2016c). Evaluations of active labour market programmes in other countries suggest that the effects usually only become apparent two to three years after programme completion and more so if the programmes emphasise human capital accumulation, such as training programmes rather than job search assistance (Box 3). The target group is also important, with evidence from international studies suggesting that the programmes are more effective for women and the long-term unemployed (Card *et al.*, 2015). In the United States, Barnow and Smith (2015) note that abandoning labour programmes with poor evaluation results is politically difficult, which risks locking in scarce funds in ineffectual programmes. Given this shortcoming, they argue for designing programs with greater emphasis making it easier for to policymakers to scale up budgets for successful programmes and to scale down ineffectual ones. Experimentation using such a process could help policymakers identify the most effective active labour market programmes and expand them.

Figure 9. **Spending on active labour market programmes is comparatively low**



Source: OECD Public expenditure and participant stocks on labour market programmes dataset.

Box 3. Activation policies in the OECD

Activation policies – the combination of income and re-employment support to job-seekers – if well designed and implemented at the national and local level, promote matching of job opportunities with job-seekers. There is no one-size-fits-all approach to promoting an effective activation strategy, which depends on the economic context, the institutional setting and the administrative capacity of the country. The experience from across the OED suggests that effective activation strategies typically incorporate the following elements (OECD, 2015a):

- People need to find useful support and motivation to search actively for work. This can take the form of developing tailored individual action plans (as in Sweden and Switzerland) and regularly monitoring ongoing job search efforts (as in Australia, Portugal and the United Kingdom).
- Employability should be strengthened where a rapid return to work is unlikely. With resources scarce, the public employment service needs to concentrate resources where they will have the largest impact. A number of countries (such as Australia, Austria, Denmark and Germany) use profiling techniques to allocate jobseekers to different types of support. There are a number of ways to strengthen employability. Intensive counselling in Denmark and France appears to increase employment possibilities. Career guidance is also offered by a number of countries, which may lead to a set of training programmes being offered. Time-limited in-work benefits have been offered in Canada and a number of other countries to support low-income groups getting a foothold in employment.
- The set of available employment opportunities needs to be expanded. Public employment services need not passively register vacancies. In Australia, employment service providers will often actively promote hard-to-place jobseekers. In the United Kingdom, the employment service provides dedicated support for small businesses. There are cases of supporting placements as well as dedicated programmes to support young people (programmes in Europe attempt to minimise scarring effects of prolonged weak labour force attachment), single mothers and the elderly.
- The institutions that implement active labour market policies need to be fit for the purpose. Evaluation of employment services and active labour market programmes are essential to ensuring spending is effective. Australia, Germany and Switzerland use performance measurement systems to monitor, with Germany using benchmarking against similar employment services offices. In the Netherlands, many employment services can be offered using e-services.

Barriers to opportunity

Reducing mismatches between the supply and demand of skills can serve as an important means to boosting individual opportunity. However, a number of influences appear to be compromising the economy's ability to direct skills toward the activities where they are most highly valued. Labour markets are becoming less fluid, and although employment opportunities are becoming more balanced over time, various influences still tilt the playing field against some groups—such as women, African-Americans, and those with criminal records. A growing portion of the working-age population is collecting disability insurance, a programme which presents barriers to participating in the labour market. While indicators suggest that barriers to matching are low in the United States in comparison with other OECD countries, some evidence suggests that well-targeted policies, such as reducing the costs of closing a business and reducing transaction costs for housing, to diminish those barriers could potentially raise US output by over 3% (Adalet McGowan and Andrews, 2015).

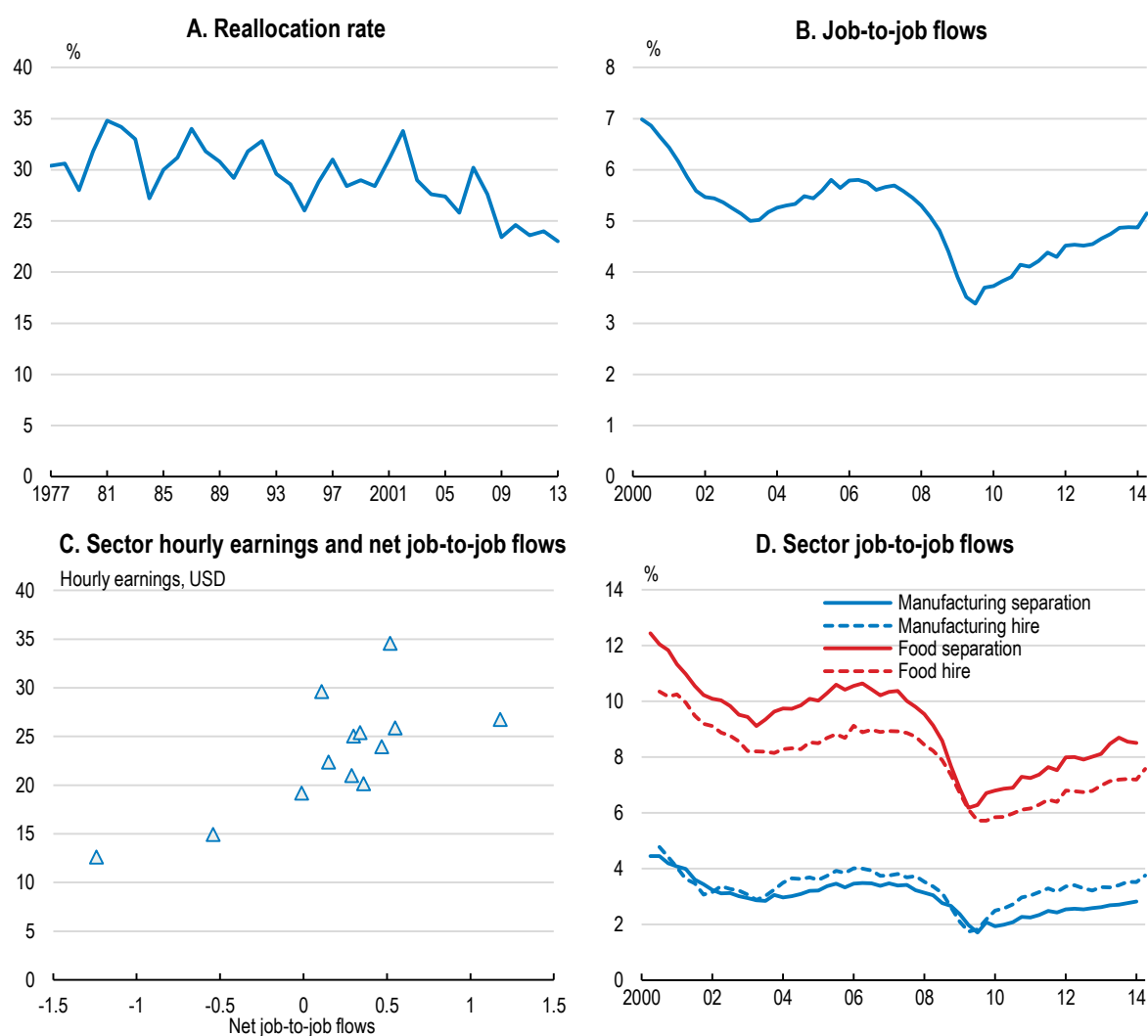
Barriers to labour market fluidity

Many indicators suggest that the fluidity of the US labour market is declining. The job reallocation rate (the sum of the job creation rate and job destruction rate) – has been trending down on balance for some time (Figure 10, Panel A), while job-to-job flows have also decreased on net since the early 2000s (Figure 10, Panel B). There is also a notable cyclical dimension to these declines (Haltiwanger *et al.*, 2014b). After the last two recessions, Hyatt and Speltzer (2015) document declines in job-to-job flows and in rates of hiring, separation, job creation and job destruction that were not subsequently reversed in the following expansion.

One notable source of income mobility in the U.S. is the career ladder by which individuals transition from lower- to higher-paying jobs over their lifetime. The tendency of workers to move to new jobs with better conditions is evident in sector-level data, with job-to-job transitions on net moving from lower-paying jobs (such in the accommodation and food sectors) toward higher-paying jobs (such as in manufacturing) (Figure 10, Panel D). This pattern is reflected in the positive relationship between a sector's average wage and the difference between its rates of job-to-job entry and separations (Figure 10, Panel C). Job-to-job transitions such as these are therefore an important source of opportunity, which makes the downtrend in job-to-job flows particularly worrisome. Evidence from Mukoyama (2015) suggests that a share of the recent slowdown in total factor productivity (up to 0.5% annual decline) can be traced to diminished allocative efficiency as workers are finding it harder to move to jobs that better match their skills.

Diminishing labour market fluidity has been fed, in part, by declines in business dynamism. Business dynamism and labour market fluidity are closely related, so it is difficult to disentangle their distinct roles. However, it is well established that firm creation is an important driver of labour market churn. Historically, the distribution of employment growth across firms tends to be skewed by new firms enjoying especially rapid growth, but this is becoming less so over time as fewer young firms enter the market and blossom. Young firms are also a key source of labour market churn, often attracting workers from established firms during their initial years of existence (Haltiwanger *et al.*, 2014a). As such, factors holding back business dynamism (Chapter 1 of the Economic Survey of the United States) are, in turn, reducing opportunities for workers to improve remuneration over their careers.

