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Human capital at work

The value of experience



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June 2022

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Preface

Human capital underpins economies and organizations, but it belongs first and foremost to the individual. It represents the collective knowledge, attributes, skills, experience, and health of the workforce—and also the potential residing within each person. The realization of that potential is a complex equation that has engaged economists, social scientists, and other academics for decades.

Today, the combination of pandemic-related disruptions, labor shortages, and ongoing technological change in the workplace has given this timeless topic new immediacy. Many business leaders are refocusing on how to evaluate and attract talent, how to retain valued employees, and how to develop the skills that will be needed to compete in the future. These questions come at a time when millions of workers are reassessing what they want to get out of work every day and whether they are on a fulfilling career path for the long term.

While a great deal of research on human capital focuses on the crucial periods of early childhood development and education, we consider what happens after people enter the workforce—specifically, how work experience and the acquisition of skills pay off for the individual. Our research takes a decidedly micro lens to this issue. We use longitudinal data to trace actual career trajectories, looking at the specific bundles of skills required in each role someone held over time and how moving into new roles affects their earnings.

Our findings underscore the role of organizations in realizing and augmenting the value of human capital—and continuously boosting the pool of skills across entire economies. This raises large questions for business leaders. Since work experience builds human capital (as measured by lifetime earnings), can organizations develop their employees in a way that equips them to outperform the norm? How can they create conditions that widen career options and help to make upward mobility a reality for many more people?

This research was jointly undertaken by the McKinsey Global Institute and McKinsey's People & Organizational Performance Practice. It was led by Anu Madgavkar, an MGI partner based in New Jersey; Bill Schaninger, a McKinsey senior partner based in Philadelphia; Sven Smit, MGI's chair, based in Amsterdam; Jonathan Woetzel, an MGI director based in Shanghai; Hamid Samandari, a McKinsey senior partner based in New York; Davis Carlin, a McKinsey partner based in New York; and Jeongmin Seong, an MGI partner based in Shanghai. Kanmani Chockalingam, an engagement manager in Bengaluru, led the working team, which comprised Afreen Ahmed, Rishi Arora, Gabriela Campos, Edouard de La Batie, Ana Carolina Leonardi, Elina Mäkelä, David Pappano, Daniel Soto, Soyoko Umeno, Sarah Varghese, and Susan Yu. Sirui Wang, a PhD fellow in McKinsey's People & Organizational Performance Practice and doctoral candidate at the University of Pennsylvania, led the research modeling. Gurneet Singh Dandona, Alok Singh, and Juhi Daga supported our modeling and analysis.

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This research contributes to our mission to help business and policy leaders understand the forces transforming the global economy. As with all MGI research, it is independent and has not been commissioned or sponsored in any way by any business, government, or other institution.

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Human capital at work: The value of experience

Human capital—the knowledge, attributes, skills, experience, and health of the workforce—evolves from childhood through education and work. By our estimates, its value represents roughly two-thirds of an individual's total wealth. Our research traces how people accumulate human capital throughout their working lives, focusing on the role of experience. We analyze four million de-identified online professional profiles in the United States, Germany, the United Kingdom, and India, examining career trajectories and skill requirements across roles. We find that taking on new roles with expanded skills is central to upward mobility, particularly for those who lack formal credentials. Employers are critical engines of mobility, creating the opportunities for bold moves that can lift workers and themselves.

Work experience accounts for about half of the average person's accumulated human capital.

The value of human capital can be approximated as lifetime earnings. We attribute a proportion of this value to experience based on role moves and skill distances observed over a person's work history and their expected future wage growth. We find that skills acquired or demonstrated through work experience contribute an average of 46 percent of lifetime earnings on average. We note, however, that our dataset does not capture enablers and life experiences prior to and during an individual's career; these factors also influence the accumulation of skills in important ways.

The “experience effect” generally matters more for workers with less education. Work experience contributes 40 to 43 percent of average lifetime earnings in the United States, Germany, and the United Kingdom but 58 percent in India, where fewer people have higher education. In general,

people without college degrees who start in low-wage jobs are more reliant on work experience. It contributes 65 to 75 percent of lifetime earnings for those who begin as tile setters or counter workers in the United States, for example, compared with 35 percent for physicians or lawyers.

Role moves enable individuals to accumulate skills and work experience.

Workers in our sample switched roles every two to four years on average, depending on the country. With each role change after a first job, we isolate the share of distinct skills required in the new role to determine the “skill distance” of the move. The median skill distance per role move is 25 percent or more. Four out of five people started in one occupation and ended in another. Significantly, more than 80 percent of role moves involved joining new organizations.

Role moves can pay off, and bolder moves can deliver bigger boosts.

In our sample, roughly a third of US, German, and UK workers, and almost a quarter of Indian workers, are on a path to move up one or more quintiles in estimated lifetime earnings from their career starting points. Skills derived through experience account for 60 to 80 percent of lifetime earnings for those who move up but only 35 to 55 percent for those who stay flat or drop down. Those who move up changed roles more frequently and made bolder moves. Upwardly mobile cohorts in the United States and India made moves with an average skill distance of 30 to 40 percent; those who stayed flat averaged only 20 to 30 percent. Bold moves involve employers hiring people with less proven skills and workers pursuing opportunities that represent a stretch.

“Experience seekers” and “early movers” successfully harness this dynamic. Within our sample,

individuals follow distinct career patterns. Experience seekers start with lower-than-average wages but make more moves and stretch their capabilities substantially each time; the cumulative effect gives them stronger wage growth than any other cohort. Early movers make big moves only early in their careers. For both groups in the advanced economies we studied, experience accounts for 60 to 70 percent of lifetime earnings. That share is only about 30 percent for lock-ins, who make only incremental moves.

Individuals get a lift from early experience in effective organizations.

Controlling for differences in occupation, time spent early in a career with an effective organization explains half of the variation in experience-linked earnings. These employers not only have better overall organizational health, but also devote more time to training and offer more internal advancement—and their employees are more likely to be upwardly mobile.

Employers can attract and retain the best talent by focusing on three priorities.

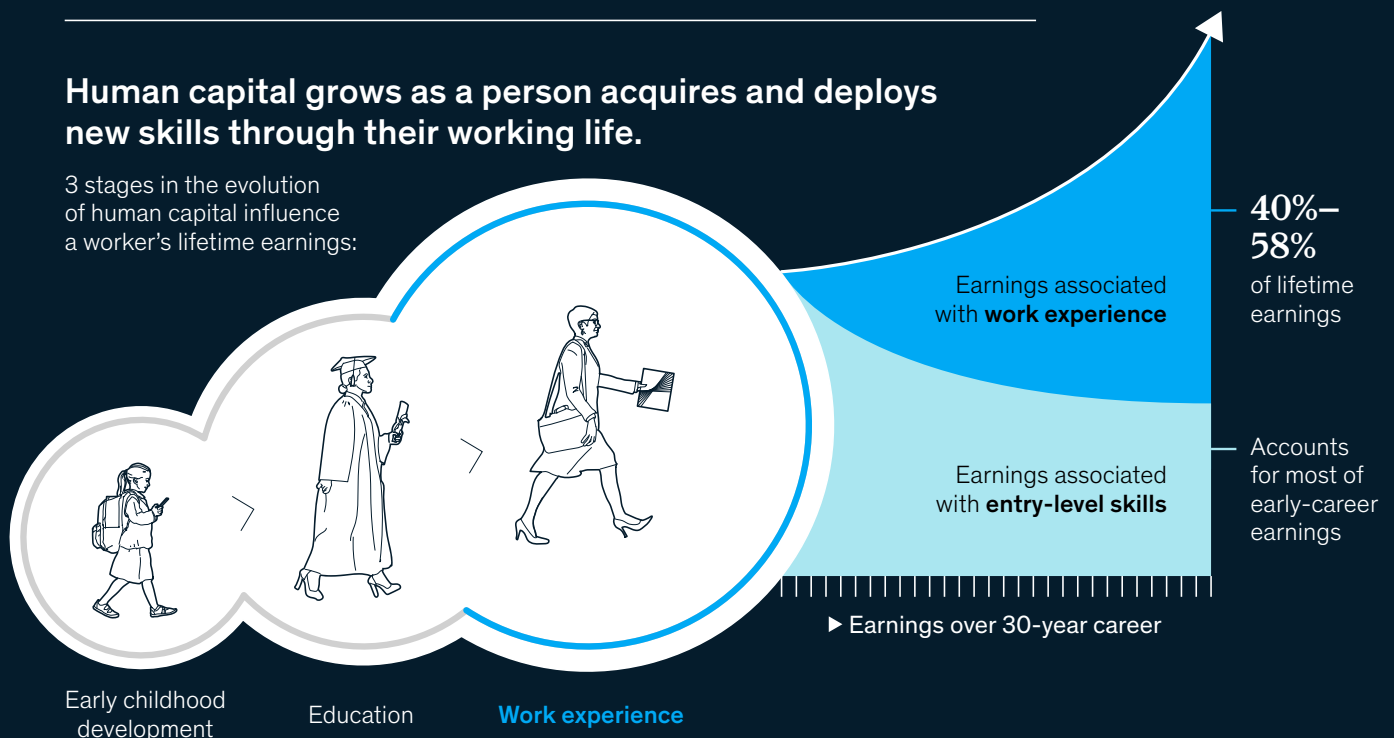
First, evaluate current employees and candidates not only for their knowledge and skills but also for their potential and capacity to learn. Second, embrace mobility by considering candidates with different backgrounds and histories, and by creating both upward and lateral career paths within the organization so that employees can gain more varied experience. When talented people leave, celebrate their success and stay open to welcoming them back. Third, strengthen coaching and on-the-job training, particularly early in an employee's tenure and whenever someone changes roles. Companies that establish themselves as great learning organizations are magnets for talent.

Work experience contributes almost half of the value of a person's human capital

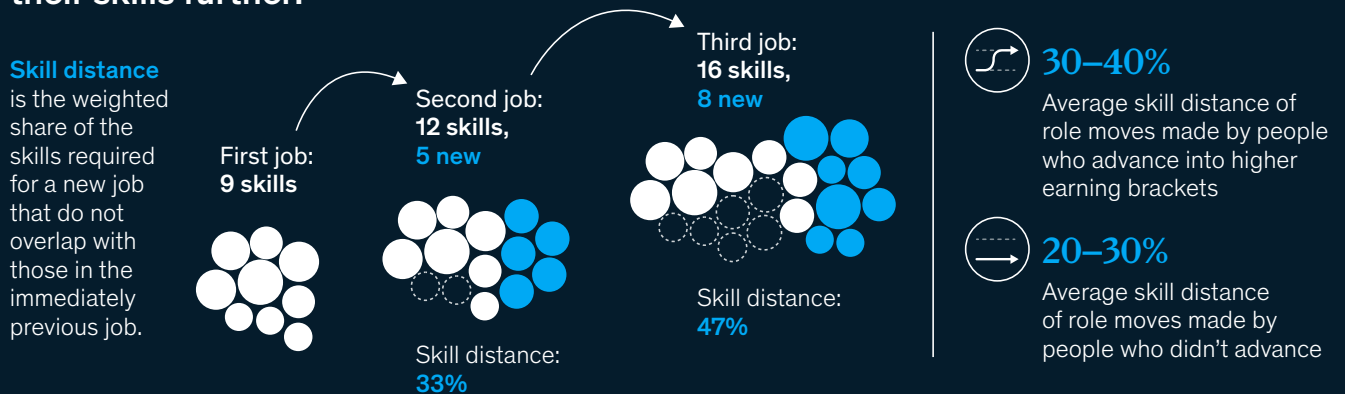
Human capital is two-thirds of per capita net worth, or the largest component of wealth

Human capital grows as a person acquires and deploys new skills through their working life.

3 stages in the evolution of human capital influence a worker's lifetime earnings:



People get the biggest boost from making “bold” role moves that stretch their skills further.



80% of job moves are across companies.

Employers can attract the best talent from that flow—and give valued employees internal paths to keep learning.



See the potential in people

✔ Be open to hiring unconventional candidates

✔ Focus on intrinsic capabilities and transferable skills



Embrace mobility

✔ Celebrate people who leave as success stories

✔ Create options for employees to move up as well as laterally



Strengthen coaching

✔ Embed learning into the day-to-day work

✔ Make early tenure count



Executive summary

The most important resource in any economy or organization is its human capital—that is, the collective knowledge, attributes, skills, experience, and health of the workforce. While human capital development starts in early childhood and continues through formal education, our research focuses on the next stage, which spans the full working life.

Human capital is much more than a macroeconomic abstraction. Each person has a unique, living, breathing set of capabilities. They belong to the individual, who decides where to put them to work. The degree of choice is not limitless, of course. People are the products of geography, family, and education; their starting points matter. Having career options also depends on an individual's abilities and attributes, their networks, their family obligations, the health of the broader labor market, and societal factors. While we recognize these constraints, career moves are nevertheless an important mechanism for expanding skills and increasing earnings.

At a moment when many workers are exercising greater self-determination in the job market, exploring mobility is particularly timely. To do this, we analyze a data set of de-identified job histories for approximately four million workers across the United States, Germany, the United Kingdom, and India.

The patterns within our data set show that moving into a new role pays off—and even more so when someone lands a new position that stretches their capabilities or better utilizes their skills. For people who start out in low-paying positions, movement is critical to boosting their lifetime earnings. Without extraordinary capabilities and luck, the entry-level retail cashier is unlikely to ever catch up to what the entry-level law associate can expect to earn over a lifetime. But if she is able to make strategic role moves, it is possible for her to climb into a higher earnings bracket than where she started.

1/4 to 1/3

of workers in our focus countries are upwardly mobile

In our data sample, roughly a third of US, German, and UK workers, and almost a quarter of Indian workers, are on a path to move up one or more quintiles in estimated lifetime earnings from their career starting points. This upwardly mobile group stands out for making more frequent and bolder role moves.

However, individuals cannot make bold moves unless an employer sees their potential and takes a chance on them in hiring. The most effective way for an individual to maximize the “experience effect” is to join an organization that prioritizes and strengthens their development.

Work experience adds to the value of human capital

Formal education is an important driver of an individual's lifetime earnings, which can be used as a proxy to measure the value of human capital.¹ Yet learning continues throughout a working life. Organizations set up their working environments with systems and practices that help employees become more productive. When people enter these settings, value is created. In addition to earning wages, workers gain knowledge and new capabilities that they carry with them for the remainder of their careers. Many roles require employees to become

¹ Jacob Mincer found that an additional year of education adds more to an individual's lifetime earnings than experience. Returns to schooling follow a linear curve, showing a consistent increase in earnings with each year of additional education, while returns to experience follow a quadratic curve. See “Investment in human capital and personal income distribution,” *Journal of Political Economy*, volume 66, number 4, 1958. *The changing wealth of nations 2018: Building a sustainable future*, World Bank, 2018, similarly uses lifetime earnings to measure human capital.

proficient with new types of software or equipment. Employees benefit from structured learning programs and daily coaching on the job. There are insights to be gained from watching colleagues handle tricky situations gracefully (or not) and seeing how managers motivate their teams (or do not).

Someone who starts out taking orders in a fast-food restaurant learns the art of handling difficult customers and staying cool under pressure. Someone who starts in IT by answering questions on a help desk absorbs technical knowledge that they continue to use when they become a network administrator. An inventory clerk who watches his manager solve logistical logjams can apply those approaches in a future role as a warehouse manager or procurement agent.

Our research focuses on how work experience builds on the foundation of formal education and adds to the value of human capital, expressed as lifetime earnings (see Box E1, “Modeling the link between role moves and the addition of skills to lifetime earnings”). We define work experience holistically as the accumulated knowledge that individuals gain by being in the labor market. This can occur through doing the work itself, formal employer-provided learning and development programs, and job changes that better match someone’s existing skills or enable them to add new skills.

Box E1

Modeling the link between role moves and the addition of skills to lifetime earnings

We track the new skills associated with role changes and make assumptions about how the salaries for each role link to new versus entry-level skills. We do this over the course of each individual’s work history to estimate the share of their lifetime earnings that can be attributed to skills gained through work experience.¹

We use a detailed data set covering all of the job moves made by about a million workers in each of four focus countries: the United States, Germany, the United Kingdom, and India. We look at each individual’s career trajectory, starting with the first job listed after the latest educational degree obtained and including all role moves made over the observed work history. For each role change, we quantify the “skill distance,” or the share of new or nonoverlapping skills associated with the new job. This reflects someone’s opportunity to acquire or deploy additional skills in the new role.² The illustrative example in Exhibit E1 shows a German worker who started as a welder. He changed jobs twice, moving

a skill distance of 33 percent when becoming a maintenance supervisor and then 47 percent when becoming a production manager. His average skill distance is therefore 40 percent, which is representative of the typical German worker.

We measure outcomes by looking at lifetime earnings, estimated as the sum total of nominal salaries received over a 30-year working life. This combines salaries associated with roles during an individual’s observed work history plus projections for the remaining years of that person’s working life.

We attribute the entirety of the entry-level salary to entry-level skills. Then, throughout the observed work history, we attribute a share of each new role’s salary to work experience in proportion to the share of new or nonoverlapping skills that role introduces, relative to entry-level skills. We make this assumption because work experience is one of the main mechanisms through which individuals are able to acquire and deploy new

skills after formal education. Although we acknowledge that education and personal attributes have an enduring impact, including teaching someone how to learn, we make a simplifying assumption in the attribution of salary to capture the scope and direction of the experience effect. For the length of time someone stays in a given role, we attribute standard yearly salary increases to work experience. We make this assumption to capture the effect of deepening existing skills. Similarly, to calculate projected earnings beyond the work history, we apply historical rates of wage growth to the final observed role, attributing all future projected wage growth to work experience. We assume no additional role moves.

Finally, we pool results for all workers in each of our four focus countries, reweighting the sample to reflect workforce composition, and consider the implications for the average lifetime earnings of a typical worker in the workforce.³

¹ Salaries are defined as the average yearly compensation provided for physical and knowledge work, not including benefits such as health insurance, subsidies, and tax transfers.

² We identify skills for each role from job postings, weighted by skill frequency, which gives more weight to skills that are specialized to a particular role rather than common across roles. When someone makes a role move, we measure skill distance as the share of nonoverlapping skills between the two roles.

³ For further details, see the technical appendix.

~2/3

of the total wealth of individuals is their human capital

Work experience contributes 40 to 60 percent of a worker's human capital

By our estimates, the value of human capital represents roughly two-thirds of an individual's total wealth.² Our results show that skills acquired or deployed through work experience contribute an average of 46 percent of the value of human capital over a typical working life. However, this is an average for the four focus countries, and it contains a wide range of variations (Exhibit E2).

The experience effect looks strikingly similar across the advanced economies we studied. Our analysis finds that work experience contributes 40 percent of the average individual's lifetime earnings in the United States, and 43 percent in both Germany and the United Kingdom.

² The value of human capital is measured as the present value of all future earnings for the average individual in our sample. To measure its contribution to total wealth, we draw on MGI's 2021 report *The rise and rise of the global balance sheet*, which estimates average net worth per capita. Other estimates by the World Bank conclude that human capital wealth accounts for roughly two-thirds of global wealth (as much as 70 percent in high-income OECD countries). See *The changing wealth of nations 2018: Building a sustainable future*, World Bank, 2018.

Exhibit E1

We identify new skills individuals acquire or begin to deploy with each role move.

Illustration of skill distance, weighted share of non-overlapping skills required in each new role,¹ %

Circle size: bigger = Skills specialized to the role rather than common across roles

● First job Welder in Germany



9 skills

- Manufacturing processes
- Engineering and maintenance
- Process engineering
- Process management
- Compliance
- Manufacturing quality assurance
- Soft skills
- Documentation and change control
- Time management

● Second job Maintenance supervisor



2 skills go latent^a

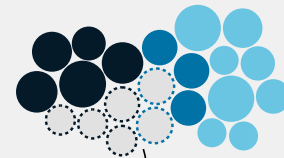
5 new skills

- Validation, auditing, and monitoring
- Training and development
- Performance management
- Recruiting
- Workforce management

^aDocumentation and change control; time management

Skill distance
33%
vs
first job

● Third job Production manager



Another 4 skills go latent^b

8 new skills

- Supply chain
- Communication
- Relationship building
- Data analysis
- Commercial excellence
- Supply and vendor management
- Budgeting and inventory management
- Organizational development

^bCompliance; soft skills; recruiting; validation, auditing, and monitoring

Skill distance
47%
vs
second job

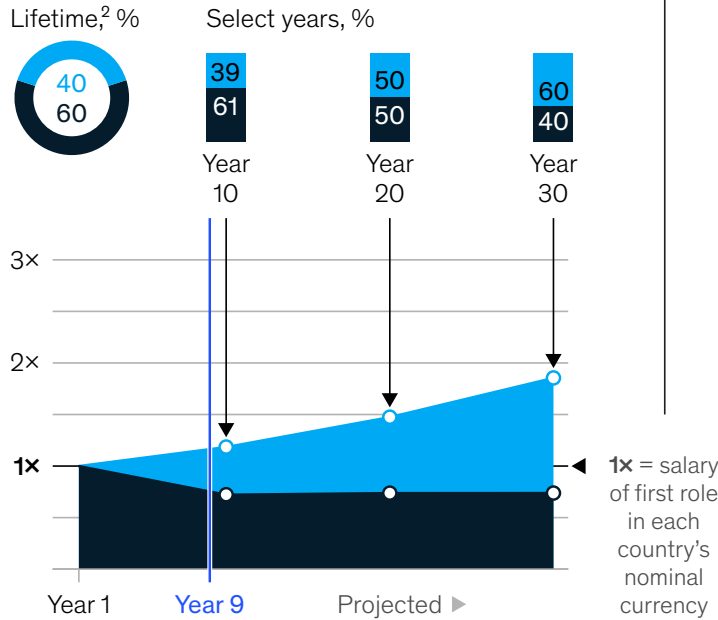
¹ Measured as share of nonoverlapping skill requirements between two roles, which shows the proportion of new skills required when someone moves into a new role. We identify skill requirements for each role from job posting data, weighted by skill frequency, which gives more weight to skills that are specialized to a particular role rather than common across roles. Source: McKinsey's proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018–19 job posting records; McKinsey Global Institute analysis

Work experience accounts for 40 to 43 percent of average lifetime earnings in the advanced economies we studied, and 58 percent in India

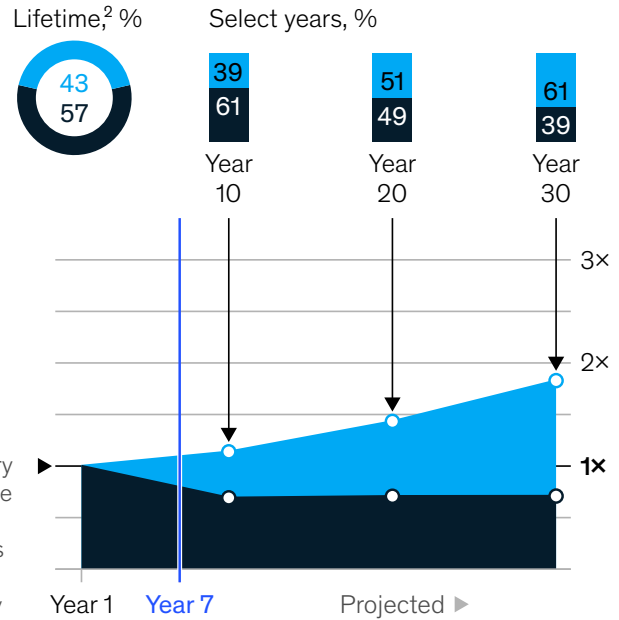
Multiple of initial salary at beginning of average career, in nominal currency

■ Share of earnings associated with work experience¹
■ Share of earnings associated with entry-level skills¹
◀ Average years observed in each sample

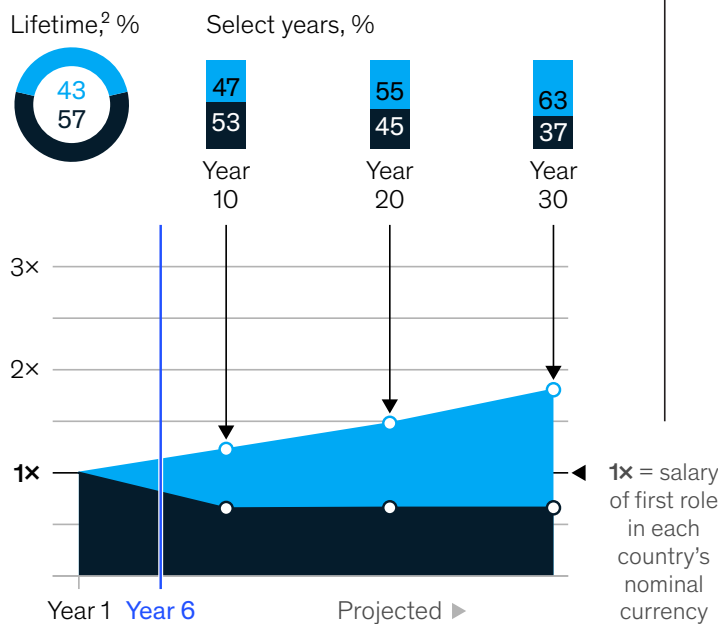
United States



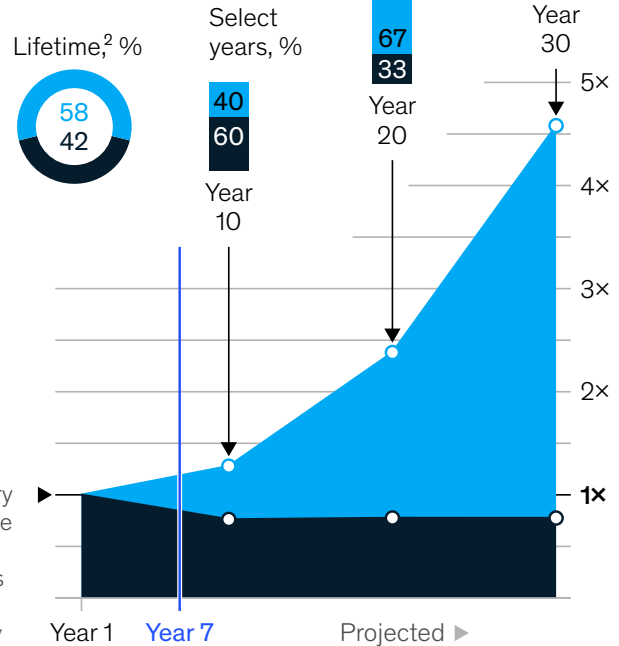
Germany



United Kingdom



India



¹ We attribute the ability to acquire the first job, and therefore the first job's salary, entirely to entry-level skills. Wage increases while in the same job are attributed to work experience, as is a proportion of new salary after a role move, based on the share of new skills required in the new role. Lifetime proportions calculated are based on the area under the curve.

² Lifetime earnings are the sum of nominal salaries over an individual's 30-year working life. Combines estimates based on salaries of roles held during the observed work history plus projections for the remaining years of a working life, applying historical rates of wage growth to the final observed role and assuming no further role moves.

Note: Average trajectory, based on a sample of 410,000 individual career profiles in the US, 280,000 profiles in Germany, 230,000 profiles in the UK, and 230,000 profiles in India. Begins with first job after latest education degree posted. Entire sample post-weighted to reflect the occupational distribution in each economy.

Source: McKinsey's proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018–19 job posting records; UK Office for National Statistics; US Bureau of Labor Statistics; Germany's Federal Employment Agency, BA; India's National Sample Survey Organisation and Periodic Labour Force Survey; McKinsey Global Institute analysis

By contrast, work experience contributes 58 percent of average lifetime earnings in India.³ Access to education remains a key challenge in India—and with only 12 percent of the population having tertiary education as of 2020, work experience will be a more important driver of income for the workforce as a whole by default.⁴ In other emerging economies that have similarly low levels of educational attainment plus high productivity and wage growth from a low baseline, lifetime earnings are likely to exhibit similar patterns.

Work experience is a bigger determinant for people who start in occupations without significant credentialing barriers

People who start out in occupations with higher educational and credentialing barriers (such as lawyers and dentists) earn more than other workers over their lifetimes. For most of them, entry-level skills contribute a larger share of those earnings (Exhibit E3).

The reverse is generally true for people who start out in occupations with lower educational requirements. They typically earn less over a lifetime, with the greater share driven by work experience. The income growth of a dishwasher who becomes a food prep cook, then a line cook, and eventually a sous chef is almost entirely fueled by techniques and tricks of the trade learned on the job. In addition to enabling someone to acquire skills, work experience gives that person a track record, which is valuable in and of itself for the signal it sends to potential future employers.

In the United States, for example, the size of the experience effect varies substantially across starting occupations. At the low end are chiropractors. Before treating patients, they must complete a doctor of chiropractic degree program that can take three to five years, then pass a series of licensing exams. Their entry-level skills account for 85 percent of their lifetime earnings. At the other end of the spectrum are food batchmakers, who operate equipment that blends ingredients for manufacture. People who start in this type of factory job are less likely to have higher education; the experience they amass over time determines 90 percent of their lifetime earnings. Exhibit E4 shows how this pattern plays out in a number of other occupations.

While greater educational attainment generally correlates to higher lifetime earnings, some people defy the odds

Someone who attended poor-quality schools and lacks any postsecondary education or training is starting from behind in the labor market. Many employers rely on college degrees as a well-established signal of a candidate's employability.⁵

Yet educational disadvantage does not have to lock in destiny—at least not for everyone. In the United States, for example, our lifetime earnings projections show a subset of people who overcome the odds. Of particular note, 28 percent of high school graduates have higher earnings potential than the median holders of associate degrees, and 37 percent of associate degree holders could earn more than median bachelor's degree holders over their lifetimes.

In all the countries we studied, a sizable cohort is on a path to move up one or more earning quintiles from their career starting point. As Exhibit E5 (found later in the Executive Summary) illustrates, this applies to 30 percent of workers in the United States.⁶ In fact, 6.1 percent of US workers are on track to move from the bottom lifetime earnings quintile all the way to the top. Similar shares are upwardly mobile in the other advanced economies we studied (32 percent in Germany and 34 percent in the United Kingdom). In India, 23 percent of workers are on a path to move into higher earnings brackets.

³ In India, faster nominal wage growth results in a greater lift to lifetime earnings than in the advanced economies we studied. Our analysis focuses on the proportion of lifetime earnings attributable to entry-level skills versus experience, rather than the absolute growth in wages, making the estimates comparable across countries.

⁴ Organisation for Economic Co-operation and Development (OECD).

⁵ Michael Spence, "Job market signaling," *Quarterly Journal of Economics*, volume 87, number 3, August 1973.

⁶ Another longitudinal study on income mobility followed almost 10 million US children and found that 36.7 percent moved into a higher income quintile than their parents, with 7.5 percent moving from the bottom to the top quintile of earnings. See Raj Chetty et al., "Where is the land of opportunity? The geography of intergenerational mobility in the United States," *The Quarterly Journal of Economics*, volume 129, number 4, 2014.

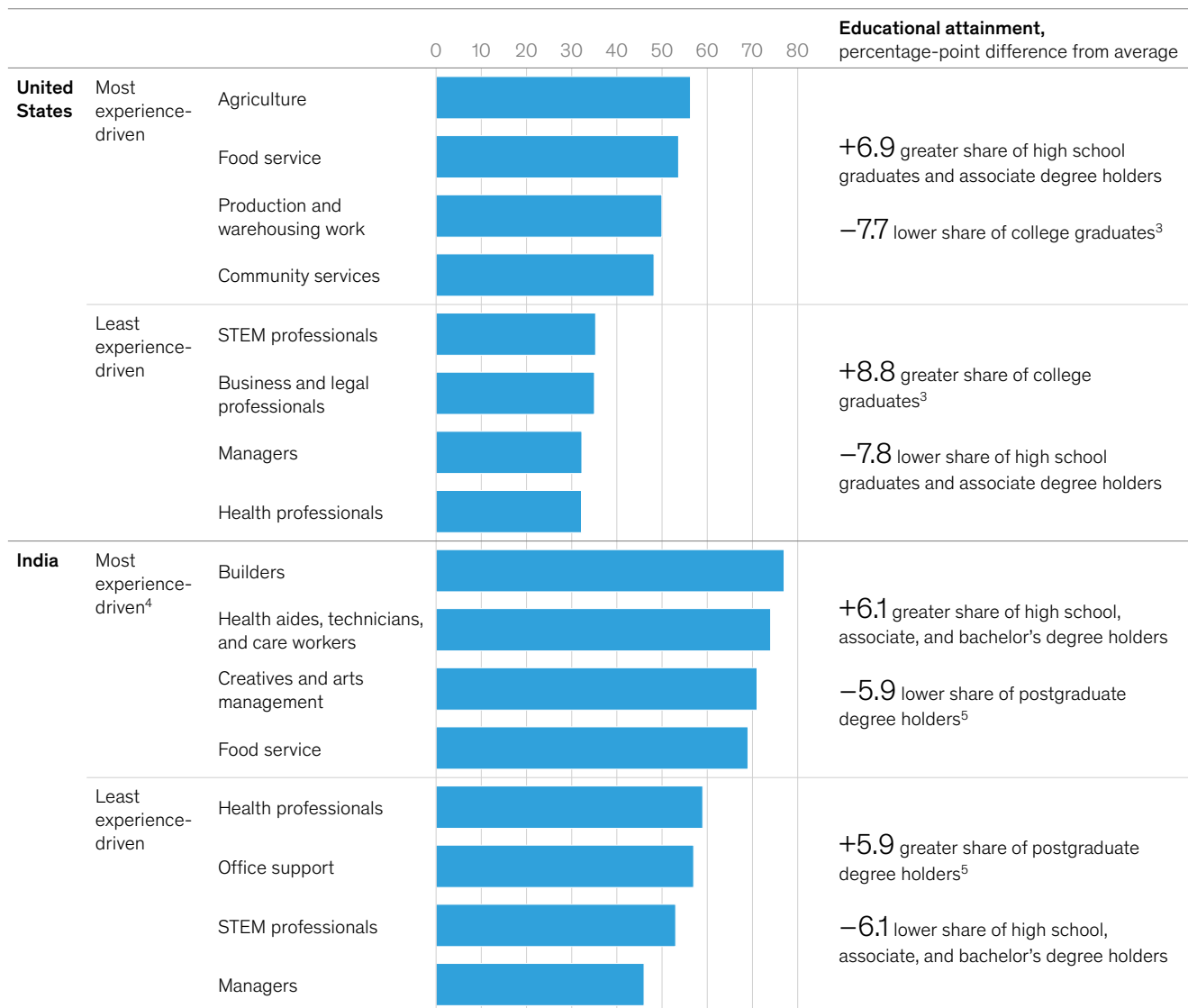
The upwardly mobile group appears to be amassing work experience in an effective way that yields real benefits. In our worker sample, experience accounts for 60 to 80 percent of lifetime earnings for the cohort that moved up but only 35 to 55 percent for those who stayed flat or dropped down. However, many people are unable to make these leaps because of structural and social barriers, such as biases, the lasting effects of unequal education, and the lack of professional networks.

Exhibit E3

Work experience accounts for a greater share of lifetime earnings in occupations with lower education requirements.

United States and India

Share of lifetime earnings¹ associated with work experience,² by starting occupational category, %



¹ Sum total of the nominal salaries an individual receives over a 30-year working life. Combines estimates based on salaries of roles held by a person during the observed work history plus projections for the remaining years of that person's working life, applying historical rates of wage growth to the final observed role and assuming no further role moves.

² We attribute the ability to acquire the first job, and therefore the first job's salary, entirely to entry-level skills. Wage increases while in the same job are attributed to work experience, as is a proportion of new salary after a role move, based on the share of new skills required in the new role.

³ Includes holders of bachelor's, master's, and doctorate degrees.

⁴ Agriculture and community services occupation categories excluded due to limited data availability.

⁵ Includes holders of master's and doctorate degrees.

