

The Future of Work

in the Developing World

Brookings Blum Roundtable
2016 Post-Conference Report

EDITOR
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B | Global Economy
and Development
at BROOKINGS



From August 3 to 5, 2016, nearly 50 prominent policymakers, development practitioners, and leaders from industry and academia came together from the public, private, and nonprofit sectors for the 13th annual Brookings Blum Roundtable in Aspen, Colorado on the future of work in the developing world.

The 2016 Brookings Blum Roundtable was hosted by the Global Economy and Development program at Brookings, with the support of honorary co-chairs Richard C. Blum, chairman of Blum Capital and founder of the Blum Center for Developing Economies; Walter Isaacson, president of the Aspen Institute; and Mary Robinson, president of the Mary Robinson Foundation–Climate Justice.

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Acknowledgments

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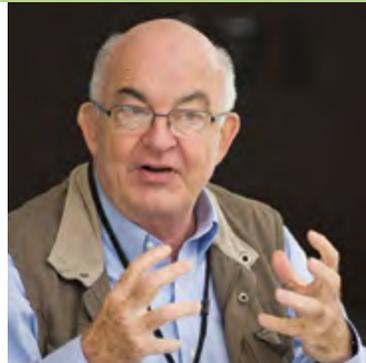
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Introduction

The twin forces of technological change and globalization are reshaping the global economy in multiple and important ways. Nowhere are their effects more pronounced than in labor markets. Considerable attention is now being devoted to analyzing and anticipating changing patterns of employment and wages in advanced economies. Thus far, less focus has been given to understanding the implications for emerging economies.

The 2016 Brookings Blum Roundtable was convened to take on that agenda. How are the factors driving change in global labor markets playing out differently in developing economies? What are the jobs of the future and how will the terms of employment differ? What skills will those jobs demand and how will those skills be acquired? And finally, what are the implications of these changes for development prospects and for society?

This essay provides a brief account of the roundtable conversation. It is followed by six essays, authored by leading experts on this topic, that were commissioned to inform the roundtable discussion.

An era of change

The effects of technology—especially digital innovation—and globalization on labor markets are three-fold.

The first effect is *disruption* as jobs relocate to take advantage of lower costs, evolve to entail different tasks, or undergo wholesale change with the elimination of old jobs and the emergence of new ones. Disruption is a permanent feature of any dynamic economy, the upshot of markets responding to changing conditions. While the effects of disruption can be devastating for any particular individual or community, its effects for workers as a whole are positive if old jobs are replaced with new ones that are safer, less physically arduous, more stimulating, and provide greater autonomy. This has been the case for the median worker in rich economies throughout modern history up until recently, but less true for developing economies.¹ Today's patterns of disruption are more discriminating, creating new groups of winners and losers, and can no longer be blithely assumed as a net positive. In addition, disruption is believed to be growing in intensity.

The second effect is a *diminishing role of labor*. Technology has made capital goods cheaper and encouraged their substitution for workers. The result has been a shrinking share of national income accruing as wages as opposed to profits across rich and poor economies. Some analysts view this phenomenon in combination with accelerating disruption as inevitably leading toward large-scale technological unemployment. This is an especially alarming prospect in the developing

world, where demographics are expected to increase the size of the global work age population by half a billion people by 2030. Another possible consequence is to reinforce the trend toward widening inequality.

The third effect is to *decentralize economic activity* away from corporations to which individuals provide their labor, toward the crowd in which workers participate as micro-entrepreneurs. This phenomenon is a facet of both the digital economy and globalization with the unbundling and contracting out of ancillary services from firms such as accounting and marketing. It is associated with changes in the terms of employment, both positive, such as increased flexibility, and negative, including the decline of unions and weakened workers' bargaining power, the erosion of norms on pay equity, and reduced job security. These effects are most apparent in rich economies where the formal sector dominates.

While there is good evidence for each of the three effects, their speed and scale is surrounded with uncertainty. For instance, estimates on the share of jobs that are at risk of automation over the medium term vary from 9 to 47 percent for OECD economies; fewer estimates exist

Technology has made capital goods cheaper and encouraged their substitution for workers. The result has been a shrinking share of national income accruing as wages as opposed to profits across rich and poor economies.



for the developing world, meaning the possible range is arguably even greater. In another example, a year ago the World Bank reported evidence of the hollowing out of labor markets in the developing world, mirroring the pattern observed in industrialized economies. More recent analysis reveals no such pattern.²

Breaking free of a Western lens

One of the challenges in discussing the future of jobs in the developing world is that the jobs agenda and the semantics and metrics that go with it principally reflect a rich economy setting. Without recognition of this, such discussions can easily become divorced from reality.