Figure 10. Labour market flows have diminished

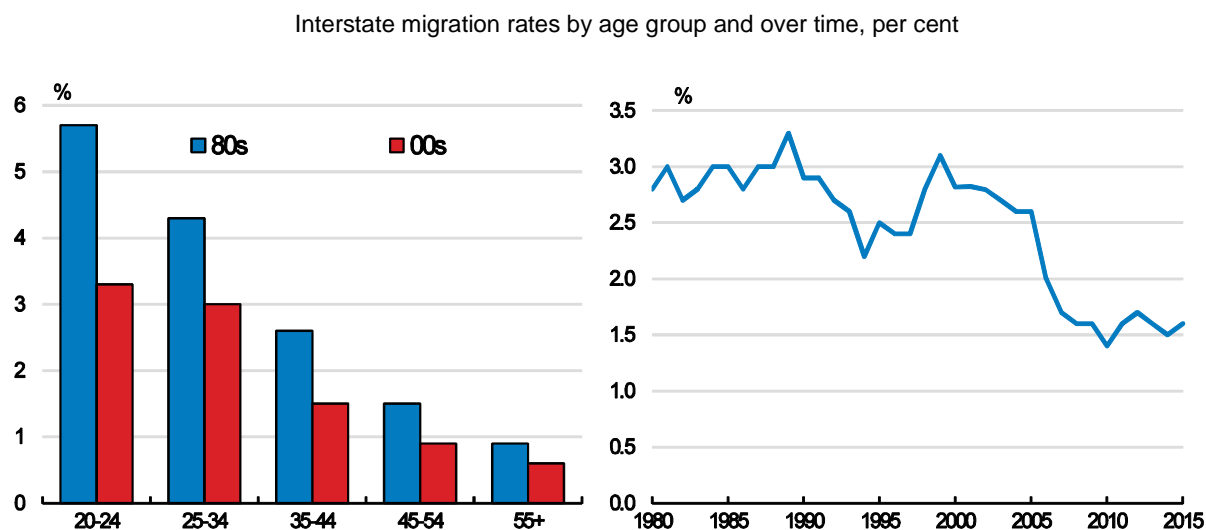


Note: The reallocation rate is the sum of job creation rate and job destruction rate minus the absolute net job creation rate. The job-to-job flows are the average of hires from employment and separations to employment as a share of total employment in the quarter.

Source: Census Bureau Business Dynamic Statistics and Job-to-Job Flow databases.

As with business dynamism, part of the reduction in labour market fluidity is also connected with population demographics. Worker mobility is lower with older workers (OECD, 2009). Older workers also tend to work for older firms, and some estimates suggest that the ageing of the workforce accounts for around 10% of the slowdown in employment by new firms between 2000 and 2012 (Goetz et al, 2015). Comparisons of migration rates across age groups also demonstrate that older people are much less likely to migrate (Figure 11, left panel), thereby contributing to less labour market churn with population ageing.

Figure 11. Inter-state migration has been declining



Source: Census Bureau, Current Population Survey March Supplement and Molloy *et al.* (2014).

However, inter-state migration rates have also declined noticeably for younger groups, suggesting that diminishing migration it is not just a symptom of demographics. Molloy *et al.* (2014), argue that the potential wage gains from switching jobs have declined over time, thereby giving workers less incentive to move both across firms and spatially. In addition, as the share of employment in more cyclical sectors of the economy has decreased over time, variations in economic conditions across the United States have diminished, thereby weakening the pull towards migration. This diminished geographic variation is evident in state-level unemployment rates, which converged dramatically after the 1980s and have remained more tightly distributed since. Finally, improving communication technologies reduce the need for employees to work in the same location in at least some occupations, which can reduce the need to migrate.

Regulatory barriers may also be playing a role in diminished labour market fluidity as well. The prevalence of occupational licensing has grown considerably over the past decades, with some estimates suggesting that these licenses cover around one-quarter of the workforce (Kleiner and Krueger 2013). Licensing restrictions often create barriers to entry by requiring people to attend specific training programmes to obtain certification. Evidence suggests that professional qualifications are often not mutually recognised across states (Carpenter *et al.*, 2012), and unnecessary variations of this type are a particularly worrisome barrier to labour market fluidity. To be sure, there are instances where such variations are justified, such as requirements that construction contractors in earthquake-prone areas receive special certification. However, some evidence suggests that cross-jurisdictional variations in licensing reflect efforts to restrict entry, as state-specific wage premia tend to increase over time following the introduction of an occupational license (Han and Kleiner, 2016).

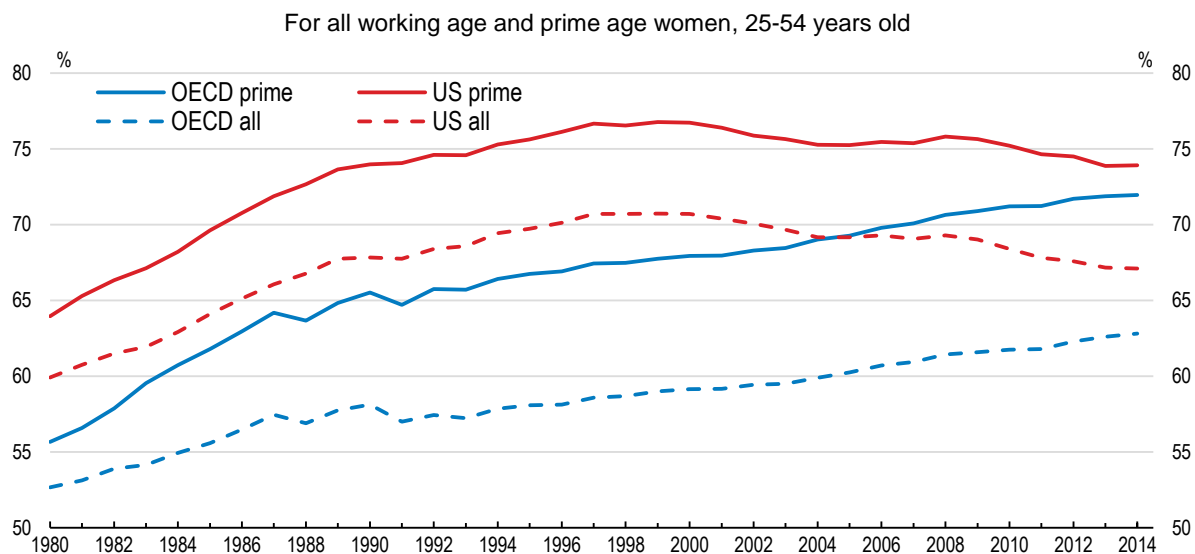
There is compelling evidence that geographic variations in licensing requirements impede labour market fluidity and reduce opportunity. Such variations impede job-to-job flows across states, as evidence shows that people in occupations with a higher prevalence of licensing are less likely to move across state lines but no less likely to move within the state (CEA, 2015). This finding is consistent with broader evidence that inter-state job flows are declining even as job-to-job transitions become more prevalent within state (Molloy *et al.*, 2013). Idiosyncratic licensing requirements can also contribute to labour market mismatches for groups that are compelled to move regularly across state lines, such as spouses of military personnel (U.S. Department Treasury, U.S. Department of Defence, 2012). Measures to improve the

portability of professional qualifications across jurisdictions—such as nationwide standards, mutual recognition of other states’ standards, or regular reviews of existing licensing requirements—would help reduce barriers to competition and migration, thereby boosting opportunity and income mobility. The European Union has been grappling with similar issues concerning the free movement of professionals and in 2005 introduced the Mutual Recognition of Professional Qualifications Directive that promotes automatic recognition of professional experience across the EU. This directive has contributed to cross-country harmonisation of training for some occupations (Koumenta *et al.*, 2014). A lack of representative data on occupation licensing and labour market outcomes complicates research into the effects of harmonisation across the European Union. In the case of the United Kingdom, wider licensing coverage and more onerous barriers to entry are associated with a lower proportion of migrants in these occupations. There is some suggestive evidence that migrants from the rest of the EU are more likely to be in occupations subject to automatic recognition. However, these sectors also tend to be more open to migration from outside the EU.

The introduction of the *Affordable Care Act* has likely been a step in the right direction in terms of boosting labour market fluidity. There has been considerable progress in addressing the lack of health insurance coverage, which has helped reduce the high number of instances where people lacked access to adequate healthcare coverage that could enable them to participate in the job market or take more productive jobs. Among other things, the law helps address shortcomings with employer-provided healthcare coverage, which can create lock-in effects that discourage inter-firm mobility for fear of ending up without insurance altogether, which is a particularly severe concern for people with pre-existing health conditions. The introduction of health exchanges has also helped ease access to healthcare for would-be entrepreneurs, who previously would have relied on a spouse’s employer-provided coverage (Blumberg *et al.*, 2013), purchased more expensive coverage in the individual market, or opted for no coverage.