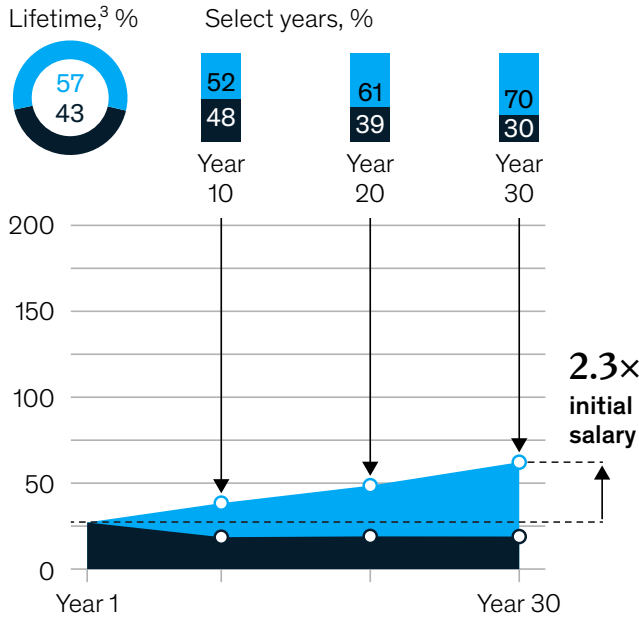
Source: McKinsey's proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018–19 job posting records; US Bureau of Labor Statistics; India's National Sample Survey Organisation and Periodic Labour Force Survey; McKinsey Global Institute analysis

Individuals starting in different occupations have varying degrees of reliance on work experience.

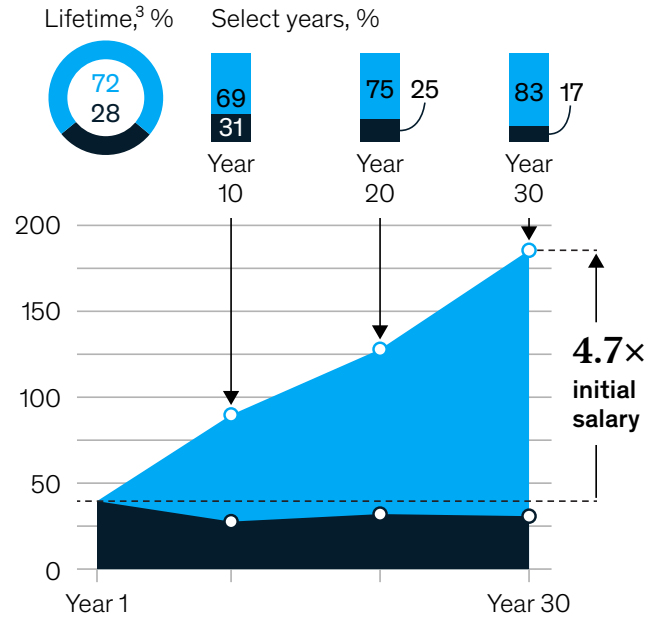
Salary in the United States by starting occupation,¹ in nominal currency, \$ thousand

■ Share of earnings associated with work experience²
■ Share of earnings associated with entry-level skills²

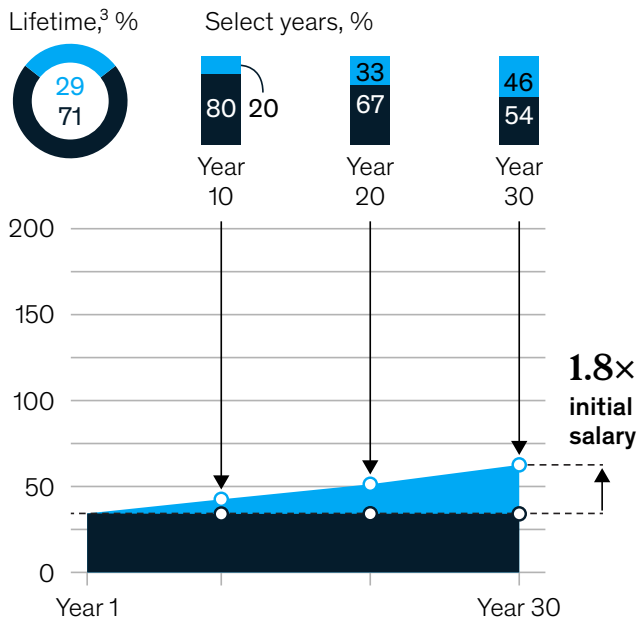
Restaurant servers



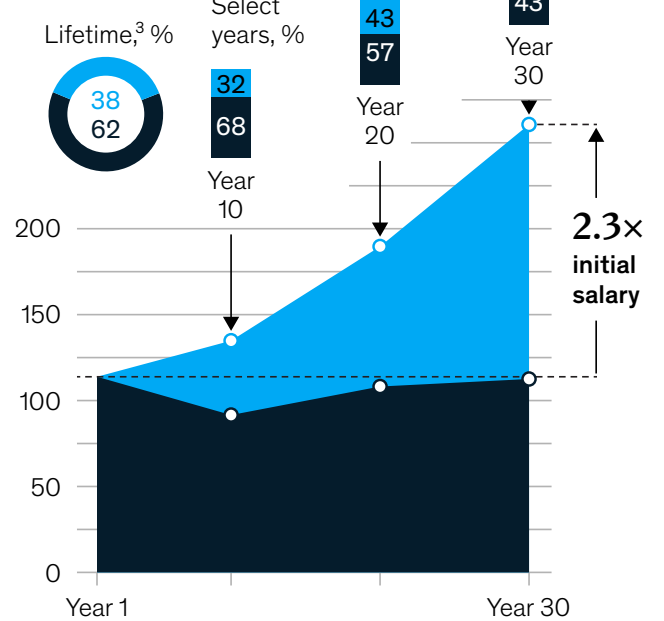
Commercial pilots



Maintenance and repair workers



Physicians



¹ Starting occupation defined as first role after the latest education reported on a public, de-identified online worker profile.

² We attribute the ability to acquire the first job, and therefore the first job's salary, entirely to entry-level skills. Wage increases while in the same job are attributed to work experience, as is a proportion of new salary after a role move, based on the share of new skills required in the new role. Lifetime proportions calculated are based on the area under the curve.

³ Lifetime earnings are the sum of nominal salaries over an individual's 30-year working life. Combines estimates based on salaries of roles held during the observed work history plus projections for the remaining years of a working life, applying historical rates of wage growth to the final observed role and assuming no further role moves.

Source: McKinsey's proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018–19 job posting records; UK Office for National Statistics; US Bureau of Labor Statistics; Germany's Federal Employment Agency, BA; India's National Sample Survey Organisation and Periodic Labour Force Survey; McKinsey Global Institute analysis

Role moves bring new skills and can unlock higher earnings—and in most cases, people are moving to new organizations

Movement is an inherent feature of labor markets. Across the entire data set, the average person switched roles every two to four years, with a median skill distance of 25 to 45 percent, depending on the country.⁷ This matters because role moves enable individuals to build or demonstrate their skills.

Moves can involve workers assuming new roles within their current company, moving to a different employer, changing specialties or occupations, or pursuing a combination of these strategies. At any given time, a significant proportion of role moves are triggered by firings and layoffs in addition to voluntary job changes.

In our data set, each move increased wages by 6 to 10 percent on average. However, this includes people who moved into lower-paying roles, whether by choice or out of necessity.

Forty to 50 percent of the role moves over the decade we observed involved pay increases. The workers who made these moves managed to boost their earnings by 30 to 45 percent on average each time.

More than 80 percent of the role moves observed in our data set involved someone leaving one employer for another. Far fewer moves involved people being promoted into more senior roles or branching into different specializations within their existing organizations.⁸ This high level of external movement holds true across all cohorts. This seems to indicate that many employers do not have internal advancement tracks that are wide enough to keep most people growing and working toward higher rewards over time. Individuals who want to reinvent themselves and take on more senior roles often have to go to a new environment to do so.

The bolder the move, the bigger the boost

Those who take new roles involving bigger changes or challenges receive bigger rewards. We look at both wages and skill requirements associated with consecutive roles held by each individual. Salary-increasing moves involved a median skill distance of 35 to 50 percent across countries, higher than the range of 25 to 45 percent for all moves across countries.

In other words, when someone made a move for higher pay, their new job typically involved significant skills and responsibilities that were not part of their previous job. This kind of movement is enabled when an employer is willing to take a chance on someone's potential, even if they have not been performing exactly the same tasks in their previous role. The new role may be a major learning opportunity, or it may be a better match that enables someone to deploy existing skills that they have not been utilizing.⁹ Incremental moves with largely overlapping requirements do not pack the same punch.

The most upwardly mobile cohorts in the sample make both frequent moves and bold moves (Exhibit E5).¹⁰ In the United States, for example, people who moved into higher earning quintiles averaged 4.6 moves during the observed period, while those who stayed flat averaged 3.7 moves. The upwardly mobile in the United States and India made moves with an average skill distance of 30 to 40 percent; those who stayed flat averaged only 20 to 30 percent. This growth in skills compounds with each move, resulting in a far bigger shift in capabilities and responsibilities over the entirety of a working life.

30-45%

average boost when
someone changes roles for
higher pay

⁷ This is in line with the most recent (prepandemic) US Bureau of Labor Statistics (BLS) data, which show that US wage and salary workers had a median tenure with their current employer of 4.1 years in January 2020. See www.bls.gov/opub/ted/2020/median-tenure-with-current-employer-was-4-point-1-years-in-january-2020.htm.

⁸ It is possible that self-reported data may not reflect the full number of internal moves. For example, an individual who receives their fifth promotion at a longtime employer may not bother to update their online professional profile but will do so when moving to a new employer.

⁹ Dale T. Mortensen and Christopher A. Pissarides, "Job creation and job destruction in the theory of unemployment," *Review of Economic Studies*, volume 61, number 3, 1994.

¹⁰ We describe moves involving high skill distances as "bold." This term describes only the distinctiveness of the skill requirements in the new role; it is not a comment on the nature of the role itself or of the risk-taking involved in making the move. An incremental move is one in which skill distance is in the bottom quartile of the sample; a bolder move is one in the top quartile.

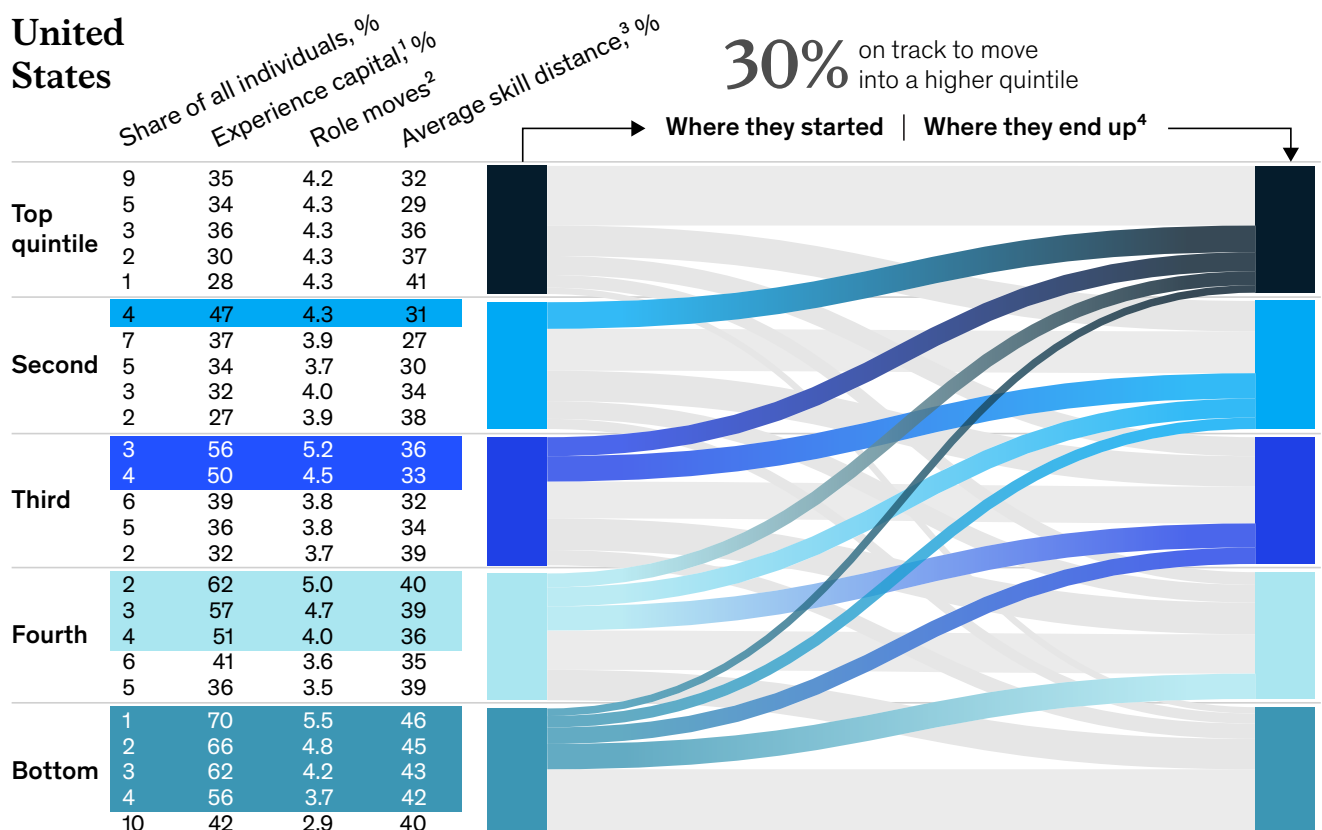
‘Experience seekers’ and ‘early movers’ boost their earnings through effective career moves

From our data set, we looked at a smaller universe of people with more than ten years of work history. Within it, four distinct archetypes emerge. They are not meant to convey individuals’ circumstances or motivation; they describe movement patterns and outcomes, with illustrative examples.

- **Experience seekers** start with lower-than-average wages but propel themselves upward by moving roles more frequently than their peers and stretching their capabilities substantially each time. The cumulative effect gives them stronger wage growth than any other archetype. Consider someone who starts as an administrative assistant at one nonprofit before landing a job cultivating donors in the development department of another. From there, she joins a research hospital as a grant writer before stepping into a broader communications role. Eventually she becomes head of media relations for a major university. Our experience seeker has managed to cross over into new industries and functions.
- **Early movers** make bigger leaps in the first part of their career. Someone may start in one field, quickly realize that their passion lies elsewhere, and then get a break that enables

Exhibit E5

In each country we studied, experience and role moves enable a significant share of workers to move into higher earning quintiles.



¹ The share of lifetime earnings associated with skills learned through experience. We attribute the ability to acquire the first job, and therefore the first job’s salary, entirely to entry-level skills. Wage increases while in the same job are attributed to work experience, as is a proportion of new salary after a role move, based on the share of new skills required in the new role.

² Average number of role moves per person made over 10 years. Role moves are changes in an individual’s job, occupation, occupation category, or organization. They include promotions or lateral moves within the same organization as well as moves from one employer to another.

³ Measured as share of nonoverlapping skill requirements between two roles, which shows the proportion of new skills required when someone moves into a new role. We identify skill requirements for each role from job posting data, weighted by skill frequency, which gives more weight to skills that are specialized to a particular role rather than common across roles.

⁴ Based on lifetime earnings, which are the sum total of the nominal salaries an individual receives over a 30-year working life. Combines estimates based on salaries of roles held by a person during the observed work history plus projections for the remaining years of that person’s working life, applying historical rates of wage growth to the final observed role and assuming no further role moves.

Source: McKinsey’s proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018-19 job posting records; US Bureau of Labor Statistics; McKinsey Global Institute analysis

them to follow it. A graphic designer who makes print ads, for example, might become a user-experience designer early in her career.

- **Late movers** stay put or make more incremental moves in the early stage of their career but eventually take a bolder step. Think of a seasoned journalist who goes into corporate communications, or a real estate agent who becomes a mortgage loan officer in a bank. This is by far the largest group in the sample.
- **Lock-ins** change jobs less frequently, and when they do move, they do not make dramatic changes. This is not necessarily because someone is timid or stuck; they could also follow this strategy because they pursued what suited them from the start. Teachers, for example, have invested in specialized education and may have found their calling. However, lock-ins have the slowest wage growth, whether they start near the bottom or near the top. Doctors start at a very high salary but do not tend to make many role moves. While work experience accounts for 60 to 70 percent of lifetime earnings for experience seekers and early movers, that share is only about 30 percent for lock-ins.

Employers can attract and retain talent by recognizing potential, embracing mobility, and strengthening learning

Not all companies are equally good at developing people. Size is not the differentiator, as we find that small companies can be just as adept as their larger counterparts in this area. But companies with the strongest organizational health, those that offer more structured training for their employees, and those that provide more opportunities for internal advancement seem to stand out. People join these companies to build knowledge and networks, understanding that their experience will provide a valuable signal to other employers for the remainder of their careers. Early career experience at these companies helps employees go on to become more upwardly mobile (Exhibit E6).

Companies can help individuals build their experience capital and establish themselves as great learning organizations and magnets for talent in the process by focusing on three priorities:

- **Understand the potential in people as well as their current knowledge and skills.** Most employers can benefit from challenging the status quo of how they select people for open roles. Instead of searching for “holy grail” external candidates whose prior experience precisely matches the responsibilities in an open role, leading organizations create systems for evaluating candidates based on their capacity to learn, their intrinsic capabilities, and their transferable skills. This requires designing assessments that are fit for purpose, focusing on the few core skills that matter for success in the role. It also involves removing biases that pigeonhole people into the roles they are already performing; this point is particularly important when it comes to existing employees. In our sample, more than half of all role moves undertaken by individuals involved a skill distance of more than 25 percent—and this implies that people often have latent capabilities that are not recognized by their current employers. If someone’s track record shows the acquisition of new skills over time, it probably means that person is capable of learning more. Employers should be less constrained about recruiting candidates from traditional sources and backgrounds, and more open to people who have taken unconventional career paths.
- **Embrace mobility.** Within our data set, more than 80 percent of all the role moves individuals made involved changing employers. Since there is no fighting the fact that talented people will move, the key for employers is becoming part of this flow. Employers can aim to beat the odds on both sides of this 80-20 dynamic. On one end, they can attract the best candidates among the big talent pool that is always searching. On the other, they can boost the productivity and engagement of valued employees who stay. To ensure that proven employees don’t have to go elsewhere to advance, organizations should set the expectation that part of a manager’s job is developing people who will go on to other things. Each role should have clear paths toward future roles, with skill

requirements delineated at each stage. One way to do this in a large organization is to create an internal digital platform where employees can access learning modules and find their next opportunity. Mobility is experience, not just upward progression—and lateral movement is a neglected opportunity for many organizations. Designing rotational and transfer options for a broader pool of employees can keep proven midcareer workers learning and feeling energized. When talented employees do move on, celebrate them as success stories—and don't close the door on welcoming them back in a different capacity in the future.

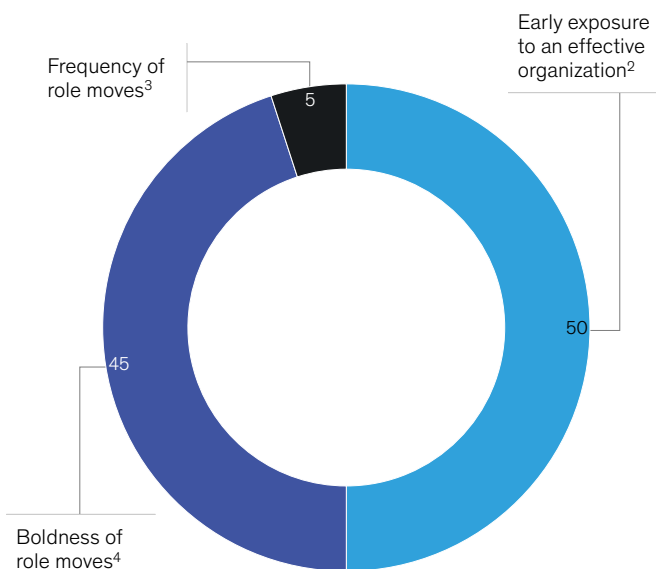
- **Strengthen coaching, and emphasize the new or first manager's role.** A great deal of skills development happens day to day on the job, in a process that accumulates over time and eventually accounts for almost half of all human capital over a working life, as our research suggests. Coaching and apprenticeship can maximize this effect. Our research

Exhibit E6

Most of the differences in individuals' experience capital are associated with early exposure to an effective organization, followed by bold role moves.

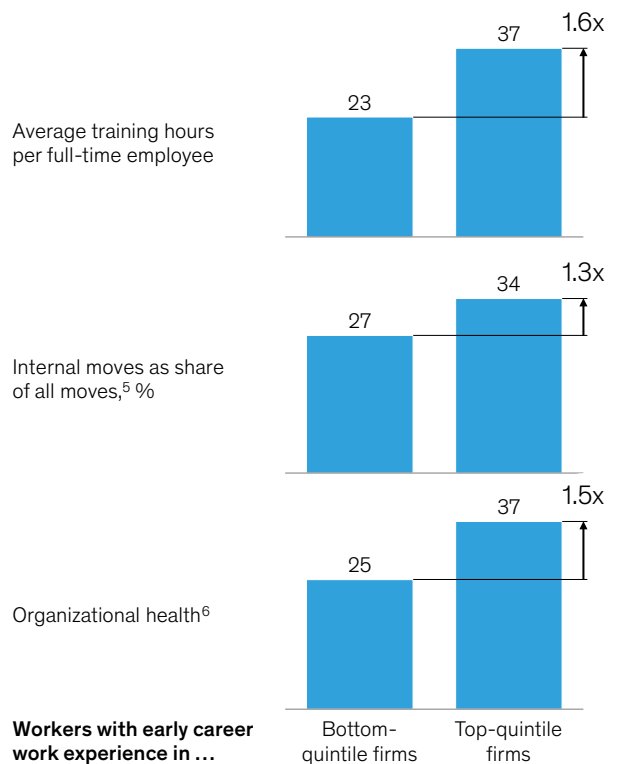
United States, Germany, United Kingdom, and India

Drivers associated with experience capital variation,¹ controlling for starting occupation and sector



Characteristics of effective organizations

Share of workers who would move into higher earning quintiles,⁷ %



¹ Measured by regressing experience capital for an individual on metrics measuring organizational practices of the firm where the individual starts his career, boldness of role moves, and frequency of role moves. Controlled for starting wage, latest wage in work history, years of post-education observed work experience, average experience capital for a given sector, occupation, and organization. N = 65,554 individuals and R-squared = 0.54.

² Based on average training hours per full-time employee, internal moves as a share of all moves, and the overall score from McKinsey's Organizational Health Index. Firms with the highest OHI scores may attract intrinsically motivated individuals, who may be disproportionately likely to seek out new skills through work experience, amplifying this metric. Metrics matched to the organization where an individual worked during the start of their career. N = 362 firms.

³ Role moves are changes in an individual's job, occupation, occupation category, or organization. They include promotions or lateral moves within the same organization as well as moves from one employer to another.

⁴ We describe moves involving high skill distances as "bold." Skill distance is the share of nonoverlapping skill requirements between two roles, which shows the proportion of new skills required when someone moves into a new role. We identify skill requirements for each role from job posting data, weighted by skill frequency, which gives more weight to skills that are specialized to a particular role rather than common across roles.

⁵ Role moves made within the company as a share of internal moves + separations; US data only.

⁶ Based on McKinsey's proprietary Organizational Health Index (overall score).

⁷ Movement into higher earning quintiles is based on estimated lifetime earnings of the individual (compared to quintiles of starting wages), which is calculated as the sum total of the nominal salaries an individual receives over a 30-year working life. Combines estimates based on salaries of roles held by a person during the observed work history plus projections for the remaining years of that person's working life, applying historical rates of wage growth to the final observed role and assuming no further role moves.

Source: McKinsey's proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018–19 job posting records; UK Office for National Statistics; US Bureau of Labor Statistics; India's National Sample Survey Organisation and Periodic Labour Force Survey; Germany's Federal Employment Agency, BA; Organizational Health Index by McKinsey; Refinitiv; McKinsey's Corporate Performance Analytics; S&P Global; McKinsey Global Institute analysis

suggests the first few years of a career are foundational, and the same is true for the first year in any new job. Formal onboarding is not just an orientation session but a six-month to one-year period that should involve a thoughtfully created journey. Organizations can provide the tools for a running start, including a manager committed to delivering coaching and facilitating connections. Even after hitting their stride, employees need ongoing opportunities to learn; this can pay off in the form of higher morale and reduced attrition.¹¹ In a June 2021 Gallup survey, 65 percent of US workers said that learning new skills is an extremely or very important factor in deciding whether to take a new job, and 61 percent said it was extremely or very important in deciding whether to stay at their current job.¹² Formal learning and development programs that prepare employees for future roles are part of this, but it is difficult to make them effective. Companies that are true learning organizations build their own formulas, customized to their needs.

Workers should choose their moves (and their employers) carefully

Since work experience creates value for the individual, how can someone maximize that effect? Controlling for differences in occupation, time spent early in a career with an effective organization (as defined by overall organizational health and greater emphasis on training and internal mobility) is associated with 50 percent of the variation in how experience adds to earnings. The remainder of the difference is associated with the boldness and frequency of moves that a person makes.

The pandemic appears to have prompted many workers to reevaluate their jobs, and many have been voting with their feet. According to US Bureau of Labor Statistics data, some 47 million Americans quit their jobs in 2021. Millions have landed better jobs, and some became entrepreneurs.¹³ An increase in job switching has spread to other countries as well. Employers from Europe to China report labor shortages and hiring difficulties.¹⁴ Workers are in demand and taking advantage of new dynamism in the labor market.

While higher pay is obviously a motivation, particularly for people who have been struggling to make ends meet, many people are also looking for better working environments and flexibility. However, broader considerations determine whether a move will pay off in the longer term. Our research shows that bold role moves have the potential to propel workers forward.

There are often constraints on the ability to make moves, of course. Not everyone has access to an effective organization. People may hit the limits of their capabilities or health, while others need to prioritize family responsibilities. During periods of high unemployment, the options are fewer and farther between. Yet individuals who have the luxury of choosing each job move strategically can benefit in a lasting way by looking for learning opportunities and growth potential. As playwright Tom Stoppard put it: "Look on every exit as being an entrance somewhere else."

¹¹ See, for example, Ann P. Bartel, "Measuring the employer's return on investments in training: Evidence from the literature," *Industrial Relations: A Journal of Economy and Society*, volume 39, number 3, 2000; and Anand Chopra-McGowan, "Make sure your company's reskilling efforts pay off," *Harvard Business Review*, July 2021.

¹² *The American upskilling study: Empowering workers for the jobs of tomorrow*, Gallup and Amazon, 2021.

¹³ Josh Mitchell and Kathryn Dill, "Workers quit jobs in droves to become their own bosses," *Wall Street Journal*, November 29, 2021.

¹⁴ Meng Ke and Yuk Li, "China needs 11.8M workers. Here's how to close its labour gap," World Economic Forum, July 2021; and Tina Weber et al., "Tackling labour shortages in EU member states," European Foundation for the Improvement of Living and Working Conditions, July 2021.

Profile

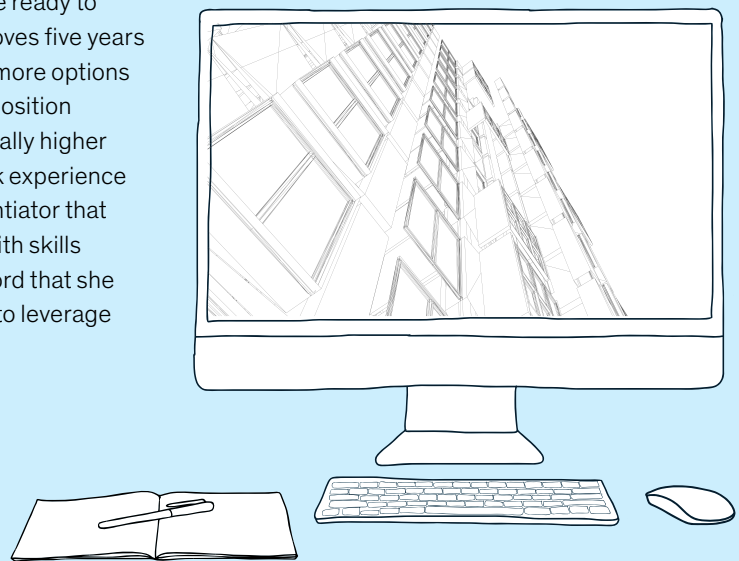
A tale of two architects

Equally talented architects Jeanne and Jane earned degrees from the same prestigious university and passed the same professional certification exams. After that point, their paths diverged, largely because of the quality of their respective workplace experiences.

Jeanne took a job with a boutique firm run by a renowned architect. However, its IT systems were outdated, and the founder delegated only low-value tasks and rarely took the time to offer feedback.

Jane took a junior role at a commercial firm where a principal became her mentor. She learned how to use cutting-edge BIM modeling tools and how to develop project proposals.

When both were ready to make career moves five years later, Jane had more options and secured a position with a substantially higher salary. Her work experience was the differentiator that equipped her with skills and a track record that she could continue to leverage for decades.





1. Human capital development in context

This chapter lays out a framework for thinking about how human capital develops in various stages of life—and, importantly, how context influences each person’s journey. It reviews some of the seminal research that has defined the field and notes the difficulty of measuring something as endlessly varied and complex as human potential.

Our empirical findings can be found in chapters 2 and 3. While much of the existing literature has examined returns to education, this report focuses on the individual and what comes *after* formal education. Specifically, it looks at how work experience enhances the value of human capital, taking a micro lens to the topic by drawing on millions of individual work histories. Chapter 4 delves into the implications of our findings for employers, workers, and policy makers.

What is human capital, and why is it called ‘capital’ in the first place?

The word *capital* has long been used to refer to finance or to physical assets such as factories, machinery, and real estate. In the late 1950s and early 1960s, economists began expanding its usage to people, focusing on the skills, experience, and talents of individuals as a source of economic value. Around this time, Jacob Mincer, Theodore Schultz, and Gary Becker published seminal works framing education and training as investments in “human capital.”¹⁵

From the beginning, some critics objected to the phrase, arguing that it reduces the many complex dimensions of a person to an input of production that a company can “acquire.”¹⁶ Becker acknowledged this point of view in his 1992 Nobel Prize lecture:

The very concept of human capital was alleged to be demeaning because it treated people as machines. To approach schooling as an investment rather than a cultural experience was considered unfeeling and extremely narrow. As a result, I hesitated a long time before deciding to call my book Human Capital, and hedged the risk by using a long subtitle. Only gradually did economists, let alone others, accept the concept of human capital as a valuable tool in the analysis of various economic and social issues.

Human capital is simply the qualities and abilities that make people productive. In formal terms, it is defined as the knowledge, skills, competencies, and attributes individuals accumulate throughout their lives.¹⁷ It also reflects their health, which determines their ability to work and the length of time over which they are able to do so.

Human capital resides within each individual, but the term also has meaning at a company or economy-wide level. Economists and social scientists often look at the educational

¹⁵ See Jacob Mincer, “Investment in human capital and personal income distribution,” *Journal of Political Economy*, volume LXVI, number 4, August 1958; and Gary Becker, *Human capital: A theoretical and empirical analysis, with special reference to education*, Harvard University Press, 1964. For useful overviews of human capital theory including comprehensive literature reviews, see Claudia Goldin, “Human capital,” in *The Handbook of Cliometrics*, Claude Diebolt and Michael Hauptert, eds., Springer Verlag, 2016; or Luca Flabbi and Roberta Gatti, *A primer on human capital*, World Bank Group, January 2018.

¹⁶ Theodore Schultz noted this objection in his seminal article “Investment in human capital,” *American Economic Review*, 1961. For more recent criticisms, see, for example, Jeff Spross, “Why Big Business needs to stop calling people ‘human capital,’” *The Week*, May 15, 2015; and Jordan Weissmann, “The actual problem with saying ‘human capital stock,’” *Slate*, May 28, 2020.

¹⁷ *The well-being of nations: The role of human and social capital*, OECD, May 2001.

attainment of the population as a proxy for the sum total of skills in a given economy, while companies may consider the talent pool they employ as making up their human capital. Yet even when employed by a company, individuals can choose to do something different. Human capital is therefore unlike other forms of capital that a company owns and deploys at its own discretion.

Human capital develops over much of an individual's lifetime and is heavily influenced by contextual settings

Human capital develops in a dynamic process that begins in childhood and continues throughout education and an individual's working life (Exhibit 1). Individuals start off with a set of personal characteristics, some of which are innate and some of which are instilled. Natural abilities may emerge early in life—perhaps an instinctive grasp of math, verbal acuity, persuasiveness, or artistic flair.

Youth is a significant period for the development of human capital, and formal education is a major determinant of where people start in the labor market. Education is about much more than preparing people to become workers, of course. It enables students to expand their intellectual horizons, appreciate literature and the arts, become better citizens, and evaluate information more critically. At the same time, formal education does help students develop competencies that will enable them to make a living and contribute to society.¹⁸

Early influences have lifelong effects on human capital. Childhood advantages and disadvantages influence the later stages of human capital development, affecting the choices people make in their education and careers. For example, access to adequate nutrition during childhood can improve academic performance, with positive knock-on effects on earnings, while access to extracurricular activities during adolescence can open doors later.¹⁹ Moving children from disadvantaged to advantaged neighborhoods has been shown to improve their future earnings.²⁰ Children born into marginalized groups have more systemic barriers to overcome throughout life.

Context can either cultivate or hold back human potential. Families and communities may nurture or neglect a child's development. An individual's family upbringing and community context may foster positive traits (such as work ethic, honesty, punctuality, leadership, resilience, and empathy) or negative traits (such as a lack of self-confidence or a sense of entitlement). Parents who read to their children and insist that chores must be done are often planting the seeds of lifelong habits, as are those who set low expectations or fail to nurture children in their formative years. The family and social contexts also matter when it comes to the educational opportunities available to an individual as well as how that person will approach their studies. Some families and broader communities put enormous emphasis on academic achievement; others do not. In societies where gender equity lags, for example, girls may be brought up with lower expectations about what they can hope to achieve and may find more limited opportunities.

Similarly, the context provided by institutions matters. Schools and institutions of higher learning may expand or fail to ignite someone's potential. Early childhood education programs that establish a strong foundation for cognitive, linguistic, social, and emotional skills can yield tremendous returns over a lifetime.²¹ Public investments in health and education are also highly influential. Throughout a lifetime, health and well-being are necessary preconditions for people to thrive. In adulthood, people need energy and resilience to work productively; ill health and early mortality cause not only personal suffering but also loss of income. At the

¹⁸ Elka Torpey, "Measuring the value of education," *Career Outlook*, US Bureau of Labor Statistics, April 2018.

¹⁹ Aline Bütikofer, Eirin Mølland, and Kjell G. Salvanes, *Childhood nutrition and labor market outcomes: Evidence from a school breakfast program*, Norwegian School of Economics, August 2016; and Kaisa Snellman et al., "The engagement gap: Social mobility and extracurricular participation among American youth," *Annals of the American Academy of Political and Social Science*, volume 657, issue 1, 2015.

²⁰ Measured as convergence to the incomes of permanent residents in the destination. Raj Chetty and Nathaniel Hendren, "The impacts of neighborhoods on intergenerational mobility I: Childhood exposure effects," *The Quarterly Journal of Economics*, volume 133, issue 3, 2018.

²¹ James J. Heckman, "Skill formation and the economics of investing in disadvantaged children," *Science*, volume 32, June 2006.

Work experience is an essential component of human capital development.

Framework of the evolution of human capital, 3 stages over a healthy, productive lifespan



Source: McKinsey Global Institute analysis

macro level, studies have documented a correlation between countries with poor public health and countries that are poor. Health and income tend to improve in tandem.²² The likelihood of being able to enjoy a longer and more fruitful working life creates a greater incentive for individuals to invest in developing their skills.²³

At every stage, life experiences and individual decisions can alter human capital development. Studies have found that events such as teenage pregnancy and losing parents before adulthood can adversely affect educational attainment and economic outcomes.²⁴ At any time of life, someone may become ill or injured. Some life events and decisions can have cascading effects that influence the opportunities someone can pursue.