In the West, being employed means generating an income; those that are not employed are assumed to be either idle or not in a position to take on a paid job. By contrast, individuals recorded as being employed in the developing world typically represent only a small portion of those that are economically active, with the majority instead engaged in low productivity activities

in the informal sector. Thus, whereas raising employment in the rich world means moving people into paid employment, in the developing world it entails moving people into more productive—and likely better paid—lines of work.

This has important consequences. In industrialized economies the spread of automation implies the risk of redundancy for many workers. In developing economies, many workers are engaged in economic activities that are already some distance from the technology frontier—in other words, they could feasibly be done with greater technology and efficiency—and are paid accordingly. Automation needn't imply the loss of that work, but rather the possibility of a further diminishing income. Thus, estimates of the share of jobs at risk of being eliminated in rich and poor economies have different consequences, though both are undoubtedly worrisome.

These differences can also result in labor market conditions in the developing world being mistakenly glorified. For instance, subsistence living in the developing world



The jobs agenda is increasingly becoming recognized as a priority within developing economies and the international development community.

can be unhelpfully classified as entrepreneurship, implying a degree of choice and value that is clearly lacking. By the same token, subsistence living and informal work share some characteristics with the gig economy in rich economies, despite obvious and important differences.

Distinguishing a jobs agenda from a development agenda

Despite these challenges, the jobs agenda is increasingly becoming recognized as a priority within developing economies and the international development community. Demand for better jobs and anxiety about the sustainability of livelihoods consistently poll among the top issues in surveys of public opinion, including the vast My World exercise conducted to inform the contents of the Sustainable Development Goals.

At the same time, the development community has struggled to articulate how a jobs agenda differs from support for economic development more generally. This is understandable. Job opportunities in any

economy are in part a function of a country's level of income with poor countries constrained by low domestic demand and investment.

That's why linking poor economies with consumers and investors in rich countries can be such a powerful force in expanding the range of opportunities for workers—and it is precisely this economic integration that underpins the dramatic economic convergence and poverty reduction in the developing world over the past quarter-century. New technologies have the promise to further expand these linkages, including platforms that couple workers with overseas firms, and, in the near future, instant translation services powered by artificial intelligence. The ability of poor economies to take advantage of these opportunities rests on equipping their workers with sufficient education and skills, as well as access to technology and digital infrastructure.

Even for countries that share the same level of income, the number and quality of jobs can vary significantly with the sectoral composition of their economies.

For policymakers seeking to steer their economies toward more labor-intensive sectors, this can present a moving target. Whereas 20 years ago, manufacturing was lauded for its ability to absorb large numbers of relatively unskilled workers and to provide a stepping stone for economies seeking to develop capabilities and move into increasingly productive activities, today service-driven economies with a digital focus such as the Philippines and India may present the most promising and sustainable example to follow.

Just as low income in an economy constrains the number of good jobs that are available, it is also associated with various other adverse characteristics of labor markets including greater job insecurity, limited social protections and high information costs. A credible jobs agenda requires recognizing the constraint of low income and the extent to which it is binding for different labor issues. For instance, the biggest barrier to firms moving into the formal sector is arguably their low productivity and this cannot be divorced from a country's level of development. By contrast, new technologies can be transformative in reducing information costs in even the poorest economies.

Skills for the future

Education has consistently been associated with high rates of return in both rich and poor economies, but the precise mechanism by which education generates those returns remains somewhat contested. Some view education principally in terms of the imparting of skills while others emphasize its ability to sort individuals by their innate capabilities. The recent emergence of evidence of dismal learning outcomes in schools across large parts of the developing world could be interpreted as swinging the debate more in favor of the latter explanation. That is problematic for a future where the skills demanded of most, if not all, workers are seen as increasingly complex and quickly evolving implying the need for lifelong learning.

Another area of contention is the skills that should be given emphasis in training tomorrow's workers. If that determination is made narrowly on the basis of the pattern of job creation and elimination, it likely leads to an emphasis on STEM skills. If instead it is made on the basis of the increasing speed of disruption and the changing organization of economic activity toward

micro-entrepreneurship, then this raises the importance of soft skills and business skills to help workers adapt to a changing marketplace and to make optimal choices. Workers themselves appear to see the wisdom in this assessment: the most popular course on the online education platform, Coursera, is on "learning to learn."