Improving opportunities for women

US women have valuable skills to contribute to employers. Although women increasingly outperform men throughout the stages of the education system (in both enrolment and attainment), the participation rate for prime-aged women has been edging downward after having plateaued in the early 1990s (Figure 12). While prime-age female labour force participation remains above the rising OECD average, it has fallen below rates observed in other high income countries, partly due to the higher prevalence of part-time work elsewhere (Blau and Kahn, 2013). The rise in female labour market participation leading up to this plateau contributed an important boost to household incomes and helped ease living conditions for families—especially those toward the bottom of the income distribution. Measures to boost female job market participation and level the playing field for women could potentially bring valuable skills back into the labour force and help reduce job mismatch.

Figure 12 **Gains in female labour force participation have petered out**

Source: OECD Labour market statistics.

Improving working conditions

Wider female labour market participation can likely be encouraged by improving working conditions and making it easier to balance work and family commitments. Part of the reason that prime-age labour market participation for U.S. women is relatively weak by international comparison is that other OECD countries have introduced more family friendly policies (Blau and Kahn, 2010). While family friendly policies in these countries have led to some women working fewer hours than otherwise, a higher proportion of prime-age women participate in the labour market. Gender inequalities in workforce participation and pay often become more pronounced when women become mothers. While even childless women do more unpaid care and housework than men (OECD 2016c), the introduction of children makes it even harder for women to compete equally in the labour force. When mothers do engage in paid work, the “motherhood penalty” – in which mothers receive lower wages than men and childless women – remains persistent and strong, even when accounting for self-selection into motherhood (Budig and England, 2001; Gough and Noonan, 2013).

The United States remains the only OECD country that does not offer paid maternity leave on a national basis, and is one of nine OECD countries that does not have a paid leave entitlement reserved for fathers (Box 4). Furthermore, only about 60 per cent of American working parents are eligible for twelve weeks of unpaid employment protection around childbirth under the Family and Medical Leave Act (FMLA). In states that do offer paid leave, the likelihood that a mother will remain in the labour market increases (Adema *et al.*, 2015), improves child health outcomes (Bullinger, 2016), and maternal stress is diminished. Employers can also lower replacement and training costs when women return to work for the same companies after childbirth. In light of these benefits, the previous *Economic Survey* recommended that access to paid family leave be expanded nationally, and also recommended more flexible working arrangements, as well as increased access to quality pre-school and childcare to help struggling families better balance work and family commitments. These recommendations remain policy priorities for the current US administration. Second earners, most of whom are women, generally face higher marginal tax rates on labour force participation decisions due to the U.S. family-based tax system in combination with progressive tax rates (OECD, 2016c).

Box 4. Paid parental leave policies in the OECD and gender equality

Paid parental leave policies have become widespread in the OECD. The United States is the only OECD country that does not offer a national paid maternity leave programme (although three states do), and is one of nine not offering paid parental leave. Instead, only about 60 % of workers in the United States are eligible for twelve weeks of employment-protected *unpaid* leave when a child is born. The experience across the OECD suggests that parental leave policies can support greater (prime-age) female labour force participation, by offering women an incentive to work before childbirth and ensuring that they will have a job after birth. Employers benefit, too, as they might otherwise face the high costs of permanently replacing a worker. However, cross-national evidence suggests that prolonged leave entitlements (of two years or more) appear to be associated with lower female employment rates, as a woman's long exit from the market can interrupt human capital formation and career progression. On average in the OECD paid parental leave appears to be associated with a somewhat higher gender wage gap (Thévenon and Solaz, 2013), though there is little evidence that wage penalties occurred in California following the introduction of paid leave.

Besides the direct labour market effects, parental leave helps women recover from pregnancy and childbirth. And indeed, mothers generally use much of their leave entitlements— almost all take maternity leave and often extend it by taking at least some parental leave. Parental leave, which is available to both parents, can also promote greater gender equality: fathers' leave-taking can help reduce employer discrimination against women if both parents are equally likely to take time off around childbirth, and having a father caregiving at home better enables mothers to return to work. Decisions made around childbirth about caregiving and paid work also tend to develop into long-term patterns, often with negative consequences for the initial leave-taker (OECD 2016c). The benefits are not only economic: fathers taking parental leave and actively participating in childcare activities are more likely to stay involved as the child grows up. The children appear to benefit from with better cognitive, emotional and physical health outcomes, while the fathers are more likely to report greater life satisfaction. While men commonly take a few days of paternity leave right after the birth of a baby, few use the right for longer leave.

Iceland and Sweden are two countries that have made important advances in promoting greater gender equality by reserving non-transferable leave for both parents. Sweden was the first OECD country to introduce paid parental leave in 1974, with a shareable leave period of 6 months, but introduced a one month “daddy quota” in 1995, which has been subsequently extended. Sweden does not have a separate paid maternity leave system. Instead, 60 days of paid leave are reserved for the exclusive use of mothers. In addition, mothers in Sweden could take another year of paid leave, and another 18 weeks of unpaid parental leave. Iceland introduced parent-specific parental leave in 2001. Before this, only 3% of parental leave days available were taken by fathers. Other countries offer “bonus periods”, where a couple may qualify for some extra weeks of paid leave if both parents use a certain period of sharable leave. Germany, for example, provides two months of additional parental leave payments if both parents claim the parental leave allowance for at least two months, effectively reserving two months for each parent.

These initiatives have contributed to relatively equal sharing of parental leave. In Iceland and Sweden, men now take just under 30% of the days for which parental benefits are drawn, whereas this drops below 10% in Denmark and Finland. Furthermore, the differences in take up rates between men and women are relatively small in Iceland and Sweden, whereas in Australia, the Czech Republic and Poland less than one in fifty claimants are male. Take up of parental leave is typically low if the leave is unpaid or low paid, resulting in a considerable loss of household income. In California, fathers' leave-taking rates remain relatively low, but the introduction of family leave increased fathers' leave-taking around birth by about 0.9 percentage points (from a pre-programme average of 1.99 per cent) (Bartel, *et al.*, 2015). Take up rates have increased since programme introduction, perhaps due to increased knowledge of the scheme. The U.S. state experience of offering 55-66% of wages is a plausible model, but could be strengthened to improve workers' ability to afford leave.

These Swedish and Icelandic measures are part of a continuum of support to parents from childbirth through primary school, with the target of enabling parents to balance work and family commitments, and these supports have had some success: Sweden's female employment rate of 72% is one of the highest in the OECD, where the average is 60%.

Lack of access to paid parental leave, publicly-funded childcare and early-childhood education also reduces the ability of mothers to contribute productively to the economy. Measures to create more flexibility for mothers in the timing and physical location of hours worked (such as telework) would make balancing work and family commitments easier, enhance labour force attachment, and better enable women to pursue careers in occupations that currently have very inflexible work conditions (such as finance). New empirical evidence suggests that states with more family-friendly policies also tend to have a higher share of females in the labour force (Box 5).

Box 5. Female labour force participation and the role of family-friendly policies

Women's participation in the labour force in the United States greatly increased, on balance, over the past few decades. However, female participation rate in the United States has been falling recently and is below that of other OECD countries such as of Germany and Japan. For the working age population (16+ years old), the female participation rate was nearly 57 % in 2015 compared to a male participation rate of nearly 70 % (BLS, 2015). The United States remains the only OECD country that does not offer paid parental leave on a national basis, although paid family leave entitlements exist in some states. In states that offer paid leave, females are more likely to be employed (Adema et al., 2015).

To better understand the determinants of female labour force participation in the United States - including family friendly policies at state level - an econometric analysis was conducted that examined the effect on the probability of female labor force participation of individual, household, and state level characteristics. Data for this analysis were from the 2014 American Community Survey (ACS), which provides detailed information about the labour market status and socio-economic characteristics of households and individuals. ACS data are constructed using a representative sample of nearly 1 % of the US population, allowing for a granular analysis of how policy variations affect subgroups at state level. To conduct this analysis, these ACS data were paired with state-level data from the Institute for Women's Policy Research on the existence of paid leave legislation, infant care costs and preschool quality standards.

The main findings from this analysis suggest that supportive policies for paid parental leave, child and elderly care, as well as the ratio of female to male earnings are positively related to the likelihood of female labour force participation, after controlling for individual and family characteristics. As shown in table 1, states that rank highly in terms of paid leave legislation boost the probability of female labour market participation by 0.7 percentage points relative to states in the middle rankings, while states with relatively low costs of child care at the state level boost the probability of female labour market participation by 2.6 percentage points relative to the middle range. Women that live in states with a higher percentage of preschool enrollment are 1.4 percentage points more likely to participate in the labour market than in states in the middle range of enrollment, while living in a state ranked near the bottom of preschool enrollment decreases the probability of female participation by 1.4 percentage points. Finally, women in states with the lowest childcare quality are 0.6 percentage points less likely to participate in the labour force than those living in states in the middle ranges of quality.