Experience gained in the work environment activates and augments human capital

While early childhood development and formal education set the foundation, people do not emerge from their teens or early 20s as fully formed beings who will remain static for the remainder of their lives. Human capital continues to evolve. Picking up the baton from educational institutions, employers become the major incubators of skills development for adults.

People accumulate experience and skills with each role they perform throughout a working life. Kenneth Arrow propounds that learning is the product of experience; individuals learn by doing.²⁵ In our research, we define experience holistically as the accumulated knowledge workers gain by being in the labor market, whether through doing the work itself, formal employer-provided learning and development programs, and job changes that better match existing skills or offer opportunities to learn entirely new skills. In addition to acquiring new skills over time, individuals also build work histories that can signal capabilities and value to potential future employers.

Someone who starts out taking orders in a fast-food restaurant learns the art of handling difficult customers and staying cool under pressure; these abilities can serve them well in many other roles in the future. People who start in IT answering questions on a help desk absorb technical knowledge that they continue to use when they become network administrators. An inventory clerk who watches his manager solve logistical logjams can apply those approaches in a future role as a warehouse manager or procurement agent. Even a stint in a dysfunctional workplace can impart lessons about how things should *not* be done.

Employers set up their working environments with practices and systems that are meant to help employees become more productive. The practices that define “the way an organization works” are known as organizational capital.²⁶ While these practices belong to the company and stay with it, workers gain valuable knowledge and experience from interacting with them—and they carry these new capabilities wherever they go for the remainder of their career. The value of their human capital increases, and they are frequently able to command higher wages in the next role.

The combination of human capital with physical, organizational, and other intangible capital pays off immediately for companies (in the form of growth, profits, and innovation) and for workers (in the form of wages and life satisfaction linked to work). The way that these economic rewards are shared among workers, employers, and shareholders varies from company to company and from labor market to labor market.

²² See, for example, Hoyt Bleakley, “Health, human capital, and development,” *Annual Review of Economics*, September 2010; and *World Development Report 1993: Investing in health*, World Bank, 1993.

²³ David E. Bloom and David Canning, “The health and wealth of nations,” *Science*, volume 287, February 2000.

²⁴ See, for example, Eric D. Gould, Avi Simhon, and Bruce A. Weinberg, “Does parental quality matter? Evidence on the transmission of human capital using variation in parental influence from death, divorce, and family size,” *Journal of Labor Economics*, volume 38, number 2, April 2020; and Daniel Klepinger, Shelly Lundberg, and Robert Plotnick, “How does adolescent fertility affect the human capital and wages of young women?” *Journal of Human Resources*, volume 34, number 3, 1999.

²⁵ Kenneth Arrow, “The economic implications of learning by doing,” in *Readings in the theory of growth: A selection of papers from the Review of Economic Studies*, F.H. Hahn, ed., Palgrave Macmillan, 1971.

²⁶ Baruch Lev, Suresh Radhakrishnan, and Peter C. Evans, *Organizational capital: A CEO’s guide to measuring and managing enterprise intangibles*, The Center for Global Enterprise, January 2016.

Culture, values, and the health of the broader economy, including the level of unemployment, determine the ease with which someone can find rewarding work. In addition, the parameters of a given labor market—including competition policy, labor regulations, the effectiveness of labor market matching, and investments in training—determine the ease of moving between jobs.²⁷

Work experience is an important signal of human capital's value

Human capital realizes its value through the dynamic process of hiring people to fill jobs. But hiring is a notoriously imprecise exercise in which employers and candidates alike are operating with limited information about what the other party has to offer. Individuals may not know if they will be the right fit for a job or whether they will enjoy it. For their part, prospective employers cannot easily ascertain a candidate's level of skill and productivity and frequently rely on signals like educational qualifications.

Economist Michael Spence documented how prospective employers view a college degree as a signal of a job seeker's intelligence and potential. This mental shortcut generally leads them to assume that more highly educated individuals will be more productive employees.²⁸

²⁷ See, for example, Damien Azzopardi et al., *The decline in labour mobility in the United States: Insights from new administrative data*, OECD, 2020; Daron Acemoglu, Francisco A. Gallego, and James A. Robinson, "Institutions, human capital, and development," *Annual Review of Economics*, volume 6, 2014; Douglass C. North and Robert P. Thomas, *The rise of the Western world: A new economic history*, Cambridge University Press, 1973.

²⁸ Michael Spence, "Job market signaling," *Quarterly Journal of Economics*, volume 87, number 3, August 1973. See also Joseph A. Altonji and Charles R. Pierret, "Employer learning and statistical discrimination," *Quarterly Journal of Economics*, volume 116, number 1, 2001; and Philip Oreopoulos and Andrew Heisz, *The importance of signalling in job placement and promotion*, Statistics Canada, Analytical Studies Branch, 2006.

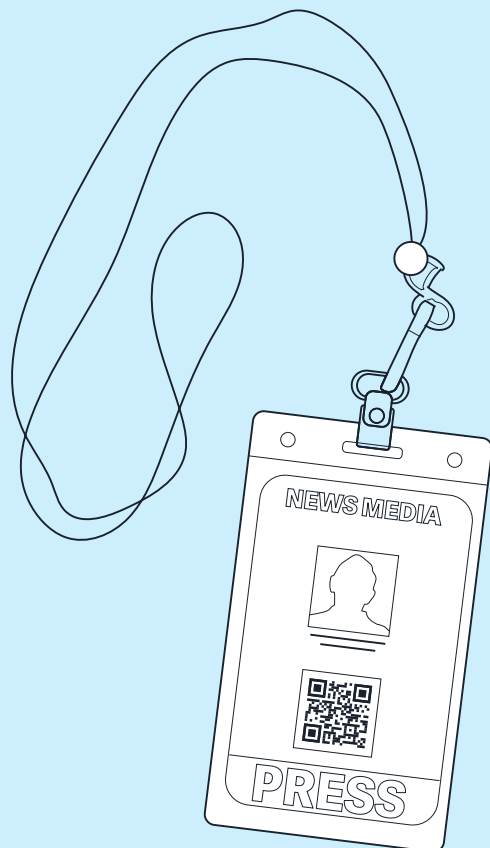
Profile

How a reporter built a reputation and made it to the majors

The career arc of a US sports reporter shows how the "experience effect" grows over time. After graduating from college, he lands a job at a small-town newspaper covering minor league and high school baseball. He gets that first break solely on the strength of writing skills developed in school, both in formal English and journalism classes and at his college newspaper.

In the years that follow, the reporter moves on to publications in successively bigger cities, covering major league teams. The editors who hire him at these papers glance at his resume to see where he went to school but ultimately bring him on board because his recent stories have been so good. A lot of this is thanks to newsroom mentors who helped him become a better interviewer and storyteller.

Much later in life, having seen the business and drama of sports up close, he writes a well-received book, becomes a columnist for a national magazine, and starts doing TV commentary. While he continues to rely on the fundamental writing skills he developed in school, the experiences he sought out become an increasingly important driver of his lifetime income, particularly in the culminating years of his career.



Work experience can serve a similar signaling purpose as people seek out new roles over the course of their careers.²⁹

A young person who recently graduated from Cambridge might have excellent prospects for landing a high-paying entry-level job. But if, 25 years later, that same person has a spotty work history that does not show evidence of keeping his skills current, that Cambridge degree would be much less likely to sway a prospective employer. By the same token, someone without a college degree may have a hard time landing a good first job. But if, 25 years later, her work history shows a steady progression of jobs with new skills, the experience effect can provide a signal of her capabilities. Although there is an information gap, hiring managers can now see the skills she has acquired—and that fact signals that she is likely capable of adding even more.

In offering an alternative signal to education, work experience can enable better matches between job seekers and job vacancies (see Box 1, “The role of job matching in discovering human capital’s value”).

However, some unknowns remain until someone is performing in a new role. Because of this information gap in hiring, a process of “signaling discovery” unfolds as the employer and employee observe each other in the workplace. The employee adds new skills, and, at the same time, the information gaps about that person’s capabilities and characteristics are filled in. Signaling discovery picks up both of these effects, and it is difficult to separate their value in enhancing human capital.

Measuring human capital remains a challenge

Human capital reflects the human experience in all its glorious messiness—and by its nature, it is hard to measure. Further complicating the challenge is the fact that human capital investment typically pays off over the very long term. The accumulation of knowledge, experience, and skills is a dynamic process that is perpetually able to increase.

Attempts to measure human capital have followed two main approaches. The first focuses on indicators. Some studies have focused on single indicators (such as educational attainment, educational quality, or health status), while others involve indexes that combine multiple indicators, such as the United Nations Development Programme’s Human Development Index, the World Bank’s Human Capital Index, and the World Economic Forum’s Global Human Capital Index.

The second measurement approach attempts to measure the value of human capital in monetary terms, whether in the cost of investment or in the outcomes and returns attributed to it.³⁰

One way to measure the value of human capital at the macro level is through the “residual.” Robert Solow constructed a model to illustrate how various inputs affect economic growth and account for cross-country differences.³¹ Yet a residual portion could not be attributed to easily quantifiable factors such as the savings rate or population growth. Other economists subsequently added human capital to Solow’s growth model, positing that it is a critical driving force that augments physical capital.³²

Another way to estimate the monetary returns to human capital is by measuring the present value of the labor force’s future earnings. This was done for the first time using household

²⁹ Peter Q. Blair et al., *Searching for STARS: Work experience as a job market signal for workers without bachelor’s degrees*, NBER working paper number 26844, March 2020.

³⁰ See, for example, Liu Gang and Barbara M. Fraumeni, *A brief introduction to human capital measures*, NBER working paper number 27561, 2020; Stephen S. Lim et al., “Measuring human capital: A systematic analysis of 195 countries and territories, 1990–2016,” *The Lancet*, volume 392, number 10154, 2018; and Ruth Judson, “Measuring human capital like physical capital: What does it tell us?” *Bulletin of Economic Research*, volume 54, number 2, 2002.

³¹ Robert M. Solow, “A contribution to the theory of economic growth,” *Quarterly Journal of Economics*, volume 70, issue 1, February 1956.

³² N. Gregory Mankiw, David Romer, and David N. Weil, “A contribution to the empirics of economic growth,” *Quarterly Journal of Economics*, volume 107, issue 2, May 1992.

The role of job matching in discovering human capital's value

Workers make role moves that require new skills in order to learn, advance, and build their experience capital (the share of lifetime earnings associated with skills learned through experience). Or perhaps they are searching for roles that better match their work preferences, or they want an opportunity to use latent capabilities that are not being recognized by their current employer.

Job matching theory captures how outcomes in the labor market are the result of a two-sided dynamic of employers looking for workers and job seekers looking for work; it considers how well vacancies are matched to the labor force.¹ The job-worker match is conditional upon both parties agreeing that the capabilities of the worker are a good fit for the organization and that the features of the job, including the wage offer, are a good match to the worker's expectations and preferences. Consider a customer service representative at a real estate company who gradually picks up skills and industry-specific knowledge. When she subsequently searches for and is hired into a real estate broker role, the move improves the match between her existing abilities and the skills required by the position.

A worker who is poorly matched desires a new role but does not have information about alternative roles. Turnover occurs either when new information is acquired about the individual's current job (the imperfection of the match becomes clear, and moving on becomes the best course of action) or about a possible alternative job.² In other words, turnover is the product of push or pull factors.

This matching process takes time. The search process itself is costly and time-consuming. Both sides have incomplete information, and no two job seekers and jobs are exactly alike. This information gap and other labor market frictions often lead to imperfect matches.³ The possibility of better matching motivates both the employee and the employer to search for alternatives.

Economists refer to jobs as "experience goods" to convey that the only means of determining the quality of a given match is by making it and living it out.⁴ For example, a pharmaceutical chemist may want to try her hand as a university research scientist, but after spending a year in the role, she might conclude that she prefers the faster pace of corporate life after all. In this view, turnover declines with job tenure because the new information that would result in someone quitting or being fired is introduced early on. Similarly, turnover probability could be highest at the beginning of a career, when the likelihood of new information shocks may be highest. Turnover as a result of the arrival of new information about alternative job matches is captured by "pure search goods" or "inspection goods."⁵ For example, an individual early in their career may be uncertain about what job they will really enjoy and engage in "job shopping" to figure it out.

In both instances, it becomes clear that employers and job seekers alike could benefit from better ways of evaluating matches.

¹ Dale T. Mortensen and Christopher A. Pissarides, "Job creation and job destruction in the theory of unemployment," *Review of Economic Studies*, volume 61, number 3, 1994.

² Boyan Jovanovic, "Job matching and the theory of turnover," *Journal of Political Economy*, volume 87, number 5, part 1, 1979.

³ Dale Mortensen, *Specific capital, bargaining, and labor turnover*, discussion paper number 320, Northwestern University, March 1978.

⁴ Phillip Nelson, "Information and consumer behavior," *Journal of Political Economy*, volume 78, number 2, March-April 1970; and Boyan Jovanovic, "Job matching and the theory of turnover," *Journal of Political Economy*, volume 87, number 5, part 1, 1979.

⁵ Louis Wilde, "An information-theoretic approach to job quits," in *Studies in the Economics of Search*, S. A. Lippman and J. J. McCall, eds., North Holland, 1979; and Jack Hirshleifer, "Where are we in the theory of information?" *American Economic Review*, volume 63, number 2, May 1973.

surveys to estimate lifetime earnings by the World Bank. Another study has estimated human capital per capita using data on average education levels for countries as a whole.³³

A common thread in the study of human capital is its association with education. Multiple studies have concluded that additional years of schooling and formal skills training are associated with increased income.³⁴ Robert Barro, for example, examined 98 countries over a quarter century and found a strong positive correlation between their initial levels of human capital (taking school enrollment rates as a proxy) and their subsequent growth in per capita GDP.³⁵

Although it is often omitted from discussions of how to spur economic growth, health is another important aspect of human capital.³⁶ The field of health economics has developed alongside the study of human capital, and the two often intersect. Health economist Michael Grossman, a student of Becker and Mincer, proposed a view of health as a “durable capital stock that produces an output of healthy time.”³⁷ Health metrics are highly correlated with per capita income levels across countries—although good health and higher national incomes tend to create a virtuous cycle, making the effect difficult to isolate with precision. Studies have estimated that health improvements increased the pace of economic growth by about one-third in industrialized countries over the past century.³⁸ Improvements in life expectancy increase the size of the labor force, while better nutrition and healthcare have given more people the ability to be productive.

While human capital may be measured and understood through education, health, and the associated investment and returns in these areas, a holistic view also needs to incorporate skill formation and the associated returns for individuals over their working lives. Much of this process occurs within the firm, where workers interact with physical and intangible assets and are exposed to systems, processes, and learning and development opportunities.

While acknowledging the influences of organizational, economic, and societal contexts, this research focuses on observed individual behavior. We trace the journeys of millions of workers to understand how work experience adds to their human capital over time.

³³ *The changing wealth of nations 2018: Building a sustainable future*, World Bank, 2018; and *Inclusive wealth report 2018: Measuring progress towards sustainability*, Shunsuke Managi and Pushpam Kumar, eds., Routledge, 2018.

³⁴ See, for example, Orley Ashenfelter and Alan B. Krueger, “Estimates of the economic return to schooling from a new sample of twins,” *American Economic Review*, volume 84, number 5, December 1994; Richard Blundell et al., “The returns to higher education in Britain: Evidence from a British cohort,” *Economic Journal*, volume 110, number 461, February 2000; Alan B. Krueger and Mikael Lindahl, “Education for growth: Why and for whom?” *Journal of Economic Literature*, volume 39, number 4, 2001; Robert J. Barro, “Human capital and growth,” *American Economic Review*, volume 91, number 2, May 2001; and Claude Diebolt and Ralph Hippe, “The long-run impact of human capital on innovation and economic development in the regions of Europe,” *Applied Economics*, July 2018.

³⁵ Robert J. Barro, “Economic growth in a cross section of countries,” *Quarterly Journal of Economics*, volume 106, number 2, May 1991.

³⁶ *Prioritizing health: A prescription for prosperity*, McKinsey Global Institute, July 2020. See also David E. Bloom, Michael Kuhn, and Klaus Prettner, *Health and economic growth*, IZA Institute of Labor Economics discussion paper number 11939, November 2018; and Tammy Boyce and Chris Brown, *Economic and social impacts and benefits of health systems*, World Health Organization, 2019.

³⁷ Michael Grossman, “On the concept of health capital and the demand for health,” *Journal of Political Economy*, volume 80, number 2, 1972.

³⁸ Suchit Arora, “Health, human productivity, and long-term economic growth,” *Journal of Economic History*, volume 61, issue 3, September 2001.



2. How the ‘experience effect’ builds human capital

Formal education is an important driver of lifetime earnings.³⁹ But learning continues throughout a working life. Every job someone holds adds a layer of experience and, possibly, new skills. Most involve day-to-day coaching and performance feedback; some may offer formal learning and development programs. Many roles require employees to become proficient with new types of software or equipment, which expands their technical skills. There are insights to be gained from watching colleagues handle tricky situations gracefully (or not) and seeing how managers motivate their teams (or do not).

This chapter considers what happens after an individual leaves education to enter the workforce and how skills gained through work experience augment the value of human capital. We estimate the share of lifetime earnings that can be attributed to work experience by tracking the new skills associated with role changes and making assumptions about how the salaries for each role link to new versus entry-level skills.

We find that accumulated work experience accounts for roughly half of the average person's lifetime earnings. The remainder is associated with the skills that the person took into their entry-level position.⁴⁰ However, the size of the “experience effect” varies substantially across geographies, occupations, and sectors.

We also find that people with lower educational attainment are more reliant on work experience to grow their earnings over time. This is consistent with Becker's seminal research, which suggests that for more educated workers, a greater proportion of their lifetime earnings can be attributed to education.⁴¹

For those who start without the advantage of credentials that signal value to potential employers, adding learning and skills through work experience is the primary strategy for getting ahead in the labor market. This is not always easy. Factors ranging from family caregiving obligations to biases in hiring can constrain someone's options. In a rapidly growing economy, individuals have a multitude of opportunities; in a low-growth environment, there is fierce competition for open positions. But while people do not have control over factors such as where they were born, their family upbringing, or their health, they do exercise some degree of choice in the occupations they pursue and the organizations they join—and those choices are especially important for people who start in low-wage jobs.

³⁹ Jacob Mincer found that an additional year of education adds more to an individual's lifetime earnings than experience. Returns to schooling follow a linear curve, showing a consistent increase in earnings with each year of additional education, while returns to experience follow a quadratic curve. See “Investment in human capital and personal income distribution,” *Journal of Political Economy*, volume 66, number 4, 1958. See also Jacob Mincer, *Schooling, experience, and earnings*, NBER, 1974. Other studies corroborate this view in advanced economies such as the United States and in developing countries such as Colombia. See Rakesh Mohan, “The determinants of labour earnings in developing metropolis: Estimates from Bogotá and Cali, Colombia,” World Bank staff working paper number 498, October 1981. *The changing wealth of nations 2018: Building a sustainable future*, World Bank, 2018, similarly uses lifetime earnings to measure human capital.

⁴⁰ Our findings align with research from Becker suggesting that post-education workforce experience has the same kind of effects on observed earnings as formal education and similar human capital investments, and from Schultz suggesting that only 36 to 70 percent of the previously unexplained increase in earnings for US workers in recent decades is explained by returns to the education of workers. Gary Becker, *Human capital: A theoretical and empirical analysis, with special reference to education*, second edition, Harvard University Press, 1971; and Theodore Schultz, “Investment in human capital,” *American Economic Review*, volume 51, number 1, 1961.

⁴¹ Gary Becker, *Human capital: A theoretical and empirical analysis, with special reference to education*, second edition, Harvard University Press, 1971.

~2/3

of the total wealth
of individuals is their
human capital

The value of human capital can be approximated by lifetime earnings

Human capital is potential. It exists whether or not it is utilized. Yet labor markets set a price for human capital through compensation. When individuals earn wages, their human capital goes from being latent potential to realized economic value. That value is sizable: by our estimates, human capital makes up roughly two-thirds of total wealth per capita in the countries we studied (see Box 2, “Capitalizing the value of human capital”).

The value of each individual's human capital can be expressed by looking at lifetime earnings.⁴² These vary widely for people who start in different roles, even within the same occupational category (Exhibit 2).

Box 2

Capitalizing the value of human capital

Human capital is an important component of wealth for nations and individuals. Yet it is not generally recognized as capital on the balance sheets of nations. Earlier MGI research on the global balance sheet noted that current accounting standards define an asset on a balance sheet as an item that stores value, is owned by an institution, generates economic benefits for the owner, and can carry value from one accounting period into another.¹ Human capital certainly represents a potential stream of economic benefits for the individual who utilizes their knowledge, skills, attributes, work experience, and health over time. But it cannot be owned and traded by an institution and is not normally accounted for as a capital asset. Another key difference is that human capital generates income streams only if applied via work; building and possessing it alone do not activate its economic value.

In this research, we create a rough approximation of the capitalized value of human capital by discounting the stream of nominal salaries a worker can be expected to receive over a 30-year working life. We find that in the United States, the value of an average worker's human capital—that is, the present value of their lifetime earnings—would be in the range of \$890,000 to \$1,060,000, assuming the worker's salary in their final observed role continues to increase at its historical growth rate over the residual portion of their career. Scaling this per worker estimate across the whole population, the value of human capital would be in the range of \$450,000 to \$540,000 on a per capita basis (since a large share of the population does not work). This is almost twice the average per capita net worth in the United States, which our research on the global balance sheet estimates at about \$272,000. Similar estimates for Germany, the United Kingdom, and India also suggest that human capital accounts for 60 to 70 percent of per capita wealth in those countries. An earlier study by the World Bank that estimates the value of human capital based on the present value of future earnings for the labor force also concludes that it is the largest asset across all income groups, constituting 64 percent of total wealth in 2014.²

Non-marketized services such as childcare and food preparation are not assigned a value in measurement frameworks that rely on national accounts. Properly accounting for such household services would increase the value of human capital even more, particularly for women. Furthermore, human capital represents value whether or not it is deployed in the labor market. A sound education, good health, and positive personal attributes are critical aspects of life, and their value goes far beyond economic measures.

¹ McKinsey Global Institute, *The rise and rise of the global balance sheet: How productively are we using our wealth?* November 2021.

² *The changing wealth of nations 2018: Building a sustainable future*, World Bank, 2018.

⁴² Dale Jorgenson and Barbara M. Fraumeni, “The accumulation of human and nonhuman capital, 1948–84,” in *The measurement of saving, investment, and wealth*, Robert E. Lipsey and Helen Stone Tice, eds., University of Chicago Press, 1987; and *The changing wealth of nations 2018: Building a sustainable future*, World Bank, 2018.

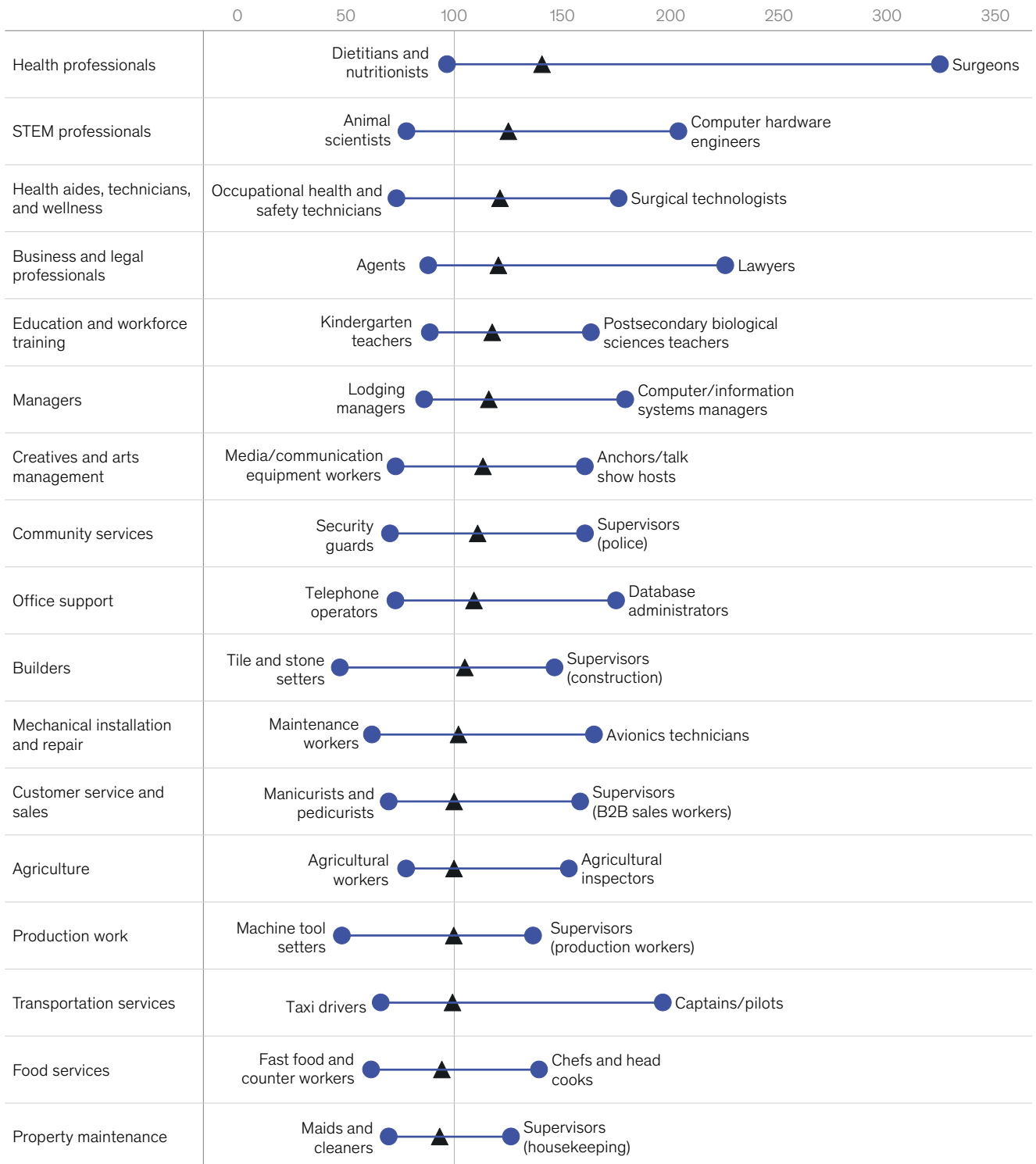
Lifetime earnings vary widely by occupation, even within the same occupational category.

United States

Estimated average lifetime earnings¹ for highest- and lowest-earning starting occupations² within each occupational category

Indexed lifetime earnings (sample weighted average = 100)

● Minimum/maximum
▲ Category average



¹ Sum total of the nominal salaries an individual receives over a 30-year working life. Combines estimates based on salaries of roles held by a person during the observed work history plus projections for the remaining years of that person's working life, applying historical rates of wage growth to the final observed role and assuming no further role moves.

² First role after the latest education reported on a public online de-identified worker profile.

Source: McKinsey's proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018–19 job posting records; US Bureau of Labor Statistics; McKinsey Global Institute analysis

In this research, we measure lifetime earnings as the sum total of the nominal salaries an individual receives over a 30-year working life.⁴³ This is a combination of salaries associated with roles held by a person during the observed work history covered in our data set plus estimates for the remaining years of that person's working life (for more detail, see Box 3, "Our data sample: Scope and limitations," and the technical appendix). We arrive at those future estimates by applying national average salary growth to the wages associated with the individual's final observed occupation, and we assume the person makes no additional role moves.

While wages are a simple way to express the realized economic value of human capital, we acknowledge that this is a narrow measurement that does not capture all of the benefits of education and all of the ways in which individuals contribute to others and to society. In addition, maximizing income is not everyone's primary goal. Some people who have the potential to land better-paying jobs choose not to for a variety of reasons. A creative person may work in community theater rather than at an ad agency because of a passion for the arts, while someone who is a caregiver at home may not want to put the bulk of their energy into a demanding role. Many freelancers and entrepreneurs pursue their ventures because they value the autonomy and flexibility they would not have in a corporate role.⁴⁴ Despite these nuances, we make a simplifying assumption for the purposes of understanding labor market dynamics.

We trace role moves and the addition of skills, modeling their link to lifetime earnings

Two major sets of factors make someone employable: first, the attributes and capabilities they bring to their first job; and second, skills added or deployed through work experience.

Our approach focuses on how work experience builds on the foundation of formal education and adds to lifetime earnings. We track the new skills associated with role changes and make assumptions about how the salaries for each role link to new versus entry-level skills in order to estimate the share of lifetime earnings that can be attributed to work experience.

We draw on a detailed data set covering the work histories of more than a million workers each in the United States, Germany, the United Kingdom, and India (see Box 3, later in this chapter, for details). We look at each individual's career trajectory, starting with the first job listed after the latest educational degree obtained and including all role moves made over the observed work history. When someone makes a move, their new position typically has some skill requirements that do not overlap with their previous position; the nonoverlapping share is the "skill distance" between the two roles.⁴⁵

The examples in Exhibit 3 illustrate this process. In the first, a German worker who started as a welder changed jobs twice, moving a skill distance of 33 percent to become a maintenance supervisor and then 47 percent to become a production manager. His average skill distance is therefore 40 percent, which is representative of the typical German worker. In the second example, a US worker who starts as an office clerk also changes roles twice, moving a skill distance of 42 percent when becoming a shift manager and then 54 percent in becoming a store manager. Viewing individual career journeys in the context of the skills deployed over time, and how they change, allows us to understand the dynamic of human capital accumulation and discovery in a detailed and real-world way.

⁴³ Salaries are defined as the average yearly compensation provided for physical and knowledge work, not including benefits like health insurance, subsidies, and tax transfers.

⁴⁴ *Independent work: Choice, necessity, and the gig economy*, McKinsey Global Institute, October 2016.

⁴⁵ We identify skills for each role from job postings, weighted by skill frequency, which gives more weight to skills that are specialized to a particular role rather than common across roles. When someone makes a role move, we measure skill distance as the number of nonoverlapping skills between the two roles.

We identify new skills individuals acquire or begin to deploy with each role move.

Illustration of skill distance, weighted share of non-overlapping skills required in each new role,¹ %

Circle size: bigger = Skills specialized to the role rather than common across roles

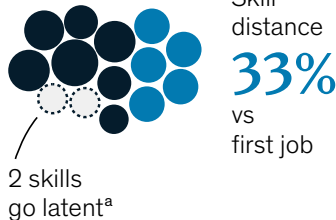
First job
Welder
in Germany



9 skills

- Manufacturing processes
- Engineering and maintenance
- Process engineering
- Process management
- Compliance
- Manufacturing quality assurance
- Soft skills
- Documentation and change control
- Time management

Second job
Maintenance
supervisor

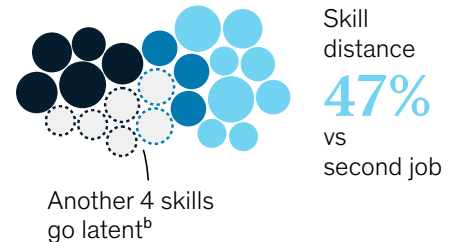


5 new skills

- Validation, auditing, and monitoring
- Training and development
- Performance management
- Recruiting
- Workforce management

^aDocumentation and change control; time management

Third job
Production manager



8 new skills

- Supply chain
- Communication
- Relationship building
- Data analysis
- Commercial excellence
- Supply and vendor management
- Budgeting and inventory management
- Organizational development

^bCompliance; soft skills; recruiting; validation, auditing, and monitoring

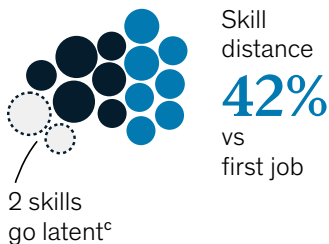
First job
Office clerk
in the US



8 skills

- Data storage
- Data analysis
- IT and office technology
- Communication
- CRM tools
- General accounting
- Microsoft Office skills
- Invoicing and cash disbursement

Second job
Shift manager

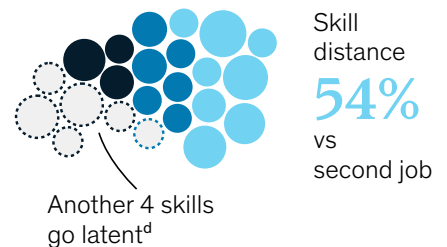


7 new skills

- Performance management
- Workforce management
- Leadership
- Soft skills
- Recruiting
- Budgeting, forecasting, and inventory management
- Supplier and vendor management

^cData storage; invoicing, auditing, and cash disbursement

Third job
Store manager



8 new skills

- Customer-facing marketing and product pricing
- Sales training
- B2C sales operations
- Relationship building
- Competitive intelligence
- Customer service
- Revenue management
- Channel partner management

^dIT and office technology; CRM tools; Microsoft Office skills; soft skills

¹ Measured as share of nonoverlapping skill requirements between two roles, which shows the proportion of new skills required when someone moves into a new role. We identify skill requirements for each role from job posting data, weighted by skill frequency, which gives more weight to skills that are specialized to a particular role rather than common across roles. Source: McKinsey's proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018–19 job posting records; McKinsey Global Institute analysis

Our data sample: Scope and limitations

Our research uses proprietary information from McKinsey's Organizational Data Platform, which draws on licensed, de-identified data from millions of online public professional profiles. We also use data from 350 million job posting records over 2018 and 2019 from more than 50,000 job boards to estimate a typical starting salary for each role. Postings from job boards are also used to determine the skills associated with each role, which comes into play in our analysis of the skill distance involved in each individual move (discussed in chapter 3). To estimate salary change over time for each role, we use data at the standard occupation category level from the US Bureau of Labor Statistics; Germany's Federal Employment Agency, BA; the UK Office for National Statistics; and India's National Sample Survey Office and Periodic Labour Force Survey. All data have been de-duplicated, cleaned, and harmonized (into 4,000 roles and 220 skills) using a proprietary algorithm to ensure accurate comparisons of roles, salaries, and skills.

For our analyses, we created a "worker data set" of roles, role moves, salaries, and skill distances between moves for a randomized subset of work histories through 2019 for approximately a million workers each in the United States, Germany, the United Kingdom, and India (Exhibit 4). The focus countries were chosen to represent advanced economies with a variety of different labor markets plus a large and diverse developing economy. We further narrowed the data set to a subset of profiles containing information on an educational starting point for entry-level jobs (ranging from 230,000 to 410,000 individual profiles per country). This enabled us to look at the contribution of entry-level skills associated with educational attainment vis-à-vis skills gained through work experience to lifetime earnings.

The sample was reweighted to reflect each country's occupational mix, drawing on data from national labor agencies.

Exhibit 4

Individuals in our data set changed roles every two to four years, with half of their moves resulting in higher earnings.

Metric	United States	Germany	United Kingdom	India
Number of profiles in the sample (million) ¹	1	0.9	1	0.9
Average years of experience	9	7.4	6.3	7.4
Average years between role moves after latest reported educational degree	3.4	2.8	2.5	4.2
Share of total that changed occupations ²	83%	80%	82%	58%
Share of total role moves ³ across different organizations	82%	81%	82%	87%
Median skill distance per move ⁴	31%	40%	44%	26%
Average increase in salary per move	7%	6%	8%	10%
Share of total role moves that increased earnings	47%	46%	51%	41%
Average increase in salary per move (<i>salary-increasing moves only</i>)	36%	30%	32%	46%
Share of occupations in the labor force not included in sample	20%	8%	1%	45%

¹ US: 1 million initially sampled (~410,000 used for lifetime earnings analyses, ~920,000 for role moves analyses). UK: 1 million initially sampled (~230,000 used for lifetime earnings analyses, ~930,000 for role moves analyses). Germany: ~900,000 initially sampled (~280,000 used for lifetime earnings analyses, ~790,000 for role moves analyses). India: ~900,000 initially sampled (~230,000 used for lifetime earnings analyses, ~650,000 for role moves analyses).

² Proportion of people whose first and last occupations over the observed period differed.

³ Role moves are changes in an individual's job, occupation, occupational category, or organization. They include promotions or lateral moves within the same organization as well as moves from one employer to another.