Digital technology is ushering in broader changes in the education sector, by threatening to depose those institutions that deliver inadequate outcomes and replace them with ones better suited to the changing global economy. However, we remain a long way from building an ecosystem that can address workers' needs in assessing capabilities, imparting skills, accrediting skills acquired, and guiding each individual's trajectory through a path of lifelong learning. A particular institutional gap exists in establishing a credible and secure repository to record each individual's portfolio of qualifications and capabilities.

As the institutions that dominate the education sector change, this inevitably leads to questions about the role of government in the sector. The enormous positive externalities associated with education would suggest an important role. However, this need not necessarily be as a service provider, but more in shaping policy and providing finance for education. The greatest externalities likely occur for early childhood interventions—an area where government's role has historically been too limited.

The future of job matching platforms

Another area where digital technology is altering the institutions that shape labor markets is in the process of matching workers with vacancies. This is an exciting area of innovation and invention in the developing world. By linking workers and firms to the information they need, digital job matching platforms can both help markets clear more quickly and induce dynamic responses, including in the content of education programs and in the investment decisions of firms and workers. For example, when Apple adopted the new programming language, Swift, hundreds of freelancers on the digital job platform, Upwork, responded rapidly by training themselves to take advantage of new work opportunities.

A central objective for job matching platforms is to accelerate this feedback loop. That will likely require greater



PHOTO: © OMI DYAR NETWORK

linkages with other actors including those involved in education provision and skill certification. Such partnerships hold enormous potential for transforming labor markets but have yet to be harnessed at scale.

A bolder challenge still is to assist those workers for which matching platforms consistently fail to find job opportunities. Solutions for these individuals may require partnering with NGOs or government, and more complex interventions such as supporting worker relocation.

The consequences of a weak labor movement

While changes in the nature of work associated with the changing global economy are most prominent in advanced economies, there are nevertheless some important patterns shaping the developing world. Perhaps the most prevalent is the absence of a well-defined labor movement in many developing economies and a consequently limited role for collective bargaining. This is notable given what a prominent role these played in securing political goals and improvements in quality of life in the advanced economies during their

own process of economic development. Moreover, the effects of technology and globalization appear to be reinforcing this pattern. There is already some early evidence of gig work in the developing world resulting in workers' rights being less effectively upheld.³

There are a number of creative efforts underway to mitigate the negative consequences of these circumstances. For instance, some job matching platforms identify one of their core services to workers as helping them to optimally price their work. However, any attempt to strengthen workers' bargaining power in an atomized work environment is unlikely to achieve the kind of results won by organized labor. For this reason, some entities focus today on promoting alternative ownership structures to avoid pitting workers against each other and against capital owners.

For most workers in the developing world, a secure job remains only an aspiration. Should the pattern toward decentralized economic activity continue unabated, that possibility may diminish further, even as economies develop and workers enjoy greater earnings. That would fundamentally redefine our idea of what "middle-class" status represents.



Rethinking the role of government

The prospect of greater disruption, a diminished role for labor, and the decentralization of economic activity places a greater onus on the adequacy of safety nets. While safety nets are at different stages of maturity across different countries, those in the developing world have some advantages over those in rich nations in adapting to the needs of a changing global economy. These include programs being less fragmented and more harmonized, and avoiding the constraints that come when benefits are tied too closely to employment.

Compensation forms a central part of most public safety nets, which in its most comprehensive form means a universal basic income. The UBI concept has sparked excited debates in the West over the past year, so it is striking that the most extensive pilot, and one designed with rigorous evaluation in mind, is taking place in Kenya, and that the country arguably most poised to enact a UBI on a national scale is India. Other aspects of safety nets that require more innovative and effective solutions are those focused on retraining and relocating dislocated workers.

The redesign of social safety nets can be understood as one important component of a broader rebalancing required in the social contract between government and citizens, employers and employees, and the winners and losers of the changing global economy. The role of government is not just limited to helping those most vulnerable to change, but shaping change itself, whether by guiding the direction of technology

through public investments in research and development, putting in place regulations that foster competitive markets and that are supportive of collective bargaining, and providing digital infrastructure for all.

Perhaps the most fundamental changes government can help usher in concern culture and norms that constrain worker opportunities in the modern global economy. This includes addressing discrimination in hiring and the workplace, removing the negative stigma associated with certain types of jobs, and altering how work is defined to more fully encapsulate all the productive activities by which people define themselves, such as bringing up children and civil participation.

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Overheard at the Roundtable

Kemal Derviş | Vice President and Director, Global Economy and Development
Brookings Institution

Technology has been the source of economic development and prosperity for humanity as a whole for centuries and it will remain so, but at the same time, social relations, human relations, political relations, and relations between nations will have to be managed well, so that economic benefits accrue to all.