Table 1. Probabilities of female labour force participation are boosted by more supportive family-friendly policies at the state level

Labour force participation of prime-age women (25-54 years old)		
	Average Marginal Effect coefficient	Std. err.
Paid leave legislation		
Top ranked states	0.007*	0.004
Bottom ranked states	0.003	0.002
Cost of infant care as % of women's median earnings		
Low cost ranked states	0.026***	0.004
High cost ranked states	0.010***	0.003
% of Children under 5 years enrolled in nursery school or preschool		
Top ranked states	0.016***	0.004
Bottom ranked states	-0.014***	0.003
Preschool quality standards (out of 10)		
Top ranked states	-0.002	0.003
Bottom ranked states	-0.006**	0.002

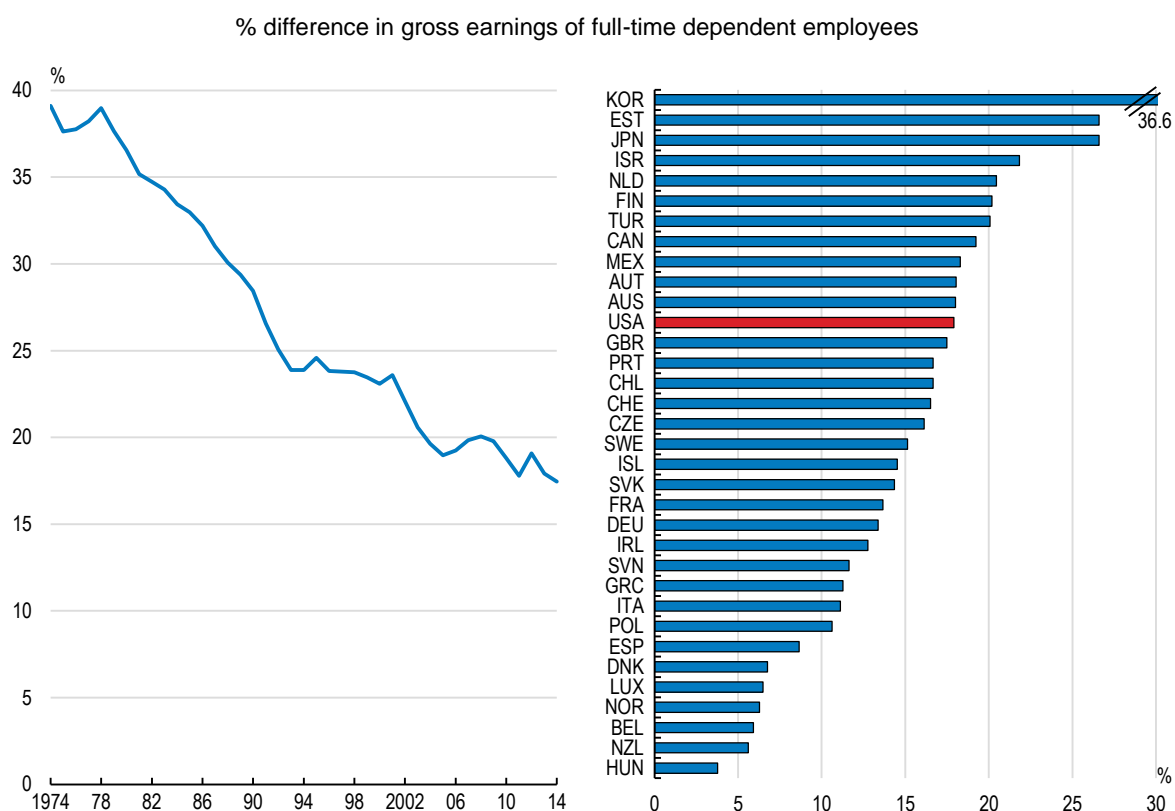
Note: Results show average marginal effects. Additional individual, household and state level characteristics were included in the model such as: age, race, education attainment, marital status, presence, age and number of own children, household size, presence of members of 65+ years old, household head occupation and income, unearned income, state male unemployment, poverty rate and per cent of population 25-54 years old. * p<0.10 ** p<0.05 *** p<0.01.

Source: American Community Survey 2014 and IWPR (2015).

Reducing gender wage gaps

There has been ongoing progress in narrowing the overall gender wage gap, as measured by the median wage for full-time men and women workers (Figure 12, left panel). Work by Goldin (2015) documents that gender wage gaps for similar workers within professions have become quite small, but with large gaps persisting in a few occupations such as finance and airline pilots. Large variations in wage gaps still exist across states—with Washington D.C. and Louisiana bookending the distribution—but these variations, reflect, in part, geographic differences in the mix of female occupations. The gender wage gap in the United States is around the average across OECD countries (Figure 13, right panel).

Figure 13. **The gender wage gap has declined over time, but remains comparatively high**



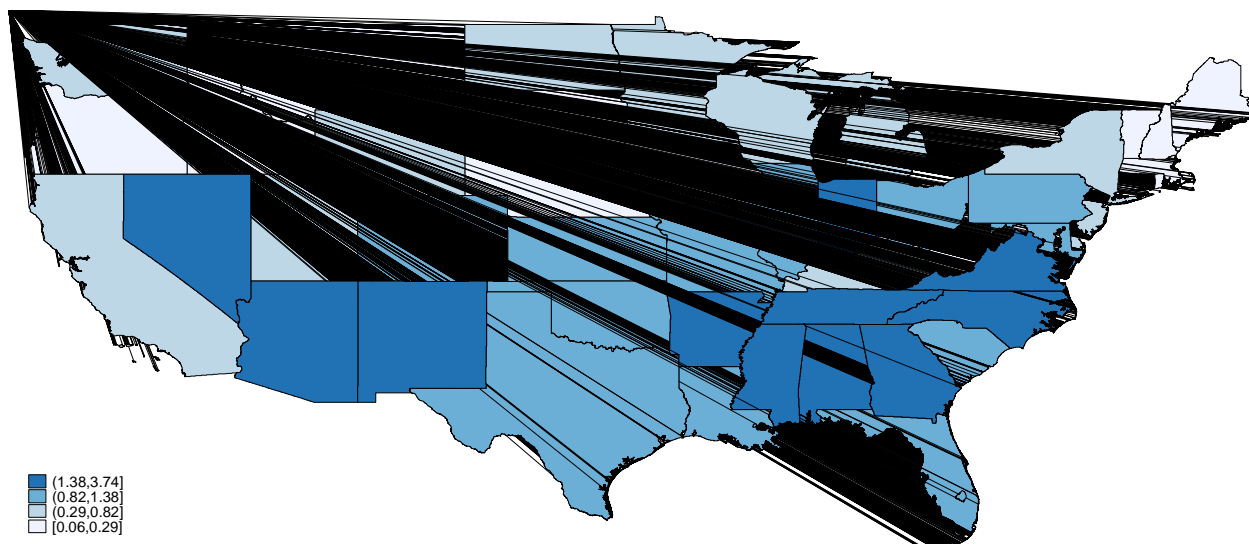
Source: OECD Labour Force Statistics.

Employment discrimination on the basis of gender is outlawed by the *Equal Pay Act*—which requires employers to offer equal pay for “substantially equal” work— the Title VII of the *Civil Rights Act*—which prohibits discrimination against women in hiring, layoffs and promotion decisions— and the *Lily Ledbetter Fair Pay Act* of 2009, which extended the time period for filing complaints of employment discrimination concerning compensation. Evidence from legal cases suggests that discrimination claims have not changed significantly over time, with slightly fewer charges made under the *Equal Pay Act* since the early 2000s. Nonetheless, discrimination on the basis of gender appears to be more frequently reported in some states than others (Figure 14).

What remains of the gender wage gap may well arise from factors distinct from overt discrimination. The gap may be the result of sorting, as women and men make systematically different employment choices. Such sorting can arise, for example, if firms offer higher compensation in exchange for considerations that may be more unattractive to women—such as long or inflexible hours—, thereby

leading a greater proportion of women to select jobs in lower paid sectors and occupations for non-pecuniary reasons. The higher share of female employment in sectors that are typically lower paying tends to support that this type of sorting is an important feature of the labour market (Figure 15). Recent research examining the early labour market outcomes of STEM graduate students finds that female graduates tend to find employment in government or academic jobs rather than higher paying industry jobs (Buffington *et al.*, 2016). Part of the remaining wage gap is related to the field of study and accounting for children also appearing to play a role. Sorting effects also seem prevalent in other dimensions as well. Using evidence from Portuguese firms, Card *et al.*, 2015 show that men tend to sort toward the more productive firms within a given industry that pay higher wages and also tend to receive larger wage increases when they move between firms. Even within higher-paying firms, men tend to receive a higher firm wage premium than women—in part because they are better able to bargain for higher wages. In light of such effects, Goldin (2015) notes that further progress in closing gender wage gaps is likely to require broader changes in job and remuneration structures, particularly if job flexibility comes at the cost of reduced hourly compensation. Finally, the gender wage gap may arise due to unconscious bias. For example, managers may partly base hiring and remuneration decisions on stereotypes or preferences.