⁴ Measured as share of nonoverlapping skill requirements between two roles, which shows the proportion of new skills required when someone moves into a new role. We identify skill requirements for each role from job posting data, weighted by skill frequency, which gives more weight to skills that are specialized to a particular role rather than common across roles.

Source: McKinsey's proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018–19 job posting records; UK Office for National Statistics; US Bureau of Labor Statistics; Germany's Federal Employment Agency, BA; India's National Sample Survey Organisation and Periodic Labour Force Survey; McKinsey Global Institute analysis

While we draw on a detailed and rich data set, our analysis has the following limitations:

Self-reporting. Since the online professional profiles are self-reported, they could reflect biases due to selective reporting of work and education histories. For example, an individual who receives their fifth promotion at their longtime employer may not bother to update their online professional profile but will be sure to do so when moving to a new employer. This could cause an under-representation of internal role moves.

Imperfect representation within the sample. Because the lowest-paid workers are unlikely to have online professional profiles, some occupations are not represented in the sample. While we estimate that only 1 percent of workers in the United Kingdom and 8 percent of workers in Germany are missing (in roles such as street cleaners, for example), 20 percent of workers are not represented in the United States (people in roles such as house cleaners and home health aides). In India, up to 45 percent of workers are missing (many of them farm laborers); this type of data issue would occur in most developing countries with large informal economies or lower use of online platforms. Because workers missing from the sample are predominantly in low-paid and highly experience-reliant occupations, we may underestimate the experience effect in India, as these workers are seeing the highest wage growth, most of which can be attributed to work experience. In addition to missing occupations, there could be a bias in the outcomes due to reweighting some of the underweighted low-paid occupations like taxi drivers or cement masons, in which only a small, digitally savvy subset of workers show up in the profile database. These individuals may make more role moves thanks to their familiarity with online professional networking platforms, online job boards, or email alerts for vacancies, and may accumulate skills via online courses. Reweighting based on the behavior of this subset may lead us to overestimate the experience effect. Finally, because the average in our sample is six to ten years of observed work experience, and individuals tend to move more frequently in the early stages of their careers, the number of role moves we observe may be higher than the workforce average.

Generalized salary assumptions. Our data set does not capture all of the variations in pay offered by different employers and how this might vary for employees with different levels of seniority and performance. Individual online profiles do not contain information on the actual salary someone earned for a given job. We therefore apply average salary information gleaned from online job postings and national statistics. While these average numbers are correct, they do not capture the full range of pay.

Inability to fully separate the experience effect when there is no role change. People attain deeper mastery of their core skills over time. A surgeon may become more proficient and expert after performing thousands of similar procedures, or a carpenter's workmanship may become finer with experience. In our approach, we capture this to some extent by attributing average yearly raises for the occupation (based on historical rates of wage growth) to work experience for the period of time someone stays in a given role. However, the data set does not capture the extent to which someone's role might change over time even without a move, and in taking the average, we do not capture whether they receive unusually high raises for outstanding performance.

Limited information on personal and demographic characteristics. Our data set is drawn from de-identified online professional profiles. At this stage, we have been unable to study patterns associated with gender, race, age, place, health, family and economic circumstances, social networks, personal traits and motivations, and the like. We capture data on country, occupation, sector, and organizational affiliations of workers as key contextual elements.

We use our observations about skills acquisition to estimate the share of lifetime earnings that can be attributed to work experience. We estimate lifetime earnings as described earlier in this chapter, combining salaries associated with each role during the observed work history with future projections to span a 30-year working life.

We attribute the entirety of the entry-level salary to entry-level skills. Then, throughout the observed work history, we attribute a share of each new role's salary to work experience in proportion to the share of new or nonoverlapping skills that the role introduces, relative to entry-level skills. We make this assumption because work experience is the arena in which individuals are able to acquire and deploy new skills after they finish their education. While education and personal attributes have an enduring impact, we make a simplifying assumption to attribute this portion of salary to skills acquired through experience.⁴⁶

For the length of time someone stays in a given role, we assume standard yearly salary increases based on historical rates of wage growth for the occupation in their country. This means that even a person who never makes a job move would have some experience effect on earnings over time. Similarly, to calculate projected earnings beyond the work history, we apply historical rates of wage growth to the final observed role, attributing all future projected wage growth to work experience. We do not try to project additional role moves beyond the observed period. We attribute salary increases within the same role to work experience based on the assumption that this reflects the deepening of existing skills.

Finally, we pool results for all workers in each of our four focus countries, reweighting the sample to reflect workforce composition, and consider the implications for the average lifetime earnings of a typical worker.

Skills gained through work experience contribute about half of lifetime earnings, varying by country

Our results show that work experience contributes an average of 46 percent of the value of human capital over a typical working life in the four focus countries. Variations are discussed in the following sections. The curves in Exhibit 5, below, show that the contribution of work experience starts at zero and continues to rise upward over the entire working life.

Separating out the value of experience is not meant to diminish the ways in which education enhances work abilities. Although a degree is not a guarantee of success, there is a strong and well-established correlation between higher education and higher earnings.⁴⁷ Education is a major determinant of a worker's starting point, and the starting point does matter. It should also be noted that education and innate abilities are foundational and can prime someone to absorb insights and skills from work experience; they can also put people onto initial pathways that set up their later career moves. While nuances and interdependencies make it difficult to tease out each driver's effect with precision, our analysis aims to show the scope and direction of the experience effect.

The contribution of work experience to lifetime earnings looks strikingly similar across the United States, Germany, and the United Kingdom. However, the effect is far higher in India.

Our analysis finds that work experience contributes 40 percent of the average individual's lifetime earnings in the United States. The comparable share is 43 percent in Germany and the United Kingdom. Germany does have a notably lower share of the population with tertiary education than the United States or the United Kingdom (around 30 percent of all working-age adults, versus around 50 percent in both of the latter countries in 2020).⁴⁸ But

40-43%

average share of lifetime earnings linked to work experience in advanced economies

⁴⁶ For more details, see the technical appendix.

⁴⁷ See, for example, Christopher R. Tamborini, ChangHwan Kim, and Arthur Sakamoto, "Education and lifetime earnings in the United States," *Demography*, volume 52, number 4, August 2015; Anthony P. Carnevale, Ban Cheah, and Andrew R. Hanson, *The economic value of college majors*, Georgetown University, Center on Education and the Workforce, 2015; and Rob Valletta, "Higher education, wages, and polarization," Federal Reserve Bank of San Francisco Economic Letter, 2015-02, January 2015.

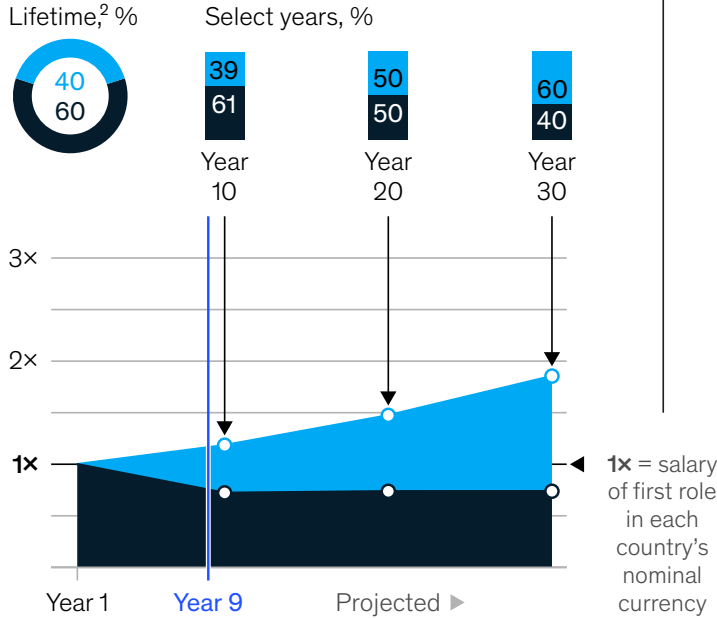
⁴⁸ OECD data.

Work experience accounts for 40 to 43 percent of average lifetime earnings in the advanced economies we studied, and 58 percent in India

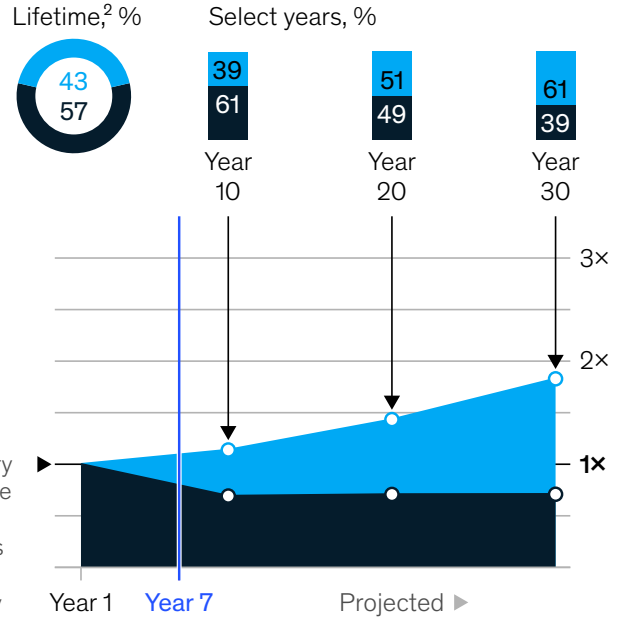
Multiple of initial salary at beginning of average career, in nominal currency

■ Share of earnings associated with work experience¹
■ Share of earnings associated with entry-level skills¹
◀ Average years observed in each sample

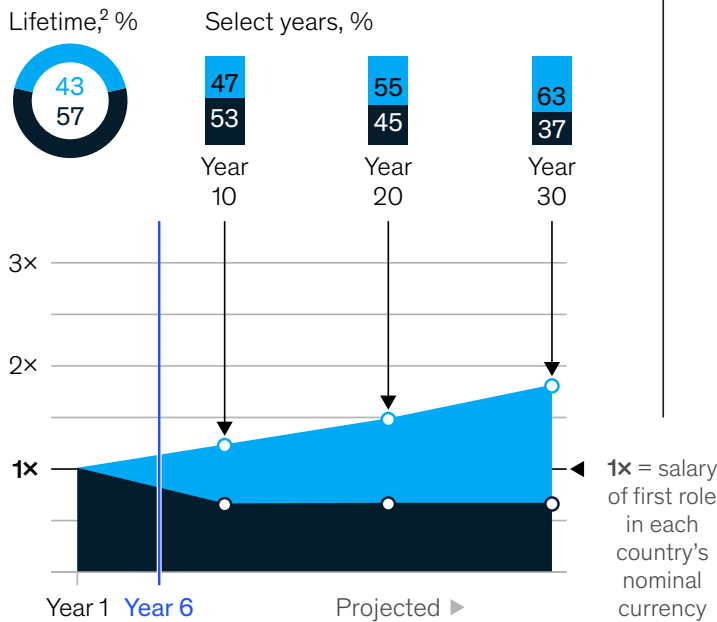
United States



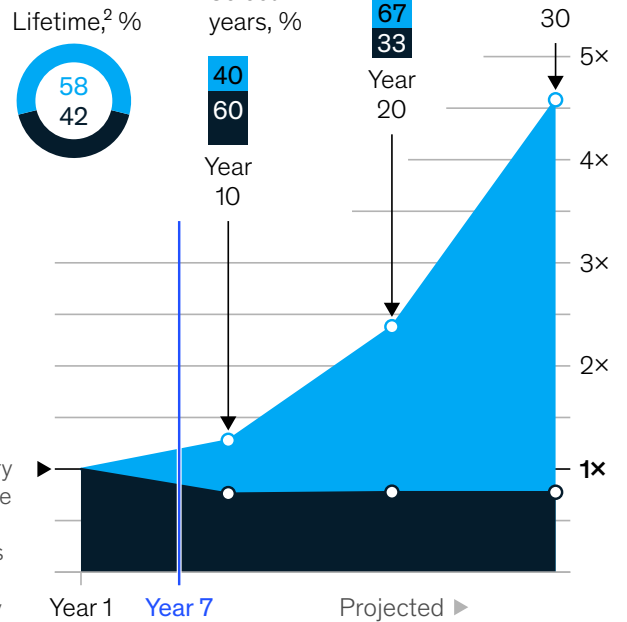
Germany



United Kingdom



India



¹ We attribute the ability to acquire the first job, and therefore the first job's salary, entirely to entry-level skills. Wage increases while in the same job are attributed to work experience, as is a proportion of new salary after a role move, based on the share of new skills required in the new role. Lifetime proportions calculated are based on the area under the curve.

² Lifetime earnings are the sum of nominal salaries over an individual's 30-year working life. Combines estimates based on salaries of roles held during the observed work history plus projections for the remaining years of a working life, applying historical rates of wage growth to the final observed role and assuming no further role moves.

Note: Average trajectory, based on a sample of 410,000 individual career profiles in the US, 280,000 profiles in Germany, 230,000 profiles in the UK, and 230,000 profiles in India. Begins with first job after latest education degree posted. Entire sample post-weighted to reflect the occupational distribution in each economy. Source: McKinsey's proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018-19 job posting records; UK Office for National Statistics; US Bureau of Labor Statistics; Germany's Federal Employment Agency, BA; India's National Sample Survey Organisation and Periodic Labour Force Survey; McKinsey Global Institute analysis

58%

average share of lifetime earnings linked to work experience in India

its well-established system of vocational training and apprenticeship appears to balance out that gap.⁴⁹

By contrast, work experience contributes almost 60 percent of lifetime earnings on average in India. The higher reliance on experience reflects the fact that access to education remains a key challenge. Most workers in India start their careers in blue-collar jobs—and given that only 12 percent of working-age adults had tertiary education in 2020, work experience is a more important driver of income by default.⁵⁰ Faster nominal wage growth in India (albeit from a lower base) results in a greater lift to lifetime earnings than in the advanced economies we studied. Yet our analysis focuses on the proportion of lifetime earnings attributable to entry-level skills versus experience, rather than the absolute growth in wages, making the estimates comparable across countries.⁵¹

In other emerging economies that also have high wage growth from a low baseline and low levels of educational attainment, individual earnings profiles are likely to exhibit similar patterns. Learning and training on the job are especially critical enablers of income growth and opportunity for places where education systems are still being strengthened and built out.

Work experience is a bigger determinant for people who start in occupations without significant credentialing barriers

Wages, and therefore lifetime earnings, vary enormously across occupations—and so does the relative importance of entry-level skills and work experience in those earnings.

People who start out in occupations with higher educational and credentialing barriers (such as lawyers and dentists) earn more over their lifetimes; in most cases, the entry-level skills they acquired through education contribute a larger share of those earnings (Exhibit 6). The reverse is generally true for people who start out in occupations with lower educational requirements. They typically earn less over a lifetime, but a greater share is associated with work experience. The journey of a dishwasher who becomes a food prep cook, then moves up to become a line cook and eventually a sous chef is almost entirely fueled by the techniques and tricks of the trade he learns on the job.

In the United States, for example, the size of the experience effect varies enormously across starting occupations (Exhibit 7). At the low end are chiropractors. Before treating patients, they must complete a doctor of chiropractic degree program that can take three to five years; then they must pass a series of exams to become licensed to practice locally. Their initial education is by far the biggest factor in their lifetime earnings; work experience accounts for only 15 percent of the total. They have high lifetime earnings and are likely to begin and end their careers as chiropractors. At the other end of the spectrum are food batchmakers, who operate equipment that blends ingredients in the food manufacturing process. People who start off in this type of factory job are less likely to have higher education. They have low lifetime earnings, 87 percent of which is associated with work experience. Their ability to operate and inspect equipment could enable them to move into a role manufacturing other types of consumer goods, where they may again pick up new technical skills. This could in turn facilitate moves into more specialized or supervisory roles.

87%

of a food batchmaker's lifetime earnings link to work experience

⁴⁹ *Learning for jobs*, OECD Review of Vocational Education and Training, OECD, 2010.

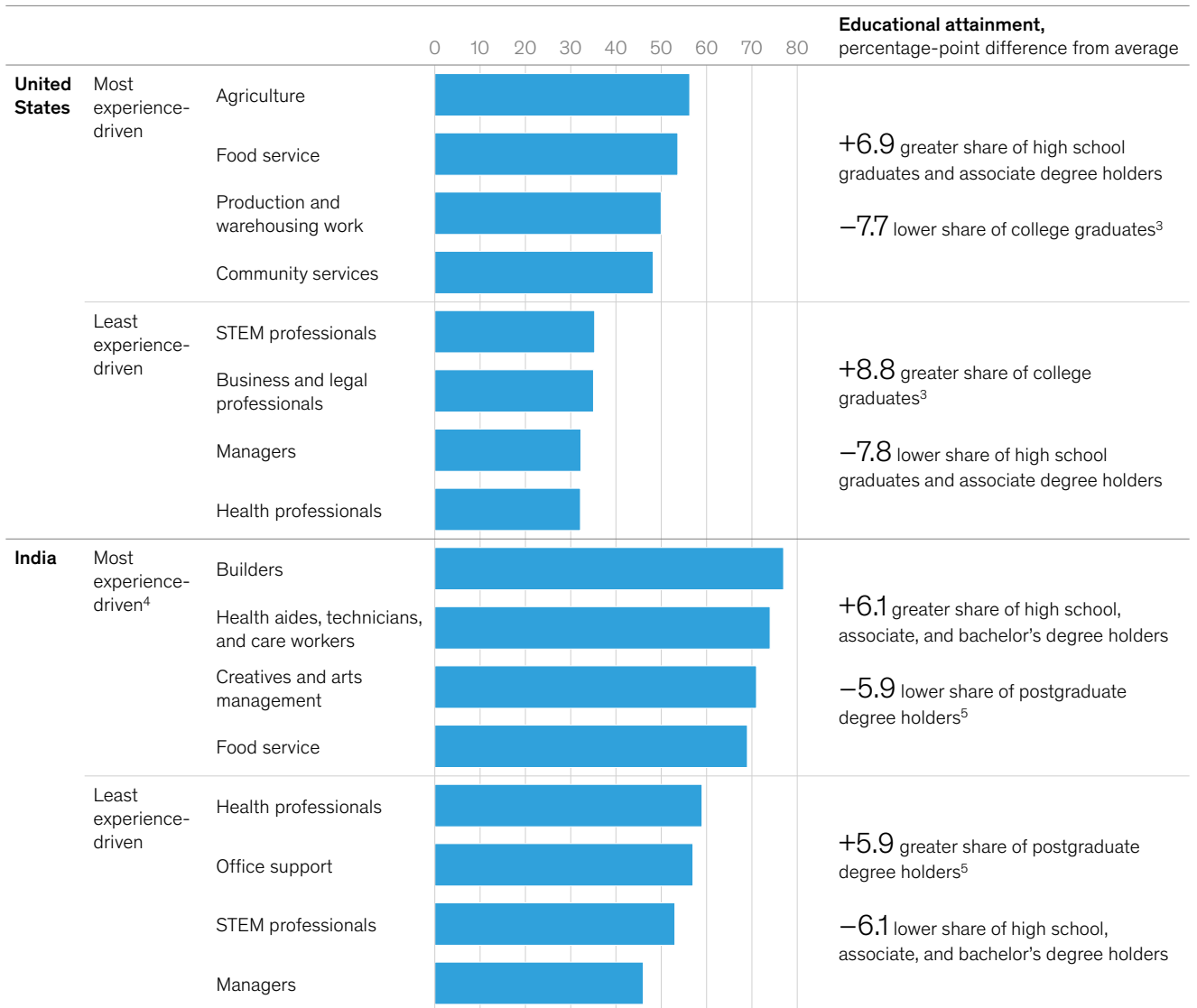
⁵⁰ OECD data.

⁵¹ We are conservative in assuming only an average increase in salary based on the terminal occupation, with no additional role move premium over the remainder of an individual's working life. But if we were to assume that the individual continues to make role moves during the projected period with the same frequency and skill distance as in the observed period, the experience share of lifetime earnings would increase. It would become 44 percent instead of 40 percent in the United States. For further detail, see the technical appendix.

Work experience accounts for a greater share of lifetime earnings in occupations with lower education requirements.

United States and India

Share of lifetime earnings¹ associated with work experience,² by starting occupational category, %



¹ Sum total of the nominal salaries an individual receives over a 30-year working life. Combines estimates based on salaries of roles held by a person during the observed work history plus projections for the remaining years of that person's working life, applying historical rates of wage growth to the final observed role and assuming no further role moves.

² We attribute the ability to acquire the first job, and therefore the first job's salary, entirely to entry-level skills. Wage increases while in the same job are attributed to work experience, as is a proportion of new salary after a role move, based on the share of new skills required in the new role.

³ Includes holders of bachelor's, master's, and doctorate degrees.

⁴ Agriculture and community services occupation categories excluded due to limited data availability.

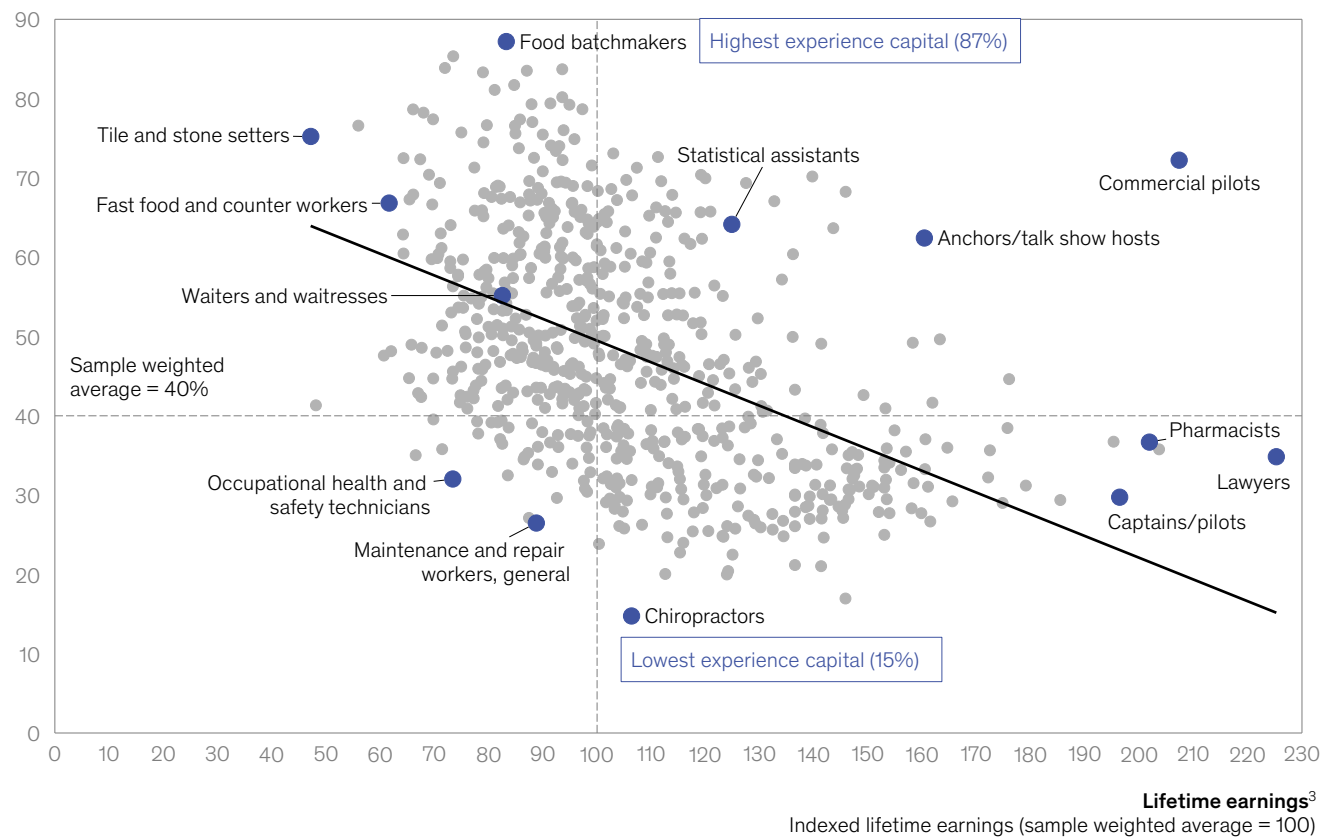
⁵ Includes holders of master's and doctorate degrees.

Source: McKinsey's proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018–19 job posting records; US Bureau of Labor Statistics; India's National Sample Survey Organisation and Periodic Labour Force Survey; McKinsey Global Institute analysis

The experience effect varies widely by occupation.

United States, by starting occupation¹

Share of lifetime earnings associated with work experience,² %



¹ First role after the latest education reported on a public online de-identified worker profile.

² We attribute the ability to acquire the first job, and therefore the first job's salary, entirely to entry-level skills. Wage increases while in the same job are attributed to work experience, as is a proportion of new salary after a role move, based on the share of new skills required in the new role.

³ Sum total of the nominal salaries an individual receives over a 30-year working life. Combines estimates based on salaries of roles held by a person during the observed work history plus projections for the remaining years of that person's working life, applying historical rates of wage growth to the final observed role and assuming no further role moves.

Note: Each dot represents an occupation. Outlier occupations are not represented. Correlation between the two indicators (R-squared) is -0.48. Source: McKinsey's proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018–19 job posting records; US Bureau of Labor Statistics; McKinsey Global Institute analysis

The profiles of individuals starting their careers in different occupations show variances in lifetime earnings and reliance on work experience. In the United States, for example, physicians earn significantly more than waiters over their lifetimes and are less reliant on work experience; they move comparatively fewer times, and their average skill distance per move is only 25 percent (compared to 60 percent for the average waiter). Commercial pilots earn more over their lifetimes and also derive a significant share of their earnings from skills learned through work experience. They move 3.1 times on average, with an average skill distance of 65 percent per move. By contrast, maintenance and repair workers earn less-than-average wages over their lifetimes. The value they add through work experience does not compensate for the low contribution from entry-level skills (Exhibit 8).

In general, across our sample set in the United States, we observe that starting occupations with higher lifetime earnings have a smaller share attributable to work experience.⁵² Similar patterns hold in the other countries we studied. In the United Kingdom, the experience effect is lowest for psychiatric technicians (21 percent) and highest for tool grinders and sharpeners (91 percent). In Germany, it is lowest for ship engineers (26 percent) and highest for grounds maintenance workers (95 percent). In India, the experience effect is lowest for nursing assistants (28 percent) and highest for construction equipment operators (97 percent).

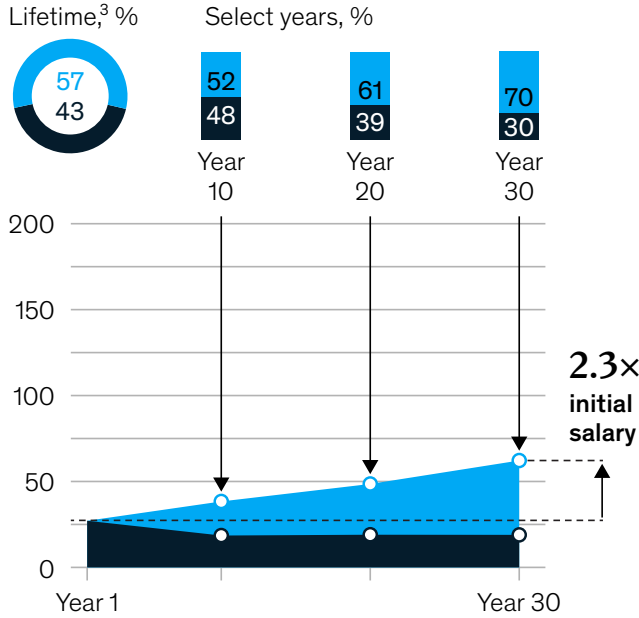
⁵² These results are statistically significant in all three advanced economies we studied (sample R-squared of 0.48 in the United States, 0.33 in the United Kingdom, and 0.27 in Germany). However, the results are notably weaker in India (sample R-squared of 0.12).

Individuals starting in different occupations have varying degrees of reliance on work experience.

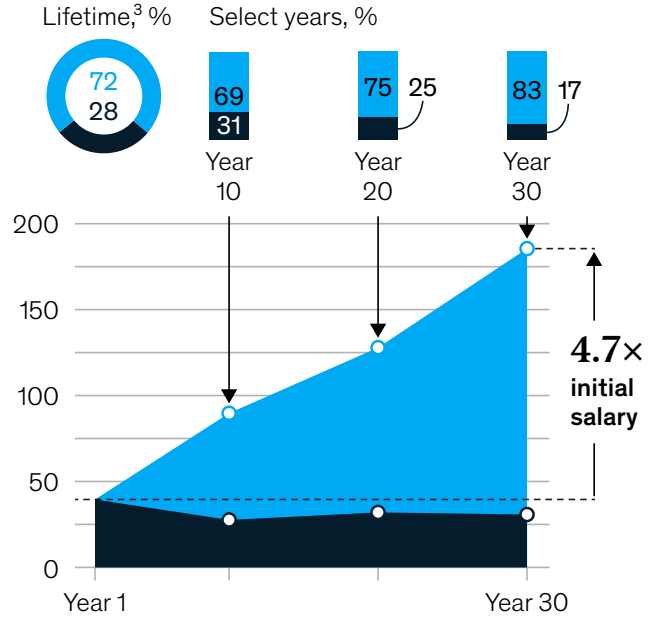
Salary in the United States by starting occupation,¹ in nominal currency, \$ thousand

■ Share of earnings associated with work experience²
■ Share of earnings associated with entry-level skills²

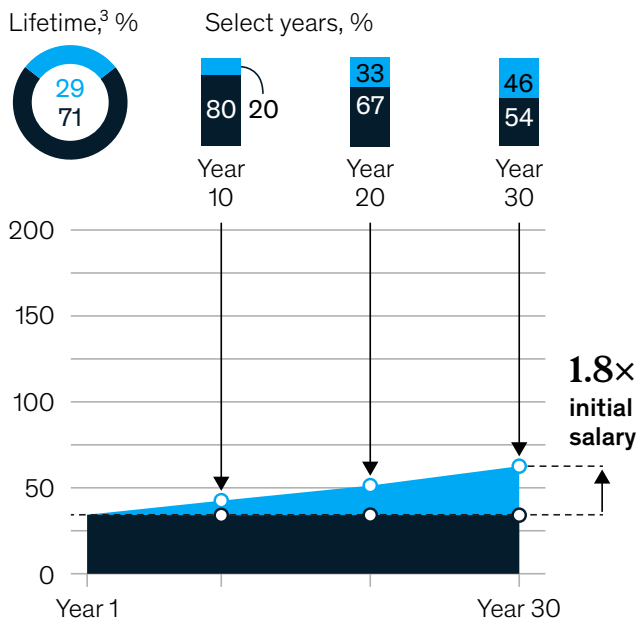
Restaurant servers



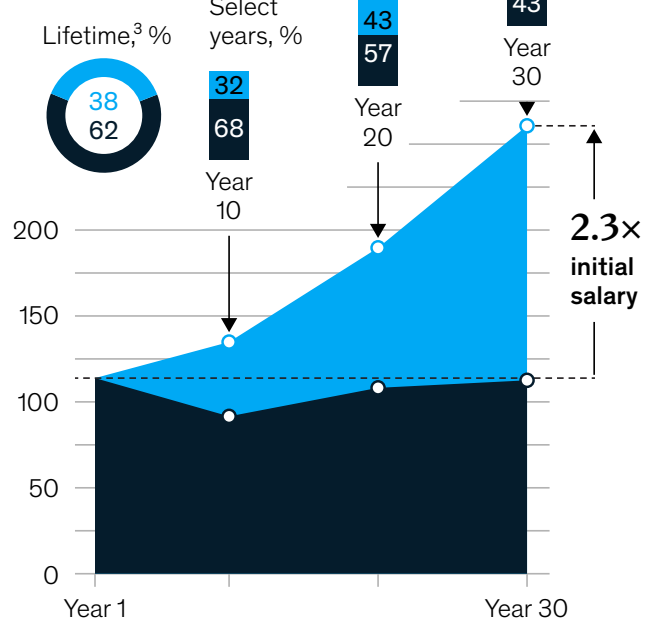
Commercial pilots



Maintenance and repair workers



Physicians



¹ Starting occupation defined as first role after the latest education reported on a public, de-identified online worker profile.
² We attribute the ability to acquire the first job, and therefore the first job's salary, entirely to entry-level skills. Wage increases while in the same job are attributed to work experience, as is a proportion of new salary after a role move, based on the share of new skills required in the new role. Lifetime proportions calculated are based on the area under the curve.
³ Lifetime earnings are the sum of nominal salaries over an individual's 30-year working life. Combines estimates based on salaries of roles held during the observed work history plus projections for the remaining years of a working life, applying historical rates of wage growth to the final observed role and assuming no further role moves.
 Source: McKinsey's proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018–19 job posting records; UK Office for National Statistics; US Bureau of Labor Statistics; Germany's Federal Employment Agency, BA; India's National Sample Survey Organisation and Periodic Labour Force Survey; McKinsey Global Institute analysis

Occupations matter more than sectors in determining the role of work experience in building human capital

The share of lifetime earnings associated with work experience also varies across sectors. However, the differences at the sector level are much smaller than those across occupations since sectors aggregate many occupations. Each sector employs people in a wide range of occupations with varying education requirements. Healthcare, for example, includes home healthcare aides, nursing assistants, and custodians who maintain the cleanliness of hospitals and clinics; it also includes neurosurgeons, oncologists, and cardiologists. A sector's exact occupational mix determines the size of the experience effect within it.

In the United States, workers in internet and software services derive 27 percent of their lifetime income from work experience. The comparable share in hospitality is 46 percent. In the latter sector, the occupations that drive the higher reliance on work experience include billing and posting clerks, entertainment attendants, and food batchmakers, among others.

In the United Kingdom, the experience effect is lowest in the diversified financials (investment trusts) sector, at 24 percent. It is highest in the consumer durables and apparel (leisure products) sector, at 52 percent, with occupations like retail salesperson and operations managers driving the higher share. In Germany, workers in wireless telecommunication services derive 31 percent of their lifetime income from work experience. The comparable share in the airline sector is 54 percent, with occupations like computer network architects and moving supervisors driving the higher share.

In India, the multi-utilities sector has the smallest experience effect, at 41 percent—a share that matches the sector average in the advanced economies we studied. The effect is highest within India's consumer durables and apparel (leisure products) sector, at 75 percent. The occupations that drive the higher reliance on work experience include sales representatives and new accounts clerks, among others.



3. Movement matters

Individuals can make choices that maximize the experience effect. Someone who stays in the same administrative or production job for years on end is likely to get only modest annual salary increases. But if that same person changes roles, she is likely to secure a larger bump in pay, particularly if her new position offers the chance to learn and take on new types of responsibilities. The nature of movement matters.

The patterns within our data set show that changing roles pays off—and even more so when people move into new roles that stretch their skills more substantially. For people who start out in low-paying positions, movement is critical to boosting their lifetime earnings. The fact remains that without extraordinary capabilities and luck, the entry-level retail cashier is unlikely to ever catch up to what the entry-level law associate can expect to earn over a lifetime. But if she makes strategic role moves, she does have a chance to exit the lowest-earning quintile where she started and move into a higher earning bracket.

Individuals who manage to land opportunities involving distinctly different skills and responsibilities gain greater rewards over time. The groups within our data set that we call “experience seekers” and “early movers” follow this playbook; they get the biggest earnings benefit from the experience effect as a result. But, as we discuss in chapter 4, bold moves also require employers to take a more expansive view of the potential within people.

While greater educational attainment generally produces higher lifetime earnings, some people defy the odds

In a world of growing inequality, education is often viewed as a make-or-break factor determining an individual’s lifetime prospects. Indeed, multiple studies have found a strong correlation between additional years of schooling and increased income.⁵³ Excellent primary and secondary instruction can instill many of the foundational skills people need to be productive workers. By pursuing postsecondary degrees or vocational training, people can cultivate more sophisticated or specialized knowledge and capabilities that will command a significant lifetime premium. From 1979 to 2012, the gap in earnings between US high school graduates and college graduates doubled in size.⁵⁴

Someone who could not attend good-quality schools or who lacks any postsecondary education or training is starting from behind in the labor market. Many employers rely on college degrees as a well-established signal of a candidate’s employability.⁵⁵ Our data show that, on average, less educated workers see roughly the same rate of wage growth as more educated workers. But since the more educated workers typically start their careers with higher salaries, they tend to earn more over their lifetime.