Ana María Martínez | Partner and Peru Director
Laboratoria

I'm optimistic about the future of work. When you see the lack of quality education and job opportunities for youth at a global level it's so overwhelming that it can paralyze you. But when you see the problem locally and when you have entrepreneurs that have the flexibility to start to solve it at a small scale, then you can start solving the issue, and big institutions can help scaling the programs that are working.

Craig Churchill | Chief, Social Finance
International Labor Organization

We've had the gig economy forever. So, what is new and exciting is overcoming information gaps, leveraging technology, and making gig workers much more productive and increasing the likelihood that they'll be able to raise their incomes.



Ann Mei Chang | Chief Innovation Officer and Executive Director, Global Development Lab
USAID

It's really difficult for a three-month training program to impart skills that won't easily be replaced by robots. There needs to be long-term, lifetime learning that involves building creative and critical thinking skills to make humans immune to automation.



Do labor-saving technologies spell the death of jobs in the developing world?

Carl Benedikt Frey, Oxford Martin Citi Fellow & Co-Director of the Oxford Martin Program on Technology and Employment—University of Oxford

Ebrahim Rahbari, Director, Global Economics—Citigroup



The digital revolution is rapidly changing the composition of the workforce across economies. In particular, a confluence of improvements in a wide range of related technological areas, including sensors, machine learning, automation, and robotics, is making technology more labor-saving and potentially less job-creating.

Throughout history, the arrival of revolutionary technologies—such as the railroad, the automobile, and the telephone—have created vast employment opportunities and delivered transformative improvements in living standards. However, these innovations also destroyed large numbers of existing jobs, necessitating extensive periods of retraining and adaptation. Indeed, a 2015 Harvard Business Review article noted that over the last 200 years technological change has often been associated with stagnant wages and rising inequality, at least for a time.¹

Why today's technological revolution may be different

What may be different about the current revolution? It is plausible that today's technology sectors have not provided the same opportunities, particularly for less-educated workers, as the industries that preceded them. This downward trend in new job creation in technology industries is particularly evident since the "computer revolution" of the 1980s. For example, economist Jeffrey Lin estimates that while about 8.2 percent of the U.S. workforce shifted into new jobs associated with technological advances during the 1980s, there was only a 4.4 percent shift during the 1990s.² During the 2000s, less than 0.5 percent of workers shifted

into technology industries,³ including online auctions, video and audio streaming, and web design. Similarly, there is evidence that the rate of business dynamism (such as the number of new businesses created) in the U.S. technology sector has been declining through the 2000s.⁴

Meanwhile, the labor-saving impact of digital technologies is substantial and likely to increase. Economist David Autor and his colleagues showed in the early 1980s that computers had displaced workers in a wide range of routine work, including many clerking and manufacturing jobs—work that is typically concentrated at the middle of the income distribution.⁵ Other research has shown that employment continued to grow both at the top and the bottom end of the skill and income distribution.⁶ The automation of routine work, therefore, appears to have contributed to the hollowing out of labor markets across the industrial world.

Recent technological breakthroughs and the prospect of further technological advances are quickly expanding the potential scope of job automation, making it likely that the labor market effects of technological change are also likely to become even more significant over time. Historically, computerization has largely been confined to routine tasks that involve explicit



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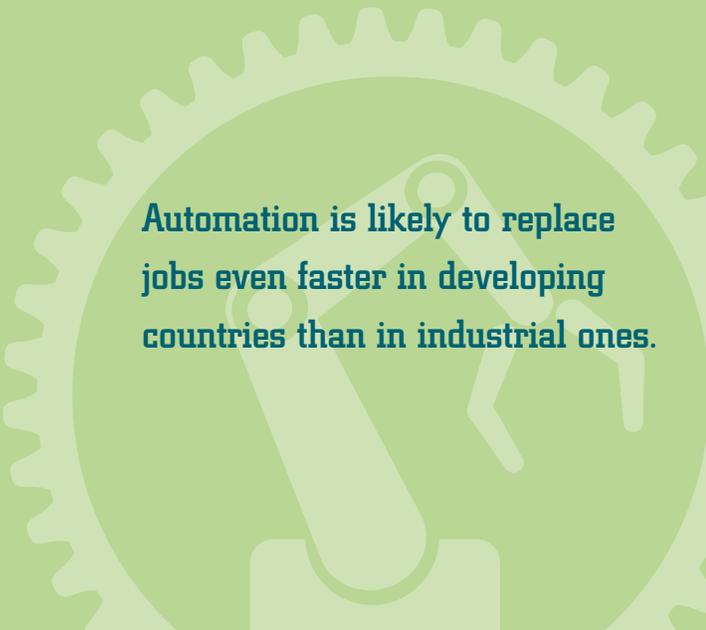
rules-based activities that can easily be specified in computer code. Recent technological advances, in contrast, have made it possible to also automate a growing range of non-routine tasks. Some tasks, such as driving a car or deciphering scrawled handwriting, were deemed non-automatable only a decade ago. Today such tasks to a large extent can be automated or are close to that stage.