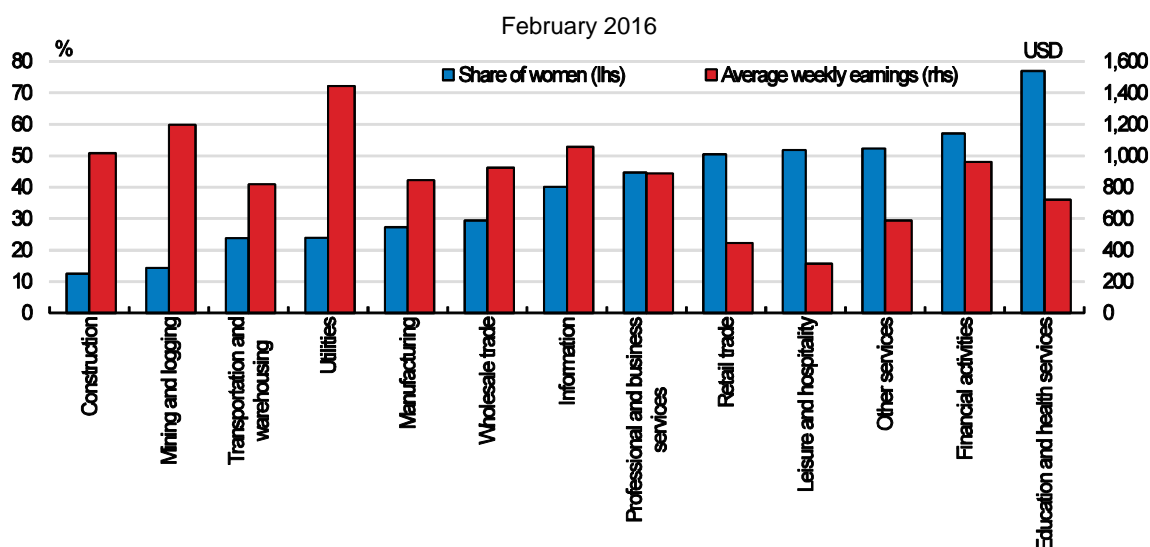
Figure 14. **Sex discrimination cases vary across the country**
 Share of sex discrimination cases relative to share of population



Note: Darker-shaded States have a higher number of sex discrimination cases per capita. Map generated using publicly available files from the National Weather Service

Source: U.S. Equal Employment Opportunity Commission, Census Bureau

Figure 15. Women tend to work in lower paying sectors



Source: BLS.

Disability insurance as a barrier to employment

While disability incidence tends to grow as a population ages, the labour force participation rate for prime-aged persons with (self-reported) disabilities has fallen from 25% at the beginning of the 2000s to just 16% in 2014 (Yin and Shaewitz, 2015). This decline in participation partly derives from the financial crisis, which coincided with a surge in new disability claims (Figure 16, Panel A). As new claims are adjudicated, individuals tend to withdraw from the labour force in the belief that this will enhance their case. An initial decision usually takes approximately 120 days, but many unsuccessful claimants appeal the decision, often leading to much longer delays that lengthen with the case backlog. For unsuccessful claimants, the often-substantial period out of the labour force can make it more difficult to regain employment, and may contribute to the incidence of relative poverty for self-reported disabled persons—at around 45%—having been amongst the highest in the OECD (OECD, 2010).

The previous *OECD Economic Survey* recommended encouraging greater labour market participation for disabled persons by maintaining attachment during the adjudication process. International experience suggests that early intervention programmes that help work-capable individuals staying in or returning quickly to work can be effective in avoiding outcomes where unsuccessful claimants permanently exit the labour force (Box 6). The 2014 *Workforce Innovation and Opportunity Act* encouraged states to enact policies to boost employment for disabled persons, and a number of states—such as Alaska and Maine—have acted to support disabled employment, including offers for public employment.

Box 6. Disability policies in OECD countries

Helping disability benefit claimants who may have their claims rejected can help foster labour market attachment. A real danger is that after being out of work for some time people can face considerable difficulties getting back into the labour market. Ultimately they may reapply for disability benefits again at a later stage. Countries have reacted to mounting disability rolls in a number of ways, some of which have importance at the early part of the claims process (OECD, 2010).

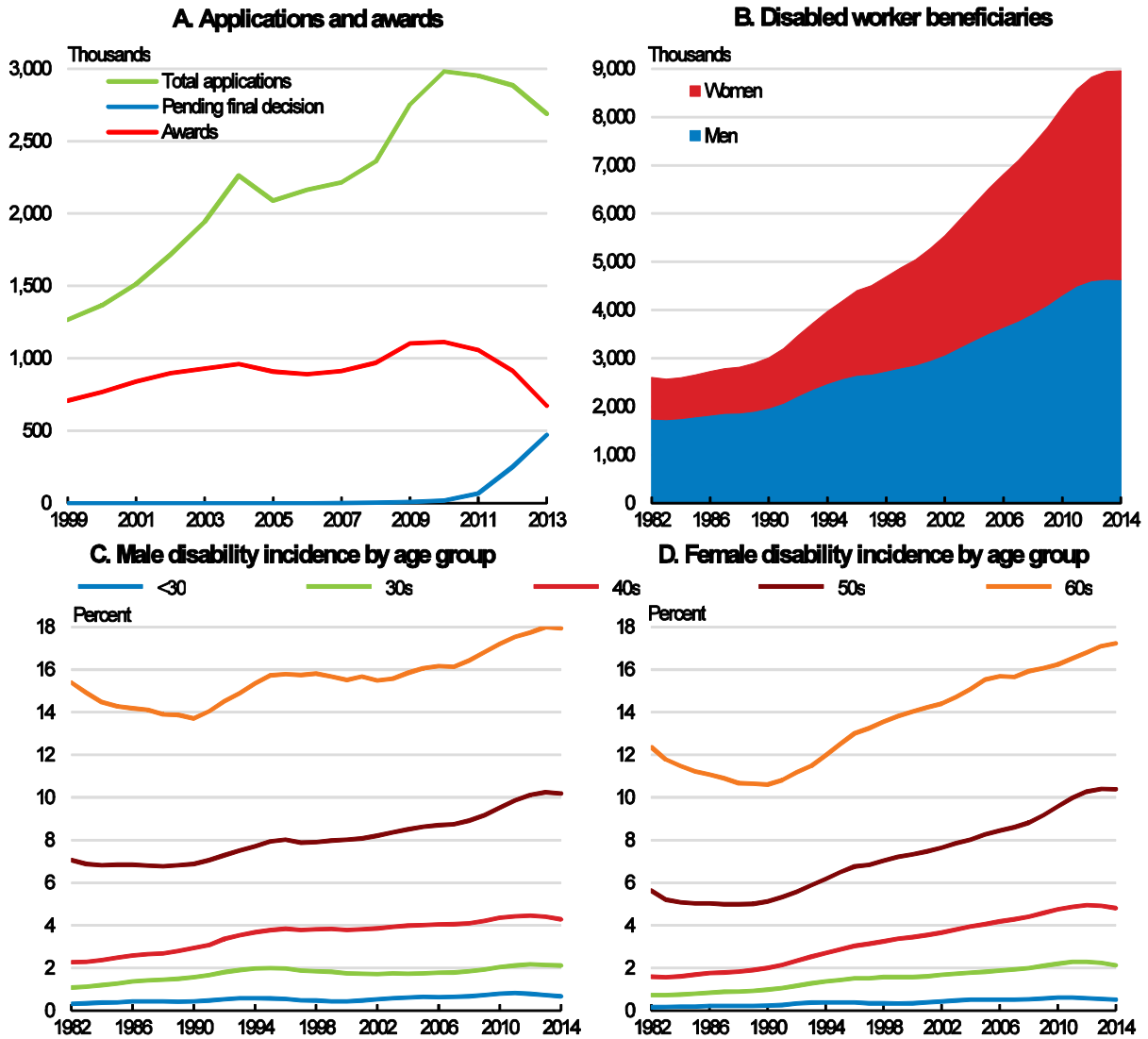
A number of countries have moved away from assessing a person's disability (which can vary considerably depending on the assessor) towards a framework that considers a person's remaining work capacity (e.g. Denmark and the Netherlands). This change focusses attention on rehabilitating people if they can work rather than supporting them to stay out of the labour market. In New Zealand, a case manager will base decisions on the medical report, the client's abilities and the client's work aspirations, moving the decision away from the medical assessor. Most countries have also moved away from the disability assessment based on the usual occupation of the worker. In Sweden, the authorities have introduced a "rehabilitation chain", which explores successively wider groups of jobs to see whether there are alternative job opportunities.

A number of countries have prioritised early vocational rehabilitation (Austria and Hungary). In Switzerland, measures including job adaptation, placements and socio-professional rehabilitation are part of early interventions (instead of granting benefits). In the Netherlands, vocational programmes have been greatly expanded, with employers encouraged to find new roles for employees with disabilities. Indeed countries are often supporting the placement in jobs of disabled people who retain work capacity.

Across the OECD there has been a substantial increase in claims for disability benefit due to mental ill health. As people with mental ill-health are at a higher risk of job loss and as periods of unemployment and non-employment can worsen people's mental health it is important to keep employment opportunities open and enable quick transitions to new employment (OECD, 2015a). Putting in place systems within the public employment service, such as parts of Belgium, can allow mental health issues to be addressed as they surface. An alternative approach in Sweden is to coordinate all the different agencies that can be involved to ensure early rehabilitation, which has been found to be effective in improving employment outcomes.