⁵³ See, for example, Robert J. Barro, “Economic growth in a cross section of countries,” *Quarterly Journal of Economics*, volume 106, number 2, May 1991; Jacob Mincer, “Investment in human capital and personal income distribution,” *Journal of Political Economy*, volume LXVI, number 4, August 1958; Orley Ashenfelter and Alan B. Krueger, “Estimates of the economic return to schooling from a new sample of twins,” *American Economic Review*, volume 84, number 5, December 1994; and Richard Blundell et al., “The returns to higher education in Britain: Evidence from a British cohort,” *Economic Journal*, volume 110, number 461, February 2000.

⁵⁴ David H. Autor, “Skills, education, and the rise of earnings inequality among the ‘other 99 percent,’” *Science*, volume 344, issue 6186, May 2014.

⁵⁵ Michael Spence, “Job market signaling,” *Quarterly Journal of Economics*, volume 87, number 3, August 1973.

60-80%

share of lifetime earnings linked to work experience for upwardly mobile cohort, vs

35-55%

for others

>80%

of all role moves involve someone joining a new employer

workers in India.⁵⁷ In the United States, some 6.1 percent are on track to move from the bottom to the top quintile in earnings. Other research on generational mobility looked at almost ten million US children and found that 36.7 percent were able to move into a higher income quintile than their parents. It also found that 7.5 percent moved from the bottom to the top quintile of earnings (compared to our findings of 6.1 percent).⁵⁸

This upwardly mobile group of workers appears to be amassing experience in an effective way that yields real benefits. Work experience accounts for 60 to 80 percent of lifetime earnings for the cohort that moves up but only 35 to 55 percent for those who stay flat or drop down. Although not everyone has the opportunity to make these leaps, some people do manage to raise their trajectory well above their starting point, as the rest of this chapter will explore.

Role moves can unlock higher earnings—and most job changes involve people moving to new organizations

Job switching, once viewed by employers as a red flag, has become an accepted norm. The average person in our data set changed roles every two to four years.⁵⁹

Moves can involve workers assuming new roles within their current company, taking a position with a different employer, changing specialties or occupations, or pursuing a combination of these strategies. In addition, a large share of moves occur when people are forced to find new positions after firings or layoffs. Involuntary separations have historically outpaced voluntary quits during downturns, while the reverse is true during periods of growth. Today, in the United States, voluntary quits are far more numerous than layoffs and firings, reflecting tight labor markets.⁶⁰

Our research focuses on the opportunities associated with movement. While it takes additional education, training, or licensing to enter some professions and skilled trades, many moves can be made on the strength of skills learned through work experience alone. Our analysis focuses only on moves made after the last level of education listed in the professional profiles in our sample.

In our data set, each role move increased the worker's salary by 6 to 10 percent on average.⁶¹ However, this average is lowered by a number of people who moved into lower-paying roles. People accept steps down in pay for a variety of reasons. Many may have been laid off or fired. Others may need to leave a bad job quickly but keep paying the bills. Some may move for a partner's opportunity, wish to downshift, or want to start over in an entirely new occupation.

The potential benefits of movement come into clearer focus when we set aside people who moved for lower pay. Forty to 50 percent of the role moves made in the decade we observed involved wage increases. The group who made salary-increasing moves managed to boost their earnings by 30 to 45 percent on average with each job change (Exhibit 10).

Everyone has heard about those rare individuals who start in a company's mailroom and become its CEO years later. Yet more than 80 percent of the role moves observed in our data set involved someone moving from one organization to another.⁶² Far fewer people were

⁵⁷ These findings rely on salaries associated with observed work history for the period covered in our data set and on projections for the remaining years of a 30-year working life, applying historical rates of wage growth to the final observed role and assuming no more moves after that point. Jäntti et al. confirm a higher level of mobility in the United Kingdom than in the United States. See Markus Jäntti et al., *American exceptionalism in a new light: A comparison of intergenerational earnings mobility in the Nordic countries, the United Kingdom and the United States*, Institute for the Study of Labor (IZA), discussion paper number 1938, 2006. See also Sandra E. Black and Paul J. Devereux, "Recent developments in intergenerational mobility," in Orley Ashenfelter and David Card, eds., *Handbook of labor economics*, Elsevier, 2010.

⁵⁸ See Raj Chetty et al., "Where is the land of opportunity? The geography of intergenerational mobility in the United States," *The Quarterly Journal of Economics*, volume 129, number 4, 2014.

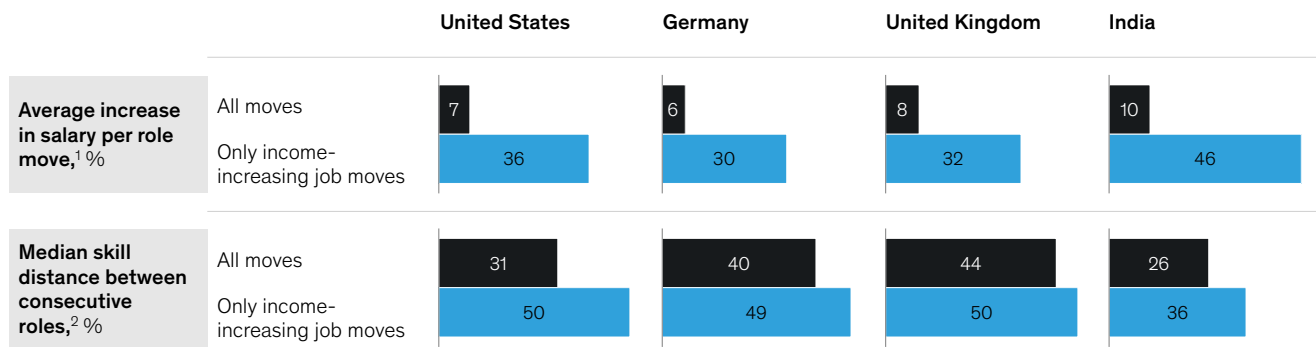
⁵⁹ This is line with data from the most recent (prepandemic) US BLS data on employee tenure, which shows that the median number of years a US wage and salary worker had been with their current employer was 4.1 in January 2020.

⁶⁰ See www.bls.gov/opub/ted/2022/number-of-quits-at-all-time-high-in-november-2021.htm for a historical breakdown of voluntary versus involuntary separations in the United States.

⁶¹ As noted in chapter 2, our analysis is based on generalized average salary assumptions by role and country; it does not capture all of the variations in pay offered by different employers and for employees with different levels of seniority or performance. The Atlanta Fed's Wage Growth Tracker similarly shows that job switchers have faster wage growth than people who stay in their jobs. See atlantafed.org/chcs/wage-growth-tracker.aspx.

⁶² Note that self-reported data may not capture the full number of internal moves.

Moves made by workers in our sample boosted earnings by up to 30 to 45 percent while adding significant new skills.



¹ Role moves are changes in an individual's job, occupation, occupation category, or organization. They include promotions or lateral moves within the same organization as well as moves from one employer to another. Role moves undertaken over 2010–19 considered for analysis.

² Measured as share of nonoverlapping skill requirements between two roles, which shows the proportion of new skills required when someone moves into a new role. We identify skill requirements for each role from job posting data, weighted by skill frequency, which gives more weight to skills that are specialized to a particular role rather than common across roles. Note: Based on 3.7 million role moves by 920,000 individuals in the United States, 4.1 million role moves by 930,000 individuals in the United Kingdom, 3 million role moves by 790,000 individuals in Germany, and 1.4 million role moves by 650,000 individuals in India.

Source: McKinsey's proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018–19 job posting records; UK Office for National Statistics; US Bureau of Labor Statistics; Germany's Federal Employment Agency, BA; India's National Sample Survey Organisation and Periodic Labour Force Survey; McKinsey Global Institute analysis

promoted into more senior roles or branched into different specializations within their existing organizations. This 80-20 dynamic holds true for individuals across levels of earning potential.

This seems to indicate that many employers do not have internal advancement tracks that are wide enough to keep most people growing and working toward higher rewards over time. A manager who sees someone capably performing administrative or frontline tasks may pigeonhole that person. Individuals who want to reinvent themselves and take on more senior roles often have to go to a new environment to do so. (For more discussion on the implications of movement for both workers and companies, see chapter 4.)

The bolder the move, the bigger the boost

Our data suggest that the role movers in our sample who were able to make bigger changes received bigger rewards.⁶³

We describe moves involving high skill distances as “bold.”⁶⁴ This refers only to the distinctiveness of the skill requirements in the new role; it is not a comment on the nature of the occupation or the risk-taking involved in making the move.

More than half of all role moves in our sample involved a skill distance greater than 25 percent (Exhibit 11). In the United States, about 10 percent of role moves involved leaps in skill distances of more than 80 percent. Twenty percent of moves involved skill distances of more than 50 percent, while another 20 percent involved skill distances of more than 30 percent. Additionally, about 30 percent of moves were more incremental, with skill distances less than 10 percent.

Wage-enhancing moves involved a higher skill distance than the average for all job moves (35 to 50 percent median across countries versus 25 to 45 percent). In other words, when someone made a move for higher pay, their new job typically involved significant skills and responsibilities that were not part of their previous job. Incremental moves, with largely

⁶³ This finding is consistent with research from the OECD showing that bolder (across industry and across geography) moves are associated with higher earnings gains. See Damien Azzopardi et al., *The decline in labour mobility in the United States: Insights from new administrative data*, OECD, 2020.

⁶⁴ The skill distance between two roles refers to the nonoverlapping portion of their respective skill requirements. We identify skills for each role from job posting data, weighted by skill frequency, which gives more weight to skills that are specialized to a particular role rather than common across roles to exemplify the real distance. When someone makes a role move, we measure skill distance as the number of skills that are not retained from the preceding role as a proportion of the number of skills required in the current role. The larger the number, the “bolder” the move. An incremental move is one in which skill distance is in the bottom quartile of the sample; a bolder move is one in the top quartile.

overlapping requirements, do not pack the same punch. On the other hand, wage-reducing role moves involved a median skill distance of only 20 to 40 percent across countries.

An upward career move involves more than “cashing in” on the value of knowledge and skills already acquired. It also involves gaining the opportunity to take on new challenges and maintain upward momentum in the future. The new role may be a major learning opportunity, or it may simply be a better match that enables someone to deploy existing skills that have yet to be fully utilized.⁶⁵ This kind of movement is enabled when an employer is willing to take a chance on someone’s potential, even if they have not been performing exactly the same tasks in their previous role.

Not everyone has the ability to land a role that represents a bigger change, however. Some may lack the innate abilities and educational qualifications. Others may have what it takes but find that employers are not willing to hire someone who doesn’t precisely fit their job description. Women in particular are less likely to apply for roles unless they are fully qualified.⁶⁶ Someone who is more financially secure may be willing to take a risk because the consequences of failure are not as dire, but others cannot afford to take a chance—or even to take time off from providing for their families to look for a better opportunity. Personal circumstances such as caregiving responsibilities may mean that the right choice is staying in a position that is familiar. In a bad economy, openings may be scarce. In short, many people are constrained from making bold moves, but this strategy does work for those who are able to take advantage of such opportunities.

The most upwardly mobile cohorts in the sample make more frequent and bolder moves (Exhibit 11). In the United States, for example, people who moved into higher earning quintiles averaged 4.6 moves during the observed period, while those who stayed flat averaged 3.7 moves. The upwardly mobile made moves with an average skill distance of 40 percent; those who stayed flat averaged only 30 percent. This growth in skills compounds with each move, resulting in a far bigger shift in capabilities and responsibilities over the entirety of a working life. In Germany and the United Kingdom, the workers who moved into higher earning quintiles averaged 5.2 and 5.3 moves, respectively, with an average skill distance of 45 percent. Those who stayed flat averaged 4.6 to 4.7 moves, with a skill distance of 35 to 40 percent, respectively.

40%

average skill distance of moves made by upwardly mobile US workers

⁶⁵ Dale T. Mortensen and Christopher A. Pissarides, “Job creation and job destruction in the theory of unemployment,” *Review of Economic Studies*, volume 61, number 3, 1994.

⁶⁶ “Gender insights report: How women find jobs differently,” LinkedIn Talent Insights, March 2019; and Tara Sophia Mohr, “Why women don’t apply for jobs unless they are 100% qualified,” *Harvard Business Review*, August 2014.

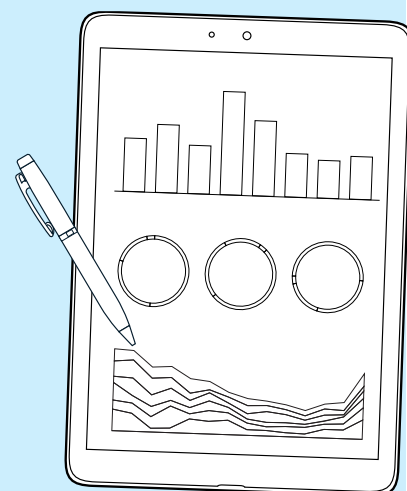
Profile

How a billing clerk made moves to move up

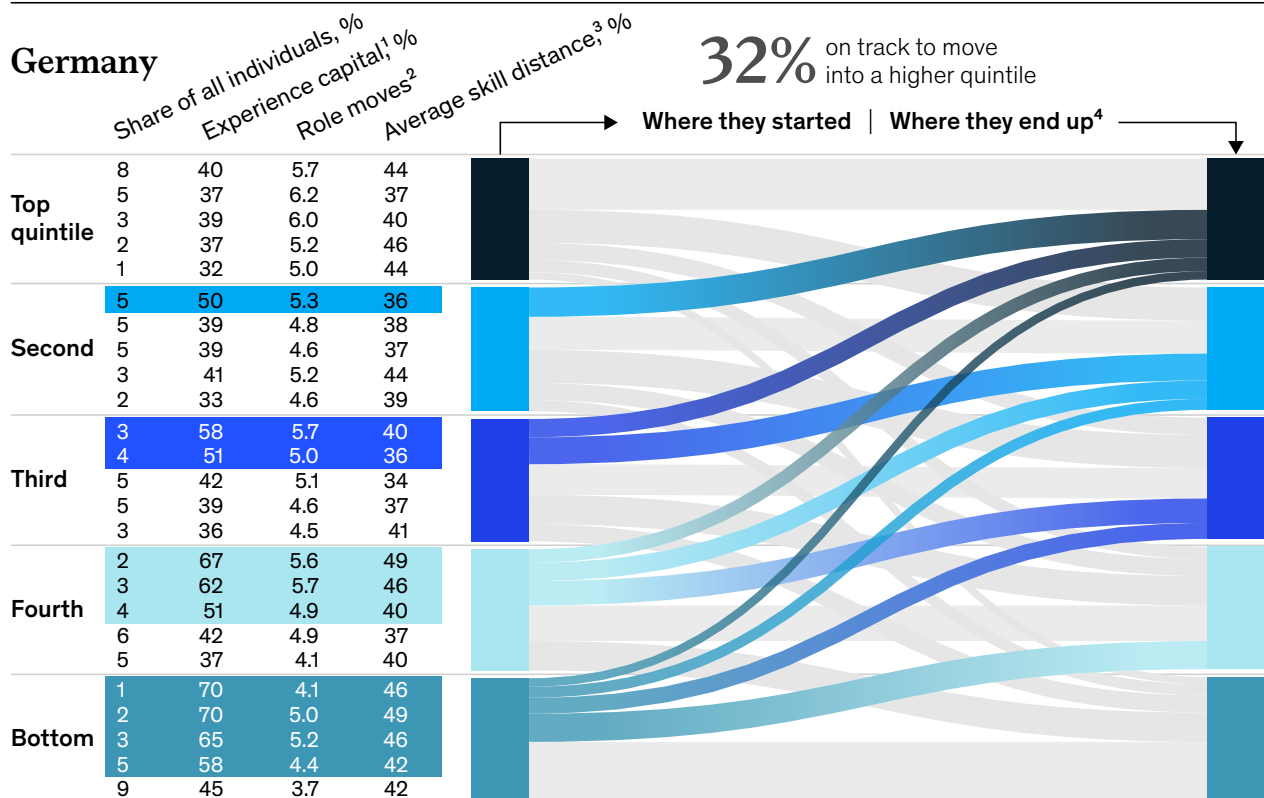
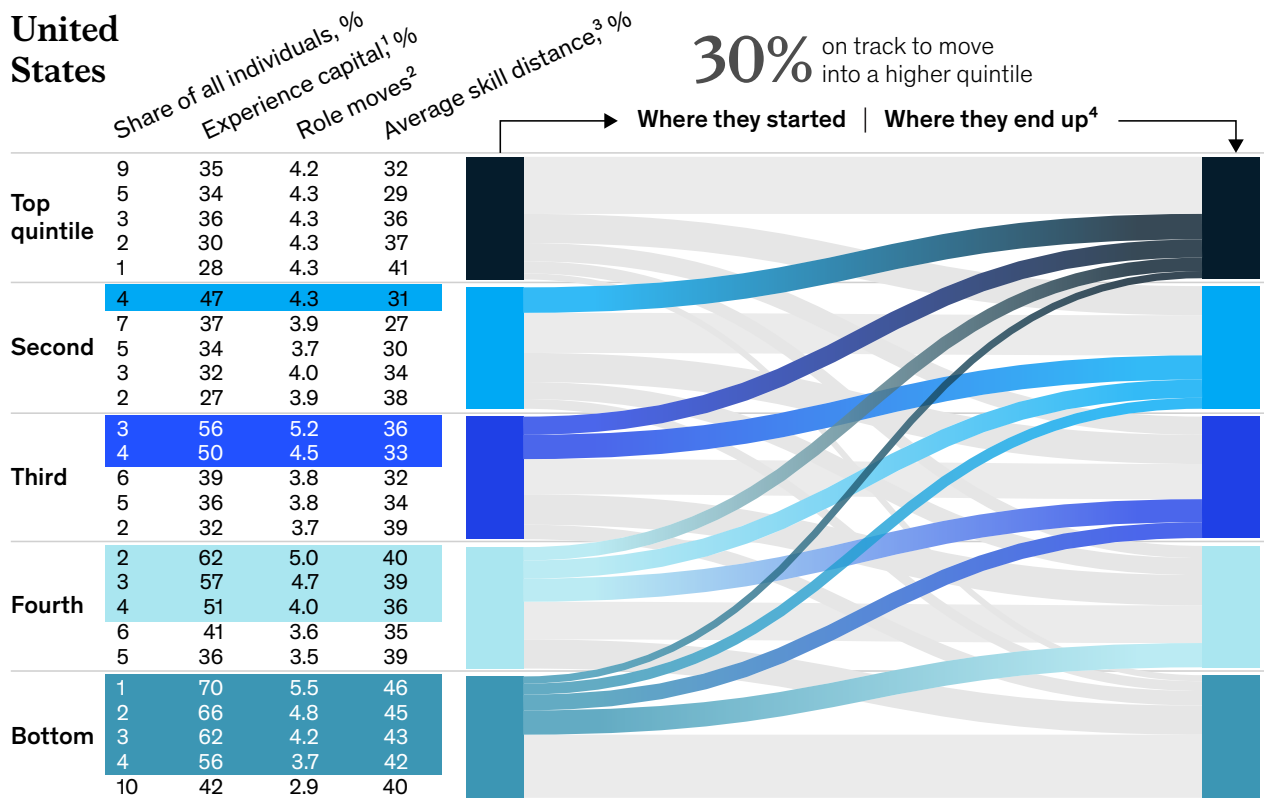
The path of a hypothetical billing clerk illustrates how an individual can make bold moves. In his first role, he processes bills and payments for a small manufacturing company, working diligently for two years until he is promoted to become an accountant.

Once he grows comfortable with that job, he begins thinking about buying a home and starts looking elsewhere for a job with a bigger paycheck and more growth potential. He finds that opportunity with a regional bank that hires and trains him to become a credit analyst. A few years later, the itch to reach higher returns.

His mathematical acumen and his newfound ability to evaluate risk quantitatively help him land a role as an insurance underwriter. In the course of this job, he learns the ins and outs of the insurance industry. This readies him to eventually become vice president of new product development with a competing insurer. His moves have raised his lifetime earnings far above what he could have expected if he had stayed put over the years.

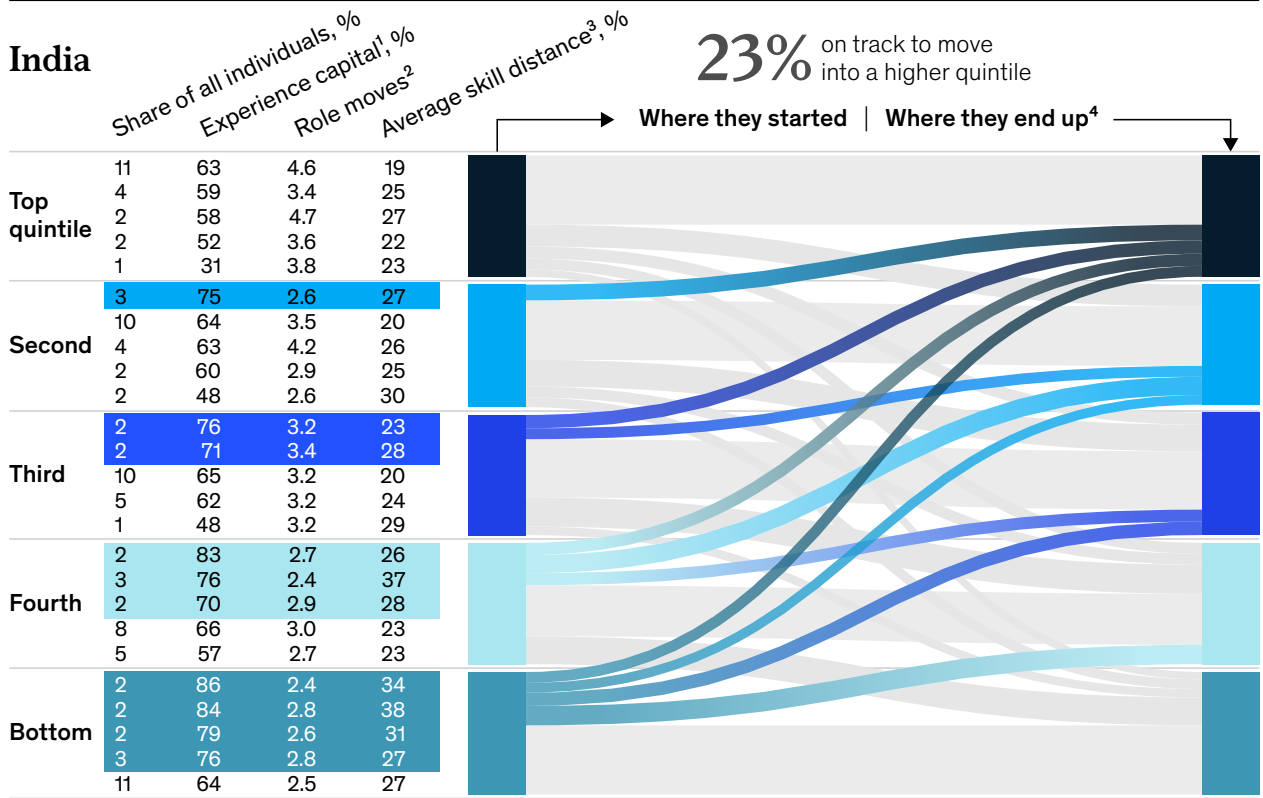
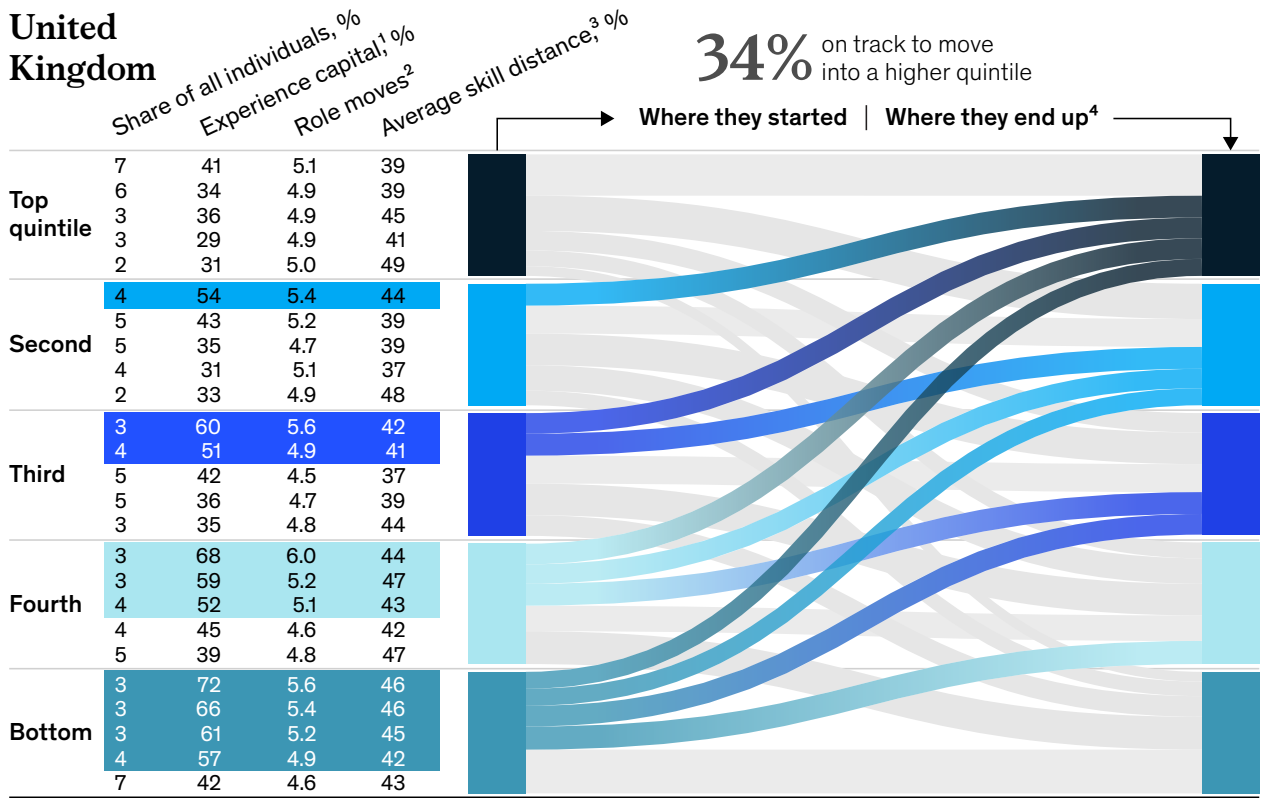


In each country we studied, experience and role moves enable a significant share of workers to move into higher earning quintiles.



¹ The share of lifetime earnings associated with skills learned through experience. We attribute the ability to acquire the first job, and therefore the first job's salary, entirely to entry-level skills. Wage increases while in the same job are attributed to work experience, as is a proportion of new salary after a role move, based on the share of new skills required in the new role.
² Average number of role moves per person made over 10 years. Role moves are changes in an individual's job, occupation, occupation category, or organization. They include promotions or lateral moves within the same organization as well as moves from one employer to another.
³ Measured as share of nonoverlapping skill requirements between two roles, which shows the proportion of new skills required when someone moves into a new role. We identify skill requirements for each role from job posting data, weighted by skill frequency, which gives more weight to skills that are specialized to a particular role rather than common across roles.
⁴ Based on lifetime earnings, which are the sum total of the nominal salaries an individual receives over a 30-year working life. Combines estimates based on salaries of roles held by a person during the observed work history plus projections for the remaining years of that person's working life, applying historical rates of wage growth to the final observed role and assuming no further role moves.
 Source: McKinsey's proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018–19 job posting records; UK Office for National Statistics; US Bureau of Labor Statistics; Germany's Federal Employment Agency, BA; India's National Sample Survey Organisation and Periodic Labour Force Survey; McKinsey Global Institute analysis

In each country we studied, experience and role moves enable a significant share of workers to move into higher-earning quintiles.



¹ The share of lifetime earnings associated with skills learned through experience. We attribute the ability to acquire the first job, and therefore the first job's salary, entirely to entry-level skills. Wage increases while in the same job are attributed to work experience, as is a proportion of new salary after a role move, based on the share of new skills required in the new role.
² Average number of role moves per person made over 10 years. Role moves are changes in an individual's job, occupation, occupation category, or organization. They include promotions or lateral moves within the same organization as well as moves from one employer to another.
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⁴ Based on lifetime earnings, which are the sum total of the nominal salaries an individual receives over a 30-year working life. Combines estimates based on salaries of roles held by a person during the observed work history plus projections for the remaining years of that person's working life, applying historical rates of wage growth to the final observed role and assuming no further role moves.
 Source: McKinsey's proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018–19 job posting records; UK Office for National Statistics; US Bureau of Labor Statistics; Germany's Federal Employment Agency, BA; India's National Sample Survey Organisation and Periodic Labour Force Survey; McKinsey Global Institute analysis

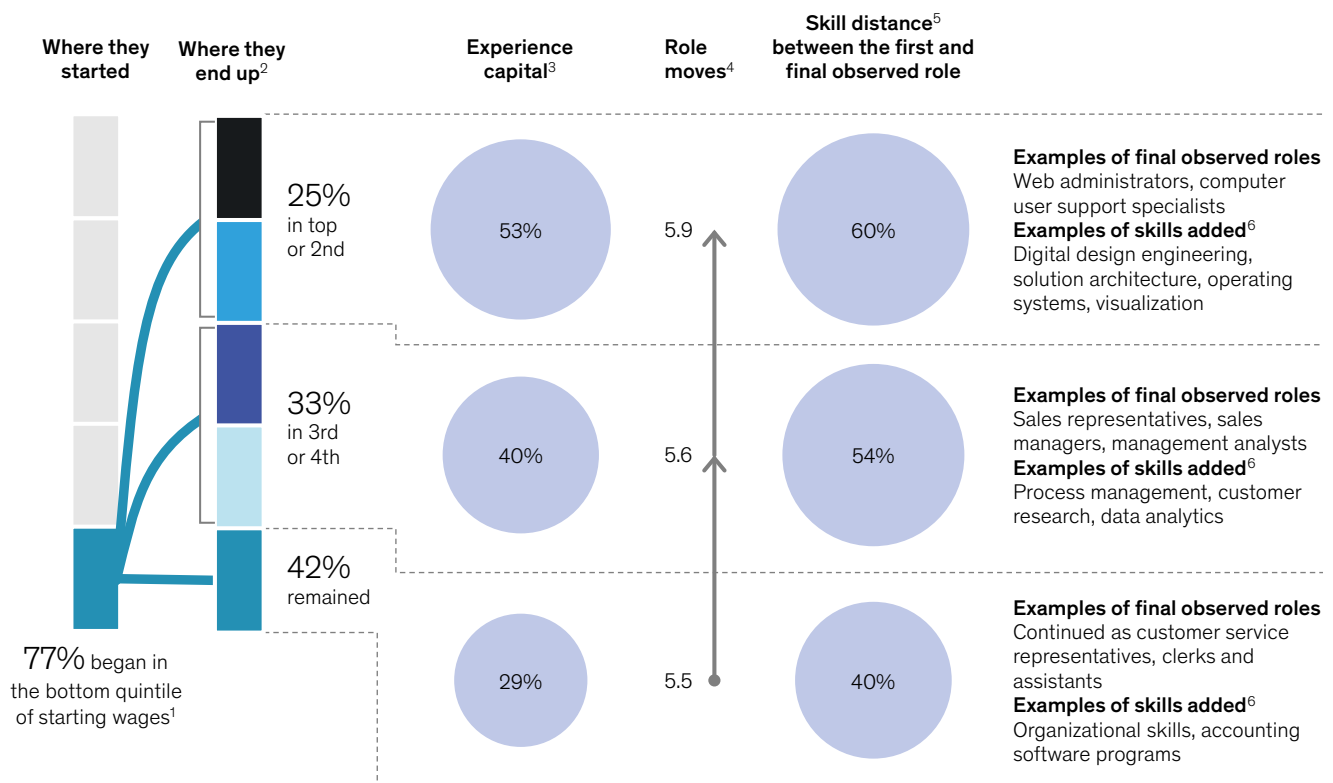
In India, by contrast, making more frequent role moves is not the same kind of differentiator. Indian workers tended to change roles every 4.2 years over their careers; by comparison, workers moved every 2.5 to 3.4 years in the advanced economies we studied. But the upwardly mobile workers in India did make moves with an average skill distance of 30 percent, vis-à-vis 20 percent for those who stayed flat.

To illustrate how movement plays out in practice, we look at individuals in our sample who started in specific occupations and where they would end up, given our projected lifetime earnings from their final observed role. Three-quarters of customer service representatives in the United Kingdom, for example, start in the bottom quintile of earnings (Exhibit 12). Forty-two percent of the group would remain in the bottom quintile of lifetime earnings; half of this group continued as customer service representatives, while 17 percent transitioned into relatively similar and low-paying clerk and assistant roles. But 58 percent moved roles more often, and each of these moves required a bigger leap in skills, with the effects compounding over time. These workers added new skills like digital design engineering, solution architecture, and operating systems and visualization, while de-emphasizing skills like CRM systems and data storage. As a result, they moved into distinct new areas such as computer

Exhibit 12

A quarter of the UK customer service reps who started in the lowest earnings bracket are on a path to move into the top two quintiles.

United Kingdom
Customer service representatives¹



¹ N = 4,446. They averaged 6.8 years of post-education work experience.

² Based on lifetime earnings, which are the sum total of the nominal salaries an individual receives over a 30-year working life. Combines estimates based on salaries of roles held by a person during the observed work history plus projections for the remaining years of that person's working life, applying historical rates of wage growth to the final observed role and assuming no further role moves.

³ The share of lifetime earnings associated with skills learned through experience. We attribute the ability to acquire the first job, and therefore the first job's salary, entirely to entry-level skills.

Wage increases while in the same job are attributed to work experience, as is a proportion of new salary after making a role move, based on the share of new skills required in the new role.

⁴ Average number of role moves made per person over 10 years. Role moves are changes in an individual's job, occupation, occupation category, or organization. They include promotions or lateral moves within the same organization as well as moves from one employer to another.

⁵ Measured as share of nonoverlapping skill requirements between two roles, which shows the proportion of new skills required when someone moves into a new role. We identify skill requirements for each role from job posting data, weighted by skill frequency, which gives more weight to skills that are specialized to a particular role rather than common across roles.

⁶ New skills acquired or deployed relative to entry-level skills.