Implications for the developing world

Both the benefits and the challenges of digital technologies and automation in particular are not limited to the industrial world alone. Indeed, there is reason to believe that its effects could be more dramatic on the developing world. Job polarization, with some exceptions, is also already taking place in developing economies. The World Bank's World Development Report 2016 noted that between 1995 and 2012 the share of routine employment has fallen by almost eight percentage points while the share of non-routine jobs (both high-skilled and low-skilled) increased in most countries (the decline of routine jobs among industrial countries was even larger at roughly 12 percentage points). The "hollowing out" was visible across a large number of developing countries, including Macedonia, Turkey, Mexico, and Malaysia. The most notable exception to

the trend was observed in China, where middle-income jobs have rapidly expanded, following the offshoring of manufacturing jobs in advanced economies and the mechanization of agriculture (commodity exporters also partly bucked the trend away from automation during the commodity super-cycle, but that is likely to reverse soon).

However, China may be one of the last countries to ride the wave of industrialization to prosperity. Technological breakthroughs of the 20th century—such as the container ship and the computer—significantly contributed to the rise of global supply chains, enabling companies to locate production where labor is cheap. Yet, recent developments in robotics and additive manufacturing, or "3D printing," have made it increasingly economical for companies in advanced countries to "reshore" production to mostly automated factories. The Harvard economist Dani Rodrik has shown that over the 20th century peak manufacturing employment has steadily declined among emerging economies, a phenomenon sometimes called "premature deindustrialization."⁷ This global trend may well be related to, and likely reinforced by, increasing automation of the workforce, posing significant challenges for developing economies to create jobs, let alone "good" jobs.



Automation is likely to replace jobs even faster in developing countries than in industrial ones.

The expanding scope of automation might constitute a watershed for labor markets worldwide. According to a recent study, around 47 percent of U.S. employment may be susceptible to automation as a result of ongoing technological improvements.⁸ It is no longer only production and back office jobs that are at risk, but also areas of logistics and transportation, construction, sales, and services. Thus, the reach of potentially automatable professions is now reaching sectors previously deemed relatively safe from technological replacement.

Again, developing economies may face even greater challenges than industrial economies. This is in part because the share of manufacturing and agriculture—still among the easiest to be mechanized and automatized—in many developing countries is substantially larger than in the average industrial country. According to World Bank data, employment in agriculture and industry still accounts for around 55 percent of total employment in low- and middle-income countries, while it is only around 26 percent in high-income countries.

Indeed, applying the Frey-Osborne methodology, the World Bank recently estimated that the share of jobs at risk of automation is even higher in developing countries—77 percent and 69 percent of all jobs in China or



PHOTO: © EMPOWER PAKISTAN

India, respectively—and perhaps 85 percent in Ethiopia, against an average 57 percent of jobs in member countries of the Organization for Economic Co-operation and Development (OECD). Since this methodology only reflects the technological capabilities and does not take into account differential labor costs, it should not be interpreted as implying that automation is likely to replace jobs even faster in developing countries than in industrial ones. After all, labor costs are of course lower in developing countries and automation is currently happening at a faster pace in industrial economies. But developing economies are by no means insulated from these trends (indeed, China is already one of the largest markets for robots in the world) and, importantly, automation may hinder the ability of developing economies to use their labor-cost advantage to build prosperous economies and societies over time.⁹

Given the potentially transformative impact of automation and related technological trends on labor markets, decisive policy responses are likely to be needed to ensure that the gains will be shared and the losers looked after, including measures to improve the quality

of education and training, fiscal incentives for employment, and some measure of protection and subsidies for the vulnerable. That is likely to be a tall order for most countries, but developing countries may find it even more difficult because of lower government effectiveness and less resilient economic and political systems. For instance, according to World Bank data, low- and middle-income countries significantly underperform high-income countries across all six categories of measured governance indicators (voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption) and show high levels of inequality.