The disability insurance programme is for qualifying workers who are unable to work for at least a year (and not partially disabled workers). The increase in disability rolls reflects demographics and more workers becoming eligible for disability benefits, notably following increased labour force participation more women became eligible (Figure 16, Panel B). While ageing explains a large share of the increase in disability rolls, the incidence of disability has been rising for prime age workers as well (Figure 16, Panels C and D). Current disability insurance provides little incentive to re-enter the labour market for those whose health condition has improved and would like to work, as earnings above a limit (the "Substantial Gainful Amount" limit, which is around USD 1 000 per month) will lead to the disability benefit being withdrawn. People qualifying for disability benefits also qualify for Medicare. Currently, there are some programmes aimed at helping transition individuals back into the workforce, such as retraining, continuing cash benefits for a period of time, and extending Medicare benefits for 102 months after resuming work. These efforts should be carefully evaluated and if needed the incentives strengthened to get off disability rolls for people who want to work and are again capable of doing so.

Figure 16. Disability rolls have risen substantially



Note: The incidence is based on the SSA's estimate of the number of disability insured workers for the same age bracket.

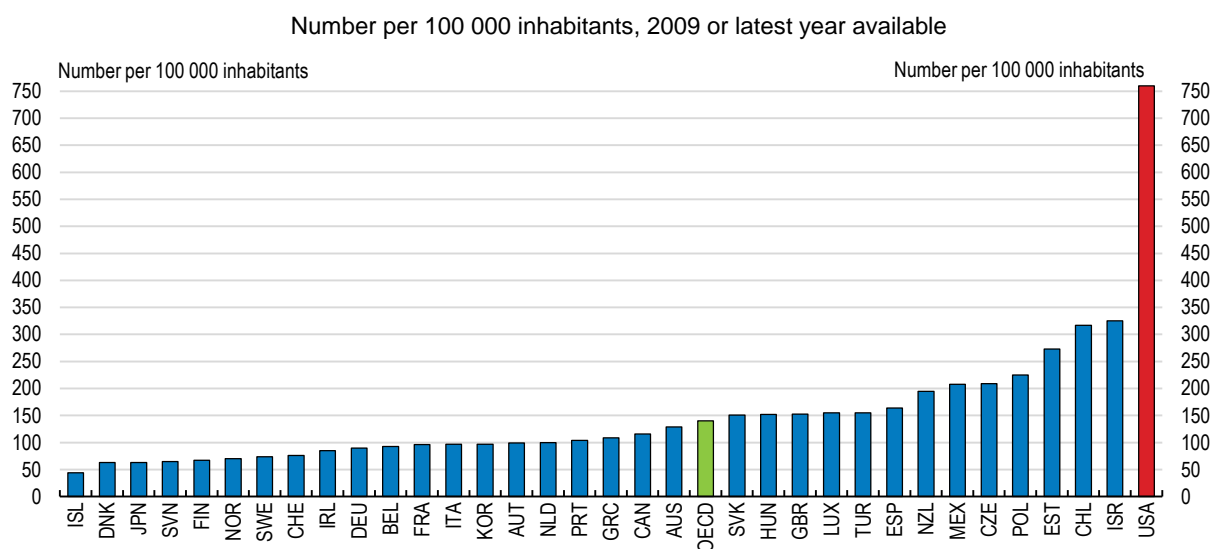
Source: Social Security Administration: Annual Statistical Supplement.

Opportunity for those with criminal records

Labour market attachment is also low for those with criminal records. By some estimates, nearly 30% of the adult population have been arrested and a record of this arrest will show up on background checks even for individuals who are not subsequently charged (Solomon, 2012). Although growth in the US prison population has recently abated, the prison population has nonetheless ballooned since the early 1980s, leaving the United States with the highest incarceration rate in the OECD by a considerable margin. In 2009, 754 persons for every 100 000 in population were incarcerated, more than five times the average incarceration rate for the OECD (Figure 17). This prison population is overwhelmingly composed of ethnic minorities (around two-thirds), with imprisonment rates for black males (2,724 per 100 000 black population) six times that of white males (465 per 100 000) at the end of 2014 (Carson, 2014). The administration is working to reduce incarceration and efforts in Congress are underway to reform the criminal justice system to reduce incarceration through the reduction of overly long sentences. The administration is also working to help reintegrate individuals who have been incarcerated into the labour market though improving access to employment, job training, housing and healthcare.

These actions are needed, as possessing a criminal record reduces employment prospects. Screening questions on application forms can make it harder for those with a criminal record to find employment, which can compound the disadvantages certain groups already face in the labour market, stemming from factors including poorer quality schools, residential segregation and discrimination (Bertrand and Mullainathan, 2004). Estimates suggest that call-back rates following an employment application are 50% lower for applicants with criminal records (Pager, 2003). Reduced employment prospects for young black males, who are greatly overrepresented in the prison population, partly explains their lower employment rates. Not surprisingly, criminal records also contribute to diminished income mobility: Only one-quarter of individuals with criminal records move out of the bottom income quintile within 20 years, whereas two-thirds of those without criminal records manage the same transition (Western and Pettit, 2010).

Figure 17. **The prison population is high**



Source: OECD Factbook 2010: Economic, Environmental and Social Statistics.

Widening opportunities for persons with criminal records to gain employment would improve individual and social outcomes. To help counter such discrimination, 23 states and the District of Columbia have introduced a “ban the box” initiative, which removes pre-screening questions from application forms but does not prevent employers from subsequently checking a candidate’s record. A number of major firms and, in November 2015, the federal government have removed pre-screening questions during their recruitment processes. The initiative is still relatively new outside of Hawaii, which first introduced it in 1998, and its impacts are still being studied. However, available evidence suggest that it has improved employment outcomes and reduced recidivism for those with criminal records (D’Alessio *et al.*, 2014). Evidence also suggests that implementing ban the box could increase employment in high-crime areas by up to 4% and raise employment of black males by 3% (Shoag and Veuger, 2016). However, the law also appears to have an unintended side effect, as some employers appear to have responded by putting greater weight on work experience and higher education as screening qualifications. This unintended side effect may have reduced employment of women by up to 0.4% (Shoag and Veuger, 2016). Rolling out this initiative nationwide would give those with criminal records a fairer opportunity to obtain employment, but the programme design may need tinkering to ensure that it does not unfairly discriminate against women.

Infrastructure and opportunity

Effective infrastructure provision is important not only because of its links to productivity growth (Chapter 1), but because it can enhance employment opportunities and affect wellbeing more generally through its implications on urban sprawl, congestion, and the environment.

Investing in infrastructure for opportunity

Telecommunications and broadband access

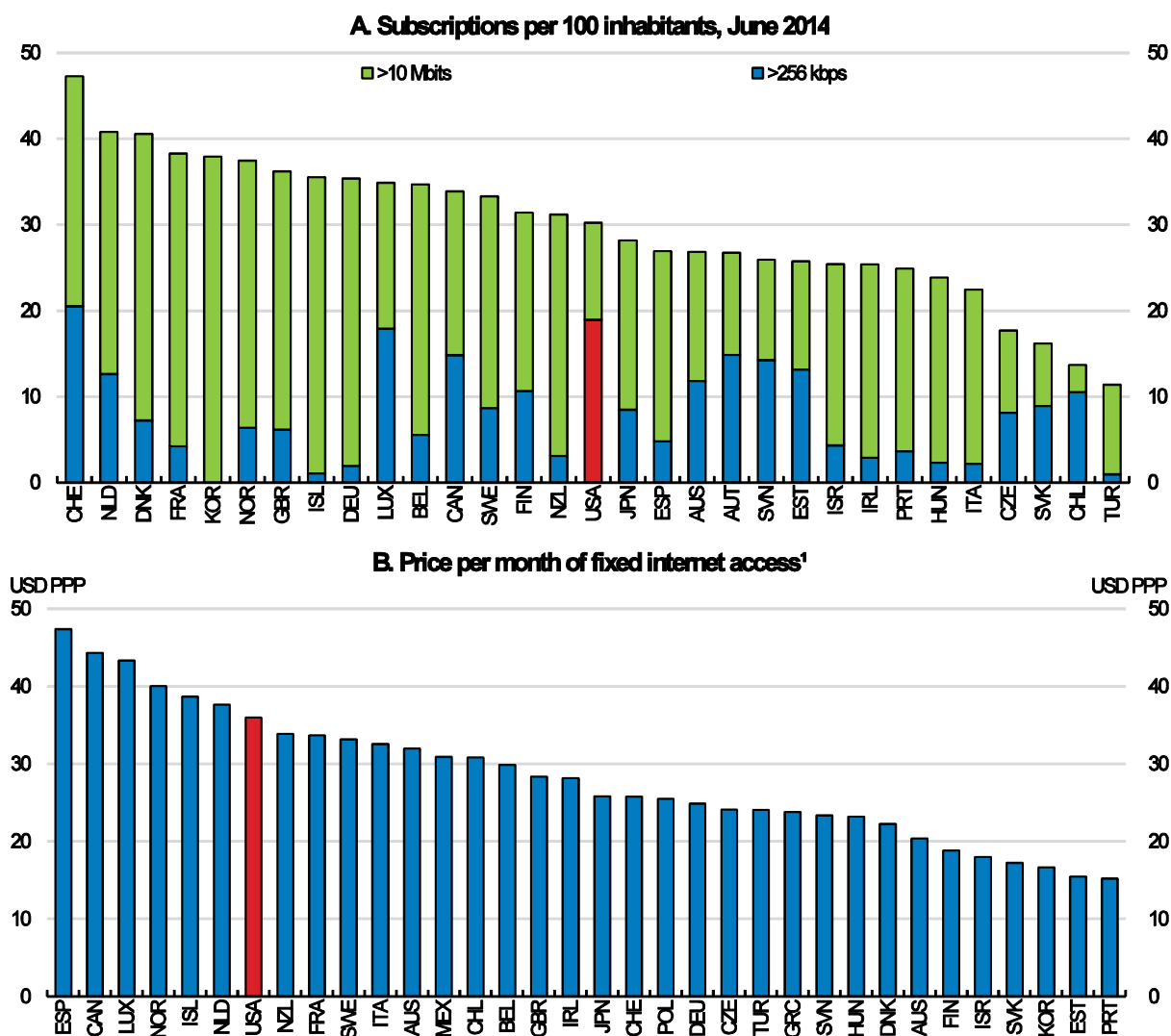
The ubiquity of information and communication technology in daily life makes broadband access an important element of providing opportunity. The CEA (2016) found that internet access enables a households’ job search process and facilitates labour market participation, allowing applicants to search a wider set of job openings with much lower transaction costs. Expanding the pool of employers and applicants, in turn, should help improve matching between demand and supply of skills. Internet access also helps reduce the time needed to find employment, which potentially reduces scarring effects from unemployment, and can have other notable benefits for well-being, such as providing access to medical information and educational materials. Access to broadband facilitates telemedicine, which is particularly valuable in rural areas because it enables medical specialists to make diagnoses without direct access to a patient.