Source: McKinsey's proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018–19 job posting records; UK Office for National Statistics; McKinsey Global Institute analysis

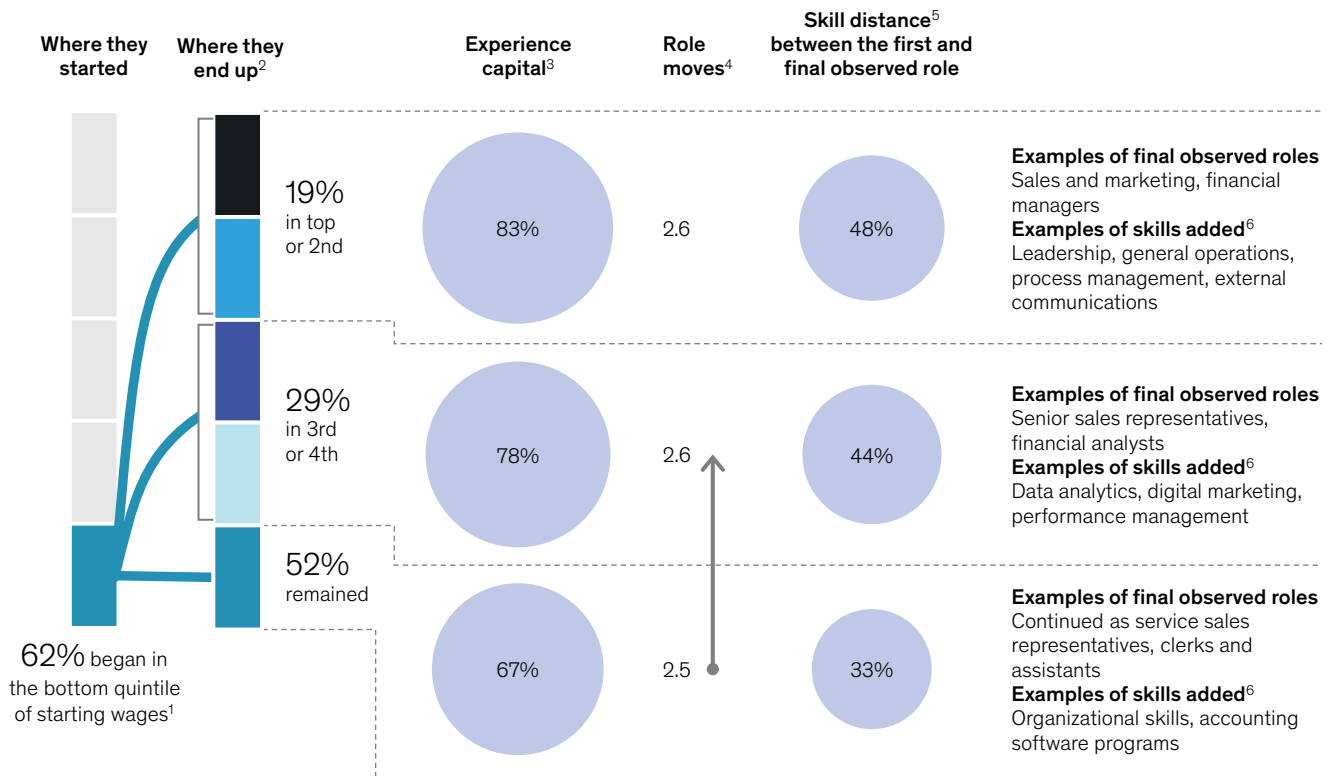
occupations, sales and marketing, operations, and finance roles. A quarter of those once low-paid customer service representatives would vault into the top two earnings quintiles.

In India, we looked at service sales representatives who started in the bottom quintile of earnings (Exhibit 13). Half of this group would remain at the bottom in projected lifetime earnings. Although there is not a great divergence in the frequency of moves made, the group that made moves involving sharply higher skill distances would advance into higher lifetime earnings brackets. These individuals built new skills like general operational capabilities, process management, and leadership, becoming sales managers and moving into marketing roles, positions with a more strategic and big-picture orientation.

Exhibit 13

Almost half of the service sales reps in India who started in the bottom quintile of earnings are on a trajectory that puts them into higher quintiles.

India
Service sales representatives¹



¹ N = 2,250. They averaged 10 years of post-education work experience.
² Based on lifetime earnings, which are the sum total of the nominal salaries an individual receives over a 30-year working life. Combines estimates based on salaries of roles held by a person during the observed work history plus projections for the remaining years of that person's working life, applying historical rates of wage growth to the final observed role (assumes no further moves).
³ The share of lifetime earnings associated with skills learned through experience. We attribute the ability to acquire the first job, and therefore the first job's salary, entirely to entry-level skills. Wage increases while in the same job are attributed to work experience, as is a proportion of new salary after making a role move, based on the share of new skills required in the new role.
⁴ Average number of role moves made per person over 10 years. Role moves are changes in an individual's job, occupation, organization category, or organization. They include promotions or lateral moves within the same organization as well as moves from one employer to another.
⁵ Measured as share of nonoverlapping skill requirements between two roles, which shows the proportion of new skills required when someone moves into a new role. We identify skill requirements for each role from job posting data, weighted by skill frequency, which gives more weight to skills that are specialized to a particular role rather than common across roles.
⁶ New skills acquired or deployed relative to entry-level skills.
 Source: McKinsey's proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018–19 job posting records; India's National Sample Survey Organisation and Periodic Labour Force Survey; McKinsey Global Institute analysis

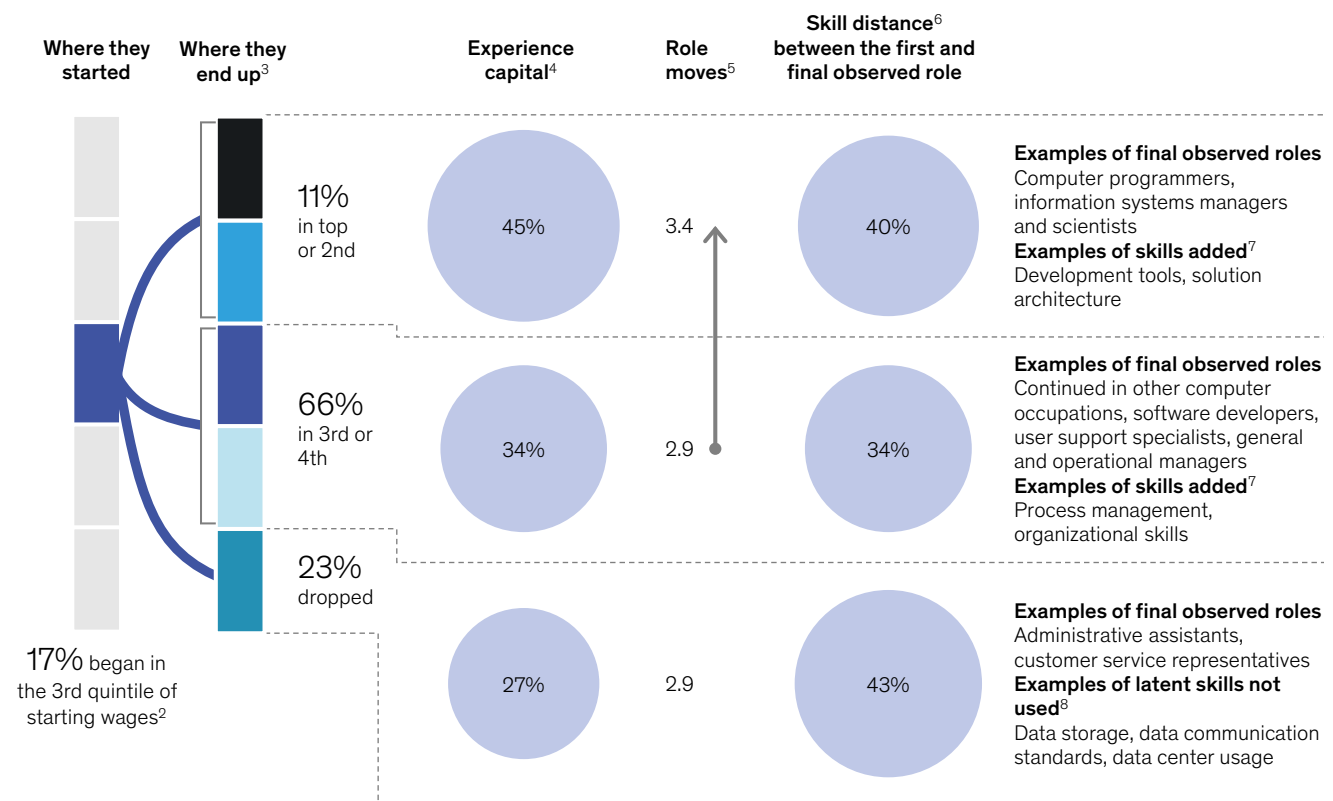
Finally, in the United States, we look at people who started in the third quintile of earnings in a variety of computer occupations, such as web and systems administrators, document management specialists, and the like (Exhibit 14). The 11 percent who moved into higher quintiles of earnings made more frequent moves with higher average skill distances than those who stayed flat, with the majority deploying higher-level technical skills such as solution architecture and use of development tools as computer programmers. Interestingly, almost a quarter of the original cohort dropped to the lowest earning quintile—and they, too, made moves that stretched their capabilities more than those who stayed flat. Skill distance applies to both upward and downward moves, since it measures simple differences rather than upward mobility. Some of the people who dropped down stopped specializing in computers altogether and took on administrative office work, which does not pay as much but still involves differential skills.

Exhibit 14

A US occupational example shows that moves into both higher and lower earning quintiles involve significant skill distances.

United States

Computer occupations, all other¹



¹ Includes occupations such as web administrators, geographic information systems technologists and technicians, document management specialists, information security engineers, and blockchain engineers.

² N = 3,012. They averaged 15 years of post-education work experience.

³ Based on lifetime earnings, which are the sum total of the nominal salaries an individual receives over a 30-year working life. Combines estimates based on salaries of roles held by a person during the observed work history plus projections for the remaining years of that person's working life, applying historical rates of wage growth to the final observed role and assuming no further role moves.

⁴ The share of lifetime earnings associated with skills learned through experience. We attribute the ability to acquire the first job, and therefore the first job's salary, entirely to entry-level skills.

⁵ Wage increases while in the same job are attributed to work experience, as is a proportion of new salary after making a role move, based on the share of new skills required in the new role.

⁶ Average number of role moves made per person over 10 years. Role moves changes in an individual's job, occupation, occupation category, or organization. They include promotions or lateral moves within the same organization as well as moves from one employer to another.

⁷ Measured as share of nonoverlapping skill requirements between two roles, which shows the proportion of new skills required when someone moves into a new role. We identify skill requirements for each role from job posting data, weighted by skill frequency, which gives more weight to skills that are specialized to a particular role rather than common across roles.

⁸ New skills acquired or deployed relative to entry-level skills.

⁹ Skills not utilized relative to entry-level skills.

Source: McKinsey's proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018–19 job posting records; US Bureau of Labor Statistics; McKinsey Global Institute analysis

‘Experience seekers’ and ‘early movers’ boost their earnings through effective career moves

From our data set, we looked at a smaller universe of 20,000 to 60,000 people with more than ten years of work history. Within it, four distinct archetypes emerge. They are not meant to convey individuals’ circumstances or motivation; they simply describe movement patterns and outcomes, with illustrative examples.

Exhibit 15 shows these groupings in Germany. The patterns over the period we observed are remarkably consistent with those in the United States, the United Kingdom, and India. The four archetypes are as follows:

- **Experience seekers** are the smallest but most dynamic group. They start with lower-than-average wages but propel themselves upward by switching jobs more frequently and stretching their capabilities substantially each time. The cumulative effect gives them stronger wage growth than any other archetype. Work experience accounts for 60 to 80 percent of their lifetime earnings in the four countries we studied. A classic experience seeker might start as an administrative assistant at a nonprofit. As she works behind the scenes on the group’s big fundraising events, she learns enough to land a job with a new organization’s development department, where she cultivates donors. From there, she might join a research hospital as a grant writer before stepping into a broader communications role. Eventually she becomes head of media relations for a major university. Our experience seeker is willing to move into new industries and functions. There may be an element of self-selection here, as people with more adaptable, confident, restless, and risk-tolerant personalities would be predisposed to seek out change as a

Exhibit 15

‘Experience seekers’ and ‘early movers’ make bolder, more frequent, and earlier role moves that help them build more experience capital.

Germany

Sample: ~30,000 individuals with >10 years of work history

Cohort based on career trajectory pattern		Share of sample, %	Average number of role moves ¹ per person	Skill distance, ² %	Share of lifetime earnings attributed to work experience, %
Experience seekers	<ul style="list-style-type: none"> • Make the greatest number of moves and bold moves throughout their career 	4	6.1	54	67
Early movers	<ul style="list-style-type: none"> • Make bolder moves in the first 2 years • Make incremental moves after 5 years 	20	5.2	44	68
Late movers	<ul style="list-style-type: none"> • Make incremental moves in the first 2 years • Make bolder moves after 5 years 	53	4.6	49	48
Lock-ins	<ul style="list-style-type: none"> • Make only incremental moves throughout entire career 	23	3.5	4	30
				Country median 40	Country average 43

¹ Average number of role moves made over 10 years. Role moves are changes in an individual’s job, occupation, occupation category, or organization. They include promotions or lateral moves within the same organization as well as moves from one employer to another.

² Measured as share of nonoverlapping skill requirements between two roles, which shows the proportion of new skills required when someone moves into a new role, averaged over every move made. We identify skill requirements for each role from job posting data, weighted by skill frequency, which gives more weight to skills that are specialized to a particular role rather than common across roles.

Note: We describe moves involving high skill distances as “bold.” This term describes only the distinctiveness of the skill requirements in the new role; it is not a comment on the nature of the role itself or of the risk-taking involved in making the move. An incremental move is one in which skill distance is in the bottom quartile of the sample; a bolder move is one in the top quartile.

Source: McKinsey’s proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018–19 job posting records; Germany’s Federal Employment Agency, BA; McKinsey Global Institute analysis

matter of course. We also do not know if some of the moves made by experience seekers led to poor fits that they addressed with additional moves.

- **Early movers** make bold, decisive moves in the first part of their career. Someone may start in one field, quickly realize that their passion lies elsewhere, and then get a big break that enables them to follow it. A graphic designer who makes print ads, for example, might become a user-experience designer early in her career. For this group as well, work experience accounts for 60 to 80 percent of lifetime earnings.
- **Late movers** stay put or make more incremental moves in the early stages of their career but eventually take a bolder step. Think of a seasoned journalist who leaves the newsroom and goes into corporate communications, a mechanical engineer who leaves the automotive industry and goes into aerospace, or a real estate agent who becomes a mortgage loan officer at a bank. This is by far the largest group in the sample. However, we do not know if they tried but did not succeed in making earlier bold moves, or if they made early missteps.
- **Lock-ins** change jobs less frequently, and when they do move, they don't make dramatic changes. This is not necessarily because someone is timid or stuck; they could also follow this strategy because they pursued what suited them from the start. Teachers, for example, may continue in the occupation because they have found their calling. Doctors have high sunk costs in specialized education and training, have very high starting salaries, and do not tend to make many moves. Other workers in this group may have tried to make bold moves but did not succeed in landing the opportunities. While work experience accounts for 60 to 70 percent of lifetime earnings for experience seekers and early movers in the advanced economies we studied, that share is only about 30 percent for lock-ins.

Experience seekers and early movers have the strongest experience effect and are able to translate it into higher earnings. Early, bold, and frequent movement is what propels them.⁶⁷ But they are a minority of workers. Addressing the constraints that prevent more people from changing roles fluidly could help to unlock more upward mobility.

The future of work creates new urgency for facilitating learning and role moves

David Autor, among others, has shown how automation has already disrupted career trajectories and lowered earnings for less educated workers.⁶⁸ As the adoption of automation technologies accelerates, the need to enable greater movement and occupational transitions is gaining urgency. MGI's previous research on automation in the workplace projects that significant shares of the workforce in countries around the world will need to adapt to changing job requirements or change roles altogether due to technological shifts.

Our analysis finds that individuals starting their careers in lower-pay, experience-reliant occupations are more susceptible to automation (Exhibit 16). For example, construction laborers, food servers, and pharmacy technicians may find themselves forced to transition to new occupations in order to stay employed by 2030. These transitions will determine whether they grow their human capital (or not). Employers, and societies more broadly, will need to make occupational transitions easier as more people have to undertake them, often needing new skills.

The COVID-19 pandemic accelerated another technological shift toward remote and hybrid work. Previous MGI research quantified the potential for remote work by occupation based on the average time spent performing specific tasks without loss of productivity. Applying these findings, we find that remote and hybrid work will intensify both opportunities and challenges for learning through experience.

⁶⁷ Our findings align with research by Schultz, who argues that those who move early see a greater return on their investment in migration in search of changing job opportunities. See Theodore Schultz, "Investment in human capital," *American Economic Review*, volume 51, number 1, 1961.

⁶⁸ David H. Autor, "Work of the past, work of the future," Richard T. Ely lecture, *AEA Papers and Proceedings*, 2019.

Occupations that are more reliant on work experience and have lower lifetime earnings are more susceptible to automation.

United States, by starting occupation¹

● Low automation potential (<=15)
 ● Medium automation potential (16–32%)
 ● High automation potential (>=33%)
x% Average automation potential² for the quadrant
Example occupations

Share of lifetime earnings associated with work experience,³ %



¹ First role after the latest education reported on a public online, de-identified worker profile.
² Share of time spent on activities that could be technically automated given currently demonstrated technologies.
³ The share of lifetime earnings associated with skills learned through experience. We attribute the ability to acquire the first job, and therefore the first job's salary, entirely to by entry-level skills. Wage increases while in the same job are attributed to work experience, as is a proportion of new salary after making a role move, based on the share of new skills required in the new role.
⁴ Sum total of the nominal salaries an individual receives over a 30-year working life. Combines estimates based on salaries of roles held by a person during the observed work history plus projections for the remaining years of that person's working life, applying historical rates of wage growth to the final observed role and assuming no further role moves.
 Note: Each dot represents an occupation. Outlier occupations are not represented. Correlation between the two indicators (R-squared) is -0.48.
 Source: McKinsey's proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018–19 job posting records; US Bureau of Labor Statistics; McKinsey Global Institute analysis

Of nearly 700 occupations in our data set, 134 occupations contributing to 15 percent of the labor force have both high remote work potential (meaning that 21 percent or more of time can be spent remotely) and high reliance on experience (meaning that more than 40 percent of lifetime earnings are associated with work experience). These occupations include roles such as credit analysts, data entry keyers, and editors. Some workers may gain new opportunities to change into these roles and make bold moves as companies expand their hiring beyond traditional geographic boundaries.⁶⁹

⁶⁹ COVID-19's biggest legacy: Remote work and its implications for the postpandemic labor market in the US, The Conference Board, March 2021.

Yet there is a risk that on-the-job training may become more challenging in a distributed and virtual world of work. While some activities can be performed remotely without loss of productivity, it may become harder to deliver adequate apprenticeship and onboarding with reduced face-to-face interaction and fewer unplanned coaching “moments.” Sponsorship may be weaker for remote workers relative to those who work on-site.⁷⁰

However, our analysis finds that individuals starting their careers in lower-pay, highly experience-reliant occupations have the lowest remote working potential (Exhibit 17). In 166 occupations contributing to 17 percent of the labor force, potential for remote work is low (2 percent or less time at work can be spent remotely, without loss of productivity) but reliance on work experience to boost lifetime earnings is high. This group includes agricultural equipment workers, mechanics, and cashiers, for example. Such workers may face limited role mobility opportunities because they do not benefit from hybrid work, and their experience effect may be constrained by local economic growth and labor market dynamics.

Technological change is ongoing, and it has always restructured work activities. David Autor has found that the majority of jobs performed in 2018 did not exist in 1940.⁷¹ New tasks arise even as others are rendered obsolete. Some of the new roles that emerge may be novel and better compensated. What does not change, however, is the need to make it feasible for workers to acquire new skills and make more seamless transitions. In the chapter that follows, we discuss how individuals, companies, and policy makers can play a role in making movement and job transitions more fluid.

⁷⁰ See “Reimagining the postpandemic workforce,” McKinsey & Company, July 2020; Jessica R. Method et al., “Remote workers need small talk, too,” *Harvard Business Review*, March 2021; Nancy Baym, Jonathan Larson, and Ronnie Martin, “What a year of WFH has done to our relationships at work,” *Harvard Business Review*, March 2021; and *The future of work after COVID-19*, McKinsey Global Institute, February 2021.

⁷¹ David Autor, Anna Salomons, and Bryan Seegmiller, *New frontiers: The origins and content of new work, 1940–2018*, 2021.

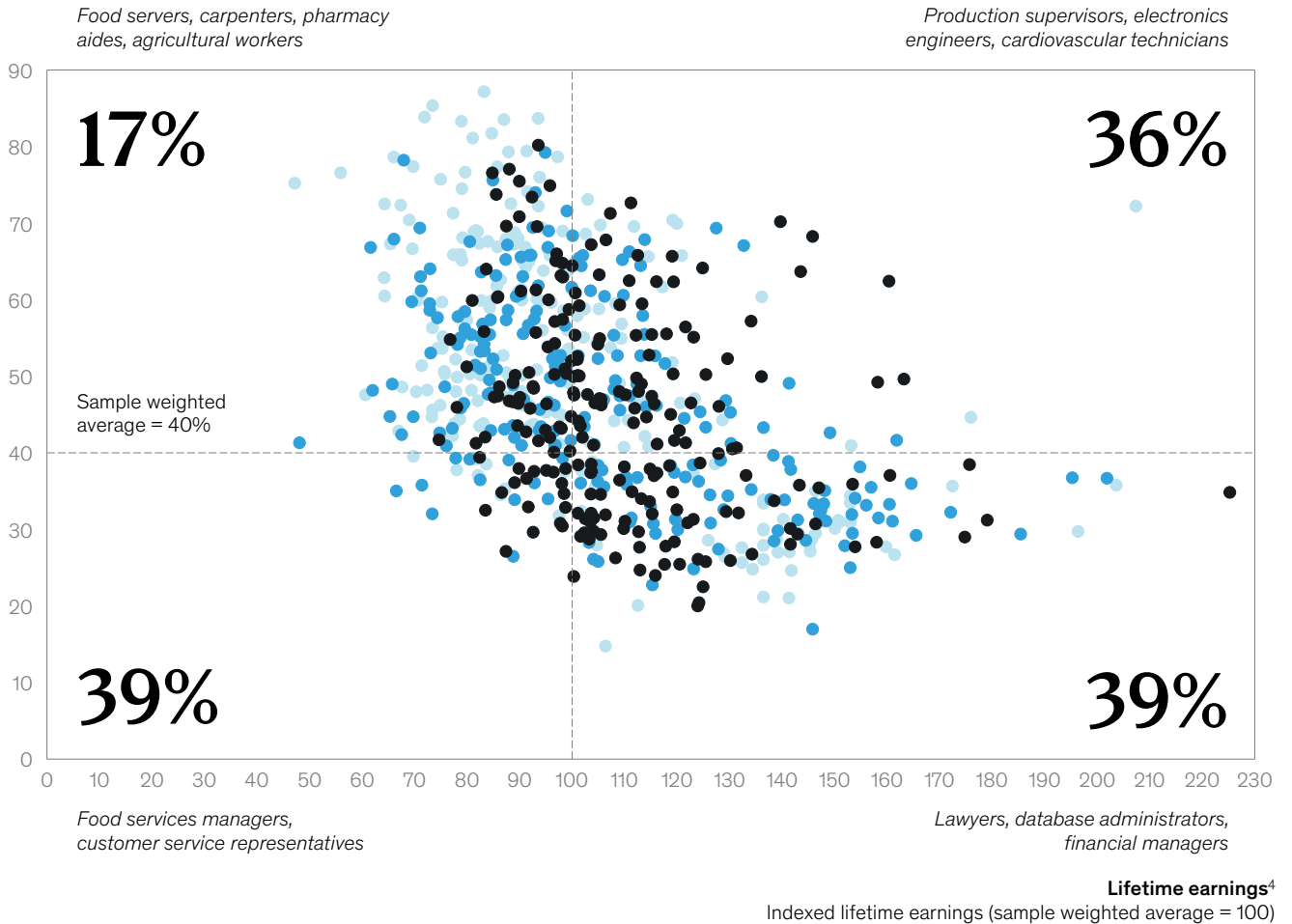
Occupations that are more reliant on work experience and have lower lifetime earnings have limited potential for remote work.

United States, by starting occupation¹

● High remote work potential (>=21%)
● Medium remote work potential (3–20%)
● Low remote work potential (<=2%)

x% Average automation potential² for the quadrant
Example occupations

Share of lifetime earnings associated with work experience,³ %



¹ First role after the latest education reported on a public online, de-identified worker profile.
² Share of time spent on activities that could be technically automated given currently demonstrated technologies.
³ The share of lifetime earnings associated with skills learned through experience. We attribute the ability to acquire the first job, and therefore the first job's salary, entirely to entry-level skills. Wage increases while in the same job are attributed to work experience, as is a proportion of new salary after making a role move, based on the share of new skills required in the new role.
⁴ Sum total of the nominal salaries an individual receives over a 30-year working life. Combines estimates based on salaries of roles held by a person during the observed work history plus projections for the remaining years of that person's working life, applying historical rates of wage growth to the final observed role and assuming no further role moves.
 Note: Each dot represents an occupation. Outlier occupations are not represented. Correlation between the two indicators (R-squared) is -0.48.
 Source: McKinsey's proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018–19 job posting records; US Bureau of Labor Statistics; McKinsey Global Institute analysis

Four journeys

Composite sketches of workers in each pattern of experience building

Alice: The early mover

Alice is a young urban worker in the United Kingdom. After finishing high school, she spent her 20s doing a series of odd jobs, eventually becoming a service sales representative for a midsize regional sales company in Manchester.

After two years there, she feels uninspired by call scripts and customer prospecting, and there's not much left in her paycheck after covering rent and basic expenses. She begins browsing job boards for other options. She sees that her prospects will be better if she expands her digital skills and takes four short online courses. Months later, feeling more prepared to branch out with her newfound basic computer skills and knowledge, she applies for a computer support specialist role and lands the job.

Twelve months down the line, Alice's enthusiasm about her new job has dimmed. The work is well defined and simple—and no longer new. She asks her manager if the company has any training programs but gets a disappointing response: a push for cost savings has eliminated all internal talent development initiatives. Frustrated, Alice signs up to receive email alerts on local job vacancies. When a marketing associate role lands in her in-box, Alice decides to take the leap. Excited by the prospective career move, she spends the evening crafting a cover letter to describe how the computer skills and sales acumen she developed in her current and previous jobs have readied her for a career in digital marketing. She applies for the role and gets it.

Several years after her big break into marketing, Alice's partner is offered a rotation at his company's London office, and the couple decide to move. Seeing that her current employer has a long and complex process to apply for relocation to other regional offices, she hands in her notice and starts a search in London. She applies to be a performance marketing manager at a large agency. The new role is a stretch, but the company sees Alice's experience and determination and decides to take a chance on her. After a cultural fit interview and a skills-based assessment, she is offered the job.

Now in her mid-40s, Alice is still with that agency and has been promoted to senior marketing manager. Her accumulated marketing experience makes her a sought-after expert in her firm—and she brings home an ample paycheck at the end of each month.

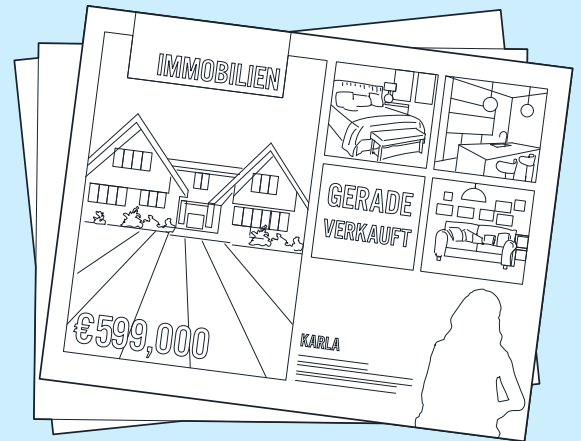


Karla: The late mover

Karla is a high school graduate in Bonn, Germany, who takes an administrative job at a friend's local real estate business. After three years, she begins to tire of her friend's unstructured management. She interviews for a similar position at a larger regional brokerage. She passes the next five years there providing support services in the background. As time passes, she becomes interested in handling deals more directly and asks her manager about becoming one of the company's brokers. But her manager passes her off to the human resources department, which never follows up because Karla's background and skills appear to be a good fit for her current role.

Discouraged, Karla starts looking elsewhere and eventually lands a similar position with a competitor that emphasizes employee growth. Six months into her new role, a broker position opens up. Karla carefully rehearses her pitch on her motivation, transferable skills, and goals for the position. Her new employer recognizes her drive and potential—and is only too happy to go with someone who already knows how the company works. The firm not only offers her the job but also sends her to a series of training seminars to sharpen her sales skills, and pairs her up with a more senior broker who can teach her the ins and outs of the closing process.

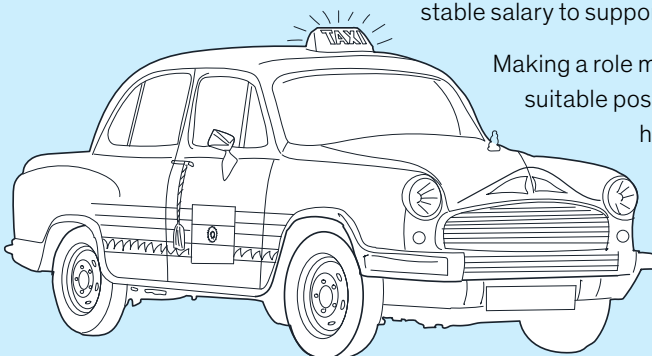
The company's investment in Karla pays off. Six years down the line, she has been promoted twice and is now regional sales manager. She is becoming known in the Bonn real estate market, actively mentors new hires coming from outside the industry, and is spearheading the company's regional expansion plans.



Dhruv: The lock-in

Dhruv is a taxi driver who lives on the outskirts of Kolkata, India. He begins his day at 5am, picking up commuters who want to beat rush hour and make their way into the city center for work. He toggles between two ride-hailing apps to optimize incoming requests, activating one as he drops off a passenger from a booking via the other. To support his family, Dhruv puts in long hours and is often trapped in traffic jams. It is uncomfortable work that exposes Dhruv to the noise, heat, and pollution of Kolkata's streets.

Dhruv works on his own terms and frequently enjoys chatting with his passengers. Not only has he become a capable driver and navigator; he has also developed good customer service skills in the course of dealing with thousands of locals and tourists over two decades. He dreams of a job in sales where he could put these talents to work, earning a higher and more stable salary to support his family and keep his two children in school.



Making a role move would require time for scouring job boards for suitable positions, filling out applications, and interviewing until he finds an employer who recognizes his talents.

Dhruv's busy driving schedule does not allow this kind of time. He wants to find a way to signal his potential and discover a position where he can thrive. He considers listing his profile on an online job board in the hope that it opens up a new career path for him.

Bill: The experience seeker

Indiana-born and -raised, Bill is a warehouse worker who lives in a small town outside Indianapolis. He spends 40 hours a week preparing orders and unloading merchandise. The work is simple, and he likes his colleagues, but the pay leaves him scrambling at the end of every month. Lately Bill has been on the lookout for a more challenging role with higher pay.

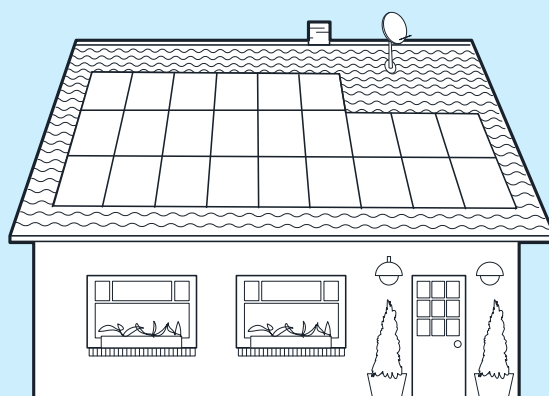
When he spies an opening for a quality controller position with a nearby manufacturing company, he applies. The hiring manager sees that the organizational skills and awareness of safety and process he learned in the warehouse would serve him well in the company's plant. Bill lands the job.

Bill quickly settles into quality control. He monitors operations and reviews specifications with a keen eye; he is praised for his attention to detail and efficiency. After two years, he is promoted to a quality control specialist position. Yet he finds himself dissatisfied: the pay is slightly higher and the title slightly more impressive, but the work is largely the same.

Beginning to feel hungry for something more, Bill decides that he needs to take up a higher-skilled specialized trade. He spends evenings and weekends taking a course in electrical installation at the local community college. He quits his factory job to take on a paid apprenticeship and is soon launched into a new career as an electrician, working for a general contractor.

Eventually, he moves to Indianapolis and branches out on his own. Over time, his client base grows beyond residential work as he lands larger commercial projects. Through his work, Bill develops a keen understanding of building codes and a deeper expertise in energy consumption, and he builds a strong network of local colleagues and clients.

A client makes a chance remark about how the inefficiency of legacy electrical power and control systems is unlikely to put him out of a job anytime soon, and Bill is struck with an idea. Founding his own energy-efficiency consultancy could fuel the growth and excitement he has been seeking. He pulls together a business plan and makes his pitches. Fast-forward a year, and Bill is now the founder and CEO of a business specializing in smart building installations and operations. When the company goes public, Bill takes home a hefty payout, which he plans to use to fund his next venture, this time in wind energy.





4. Shaping experience: Opportunities for employers and workers

Since work experience creates value for the individual, how can someone maximize that effect? Our analysis indicates that the most influential factor for individuals is spending time in an effective organization early in a career. Not everyone can manage to land with an employer that prioritizes learning and development. But for those who can seize these opportunities, exercising care and self-determination in career choices can unlock higher earnings over time.

This chapter considers not only how individuals can think about curating a career, but also what it means for an employer to be an effective organization that propels people upward.

Individuals cannot make bold career moves unless an employer sees their potential and takes a chance on them in hiring. An untraditional candidate may seem to be a risky option with unproven value.⁷² The match is less obvious, and it requires both candidate and employer to agree that the candidate has the intrinsic ability to do the job. Growth and advancement occur when employers create opportunities for people to learn new skills or apply existing skills that are not being fully utilized.

If employees want and need development opportunities, companies need to consider how to respond, particularly in newly tight labor markets. Although warnings about an imminent “war for talent” have been circulating for years, many employers were taken aback by recent hiring difficulties and workers’ newfound leverage. At a time when automation and digitization are rapidly changing the skills companies need, leaders will need to adapt to a labor market that moves faster and rewards effective people development.

Worker mobility is like a circulatory system within the economy. When that system is healthy, it provides benefits to workers and companies alike. Recent OECD research finds that mobility is the main mechanism for workers to increase their earnings and advance their careers; it also ensures that businesses can quickly find the new employees they need to respond to growth opportunities.⁷³ The broader economy also benefits as movement strengthens the overall pool of workforce skills.

Within our data set, more than 80 percent of all the role moves individuals made involved changing employers. Movement across companies is a reality—but not a reason to avoid investing in people.

⁷² See Edward Lazear, “Hiring risky workers,” in *Internal Labor Markets, Incentives and Employment*, Isao Ohashi and Toshiaki Tachibanaki, eds., St. Martin’s Press, 1998.

⁷³ Damien Azzopardi et al., *The decline in labour mobility in the United States: Insights from new administrative data*, OECD, 2020.

Healthy organizations that emphasize employee development are engines of upward mobility

The primary way for an individual to maximize the experience effect is to join an organization that strengthens their development. Controlling for differences in occupation, we find that spending time early in a career with an effective organization explains 50 percent of the variation in how experience adds to individuals' earnings. The remainder of the difference is associated with the boldness and frequency of moves that a person makes (as discussed in chapter 3).

Not all companies are equally good at developing people. What sets those effective organizations apart? We find that smaller companies, despite not having the advantages of scale, are as adept in this area as larger companies. In Germany, for example, small and medium-size enterprises (SMEs) provide an estimated 90 percent of all vocational training.⁷⁴

While size does not seem to matter, organizational health does. The top quintile of companies in McKinsey's Organizational Health Index seem to propel people upward. Thirty-seven percent of employees with early career experience in these companies would see upward mobility in earnings.⁷⁵ This compares with 25 percent for a company in the bottom quintile of organizational health (Exhibit 18). In short, organizational health is about more than company financial performance. It also has an impact on individual employees and their futures.

In addition, effective companies offer more structured learning and development programs and opportunities for internal advancement. These metrics, too, are linked to upward mobility for workers.

Companies in the top quintile for training offer more than 60 hours of training per full-time employee every year; those in the bottom quintile offer only five.⁷⁶ This has far-ranging ripple effects for workers: 37 percent of employees with early career experience in companies that devote more time to training are on the path to move into higher earning brackets, compared to only 23 percent who worked for companies in the bottom quintile.

Similarly, internal moves make up 47 percent of all moves (that is, internal moves plus separations) at companies in the top quintile for career advancement but represent only 18 percent of the total moves at bottom-quintile companies. We find that 34 percent of employees who worked for companies offering more internal career growth are on an upwardly mobile path, compared to 27 percent of those who worked for a company in the bottom quintile.

In the section that follows, we highlight some select talent programs and practices from individual companies. But one or two initiatives in isolation are insufficient; companies need to focus simultaneously on multiple fronts in order to maximize the value of human capital for themselves and their workers. Offering fair terms to employees is only a starting point toward becoming an employer of choice. It is equally important to support well-being and deliver a high-quality employee experience (see Box 4, "A new spotlight on employees' happiness, health, and welfare").