In addition, developing countries are likely to be less capable of taking advantage of many of the opportunities that the new technologies offer. This is because, outside of concentrated areas like China and India's technology hotspots, much of the populations lack the skills that would be most complementary to new technologies and the physical and soft infrastructure (including extensive and fast broadband networks).



How realistic is the prospect of technological unemployment?

If technology is becoming less job-creating and more labor-saving, should we resign ourselves to a fate of technological unemployment, and, in the case of developing countries, bid any hopes of prosperity farewell? The answer is no, for various reasons.

First, not all jobs that are automatable are in fact automated—despite the promise of self-service technology, there are still more than 3 million cashiers in employment in the U.S. There are a variety of hurdles, including the need to adapt processes to make automation economically worthwhile and the flexibility to time and shape the introduction of technologies.

Second, job creation depends on factors other than technology. Importantly, most job creation since the computer revolution of the 1980s has come from non-technology sectors of the economy. A study by the Council on Foreign Relations, for example, showed that non-tradable sectors producing goods and services that are consumed locally can account for as much as 98 percent of total

U.S. employment growth between 1990 and 2008.¹⁰ Around 40 percent of this growth, in turn, came from government and health care services (sectors that are not primarily driven by market forces), while retail, construction, and food and accommodation industries also contributed significantly.

Third, technology has had significant impacts on jobs beyond the technology sector. Technology-using sectors, such as professional services, have expanded rapidly as advances in information and communications technology has made many of these jobs tradable. Furthermore, technology jobs create significant spillovers on local demand for services—it is estimated that one additional technology job creates around five new jobs in the local non-tradable sector.¹¹ As increasingly automated factories mean that manufacturing is absorbing fewer workers, including in the developing world, the future of job creation will depend on making the transition toward more skilled modes of production. Importantly, skilled jobs (and in particular non-routine jobs) are typically less susceptible to automation, and such jobs have the potential to create more demand

Technology-using sectors, such as professional services, have expanded rapidly as advances in information and communications technology has made many of these jobs tradable.



PHOTO: © KALIBRR



PHOTO: © CURT CARNEMARK / WORLD BANK

for local services. Multipliers for one additional skilled manufacturing job in developing countries are at least three times higher than multipliers for unskilled jobs (the multiplier for skilled manufacturing jobs ranges from 16 in South Africa to 21 in India).¹² It would therefore be misleading to focus merely on the job-destruction effects of technology or indeed only take into account those directly created by technology sectors.

Overall, the impact new technologies may have on labor markets and conventional developments models in developing countries is likely to be very significant and pose major challenges for policymakers who may already be stretched by a combination of economic pressures and political instability. The primary concern may not be widespread, technologically-created unemployment, but rather creating rewarding jobs and inclusive growth. Widening inequalities of income and wealth could in turn stretch social cohesion and further complicate the capacity of policymakers to address these challenges. Of course, the threat that disruptive technological progress poses is not unmitigated. Even though technology jobs may be few and far between, the additional demand for job creation in loosely related or unrelated sectors is likely to be significant. It is currently difficult to predict where these jobs will be, but for now we are very far from an abundance of jobs that would cause a lack of demand for job creation. Meanwhile, the same technological advances that threaten jobs and development models also bear unprecedented possibilities to boost productivity, reduce poverty, and improve the efficiency of public services.

Disclosure: Citigroup provides financial support for Brookings.

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Overheard at the Roundtable

Mike Kubzansky | Partner Omidyar Network

There seems to still be a genuine lack of clarity about the rate and pace of change in the labor market due to automation or opportunities from the gig economy. We saw the estimates ranging from 9 to 47 percent of jobs being at risk. There are drastically different points of view as to what the net effect on employment would be.



Allen Blue | Vice President, Product Management and Co-Founder LinkedIn

I would guess that 40 or 50 percent of the kids born in 2020 will never hold a job. The technology which is replacing jobs is not only getting better and faster, it's getting cheaper and easier to deploy. We see workforce participation beginning to drop in the developed world, and youth unemployment looks like a more and more intractable problem all the time.

Paul Rivera | Chief Executive Officer and Co-Founder Kalibr

We're trying to create a lot more efficiency in the job search process. And just creating efficiency alone through an online talent marketplace has a measurable impact on a developing economy's GDP.