Access to fixed broadband telecommunication services in the United States—as measured by subscription rates—is around the OECD average, but offerings lag behind other countries in terms of the number of providers at higher download speeds and cost (Figure 18). In addition, access to high-speed broadband varies widely across the United States, with rural areas and wide swathes of the South having poorer access. In response to these shortcomings, the Federal Communications Commission has established a Connect America Fund to address provision in areas that are currently under-supplied. This under-supply partly owes to lack of competition between internet providers, which is partly due to a historical legacy of dominant cable companies being the sole provider of higher speed wired Internet access in many areas. In some cases, state governments have imposed restrictions on municipalities that prevent them from creating their own broadband networks.

Cross-country analyses suggest that having strong broadband competition can enhance the mix of services offered (Ofcom, 2016). There are many ways to support greater competition in the fixed line broadband sector, with new entrants creating or augmenting existing networks in some markets. For instance, there are many examples of municipal broadband systems that compete with established cable companies, including the Chattanooga municipal Electricity Power Board which placed fiber cables

alongside its electrical power cables, enabling it to offer high-speed broadband services to the city (Mölleryd, 2015). An initiative by Google Fiber has also led to the introduction of fibre networks in a number of cities, thereby spurring competition that has helped raise quality and lower prices. Recent efforts to sustain competition in the wireless broadband market are also beginning to pay dividends, with carriers dropping prices for mobile phone plans and boosting quality where there is competition. Capacity development has also enabled the emergence of a wholesale market, and recent innovations allow mobile phone users to tap into the best signal rather than being tied to a single operator (which can be important in areas not well served by wireless coverage). Competition authorities should build upon recent successes in the wireless broadband industry by acting to preserve competitive forces in fixed broadband as they develop. The FCC in 2015 pre-empted state-level prohibitions on municipalities creating their own networks to help boost competition.

Figure 18. Fixed (wired) broadband penetration is around average and relatively slow and expensive



Note: Panel A. Japan, data are OECD estimates with the tiers lower than 100 Mbits unseparated that may also include auxiliary portion of the top tier. For Korea 10% are for below 50Mbits / 90.0% are above 50 Mbits.

Source: OECD Digital Economy Outlook 2015, OECD and Teligen/Strategy Analytics.

Zoning and land use restrictions

Zoning and land use restrictions can blunt productivity and employment growth. While difficult to measure, indirect indicators and anecdotal evidence suggest the importance of zoning is rising over time (Furman, 2015). Areas with high productivity growth already tend to have higher housing costs, which zoning intensifies thereby amplifying pressures for lower-skilled persons to migrate outward (Ganong and Shoag, 2015). This sorting toward higher skilled persons is a source of labour market mismatch, artificially restricting the flow of labour to where it is most highly valued and thereby contributing to income inequality. Evidence also shows that segregation of housing by income acts as a drag on inter-generational income mobility (Chetty and Hendren, 2015). More productive cities also tend to have superior amenities, and Diamond (2016) estimates that accounting for differences in the consumption of city amenities across income groups might boost the implicit wage gap by another 30%. Some estimates suggest that easing regulations that restrict population density in the most productive cities could boost real GDP by as much as 10% in the long run (Hsieh and Moretti, 2015).

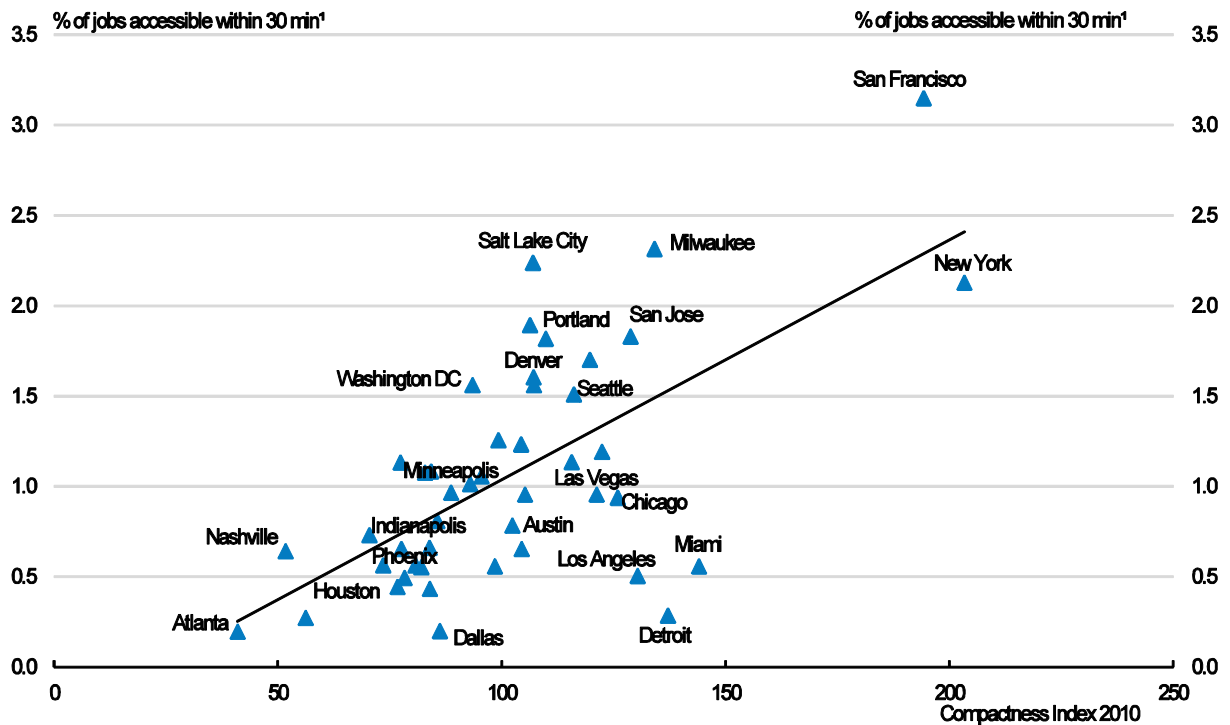
Making city growth more inclusive and sustainable

Urban sprawl and social and environmental externalities

Urban sprawl is readily apparent in many US metropolitan areas, and this sprawl tends to negatively impact the quality of life for residents. Empirical work that compares different measures of quality of life across major metropolitan areas over time has found that diminished sprawl is associated with better outcomes (Hamidi and Ewing, 2014). Sprawl can be exacerbated by fiscal incentives that promote low density development at the urban fringes, such as higher property tax rates for multi-family dwellings than for single-family, various tax provisions that encourage home ownership, and the tendency to defray costs of connecting to existing urban infrastructure amongst all residents. Higher transportation fuel taxes and more developed use of user fees could help promote a more efficient use of existing infrastructure, thereby helping to reduce sprawl.

Providing access to jobs, services, and amenities becomes increasingly difficult as city density diminishes. Although US cities have taken a wide range of measures to improve access ranging from urban rail systems to frequent bus services in the urban core, sprawl still seems to be associated with far fewer opportunities as measured by the share of easily accessible jobs (Figure 19). These barriers to opportunity are often experienced disproportionately by lower-income households. The failure of cities to realise their full economic potential through smarter development has negative consequences for long run growth and well-being (Glaeser and Joshi-Ghani, 2014).