>60 hours

of training annually per full-time employee in top-quintile companies vs

5 hours

in bottom-quintile companies

⁷⁴ "SMEs provide the bulk of vocational training in Germany," KfW Research, 2018, [kfw.de/About-KfW/Newsroom/Latest-News/Pressemitteilungen-Details_485440.html](https://www.kfw.de/About-KfW/Newsroom/Latest-News/Pressemitteilungen-Details_485440.html).

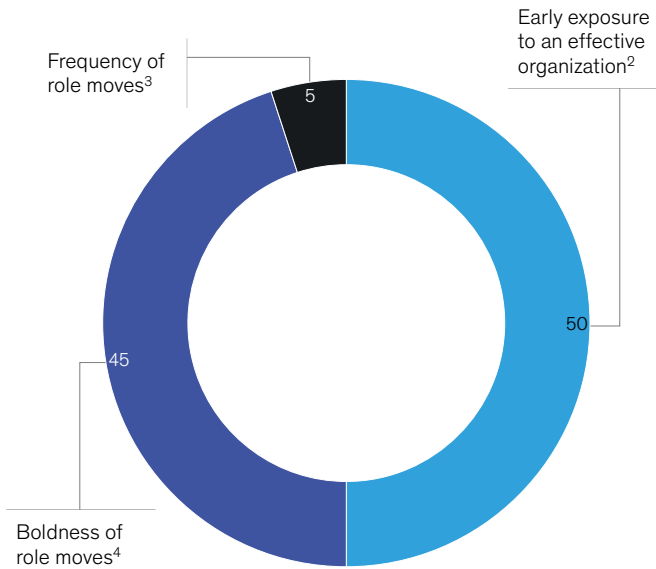
⁷⁵ Based on projected lifetime earnings, which applies historical rates of wage growth to the final role in an individual's online work history; this does not assume further role moves after the observed period.

⁷⁶ Refinitiv data.

Most of the differences in individuals' experience capital are associated with early exposure to an effective organization, followed by bold role moves.

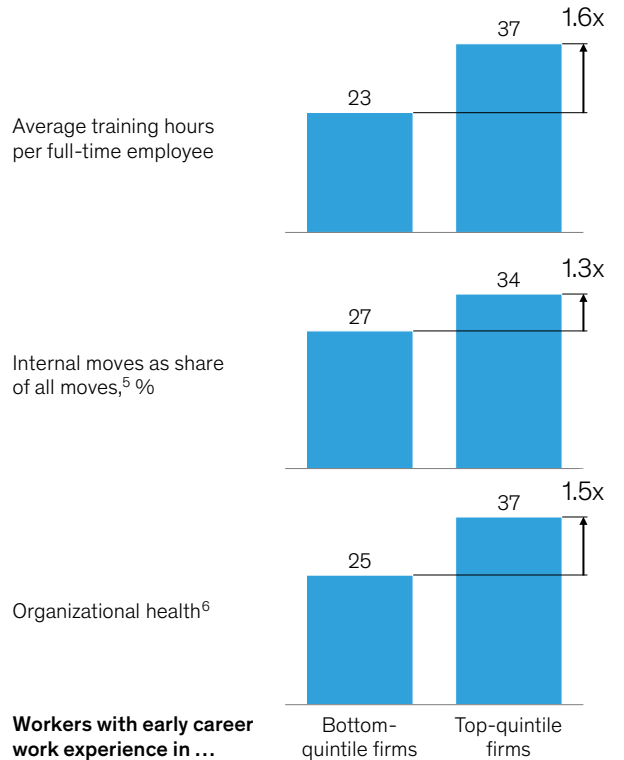
United States, Germany, United Kingdom, and India

Drivers associated with experience capital variation,¹ controlling for starting occupation and sector



Characteristics of effective organizations

Share of workers who would move into higher earning quintiles,⁷ %



¹ Measured by regressing experience capital for an individual on metrics measuring organizational practices of the firm where the individual starts his career, boldness of role moves, and frequency of role moves. Controlled for starting wage, latest wage in work history, years of post-education observed work experience, average experience capital for a given sector, occupation, and organization. N = 65,554 individuals and R-squared = 0.54.

² Based on average training hours per full-time employee, internal moves as a share of all moves, and the overall score from McKinsey's Organizational Health Index. Firms with the highest OHI scores may attract intrinsically motivated individuals, who may be disproportionately likely to seek out new skills through work experience, amplifying this metric. Metrics matched to the organization where an individual worked during the start of their career. N = 362 firms.

³ Role moves are changes in an individual's job, occupation, occupation category, or organization. They include promotions or lateral moves within the same organization as well as moves from one employer to another.

⁴ We describe moves involving high skill distances as "bold." Skill distance is the share of nonoverlapping skill requirements between two roles, which shows the proportion of new skills required when someone moves into a new role. We identify skill requirements for each role from job posting data, weighted by skill frequency, which gives more weight to skills that are specialized to a particular role rather than common across roles.

⁵ Role moves made within the company as a share of internal moves + separations; US data only.

⁶ Based on McKinsey's proprietary Organizational Health Index (overall score).

⁷ Movement into higher earning quintiles is based on estimated lifetime earnings of the individual (compared to quintiles of starting wages), which is calculated as the sum total of the nominal salaries an individual receives over a 30-year working life. Combines estimates based on salaries of roles held by a person during the observed work history plus projections for the remaining years of that person's working life, applying historical rates of wage growth to the final observed role and assuming no further role moves.

Source: McKinsey's proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018–19 job posting records; UK Office for National Statistics; US Bureau of Labor Statistics; India's National Sample Survey Organisation and Periodic Labour Force Survey; Germany's Federal Employment Agency, BA; Organizational Health Index by McKinsey; Refinitiv; McKinsey's Corporate Performance Analytics; S&P Global; McKinsey Global Institute analysis

Box 4

A new spotlight on employees' happiness, health, and welfare

Work is a large part of what goes into making a life. It dominates our waking hours, and for some people, it even provides a sense of identity and self-worth.¹ A large body of literature has found a fundamental link between work and both happiness and life satisfaction, as work creates spillover effects in areas such as family relationships and physical and mental health.² The degree to which work meets basic human needs for autonomy, a sense of competence, and connected relationships influences a person's level of satisfaction.³ Happiness and satisfaction at work enhance employee engagement, learning, and, in turn, productivity.⁴

With workers becoming more selective and more mobile, organizations need to assess the totality of what they offer employees, including the quality of their experience. Competitive compensation is a must, particularly now that there is more pay transparency than ever before. But this is only the baseline.

The work environment itself needs to be a healthy setting where people can thrive, grow, and feel a sense of purpose. Companies need to make thoughtful choices about building their culture and offering a unique value proposition; those choices should be aligned with the type of employer the organization wants to be.

Benefit packages are one way to recognize and align with employee priorities. McKinsey conducted a major survey of workers in five advanced economies in 2021. Among respondents who had left their jobs, 45 percent cited the need to take care of family as an influential factor in their decision. A similar proportion of people who were *thinking of* quitting cited the demands of family care. In response, companies can consider expanding childcare, nursing services, or other family-focused programs. Other types of workplace policies, such as flexible scheduling, remote work, extended time off, and employee well-being programs can similarly make the employer-employee relationship less transactional.⁵

Good bosses bring about good performance. Conversely, poor management practices can drive attrition, erode morale, and hinder productivity. An organization's top leadership needs to understand how middle managers and frontline supervisors affect the employee experience—and consider whether the people who make up the most direct layers of management need coaching in how to coach.⁶

¹ See, for example, Tom Fryers, "Work, identity, and health," *Clinical Practice and Epidemiology in Mental Health*, volume 2, number 12, May 2006; and Jan-Emmanuel De Neve and George Ward, "Happiness at work," Said Business School research papers, March 2017.

² See, for example, Cynthia D. Fisher, "Happiness at work," *International Journal of Management Reviews*, volume 12, issue 4, December 2010; Marianne Tait, Margaret Y. Padgett, and Timothy T. Baldwin, "Job and life satisfaction: A reevaluation of the strength of the relationship and gender effects as a function of the date of the study," *Journal of Applied Psychology*, volume 74, number 3, 1989; and Susan David, Ilona Boniwell, and Amanda Conley Ayers, *The Oxford Handbook of Happiness*, Oxford University Press, 2013.

³ Wenceslao Unanue et al., "Revisiting the link between job satisfaction and life satisfaction: The role of basic psychological needs," *Frontiers in Psychology*, volume 8, article 680, May 2017.

⁴ Petri Böckerman and Pekka Ilmakunnas, "The job satisfaction–productivity nexus: A study using matched survey and register data," *Human Resource Management*, volume 65, issue 2, 2012; and Arijit Choudhury, Anirban Dutta, and Sonit Dutta, "Employee happiness, employee engagement, and organisational commitment: A literature review," *ITIHAS – The Journal of Indian Management*, volume 9, issue 1, 2019.

⁵ "Great Attrition' or 'Great Attraction'? The choice is yours," *McKinsey Quarterly*, September 2021. See also Jarrod M. Haar et al., "Outcomes of work-life balance on job satisfaction, life satisfaction, and mental health: A study across seven cultures," *Journal of Vocational Behavior*, volume 85, issue 3, December 2014.

⁶ "The boss factor: Making the world a better place through workplace relationships," *McKinsey Quarterly*, September 2020.

Employers can attract and retain talent by recognizing potential, embracing mobility, and strengthening learning

Great learning organizations position themselves as “skills academies”—and they are magnets for talent. People join them to build knowledge and networks, understanding that their experience will provide a valuable signal to other employers for the remainder of their careers.

Within our data set, more than 80 percent of all the role moves individuals made involved changing employers. Employers can aim to beat the odds on both sides of this 80-20 dynamic. On one end, they want to attract the best candidates among the big talent pool that is always searching. On the other, they can boost the productivity and engagement of the best employees who stay, hopefully retaining them for longer. We see three major priorities for achieving this:

Understand the potential in people as well as their current knowledge and skills

Talent matching has always been a priority for companies—and especially for large, complex organizations. The ability to evaluate someone’s skills, spot talent, and match people to the right tasks and teams is at the core of both hiring and deploying the workforce internally.

Yet the hiring process often gets bogged down when organizations try to hedge the inherent risks of recruitment by looking for a “unicorn” candidate whose prior experience precisely matches the requirements of an open role. In a world of constantly evolving technologies and greater mobility, excessive caution can be self-defeating. Even internally, companies tend to hedge risks by having people stick with the same things they already know they can do rather than letting them branch out.

In our sample, more than half of all role moves undertaken by individuals involved a skill distance of more than 25 percent. Many people have latent capabilities that are not being recognized by their current employer, and many have the potential to learn additional skills. Employers may need a new lens that is better able to see the ability of workers to evolve. Olympic bobsled teams, for instance, have added new dimensions of strength and speed by recruiting former track stars.⁷⁷

Select people based on their potential as well as their past. Most employers can benefit from challenging the status quo of how they fill open roles. Companies need to evaluate candidates not only on their current responsibilities but also on their transferable skills, their intrinsic capabilities, and their potential to succeed in new roles. Someone who has been a waiter may have the people skills needed for customer service and sales, for example, while someone who has been a construction supervisor may be a natural in logistics. An accomplished video gamer might be great at directing food delivery robots.⁷⁸

Part of seeing potential involves removing biases that pigeonhole people in their current roles. This point is particularly important when it comes to current employees. Since organizations typically pay a premium for external talent and cannot always know if a candidate will be a cultural fit, it makes sense to understand the capabilities that are already available internally, in proven employees, before looking for external candidates.⁷⁹

Making bolder hiring decisions can involve some risk of failure, but the most effective learning happens when people step out of their comfort zones.⁸⁰ If candidates have a track record of acquiring new skills over time, it probably means they are capable of adding more. The entirety of their journey is signaling what they can do, if potential employers pick up on those signals.

⁷⁷ “Frozen: Track stars jump on bobsleigh bandwagon,” Olympics.com, February 2022.

⁷⁸ Ronald D. White, “Who’s driving that food delivery bot? It might be a Gen Z gamer,” *Los Angeles Times*, March 17, 2022.

⁷⁹ See for example, Rachel Layne, “Desperate for talent? Consider advancing your own employees first,” Working Knowledge, Harvard Business School, May 2022.

⁸⁰ Edward Lazear, “Hiring risky workers,” in *Internal Labor Markets, Incentives and Employment*, Isao Ohashi and Toshiaki Tachibanaki, eds., St. Martin’s Press, 1998; and Ryan Roslansky, “You need a skills-based approach to hiring and developing talent,” *Harvard Business Review*, June 2021.

Make skills assessment fit for purpose. One study by the Harvard Business School and Emsi Burning Glass that analyzed more than 50 million job postings between 2017 and 2020 showed that some employers are moving toward a model of hiring that is based on skills rather than educational credentials. Only 29 percent of IBM's job postings contained a degree requirement, for example.⁸¹ Google, Hilton Hotels, and Ernst & Young are also among the companies that have increased their hiring of candidates without college degrees.⁸²

Shifting to more skills-based hiring requires new techniques for assessing applicants. Companies now have many more digital tools at their disposal for achieving this, including “gamified” options for pre-employment testing. They also have much more data on the predictors of success, including factors beyond the candidate's current day job. Analyzing the profiles and career outcomes of candidates hired versus those not hired can help an organization refine criteria and better predict performance outcomes. The key is for more companies to use such tools and to keep experimenting until they arrive at a model of skills assessment that is nimble, reliable, and well-tailored to current and future needs. The process should emphasize the core, must-have skills for a given role rather than nice-to-have or more generalized skills.

Be open to hiring unconventional candidates. A straight line is not the only viable path. Companies can tap into broader talent pools by offering roles for people who want to change their career trajectory. The BBC's Apprentice Hub, for example, offers programs combining formal off-the-job training and work-based placements in design and technology, business, and production. It is available not only to recent graduates but also to those looking for a career change, enabling participants to earn while learning and gain a recognized qualification.⁸³ Companies including Bosch and Barclays have started retraining programs to recruit and train workers from nontraditional backgrounds into tech roles.⁸⁴ People with little related work experience who can demonstrate relevant skills from nonwork activities could be viable candidates. An Uber driver who flies drones as a hobby might have the potential to thrive doing aerial videography. In addition, companies need to see the potential in people who may have stepped off the career track for caregiving responsibilities, early retirement, or sabbaticals but now want to return to work. Employers could be less constrained about recruiting candidates from traditional sources and conventional educational backgrounds.

Embrace mobility

Employees are looking for jobs with opportunities for career progression. Establishing internal career tracks can reduce the likelihood that good employees have to go elsewhere to move up.

Set expectations that managers will develop people to go on to other things. LinkedIn's Global Talent Trends 2020 research found that the chief obstacle to internal mobility is that managers don't want to let go of their top team members. But 81 percent of surveyed talent acquisition professionals agreed that internal recruiting improves retention, and employees stay 41 percent longer at companies that regularly promote from within.⁸⁵ In our own sample, we find that employers offering more internal opportunities were better enablers of future upward mobility. Companies can streamline any bureaucracy standing in the way of internal mobility and measure managers on whether their team members advance rather than solely on what they achieve by staying in place.

Accept that people will come and go—and celebrate talented workers who leave. Movement is an inherent part of the labor market—and since there is no fighting the fact that talented people will move, the key for employers is becoming part of this flow. Companies need to be recognized as employers of choice and destinations for learning to attract the best external talent. When good employees do move on, it's best to celebrate them as success stories.

⁸¹ Joseph Fuller, Christina Langer, and Matt Sigelman, “Skills-based hiring is on the rise,” *Harvard Business Review*, February 2022.

⁸² Rajguru Tandon, “Google, Apple, IBM need skills more than degree for hiring,” *BW Businessworld*, August 2018.

⁸³ *Apprentice Hub*, BBC, bbc.co.uk/apprenticehub.

⁸⁴ Agam Shah, “Seeking tech talent, companies kickstart apprenticeship programs,” *Wall Street Journal*, January 30, 2020.

⁸⁵ “Global Talent Trends 2020: 4 trends changing the way you attract and retain talent,” LinkedIn Talent Solutions, 2020.

Alumni may become valued business partners in the future. It may also be advantageous to welcome these “boomerang” employees back if they ever want to return in a different role, enriched with different experience gained elsewhere.

Emphasize lateral opportunities as much as linear progression. Mobility is about gaining more varied experience, not only promotions. Lateral moves can also enable people to recharge, expand their skills, or find a position that is a better fit. Yet most organizations undervalue lateral movement or make it difficult. Several large multinationals including Abbott, Mastercard, Honeywell, BMW, and AstraZeneca have addressed this opportunity by creating rotational programs that offer recent graduates exposure to multiple functions for one to two years.⁸⁶ While these types of programs are typically geared to new hires who are management trainees, companies can design internal mobility options for a broader pool of employees. Stints in different departments or geographies can keep midcareer workers learning and feeling energized.

Define future career pathways. Each role within the organization should have clear—and clearly communicated—paths toward future roles, defined by the skills required to be qualified. Employees should be able to identify their next opportunities early in their tenure and co-create development plans with their leaders.⁸⁷

One way to do this in a large organization is to create an internal digital platform where employees can access learning modules and find their next role. Infosys has enhanced its platform with a Learning and Career app and an advisory bot to give each employee personalized suggestions on learning, opportunities, and networking. Digital tools enable manageable mobile learning and gauge skill proficiency to improve these internal matches.⁸⁸ Schneider Electric has used artificial intelligence to create an internal Open Talent Market. By uploading their profiles to the platform, employees can get AI-suggested development and career opportunities based on their skills, competencies, and ambition. Schneider introduced this platform after learning that 47 percent of people who were leaving the company said they couldn't find their next career opportunity there.⁸⁹

Prioritize coaching and apprenticeship along with more effective structured learning

Companies have long grappled with the fact that developing employees may make them more attractive to other employers. It may seem counterintuitive to double down on learning and development at a time when workers are growing more mobile. In fact, it is more important than ever.

In a 2020 McKinsey survey of US workers who left the workforce without a job in hand, some one-third of respondents cited lack of career development and advancement potential as one of their top three reasons for quitting.⁹⁰ In a June 2021 Gallup survey of 15,000 US workers, 65 percent said that the opportunity to learn new skills is an extremely or very important factor in deciding whether to take a new job, and 61 percent said it was extremely or very important in deciding whether to stay at their current job.

Strengthen coaching. Employees need day-to-day training to improve existing skills and develop new skills to perform well in their current role. A great deal of this happens simply by doing the work, particularly if assignments and roles are designed thoughtfully, with development in mind. Employees benefit from getting feedback delivered in the moment by a manager or more senior colleague, or from applying institutional knowledge that is codified and referred to regularly.

⁸⁶ Details available on corporate websites.

⁸⁷ “A call to action: Provide employees with room to grow,” McKinsey Organization Blog, February 2022.

⁸⁸ See [infosys.com/about/corporate-responsibility/social/employee-development/entry-level-employees-ranking.html](https://www.infosys.com/about/corporate-responsibility/social/employee-development/entry-level-employees-ranking.html).

⁸⁹ “Artificial intelligence (AI) is creating jobs for the future. And at Schneider Electric, ‘the future’ is now,” Life@Schneider Blog, November 2019.

⁹⁰ “Gone for now, or gone for good? How to play the new talent game and win back workers,” *McKinsey Quarterly*, September 2021. Based on three ranked choices from respondents to McKinsey's Great Attrition, Great Attraction survey who left a job between December 2020 and December 2021 without another job offer in hand (n = 587).

Learning could also take the form of a more structured apprenticeship program. Like many German companies, Siemens offers a robust apprenticeship and dual study program to help people who are starting their careers develop technical skills. The company also emphasizes lifelong learning for all of its employees, with an internal training platform that contains thousands of content modules.⁹¹

Emphasize structured onboarding and the new or first manager. Too many organizations leave new employees to sink or swim. The opportunity cost of leaving new hires to find their way on their own can be immense. In fact, the company is on probation during those first months just as much as the employee; there is greater willingness to leave in the initial period.⁹²

Our research suggests that the first few years of a career are foundational. The same is true for the initial phase of any new job. Onboarding is much more than an orientation session. Thinking of it as a six-month to one-year process, with a thoughtfully created journey, is much more effective. Organizations can provide the tools for a running start, including mentorship and a manager who is committed to providing active coaching and facilitating connections. Healthcare company Roivant Sciences, for example, has an analyst program that pairs new employees with executives and experienced professionals to learn their processes for big-picture decision-making and solving complex tasks.⁹³

Provide in-person and personalized development. Active coaching is essential for on-the-job training. But in a world of virtual, remote, and hybrid working models, the ability to do casual check-ins or drop by someone's office with a quick question has weakened. Many companies are struggling to develop new cultural norms to replicate the kind of training, learning, knowledge sharing, and community building that happens organically in the workplace.⁹⁴ Providing some face-to-face interaction is still important.

Improve the way formal learning programs are delivered—and measure results. In addition to training employees to succeed in their current roles, companies invest in their future by offering structured learning and development programs. Some large companies that stand out as skills academies have established corporate “universities” focused on learning and leadership development.

But creating and executing successful learning programs is no mean feat. According to one meta-analysis, only 10 percent of corporate learning is effective, a phenomenon Harvard Business School professor Michael Beer and colleagues have called the “great training robbery.”⁹⁵

By looking at the skills needed to achieve strategic goals in the intermediate term, companies can determine what kind of learning content to invest in creating. McKinsey research has found that a varied and multichannel approach to delivering structured learning works best.⁹⁶ A mix of different types of learning modules can be employed. Forums (delivering content in classrooms and workshops) alone are not effective. They are better when combined with hands-on fieldwork to apply the new skills, plus feedback through assessments.⁹⁷ In-person training for specific cohorts, steeped in a company's culture, is most effective. But virtual workshops and self-paced digital modules can also work, and people have grown more comfortable with these types of teaching mediums since the pandemic. Whatever mix is chosen, companies need to track and measure the outcomes.

⁹¹ See [new.siemens.com/global/en/company/sustainability/education.html](https://www.siemens.com/global/en/company/sustainability/education.html).

⁹² See, for example, Mark Stein and Lillith Christiansen, *Successful onboarding*, McGraw-Hill Professional Publishing, 2010; and Ron Carucci, “To retain new hires, spend more time onboarding them,” *Harvard Business Review*, 2018.

⁹³ See [roivantcareers.com/students-and-grads.html](https://www.roivantcareers.com/students-and-grads.html).

⁹⁴ See, for example, Jessica R. Method et al., “Remote workers need small talk, too,” *Harvard Business Review*, March 2021; and Nancy Baym, Jonathan Larson, and Ronnie Martin, “What a year of WFH has done to our relationships at work,” *Harvard Business Review*, March 2021.

⁹⁵ Michael Beer, Magnus Finnström, and Derek Schrader, “Why leadership training fails—and what to do about it,” *Harvard Business Review*, volume 94, number 10, 2016; and Michael Beer, Magnus Finnström, and Derek Schrader, *The great training robbery*, Harvard Business School research paper series, 2016.

⁹⁶ “Building workforce skills at scale to thrive during—and after—the COVID-19 crisis,” McKinsey & Company, April 2021.

⁹⁷ *Reskilling China: Transforming the world's largest workforce into lifelong learners*, McKinsey Global Institute, January 2021.

Consider offering employees external learning opportunities. External experiences add tremendous value to people's career trajectories. Organizations can consider offering externships and secondments (temporary roles in separate organizations, such as vendors, subsidiaries, or nonprofits) in a systematic way as part of their strategy to attract the best talent.

A number of large employers have partnered with universities and community colleges to develop vocational curricula. Intel, for example, recently partnered with Arizona's Maricopa County Community College District to offer an accelerated course in semiconductor manufacturing to develop a skilled workforce for its local chip factories.⁹⁸

Many large corporations have begun offering tuition reimbursement to help their employees further their education and prepare for better-paying opportunities, whether internal or external. Walmart, for example, fully covers tuition for employees to obtain an array of associate or bachelor's degrees. Frontline associates pursuing their degrees are also eligible for the company's new Home Office Pathway Experience, an eight-week training program that prepares them for full-time corporate roles within Walmart.⁹⁹

⁹⁸ "Maricopa Community Colleges and Intel to launch new semiconductor manufacturing workforce development initiative," Intel, March 2022.

⁹⁹ See <https://walmart.guildeeducation.com/partner> and <https://corporate.walmart.com/newsroom/2022/05/15/at-walmart-there-is-a-path-for-everyone>.

Box 5

When job switching becomes churn

Our research finds that role moves are associated with higher experience capital. They can boost income and advance careers. But at a certain point, role moves indicate dysfunction rather than healthy development and dynamism.

Moving between jobs more frequently has become more culturally acceptable. It is no longer an automatic red flag on a resume—until it becomes excessive. Someone who bounces from job to job without ever gaining traction for longer than a year eventually begins to send a negative signal to potential employers that they are difficult to work with or lack focus.

In some cases, job switching can be a symptom of economic insecurity. A significant share of all role moves involve layoffs, terminations, or people walking away from poor working conditions. Many people who work a succession of low-wage service or production jobs may not be gaining exposure to positive organizational practices as they change positions. In distressed local economies, the only options may be precarious jobs with no benefits. In these cases, movement speaks to a lack of opportunity—and even in wealthy countries, entire segments of the labor market may consist of precarious jobs.

Organizations have to adapt to natural levels of attrition. People will always retire, move, or seek greener pastures. Job churn, however, is a different animal, and it can be damaging. Turnover is costly and time-consuming. Losing high-performing employees can harm productivity, morale, and institutional memory. The employees who remain may be left with a higher burden, which can increase their stress and raise the likelihood that they may be next out the door. When turnover becomes churn, employers must question what has gone wrong—and frequently the answer involves not offering training or prospects for advancement. Addressing the issue before it becomes a vicious cycle is critical.

Workers should navigate their careers with intention—and choose their employers carefully

It's easy to feel trapped in a bad job. But for many, this could be an illusion. The pandemic appears to have awakened workers to that fact, and many have been voting with their feet. Some 47 million Americans quit their jobs in 2021.¹⁰⁰ While this wave has been popularly dubbed the Great Resignation, most of the people who quit have not left the workforce. Instead, millions have traded in bad positions—particularly low-wage service jobs—and landed better jobs or become entrepreneurs.¹⁰¹ Newly normalized remote and hybrid working models opened doors to roles and occupations that were previously geographically out of reach.

The wave has spread to other countries as well. Employers across Europe have reported labor shortages and hiring difficulties.¹⁰² China, too, is struggling to address a chronic shortage of labor caused by both demographic and structural factors.¹⁰³ Workers are in demand and taking advantage of new dynamism in the labor market.

However, making role moves that result in higher pay, new skills, better matches, and an upward trajectory is not in the cards for everyone. Precarious finances, unaffordable housing, lack of digital infrastructure, caregiving responsibilities, and a lack of strong social and professional networks could all affect someone's ability to make moves. In economies with a high proportion of low-wage service and production jobs, it is not always easy for workers to trade up into better opportunities.¹⁰⁴ These limitations are particularly pronounced for women and minorities in low-earning, experience-reliant occupations, who may face biases and structural barriers in the labor market.¹⁰⁵ In addition, in countries with high unemployment, workers find their options much more constrained.

The Great Resignation is nevertheless sending a clear signal. Many people have reassessed their lives during the pandemic. The real economic and personal costs of remaining in a job that leaves one stagnant have become clear to many more workers.

While higher pay often motivates people to make a move, particularly if they have been struggling to make ends meet, broader considerations are also in play. Many involve work-life balance and working conditions. Individuals who have the luxury of choosing each job move strategically can benefit in a more lasting way if they also focus on the learning opportunities, growth potential, and track record they can gain from each move.

Although the internet has given individuals more information about employers and opportunities, workers could make better and more informed decisions if they had even more transparency about which employers offer effective training, growth opportunities, and good management. More people would have the ability to make bolder moves if employers adopted the more flexible and skills-based hiring approaches discussed above. In the meantime, if workers lack learning opportunities with their current employers, they can tap into a growing array of free and low-cost online courses to seek out new skills on their own. A skills passport,

¹⁰⁰ US Bureau of Labor Statistics, "Job openings and labor turnover survey news release," March 9, 2022.

¹⁰¹ Josh Mitchell and Kathryn Dill, "Workers quit jobs in droves to become their own bosses," *Wall Street Journal*, November 29, 2021.

¹⁰² Tina Weber et al., "Tackling labour shortages in EU Member States," European Foundation for the Improvement of Living and Working Conditions, July 2021.

¹⁰³ Meng Ke and Yuk Li, "China needs 11.8M workers. Here's how to close its labour gap," World Economic Forum, July 2021.

¹⁰⁴ See, for example, Raj Chetty and Nathaniel Hendren, "The impacts of neighborhoods on intergenerational mobility II: County-level estimates," *The Quarterly Journal of Economics*, volume 133, issue 3, August 2018; Thomas Vartanian, "Intergenerational neighborhood-type mobility: Examining differences between blacks and whites," *Housing Studies*, September 2007; Yang Bai, "The faster, the better? The impact of internet speed on employment," *Information Economics and Policy*, volume 40, September 2017; Nicholas J. Klein and Michael J. Smart, "Disentangling the role of cars and transit in employment and labor earnings," *Transportation*, November 2018; Henrik Kleven, Camille Landais, and Jakob Egholt Sogaard, *Children and gender inequality: Evidence from Denmark*, MBER working paper 24219, January 2018; and Michael Bittman, Trish Hill, and Cathy Thomson, "The impact of caring on informal carers' employment, income and earnings: A longitudinal approach," *The Australian Journal of Social Issues*, December 2007.

¹⁰⁵ See the following McKinsey and MGI research: *Problems amid progress: Improving lives and livelihoods for ethnic minorities in the United Kingdom*, 2020; *Women in the workplace 2021*, with LeanIn.org, 2021; *The power of parity: How advancing women's equality can add \$12 trillion to global growth*, 2015; *US Hispanic and Latino lives and livelihoods in the recovery from COVID-19*, 2020; and *The economic state of Black America: What is and what could be*, 2021.

especially one focused on digital skills, can offer a sort of do-it-yourself credential to boost both employability and technical proficiency.¹⁰⁶

Policy makers should recognize and encourage the role of companies in cultivating workforce skills

MGI's body of research on automation and the future of work has highlighted accelerating shifts in the demand for skills.¹⁰⁷ Our analysis shows that low-earning, more experience-reliant occupations are more susceptible to automation. Millions of midcareer workers may need to shift into new roles, and their prospects will often hinge on acquiring more socio-emotional and technological skills. Making effective vocational skills training widely available will be a priority, and employers will be the natural providers for a substantial portion of the workforce.

Consider ways to support workforce training. Governments can provide incentives to encourage corporate investment in human capital, in line with incentives provided for R&D and physical capital investment. A Brookings Institution study of California's Employment Training Panel, an initiative that reimburses employers for investing in approved training, found that the program had positive and significant effects on the sales and growth of participating companies.¹⁰⁸ Germany, too, has recently increased incentives for companies to offer vocational training.¹⁰⁹

In addition, governments can play an important convening role for coalitions including employers, industry groups, educational institutions, unions, and the social sector. For example, the European Commission launched the Pact for Skills in 2020, working with European auto companies on a strategy to train 700,000 workers each year. The pact envisions €7 billion in annual private and public investment.¹¹⁰ In India, the National Skill Development Corporation and the Generation India Foundation launched a project to enable young workers to gain relevant skills.¹¹¹ In the United States, the Markle Foundation's Rework America Alliance is a partnership of civil rights organizations, nonprofits, employers, labor unions, educators, and state governments. It was created to enable individuals who do not have formal higher education move into higher-paying jobs.

Encourage nationally recognized credentials that verify workforce skills. Individuals could continually earn new, verifiable skill credentials throughout their career, through job experience and training programs. Governments can play a role in documenting and verifying them. The Europass Digital Credentials system enables students and workers from across the European Union to establish a file that employers across countries can understand.¹¹² The US Chamber of Commerce Foundation and the Lumina Foundation have launched the T3 Innovation Network to create an open data ecosystem to centralize information on skills, credentialing, and the needs of the economy; one of its goals is to standardize how skills are defined across industries and employers. The US nonprofit Credential Engine is creating an online registry to make information about the thousands of varying credentials across the country more transparent and searchable.¹¹³

¹⁰⁶ Nicholas Wyman, "Digital passports can propel young people into skilled jobs," *Forbes*, June 4, 2021.

¹⁰⁷ See, for example, *The future of work after COVID-19*, McKinsey Global Institute, February 2021.

¹⁰⁸ Marian Negoita and Annelies Goger, *State-level policies to incentivize workplace learning: Impacts of California's incumbent worker training program*, Brookings Institution, July 2020.

¹⁰⁹ "Germany boosts incentives for companies offering vocational training," Reuters, March 2021.

¹¹⁰ European Commission, "The Pact for Skills: Mobilising all partners to invest in skills," November 2020.

¹¹¹ Pratyusha Tripathy, "Project AMBER: A pathbreaking initiative by NSDC and Generation India Foundation (GIF) to make youth industry-ready," December 17, 2021, nationalskillsnetwork.in.

¹¹² Europass Digital Credentials, European Union.

¹¹³ Sean R. Gallagher, *Educational credentials come of age: A survey on the use and value of educational credentials in hiring*, Northeastern University Center for the Future of Higher Education and Talent Strategy, December 2018.

Reassess whether labor markets enable healthy worker mobility. Fluid labor markets minimize constraints on job switching, while rigid ones make seamless transitions to new opportunities more difficult. Regulation should be periodically reassessed to ensure that it supports a healthy dynamic and reflects current realities. When many vocations have licensing requirements or industries impose noncompete contracts, this raises barriers to entry and hinders the matching process between job seekers and vacancies. High housing costs, too, can make it difficult for job seekers in distressed regions to move to cities with better opportunities.¹¹⁴ Policy interventions may be needed on all of these fronts.

Invest in the foundational elements of health and education. While the Great Resignation unfolds in more prosperous parts of the world, workers are facing an entirely different set of challenges in developing economies. In poorer countries where vaccine rollouts have lagged and pandemic-related disruptions have persisted, employment has yet to bounce back. The International Labour Organization notes, for example, that the recovery from the pandemic-related downturn in Latin America and the Caribbean has been led by growth in low-wage informal jobs.¹¹⁵ It is more difficult to deliver and coordinate skills development in countries with large informal sectors. But informal employment declines with higher levels of educational attainment.¹¹⁶ The priority for the poorest countries remains investing in childhood health and improving education systems. Focusing on the earlier stages of human capital development is foundational to creating opportunities for rewarding work and upward mobility in the later stages.

¹¹⁴ See, for example, "Modernising state-level regulation and policies to boost mobility," in *OECD economic surveys: United States 2020*; and David Schleicher, *Stuck! The law and economics of residential stability*, Yale Law & Economics research paper number 572, January 2017.

¹¹⁵ Roxana Maurizio, "Employment and informality in Latin America and the Caribbean: An insufficient and unequal recovery," International Labour Organization technical note, September 2021. See also *World Employment and Social Outlook: Trends 2022*, International Labour Organization, January 2022.

¹¹⁶ *Women and men in the informal economy: A statistical picture*, third edition, International Labour Organization, 2018.



Technical appendix

A. Glossary

Role is defined as a combination of an individual's job (e.g., manager versus senior manager), occupation (e.g., general and operations manager versus training and development manager), occupation category (managers versus business and legal professionals), and the organization in which they work.

Role move is a change in an individual's job, occupation, or organization. It includes promotions or lateral moves within an organization as well as moves from one employer to another. Role moves could be driven by quits as well as firings and layoffs.

Entry-level skills are the skills that an individual possesses when they begin working in their first role. These are measured as the skills required for the starting role, not an individual's educational qualification or specialization. However, many of these skills may have been acquired through education.

Work experience encompasses the accumulated knowledge that workers gain by being in the labor market. This can occur through doing the work itself, formal employee-provided learning and development programs, job changes that better match existing skills, and acquiring new skills through role changes.

Work experience–driven skills are the additional skills gained or demonstrated at all subsequent roles after the starting role, as well as the deepening of existing skills.