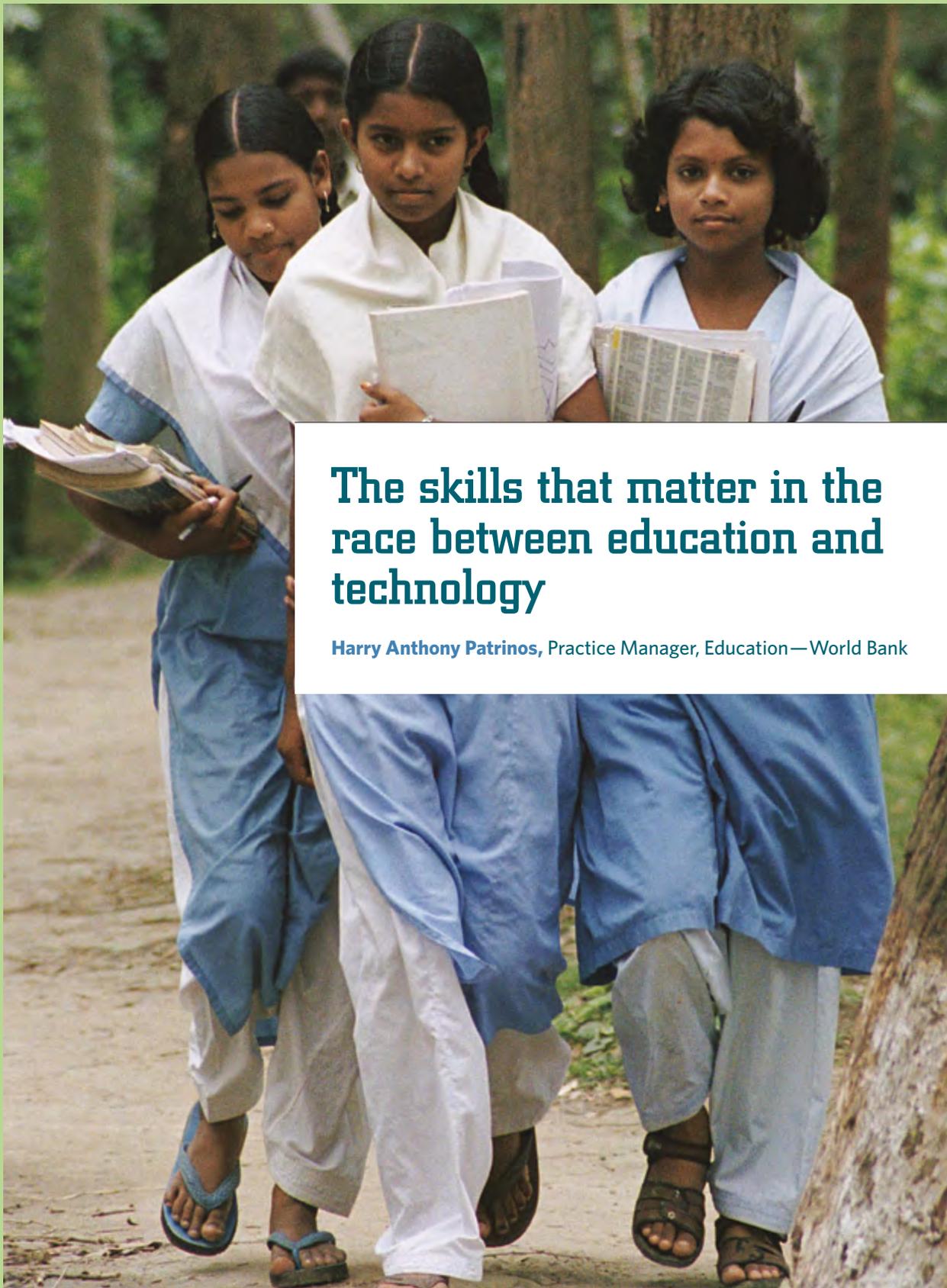
Arun Sundararajan | Professor New York University Stern School

Automation has been persistent over the last two centuries, so while AI and robots promise a new wave of automation over the next 50 years, the underlying labor market dynamics are not entirely new. The demand for some forms of human labor falls, while the demand for other forms rises.

Yavuz Ahiska | Chief Consultant Innovation Trust

We are in the infancy of being able to invent peer-to-peer commercial trust platforms that bypass the current multinational trust platforms, which in some cases charge disproportionate amounts to local service providers. For example, in the future, Malaysia could have Uber-like companies that have evolved over a local trust platform without involving a centralized trust arbitrator such as Uber.





The skills that matter in the race between education and technology

Harry Anthony Patrinos, Practice Manager, Education—World Bank



The threat of automation implies a race between education and technology.¹ In most developing countries, education systems are not providing workers with the skills necessary to compete in today's job markets. The growing mismatch between the demand and supply of skills holds back economic growth and undermines opportunity.