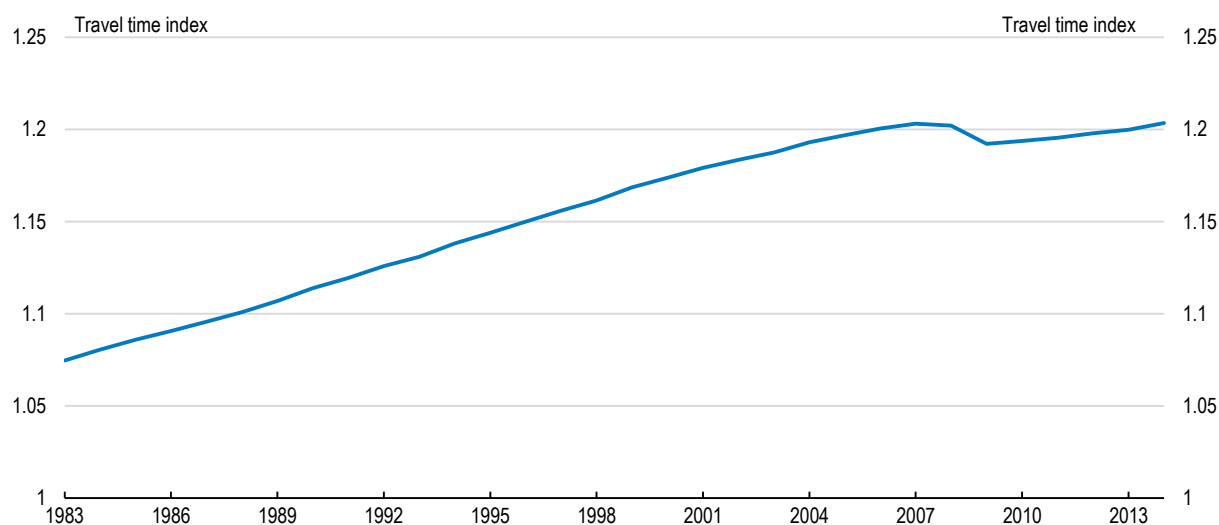
Figure 19. Jobs are less accessible in sprawling cities



Source: Owen and Levison (2014) and Hamidi and Ewing (2014).

In cities where mass transit is not readily available, residents are dependent on private motorised vehicles. Automobiles are used most heavily in low-density cities where it is especially costly to provide city-wide public transportation networks as an alternative mode of transport. Although increasing congestion provides a disincentive for households to structure their lives around lengthy commutes in private vehicles, data suggest that these private disincentives have been insufficient to tackle the problem. Cities with employment and population growth exceeding the national average have also experienced some of the biggest increases in traffic congestion (Schrank *et al.*, 2015), with the upward march in peak-hour commuting times only abating somewhat with the onset of the great recession (Figure 20). Various problems that inhibit local governments from investing in more effective transport infrastructure and mass transit (Chapter 1 of the Economic Survey of the United States 2016), negatively impact subjective measures of well-being (Kahneman and Krueger, 2016) in a number of dimensions, including longer commute times, rising local air pollution, and higher greenhouse gas emissions.

Figure 20. Rush hour commuting has become slower



Note: The travel time index measures the difference in commuting times between peak and non-peak periods. The figure reports yearly fixed effects for the travel time index from a balanced panel regression with 101 metropolitan areas.

Source: Texas Transportation Institute.

Policies for transport and spatial planning are highly complementary and therefore need to be well co-ordinated. Decisions regarding transportation infrastructure provision not only influence the locational choices of households and firms by affecting accessibility, but can reduce the need for lengthy commutes if designed around an urban development plan with mixed land use and integrated transport options. In many cities across OECD countries, a growing number of policymakers recognise these principles (Aguilar Jaber and Glocker, 2015). However, in the vast majority of US cities decisions regarding land use and transport are made on a decentralised basis by authorities in multiple jurisdictions, with little or no co-ordination. Consequently, many cities have acquired a spatial structure that is incompatible with integrated transit, which is prohibitively costly to adjust after the fact. Integrated urban development plans that from the beginning account for future transport infrastructure requirements could ultimately reduce the costs of infrastructure provision. With these gains in mind, the Department of Housing and Urban Development, the Department of Transportation and the Environmental Protection Agency have jointly launched a *Partnership for Sustainable Communities* initiative which aims to promote integrated urban planning that overcomes co-ordination difficulties between different decision makers at the metropolitan level.

The challenges posed by water supply

Long-run infrastructure projections generally suggest that OECD countries will require large investments in water supply and treatment as existing, often already quite old infrastructure needs upgrading or replacement (OECD, 2006). At present, US spending on water infrastructure amounts to around USD 140 billion annually (CBO, 2015). The cost of replacing and upgrading existing water and wastewater infrastructure has become extremely expensive, particularly within cities. The Environmental Protection Agency has estimated that USD 384 billion will be needed over 20 years to maintain and improve water infrastructure, much of which will be needed for transmission and distribution networks (EPA, 2013). Other estimates of the funding needs are significantly higher (AWWA, 2012). The *Clean Water Act* (1972) also requires governments to invest in water systems to maintain health safety. Across the United States, 50 000 water systems were in year-round service in 2011, many of which operated with ageing infrastructure approaching the end of its life cycle (EPA, 2013).

Recent experiences of Flint, Michigan underscore how important adequate water infrastructure can be for basic well-being and public health. Most water systems are operated by municipal corporations, often serving relatively few people. These small corporations frequently lack the institutional capacity to raise funding when major capital maintenance and investments are necessary (Kearney *et al.*, 2014). With state and local budgets under strain, funding normal maintenance costs has become a challenge and major capital expenditures even more difficult. The *Water Resources and Reform Development Act* of 2014 helps address these funding difficulties by providing low-interest federal loans of up to 49% of project costs for large drinking water, wastewater, storm water and water reuse facilities. In December 2015, a prohibition was also lifted which prevented communities from using tax-exempt bonds to fund remaining project costs, making it easier for many communities to match these federal loan grants.

Problems facing water management system extend beyond transmission and distribution networks, as groundwater depletion and water stress have become ever more serious issues for large swathes of the country. The pace of groundwater depletion appears to have accelerated since the turn of the century (USGS, 2013), and difficulties in coordinating groundwater withdrawals across catchment areas and between multiple water users have arisen in many areas (Box 7). Depletion of aquifers not only risks the loss of an important source of drinking water, but desertification and saltwater intrusion in coastal areas that could destroy farmland.

Box 7. Water abstraction and governance

In the South Central Valley in California, water supply comes from local rain and more importantly from precipitation from neighbouring mountains. Dams retain nearly all river inflows when or before they reach the valley for distribution through an extensive set of canals. These flows vary substantially by year and season, with water pumped out of the distribution system by farms, on net, in dry years and then recharged in wet years. However, on average, farmers are using more water than is supplied, leading to a falling water table. The effects have been extreme during the 2012-15 drought, partly because the drought was severe and partly because agricultural water use is increasing.

Pumping groundwater is largely unregulated in California, as state law allows landholders to pump any amount below their property, unlike some other states such as Kansas and Texas where pumping is more regulated. Although the water table cannot continue falling indefinitely, farmers do not appear to be taking this into account, in fact planting more (thirsty) almond trees in the middle of the recent drought. The current water management regime contributes other negative externalities as well: Fertilizer-related nutrients in run-off and salt water penetration induced by reversed water flows from pumping have deteriorated water quality near the mouths of the San Joaquin and Sacramento rivers, which flow into San Francisco Bay.

Ensuring sustainability is complicated by changing property rights as well as the fact that active groundwater management in California has largely been voluntary (Moran and Cravens, 2015). In 2014 California adopted the *Sustainable Groundwater Management Act* (SGMA), which mandates local water authorities to adopt sustainability plans by 2020 (or by 2022 in less severely stressed areas) with a view to achieving sustainability by 2040. The major advance relative to previous programmes is that the SGMA gives the state power to intervene and impose a sustainability plan if the local agency does not plan or if its plan is inadequate. Local water authorities (known as a Groundwater Sustainability Agency, GSA) that would be responsible for setting up and implementing the plans do not yet exist in most places. The Act invites potential agencies to propose themselves as GSAs, with competing or overlapping claims to jurisdiction sorted out by negotiation or arbitration. Another uncertainty of the Act is what will constitute sustainability, with future litigation about the definition of “significant and unreasonable” and other specific measures quite likely.

Another potential problem with the legislation is that it does not grant GSAs authority to issue permits to construct, modify or abandon groundwater wells; rather this authority remains the jurisdiction of local government agencies. Close coordination between GSAs and permitting agencies will therefore be essential in order to ensure that groundwater sustainability goals are consistent with the permitting and land use actions of the local government agencies. Potential co-ordination problems will be compounded by the system of entitlements for water use in California, which does not define clear water property rights but in practice often gives strong precedence to prior use of water that will be a strong disincentive for users to relinquish rights even temporarily lest this lead to a permanent loss of entitlement.

The Climate Action Plan of 2013 established a National Drought Resilience Partnership that works to identify drought risks and work with localities to plan drought responses. Furthermore, it supports market innovation to improve water conservation.

Recommendations

Main recommendations

- Use federal funding for targeted programmes to reduce disparities in student opportunities and encourage States to be ambitious in lifting educational attainment.
- Develop reskilling programmes with established effectiveness in helping people back to work.
- Require paid parental leave and improve access to quality childcare to help reduce gender wage gaps and improve career prospects
- Expand the Earned Income Tax Credit and raise the minimum wage. Make tax expenditures less regressive.
- Continue to roll out the Affordable Care Act.
- Reduce pre-screening for employment on criminal records.
- Boost investment in, and maintenance of infrastructure; in particular, promote mass transit. Use federal programmes to encourage co-ordination across State and local jurisdictions.

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