Skill distance is the nonoverlapping portion of skills required between sequential role moves. It is measured as the weighted measure of skills that are newly acquired or deployed in the current role with respect to the preceding role as a proportion of the weighted measure of skills required in the current role. It is, therefore, an indicator of the boldness of a move. An incremental move is one where skill distance is in the bottom quartile of the sample, whereas a bolder move is one in the top quartile. The skills are weighted by skill frequency, which gives more weight to skills that are unique to a particular role rather than common across roles.

Lifetime earnings is a summation of an individual's salaries over a 30-year working life. Salaries are defined as the average yearly compensation provided for physical and knowledge work, not including benefits such as health insurance, subsidies, and tax transfers.

Experience capital is the share of lifetime earnings associated with skills learned through experience. We attribute the entire entry-level salary to the entry-level skills associated with the first job; some of these skills were acquired through education. Then we look at each role change and note the share of new or nonoverlapping skills associated with the new role, compared to entry-level skills, and then attribute an equivalent proportion of the newer job's salary to work experience. We assume standard yearly salary raises for the occupation for the length of time an individual holds a given job, based on historical rates of wage growth for the occupation in their country, and attribute these increases in earnings to work experience. We also refer to this as "share of lifetime earnings associated with work experience," "experience-reliant lifetime earnings," "experience-driven lifetime earnings," or the "experience effect."

Occupational categories are groupings of occupations requiring a similar set of knowledge, skills, and abilities. For example, general and operational managers, construction managers, and industrial production managers all fall within the occupation category of “managers.”

Occupations are based on data from job postings and the Occupational Information Network, O*NET. Each occupation requires a different mix of knowledge, skills, and abilities, and is performed through a variety of activities and tasks.

Role trajectory is the path that an individual follows. It is determined by the type of role moves someone makes (incremental versus bolder) and the timing of those moves (throughout their working life versus early versus late versus seldom). Based on these trajectories, we characterize individuals as experience seekers, early movers, late movers, or lock-ins.

B. Methodology

This appendix provides methodological details on the following analyses:

1. Lifetime earnings
2. Skill distance per role move
3. Salary change per role move
4. Experience share of lifetime earnings
5. Drivers associated with experience capital

Our analysis uses proprietary information from McKinsey's Organizational Data Platform, which draws on licensed, de-identified data from millions of online public professional profiles. We also use data from 350 million job posting records over 2018 and 2019 from more than 50,000 job boards to estimate the typical starting salary and skill requirements of each role. All data have been de-duplicated, cleaned, and harmonized into 4,000 roles and 220 skills using a proprietary algorithm to ensure accurate comparisons of roles, salaries, and skills.

For our analyses, we created a "worker data set" of roles, role moves, salaries, and skill distances between moves for a randomized subset of work histories through 2019 for approximately a million workers each in the United States, Germany, the United Kingdom, and India (Exhibit A1). The focus countries were chosen to represent advanced economies with varying labor markets plus a large and diverse developing economy. The sample was reweighted to reflect each country's occupational mix, drawing on data from national labor agencies.

Exhibit A1

We created a 'worker data set' with roles, role moves, salaries, and skill distances between moves for about four million workers in four countries.

Data set	Data available	
Online profile data, as of 2019	Randomized sample Individuals, million	Subset with some education listed for lifetime earnings analysis Individuals, thousand
	United States	410
	Germany	280
	United Kingdom	230
	India	230
	Subset with at least one role move for mobility analysis Individuals, thousand	Subset starting in companies with financial and other data available Individuals, thousand
	United States	48 (299 companies)
	Germany	1 (5 companies)
	United Kingdom	11 (40 companies)
	India	5 (18 companies)
Job posting data, 2018–19	United States	12.6 million job postings for 705 occupations (2019)
	Germany	1.7 million job postings for 686 occupations (2018–19)
	United Kingdom	6.6 million job postings for 111 occupations (2019)
	India	Skills estimated using US and UK job postings

Note: Occupations based on O*NET OnLine.

Source: McKinsey's proprietary Organizational Data Platform, which draws on licensed, de-identified public professional profile data, as well as 2018–19 job posting records; UK Office for National Statistics; US Bureau of Labor Statistics; Germany's Federal Employment Agency, BA; India's National Sample Survey Organisation and Periodic Labour Force Survey; McKinsey's Organizational Health Index; Refinitiv; McKinsey's Corporate Performance Analytics; S&P Global; McKinsey Global Institute analysis

1. Lifetime earnings

We estimate lifetime earnings for a subset of 1.15 million workers (~410,000 individuals in the United States, ~230,000 in the United Kingdom, ~280,000 in Germany, and ~230,000 in India) who list some education as part of their online professional profiles. We restrict our observations to only those roles held after an individual obtains his or her latest educational degree.

The sample is randomized and de-identified. We examined work histories only for occupations that had at least a 1 percent ratio of share in sample to share in population. We acknowledge that data on work histories will likely overrepresent certain occupations over others. For example, occupations such as managers are overrepresented, while others such as cement masons or taxi drivers are underrepresented in our sample. Consequently, the sample is reweighted to reflect each country's 2019 occupational mix (based on data from the US Bureau of Labor Statistics, the UK Office for National Statistics, the German Federal Employment Agency, BA, and India's National Sample Survey Organisation and Periodic Labour Force Survey). This makes it possible to draw conclusions about all workers, not only high-skill workers with online profiles. Using reported counts per occupation in each country, we are able to give more weight to individuals in underrepresented occupations and less weight to individuals in overrepresented occupations.

The exact weight given to an individual of current occupation is given as

$$Weight_o = \frac{p_o^{population}}{p_o^{sample}}$$

where $p_o^{population}$ is the proportion of people with occupation reported in the overall labor force and is the proportion of people with occupation observed in the sample. We base our weighting on the last observed occupation for each individual in the sample and the labor force distribution in 2019 for the population. Occupation is defined as the seven-digit O*NET code and is harmonized across the observed work histories and government statistics.¹¹⁷

We estimate lifetime earnings as an individual's total earnings over a 30-year working life. We calculate lifetime earnings as the sum of earnings to date and projected future earnings, as follows:

$$Lifetime\ earnings = Earnings\ to\ date + Projected\ future\ earnings$$

Earnings to date. We use job postings (rather than government statistics) as the base source for salaries to give our estimates more granularity (for example, incorporating not only job category but also industry and job title keywords like “senior,” “junior,” and others). We supplement salary estimates from job postings with reported statistics from government agencies. The government statistics enable us to estimate changes in salaries over time, as job posting data do not cover a large time period in a given country. In India, where job posting data are not available, our salary estimates are based on government-reported statistics alone.

Salary information in raw job posting data typically appears as a range (for example, minimum and maximum salary that a company might offer). For each job posting with salary information, we take the simple average of the minimum and maximum salaries reported.¹¹⁸ In this model, occupations are defined as a seven-digit O*NET code for all countries. For countries whose reported primary occupation code is not O*NET (for example, ISCO, UK SOC), we first map the local occupation code to O*NET.

¹¹⁷ In every country, a number of O*NET codes are present in the work histories from McKinsey's Organizational Data Platform that cannot be matched to a code in the government-reported statistics. For the United States and the United Kingdom, these unresolved codes are given their own category and are weighted up to the proportion that is not covered by the observed sample. For India and Germany, these unresolved codes are dropped from the analysis.

¹¹⁸ Some job postings report hourly wages or other non-salary numbers that are mistaken as salaries. We impose a filter that drops any job posting whose listed salary figure is below an expected minimum earning in the given country (e.g., \$15,000 for the United States, £8,000 for the United Kingdom).

Salaries per occupation are estimated using a log-linear model with the following specification:

$$\log salary = \alpha + \sum_{i \in \text{Industry}} \beta_i \text{Industry}_i + \sum_{o \in \text{Occupation}} \beta_o \text{Occupation}_o + \sum_{t \in \text{title keyword}} \beta_t \text{keyword}_t + \epsilon$$

where α = Intercept | ϵ = Error term

Using the coefficients from the log-linear model, we are then able to estimate the salary for every job role at every point in time. In addition, we assume standard yearly salary increases for the occupation for the length of time an individual holds a given job (including the first job), based on historical rates of wage growth for the occupation in their country.¹¹⁹ We then map the work histories of individuals (that is, their job role at every point in time) to the corresponding salaries.

Projected future earnings. Outside each individual's observed work history, we estimate earnings over the remaining years of a 30-year working life. We apply an average salary growth at an occupation level in the corresponding countries to the final observed role, assuming no further role moves. For example, we would project 25 years for an individual whose observed job history is five years; likewise, we would project only five years for an individual whose observed job history is 25 years. We do not assume any further role moves during the projected future earnings period.

In exhibits, lifetime earnings are indexed to 100 (with average across sample = 100) for ease of analysis.

2. Skill distance per role move

We estimate skill distance by looking at the skill requirements associated with jobs that an individual holds. We restrict our observations to only those role moves that occurred after an individual obtained his or her latest educational degree.

We use job posting data to estimate required skills for each role, using a data set of 20.9 million aggregated job postings from more than 50,000 job boards. This includes 12.6 million job postings for 705 O*NET categories in the United States in 2019, 1.7 million job postings for 686 O*NET categories in Germany in 2018–19, and 6.6 million job postings for 111 O*NET categories in the United Kingdom in 2019. For India, skills are estimated using US and UK job postings. To identify the skills required for a given role, we consider only the skills that appear in at least 60 percent of the job listings for the role.

We calculate skill distance per role move for a subset of 3.3 million workers (~920,000 individuals in the United States, ~790,000 in Germany, ~930,000 in the United Kingdom, and ~650,000 in India) with some education listed on their online professional profiles. These profiles are from McKinsey's proprietary Organizational Data Platform, described above. We restrict the sample to only those individuals who made a change in job roles after 2010 in order to manage sample size and ensure recency in the data analyzed.

¹¹⁹ To estimate salary change over time for each role, we use data at the standard occupation category level from the US Bureau of Labor Statistics, the UK Office for National Statistics, Germany's Federal Employment Agency, BA, and India's National Sample Survey Office and Periodic Labour Force Survey.

Skill distance per move is calculated by dividing the weighted number of new skills (skills that are new or non-overlapping with respect to the individual's preceding role) by the total skills required for the individual's new role. For example, when an individual moves to a role with ten weighted skills, six of which are retained from the previous job and four of which are new, the skill distance for the move is 40 percent.

$$\text{Skill distance per role move} = \frac{\text{Weighted measure of new or nonoverlapping skills}}{\text{Weighted measure of all skills required for the new role}}$$

Skills are weighted by skill frequency, which gives more weight to skills that are specialized to a particular role rather than common across roles. We weight each skill using an inverse-frequency measure defined as $\text{InverseFrequency}_s = \log\left(\frac{N}{N_s}\right)$ where N is the total number of occupations, and N_s is the number of occupations that require that skill. This measure is calculated using aggregated skill requirements reported in the job posting data. The inverse frequency weight (IF-weight) is a positive number that is larger for rarer skills and smaller for common skills. Hence, the skill distance between the source and destination occupation is the sum of IF-weights of skills that are present in the destination occupation and not in the source occupation divided by the sum of the IF-weights of all skills in the destination occupation.

3. Salary change per role move

We calculate salary change per role move for the same subset of individuals for whom we calculate skill distance per role move. We do this to draw insights on upward mobility for workers in the four countries of interest and to understand the financial incentives (or lack thereof) for moving roles. We restrict our observations to only those role moves occurring after an individual obtains his or her latest educational degree. We calculate the percent change in salaries between the source and destination jobs, as follows:

$$\text{Salary change per role move (\%)} = \frac{\text{salary in new role} - \text{salary in previous role}}{\text{salary in previous role}}$$

As discussed in Box 3 (found in Chapter 2), our data set does not capture all of the variations in pay offered by different employers and how this might vary for employees with different levels of seniority and performance. Individual online profiles do not contain information on the actual salary someone earned for a given job. We therefore apply average salary information gleaned from online job postings and national statistics. As a consequence, we find that 50 to 60 percent of role moves undertaken by individuals in our sample led to a decrease in average salaries. Within this set of moves, the majority (about 20 percent of all moves) resulted in a decrease in salary of less than 10 percent.

4. Experience share of lifetime earnings

We estimate the share of lifetime earnings that can be attributed to work experience for a subset of 1.15 million workers (~410,000 individuals in the United States, ~280,000 in Germany, ~230,000 in the United Kingdom, and ~230,000 in India) containing information on education. This enabled us to look at the contribution of entry-level skills vis-à-vis skills gained or deployed through work experience to lifetime earnings.

We restrict our observations to only those roles held after an individual obtains his or her latest educational degree. The starting salary for an individual's first job is fully attributed to entry-level skills that person brought into the labor force.

After an individual's first job, the earnings attributed to entry-level skills are calculated as the starting salary at the current job times one minus the skill distance between the current job and the first job. Any remaining salary is attributed to work experience. We make this

assumption because work experience is the arena in which an individual is able to acquire and deploy new skills after formal education. While education and personal attributes have an enduring impact on earnings, our approach makes a simplifying assumption on the attribution of salary to skills to capture the scope and direction of the experience effect.

In addition, we assume standard yearly salary raises for the occupation for the length of time an individual holds a given job (including the first), based on historical rates of wage growth for the occupation in their country. We attribute these increases in earnings to work experience. This means that even a person who never makes a job move would have some experience effect on earnings over time. At the end of an individual's observed work history, but before 30 years of earnings have been recorded for the individual, we apply standard yearly salary increases based on the average national wage growth for the individual's final observed occupation until 30 years of earnings are recorded. We attribute all future projected wage growth to work experience. The rationale for making this assumption is that any increase in salary in a given role is considered to represent the individual becoming better at deploying the skills needed for the job.

We measure the experience share of lifetime earnings in absolute terms; it is the sum of the product of skill distance per role move (compared to entry-level skills) and earnings in the newer role (see section 3, above, for more detail on the definition and calculation of skill distance).

$$\text{Experience share of lifetime earnings} = \sum_{\substack{\text{For all roles} \\ \text{after starting} \\ \text{role}}} \text{Skill distance of role compared to entry-level skills} \times \text{Earnings in new role}$$

We are conservative in assuming only an average increase in salary based on the terminal occupation, with no additional role move premium over the remainder of an individual's working life. But if we were to assume that the individual continues to make role moves during the projected period with the same frequency and skill distance as in the observed period, the experience share of lifetime earnings would increase. The average share would become 44 percent instead of 40 percent in the United States, 48 percent instead of 43 percent in the United Kingdom, 46 percent instead of 43 percent in Germany, and 60 percent instead of 58 percent in India.

We also calculate experience capital in percentage terms, by dividing the experience share of lifetime earnings in absolute terms by lifetime earnings.

$$\text{Experience capital (\%)} = \frac{\text{Experience share of lifetime earnings (in absolute terms)}}{\text{Total lifetime earnings}}$$

In Exhibit 5 (Chapter 2), we observe that the share of earnings from entry-level skills dips around the third year of work history and then stabilizes. This is due to the following factors:

1. The full amount of the salary an individual earns in the first job after education is linked to entry-level skills.
2. In our sample, an average individual makes a role move about every three years, usually involving a skill distance of about 30 percent.
3. Consequently, in the new role, about 30 percent of the new salary is attributed to experience and 70 percent to entry-level skills. Therefore, there is a dip in the *share* of entry-level skills roughly three years into the work history. However, the *absolute value* of entry-level skills can increase or decrease based on the total salary increase.
4. In addition, we assume standard yearly salary raises for the occupation, for the length of time an individual holds a given job, based on historical rates of wage growth for the occupation in their country. We attribute these increases in earnings to work experience,

as any increase in salary in a given role is considered to be representative of the individual becoming better at deploying the skills needed for the job through on-the-job learning.

5. After the first role move, every role move is on average slightly more distant from the entry-level skills, and therefore the proportion of entry-level skills continues to decrease.

Take for example, someone who starts as a marketing assistant with an observed work history of 10 years.

Observed work history

Y1: Marketing assistant | Salary = 100 | Entry-level skills = 100 (100%) | Experience = 0 (0%)

Y2: Marketing analyst | Salary = 115 | Skill change versus entry-level role = 35% | Entry-level skills = 75 (65%) | Experience = 40 (35%)

Y3: Marketing analyst | Standard yearly growth = 2.4% | Salary = 118 | Entry-level skills = 75 (63%) | Experience = 43 (37%)

Y4: Accounts coordinator | Salary = 128 | Skill change versus entry-level role = 40% | Entry-level skills = 77 (60%) | Experience = 51 (40%)

Y5: Data analyst | Salary = 134 | Skill distance versus entry-level role = 45% | Entry-level skills = 74 (55%) | Experience = 60 (45%)

Y6: Data analyst | Standard yearly growth = 2.2% | Salary = 137 | Entry-level skills = 74 (54%) | Experience = 63 (46%)

Y7: Sales analyst | Salary = 137 | Skill change versus entry-level role = 45% | Entry-level skills = 74 (55%) | Experience = 63 (45%)

Y8: Senior sales analyst | Salary = 162 | Skill change versus entry-level role = 50% | Entry-level skills = 81 (50%) | Experience = 81 (50%)

Y9: Project manager | Salary = 200 | Skill change versus entry-level role = 60% | Entry-level skills = 80 (40%) | Experience = 120 (60%)

Y10: Senior analytics manager | Salary = 225 | Skill change versus entry-level role = 65% | Entry-level skills = 79 (35%) | Experience = 146 (65%)

Projections of earnings

Y30: Standard yearly growth = 2.3% | Salary = 355 | Share of entry-level skills = 79 (22%) | Share of experience = 276 (78%)

The value of entry-level skills remains constant over the projected period as we assume standard yearly raises for the projected period, based on historical rates of wage growth for the occupation, and attribute these increases in earnings to work experience.

Share of experience and entry-level skills

Summing up year-on-year for the entire period of 30 years, the share of total lifetime earnings attributed to experience is 67 percent and the share attributed to entry-level skills is 33 percent.

5. Drivers associated with experience capital

We ran a regression to explain the metrics associated with experience capital for a subset of individuals whose reported work experience began with employment in companies for which financial, proprietary Organizational Health Index by McKinsey, and training data are available.¹²⁰ This subset consisted of ~48,000 individuals in the United States (who worked for 299 companies), ~11,000 individuals in the United Kingdom (who worked for 40 companies), ~1,000 individuals in Germany (who worked for five companies), and ~5,000 individuals in India (who worked for 18 companies).

The drivers associated with experience capital variation (controlling for starting occupation and sector) were measured through regressing experience capital for an individual on metrics measuring organizational practices of starting firm, boldness of role moves, and frequency of role moves made by workers.

We considered the following control variables: first wage, latest wage, years of post-education observed experience, average experience capital for a given occupation, sector, and organization. The number of observations (individuals) was 65,554 in 362 companies.

We first regress the dependent variable of experience capital with the independent variables of metrics associated with early-career exposure to effective organizational practices: overall organizational health (as measured with the proprietary Organizational Health Index by McKinsey diagnostic), financial performance, average training hours per full-time employee, and share of internal migrations (that is, internal role moves as a share of internal role moves plus separations). We find an R-squared of 27 percent.¹²¹

We next regress the dependent variable of experience capital with the independent variables of metrics associated with early exposure to effective organizational practices as well as those associated with role mobility and bolder role moves (the number of role moves and the average skill distance between moves). We find an R-squared of 54 percent. The difference between the first and second model R-squared values, 27 percent, is associated with role mobility and bolder role moves. All metrics are found to be statistically significant.

¹²⁰ Company financial data from McKinsey Corporate Performance Analytics Tool, S&P Global, Organizational Health Index data from proprietary McKinsey sources, and training data from Refinitiv. N = 65,554 individuals from 362 companies.

¹²¹ Based on metrics from the Organizational Health Index by McKinsey that focus on creating career opportunities and firm financial performance. The highest-performing firms in the OHI may attract a greater proportion of intrinsically motivated talent. These individuals may be disproportionately likely to seek opportunities for developing new skills through experience, amplifying this metric. Scores matched to the organization where an individual worked during the observed period; n = 362 firms.



Bibliography

A

Acemoglu, Daron, Francisco A. Gallego, and James A. Robinson, "Institutions, human capital, and development," *Annual Review of Economics*, volume 6, 2014.

Altonji, Joseph A., and Charles R. Pierret, "Employer learning and statistical discrimination," *Quarterly Journal of Economics*, volume 116, number 1, 2001.

Arora, Suchit, "Health, human productivity, and long-term economic growth," *Journal of Economic History*, volume 61, issue 3, September 2001.

Arrow, Kenneth, "The economic implications of learning by doing," in *Readings in the theory of growth: A selection of papers from the Review of Economic Studies*, F.H. Hahn, ed., Palgrave Macmillan, 1971.

Ashenfelter, Orley, and Alan B. Krueger, "Estimates of the economic return to schooling from a new sample of twins," *American Economic Review*, volume 84, number 5, December 1994.

Autor, David H., "Skills, education, and the rise of earnings inequality among the 'other 99 percent,'" *Science*, volume 344, issue 6186, May 2014.

Autor, David H., "Work of the past, work of the future," Richard T. Ely lecture, *AEA Papers and Proceedings*, 2019.

Autor, David, Anna Salomons, and Bryan Seegmiller, *New frontiers: The origins and content of new work, 1940–2018*, 2021.

Azzopardi, Damien, et al., *The decline in labour mobility in the United States: Insights from new administrative data*, Organisation for Economic Co-operation and Development, 2020.

B

Bai, Yang, "The faster, the better? The impact of internet speed on employment," *Information Economics and Policy*, volume 40, September 2017.

Barro, Robert J., "Economic growth in a cross section of countries," *Quarterly Journal of Economics*, volume 106, number 2, May 1991.

Barro, Robert J., "Human capital and growth," *American Economic Review*, volume 91, number 2, May 2001.

Bartel, Ann P., "Measuring the employer's return on investments in training: Evidence from the literature," *Industrial Relations: A Journal of Economy and Society*, volume 39, number 3, 2000.

Baym, Nancy, Jonathan Larson, and Ronnie Martin, "What a year of WFH has done to our relationships at work," *Harvard Business Review*, March 2021.

Becker, Gary, *Human capital: A theoretical and empirical analysis, with special reference to education*, Harvard University Press, 1964.

Becker, Gary, *Human capital: A theoretical and empirical analysis, with special reference to education*, second edition, Harvard University Press, 1971.

Beer, Michael, Magnus Finnstrom, and Derek Schrader, *The great training robbery*, Harvard Business School research paper series, 2016.

Beer, Michael, Magnus Finnström, and Derek Schrader, “Why leadership training fails—and what to do about it,” *Harvard Business Review*, volume 94, number 10, 2016.

Bittman, Michael, Trish Hill, and Cathy Thomson, “The impact of caring on informal carers’ employment, income and earnings: A longitudinal approach,” *The Australian Journal of Social Issues*, December 2007.

Black, Sandra E., and Paul J. Devereux, “Recent developments in intergenerational mobility,” in Orley Ashenfelter and David Card, eds., *Handbook of labor economics*, Elsevier, 2010.

Blair, Peter Q., et al., *Searching for STARS: Work experience as a job market signal for workers without bachelor’s degrees*, NBER working paper number 26844, March 2020.

Bleakley, Hoyt, “Health, human capital, and development,” *Annual Review of Economics*, September 2010.

Bloom, David E., and David Canning, “The health and wealth of nations,” *Science*, volume 287, February 2000.

Bloom, David E., Michael Kuhn, and Klaus Prettnner, *Health and economic growth*, IZA Institute of Labor Economics discussion paper number 11939, November 2018.

Blundell, Richard, et al., “The returns to higher education in Britain: Evidence from a British cohort,” *Economic Journal*, volume 110, number 461, February 2000.

Böckerman, Petri, and Pekka Ilmakunnas, “The job satisfaction–productivity nexus: A study using matched survey and register data,” *Human Resource Management*, volume 65, issue 2, 2012.

Boyce, Tammy, and Chris Brown, *Economic and social impacts and benefits of health systems*, World Health Organization, 2019.

Bütikofer, Aline, Eirin Mølland, and Kjell G. Salvanes, *Childhood nutrition and labor market outcomes: Evidence from a school breakfast program*, Norwegian School of Economics, August 2016.

C

Carneiro, Pedro, Lorraine Dearden, and Anna Vignoles, “The economics of vocational education and training,” in *International encyclopedia of education*, Elsevier, 2010.

Carnevale, Anthony P., Ban Cheah, and Andrew R. Hanson, *The economic value of college majors*, Georgetown University, Center on Education and the Workforce, 2015.

Carucci, Ron, “To retain new hires, spend more time onboarding them,” *Harvard Business Review*, 2018.

Chetty, Raj, et al., “The fading American dream: Trends in absolute income mobility since 1940,” *Science*, volume 356, number 6336, April 2017.

Chetty, Raj, et al., “Where is the land of opportunity? The geography of intergenerational mobility in the United States,” *The Quarterly Journal of Economics*, volume 129, number 4, 2014.

Chetty, Raj, and Nathaniel Hendren, “The impacts of neighborhoods on intergenerational mobility I: Childhood exposure effects,” *The Quarterly Journal of Economics*, volume 133, issue 3, August 2018.

Chetty, Raj, and Nathaniel Hendren, “The impacts of neighborhoods on intergenerational mobility II: County-level estimates,” *The Quarterly Journal of Economics*, volume 133, issue 3, August 2018.

Chopra-McGowan, Anand, “Make sure your company’s reskilling efforts pay off,” *Harvard Business Review*, July 2021.

Choudhury, Arijit, Anirban Dutta, and Sonit Dutta, "Employee happiness, employee engagement, and organisational commitment: A literature review," *ITIHAS – The Journal of Indian Management*, volume 9, issue 1, 2019.

The Conference Board, *COVID-19's biggest legacy: Remote work and its implications for the postpandemic labor market in the US*, March 2021.

D

David, Susan, Ilona Boniwell, and Amanda Conley Ayers, *The Oxford Handbook of Happiness*, Oxford University Press, 2013.

De Neve, Jan-Emmanuel, and George Ward, "Happiness at work," Saïd Business School research papers, March 2017.

Diebolt, Claude, and Ralph Hippe, "The long-run impact of human capital on innovation and economic development in the regions of Europe," *Applied Economics*, July 2018.

E

European Commission, "The Pact for Skills: Mobilising all partners to invest in skills," November 2020.

F

Fisher, Cynthia D., "Happiness at work," *International Journal of Management Reviews*, volume 12, issue 4, December 2010.

Flabbi, Luca, and Roberta Gatti, *A primer on human capital*, World Bank Group, January 2018.

Fryers, Tom, "Work, identity, and health," *Clinical Practice and Epidemiology in Mental Health*, volume 2, number 12, May 2006.

Fuller, Joseph, Christina Langer, and Matt Sigelman, "Skills-based hiring is on the rise," *Harvard Business Review*, February 2022.

G

Gallagher, Sean R., *Educational credentials come of age: A survey on the use and value of educational credentials in hiring*, Northeastern University Center for the Future of Higher Education and Talent Strategy, December 2018.

Gallup and Amazon, *The American upskilling study: Empowering workers for the jobs of tomorrow*, 2021.

Goldin, Claudia, "Human capital," in *The Handbook of Cliometrics*, Claude Diebolt and Michael Hauptert, eds., Springer Verlag, 2016.

Gould, Eric D., Avi Simhon, and Bruce A. Weinberg, "Does parental quality matter? Evidence on the transmission of human capital using variation in parental influence from death, divorce, and family size," *Journal of Labor Economics*, volume 38, number 2, April 2020.

Grossman, Michael, "On the concept of health capital and the demand for health," *Journal of Political Economy*, volume 80, number 2, 1972.

Guvenen, Fatih, et al., "Lifetime earnings in the United States over six decades," University of Chicago, Becker Friedman Institute for Economics working paper number 2021-60, 2021.

H

Haar, Jarrod M., et al., “Outcomes of work-life balance on job satisfaction, life satisfaction, and mental health: A study across seven cultures,” *Journal of Vocational Behavior*, volume 85, issue 3, December 2014.

Heckman, James J., “Skill formation and the economics of investing in disadvantaged children,” *Science*, volume 312, June 2006.

Hirshleifer, Jack, “Where are we in the theory of information?” *American Economic Review*, volume 63, number 2, May 1973.

I

International Labour Organization, *Women and men in the informal economy: A statistical picture*, third edition, 2018.

International Labour Organization, *World Employment and Social Outlook: Trends 2022*, January 2022.

J

Jääntti, Markus, et al., *American exceptionalism in a new light: A comparison of intergenerational earnings mobility in the Nordic countries, the United Kingdom and the United States*, Institute for the Study of Labor (IZA), discussion paper number 1938, 2006.

Jorgenson, Dale, and Barbara M. Fraumeni, “The accumulation of human and nonhuman capital, 1948–84,” in *The measurement of saving, investment, and wealth*, Robert E. Lipsey and Helen Stone Tice, eds., University of Chicago Press, 1987.

Jovanovic, Boyan, “Job matching and the theory of turnover,” *Journal of Political Economy*, volume 87, number 5, part 1, 1979.

Judson, Ruth, “Measuring human capital like physical capital: What does it tell us?” *Bulletin of Economic Research*, volume 54, number 2, 2002.

K

Klepinger, Daniel, Shelly Lundberg, and Robert Plotnick, “How does adolescent fertility affect the human capital and wages of young women?” *Journal of Human Resources*, volume 34, number 3, 1999.

Kleven, Henrik, Camille Landais, and Jakob Egholt Sogaard, *Children and gender inequality: Evidence from Denmark*, MBER working paper 24219, January 2018.

Krueger, Alan B., and Mikael Lindahl, “Education for growth: Why and for whom?” *Journal of Economic Literature*, volume 39, number 4, 2001.

L

Layne, Rachel, “Desperate for talent? Consider advancing your own employees first,” Working Knowledge, Harvard Business School, May 2022.

Lazear, Edward, “Hiring risky workers,” in *Internal Labor Markets, Incentives and Employment*, Isao Ohashi and Toshiaki Tachibanaki, eds., St. Martin's Press, 1998.

Lenihan, Helena, Helen McGuirk, and Kevin R. Murphy, "Driving innovation: Public policy and human capital," *Research Policy*, volume 48, number 8, November 2019.

Lev, Baruch, Suresh Radhakrishnan, and Peter C. Evans, *Organizational capital: A CEO's guide to measuring and managing enterprise intangibles*, The Center for Global Enterprise, January 2016.

Lim, Stephen S., et al., "Measuring human capital: A systematic analysis of 195 countries and territories, 1990–2016," *The Lancet*, volume 392, number 10154, 2018.

LinkedIn Talent Insights, "Gender insights report: How women find jobs differently," March 2019.

Liu, Gang, and Barbara M. Fraumeni, *A brief introduction to human capital measures*, NBER working paper number 27561, 2020.

M

Managi, Shunsuke, and Pushpam Kumar, eds., *Inclusive wealth report 2018: Measuring progress towards sustainability*, Routledge, 2018.

Mankiw, N. Gregory, David Romer, and David N. Weil, "A contribution to the empirics of economic growth," *Quarterly Journal of Economics*, volume 107, issue 2, May 1992.

Maurizio, Roxana, "Employment and informality in Latin America and the Caribbean: An insufficient and unequal recovery," International Labour Organization technical note, September 2021.

McKinsey & Company, "Building workforce skills at scale to thrive during—and after—the COVID-19 crisis," April 2021.

McKinsey & Company, "Reimagining the postpandemic workforce," July 2020.

McKinsey Global Institute, *The future of work after COVID-19*, February 2021.

McKinsey Global Institute, *Independent work: Choice, necessity, and the gig economy*, October 2016.

McKinsey Global Institute, *Prioritizing health: A prescription for prosperity*, July 2020.

McKinsey Global Institute, *The rise and rise of the global balance sheet: How productively are we using our wealth?* November 2021.

Methot, Jessica R., et al., "Remote workers need small talk, too," *Harvard Business Review*, March 2021.

Mincer, Jacob, "Investment in human capital and personal income distribution," *Journal of Political Economy*, volume LXVI, number 4, August 1958.

Mincer, Jacob, *Schooling, experience, and earnings*, NBER, 1974.

Mohan, Rakesh, "The determinants of labour earnings in developing metropolis: Estimates from Bogotá and Cali, Colombia," World Bank staff working paper number 498, October 1981.

Mohr, Tara Sophia, "Why women don't apply for jobs unless they are 100% qualified," *Harvard Business Review*, August 2014.

Mortensen, Dale, *Specific capital, bargaining, and labor turnover*, discussion paper number 320, Northwestern University, March 1978.

Mortensen, Dale T., and Christopher A. Pissarides, "Job creation and job destruction in the theory of unemployment," *Review of Economic Studies*, volume 61, number 3, 1994.

N

Negoita, Marian, and Annelies Goger, *State-level policies to incentivize workplace learning: Impacts of California's incumbent worker training program*, Brookings Institution, July 2020.

Nelson, Phillip, "Information and consumer behavior," *Journal of Political Economy*, volume 78, number 2, March-April 1970.

North, Douglass C., and Robert P. Thomas, *The rise of the Western world: A new economic history*, Cambridge University Press, 1973.

O

Organisation for Economic Co-operation and Development (OECD), *Learning for jobs*, OECD Review of Vocational Education and Training, 2010.

OECD, "Modernising state-level regulation and policies to boost mobility," in *OECD economic surveys: United States 2020*, 2020.

OECD, *The well-being of nations: The role of human and social capital*, May 2001.

Oreopoulos, Philip, and Andrew Heisz, *The importance of signalling in job placement and promotion*, Statistics Canada, Analytical Studies Branch, 2006.

P

Pedrini, Giulio, "Law and economics of training: A taxonomy of the main legal and institutional tools addressing suboptimal investments in human capital development," *European Journal of Law and Economics*, volume 43, issue 1, February 2017.

R

Roslansky, Ryan, "You need a skills-based approach to hiring and developing talent," *Harvard Business Review*, June 2021.

S

Schleicher, David, *Stuck! The law and economics of residential stability*, Yale Law & Economics research paper number 572, January 2017.

Schultz, Theodore, "Investment in human capital," *American Economic Review*, volume 51, number 1, 1961.

Snellman, Kaisa, et al., "The engagement gap: Social mobility and extracurricular participation among American youth," *Annals of the American Academy of Political and Social Science*, volume 657, issue 1, 2015.

Solow, Robert M., "A contribution to the theory of economic growth," *Quarterly Journal of Economics*, volume 70, issue 1, February 1956.

Spence, Michael, "Job market signaling," *Quarterly Journal of Economics*, volume 87, number 3, August 1973.

Stein, Mark, and Lilith Christiansen, *Successful onboarding*, McGraw-Hill Professional Publishing, 2010.

T

Tait, Marianne, Margaret Y. Padgett, and Timothy T. Baldwin, "Job and life satisfaction: A reevaluation of the strength of the relationship and gender effects as a function of the date of the study," *Journal of Applied Psychology*, volume 74, number 3, 1989.

Tamborini, Christopher R., ChangHwan Kim, and Arthur Sakamoto, "Education and lifetime earnings in the United States," *Demography*, volume 52, number 4, August 2015.

Torpey, Elka, "Measuring the value of education," *Career Outlook*, US Bureau of Labor Statistics, April 2018.

U

Unanue, Wenceslao, et al., "Revisiting the link between job satisfaction and life satisfaction: The role of basic psychological needs," *Frontiers in Psychology*, volume 8, article 680, May 2017.

V

Valletta, Rob, "Higher education, wages, and polarization," Federal Reserve Bank of San Francisco Economic Letter, 2015-02, January 2015.

Vartanian, Thomas, "Intergenerational neighborhood-type mobility: Examining differences between blacks and whites," *Housing Studies*, September 2007.

W

Weber, Tina, et al., "Tackling labour shortages in EU member states," European Foundation for the Improvement of Living and Working Conditions, July 2021.

Wilde, Louis, "An information-theoretic approach to job quits," in *Studies in the Economies of Search*, S. A. Lippman and J. J. McCall, eds., North Holland, 1979.

World Bank, *The changing wealth of nations 2018: Building a sustainable future*, 2018.

World Bank, *World Development Report 1993: Investing in health*, 1993.

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