At the same time, the returns to schooling are high in most developing countries, and growing skill premiums are evident in much of the world.² Automation simultaneously results in deskilling and a need for new skills, and is changing what education will need to look like in the future.

To promote success in today's labor market, countries need to invest early, and then in relevant skills. Education systems that do well prepare children early on, reform continuously, and use information for improvement. High returns suggest it makes sense to expand higher education as well. The three biggest policy priorities for governments, investors, and the development community include:

- Focusing on basic skills, early childhood development (ECD), and measuring and improving early reading
- Giving opportunities to workers to invest in relevant skills that make them benefit from, and remain immune to, automation
- Using evidence from labor market returns to education to implement financial innovations— and use future earnings to finance higher education

Robots are coming!

Depending on whom you listen to, automation, robotics, and artificial intelligence (AI) will either solve all our problems³ or end the human race.⁴ The idea that automation could lead to a life of leisure took on new meaning when Swiss citizens voted recently on a referendum for a guaranteed income. The initiative lost but there are several others being planned, including a trial this summer in Utrecht. A motivating force behind these initiatives is the belief that robots will take so many jobs that many people will be rendered unemployable.

Sometime in the near future, machine intelligence is predicted to surpass human intelligence, a point in time known as “the singularity.” Whether the rise of the machines is an existential threat to mankind or not, there is a more mundane issue: Robots are currently being used to automate production. There are more than 300,000 industrial robots in operation in Japan and another 200,000 in North America.⁵ Economist Richard Freeman argues that robots can be a substitute for workers, even highly skilled professionals.⁶ And MIT professors Erik Brynjolfsson and Andrew McAfee suggest that as computers get more powerful, companies have less need for some kinds of workers.⁷



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To grasp how susceptible jobs are to computerization, one need look no further than the United States, where it is estimated that 47 percent of employment is at risk due to automation and technological advances.⁸ A strong negative relationship is predicted between wages and the occupation's probability of computerization. In other words, the effect of computerization will not be confined to routine tasks; rather, new technology will be able to substitute for labor in a wide range of non-routine cognitive tasks. Workers in transportation and logistics occupations, together with the bulk of office and administrative support workers, and labor in production occupations, are at risk. Computerization will also create jobs, and highly skilled workers will be needed to work alongside technology. In other words, it is likely that some jobs disappear and others will be created as a result of the same technological revolution. The prospect of a more precarious work environment due to technology is what the “race between technology and education” is about.

Automation could have a bigger impact in developing countries. If computerization makes high-income

countries more self-sufficient—less offshoring and more “reshoring”—then developing countries may lose their wage advantage. AI also offers an advantage for high-income countries since they are more likely to own the patents. Employment in manufacturing is already peaking in many developing countries, due precisely to the fact that manufacturing is much more automated these days. Besides slowing employment growth, automation may also increase income inequality. Technological disruption is widely being debated in industrialized, high-income countries. However, policy-makers in developing countries need to start worrying about the impact of automation as well.

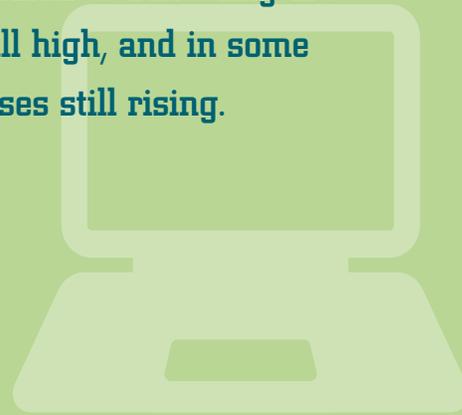
The returns to schooling are high, but the quality of schooling is low

Despite the growth of education systems, the returns to schooling are still high, and in some cases still rising. There has been a tremendous increase in education attainment in recent decades. In 2010, the world population aged 15 and above is estimated to have an average of eight years of schooling, having increased



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Despite the growth of education systems, the returns to schooling are still high, and in some cases still rising.



from just over five years in 1980.⁹ In 1950, the average schooling level of the population in advanced countries was six years; it is 10 years today. Average schooling was less than two years in sub-Saharan Africa in 1950; it is more than five today. Globally, in 1900, people had less than two years schooling on average; only two years by 1950, but more than seven by 2000, and are projected to have more than 10 by 2050—a more than five-fold increase in a century and a half.

More education leads to higher earnings. Economists measure this as the rate of return to education, which equates to the value of lifetime earnings of the individual to the net present value of costs of education. For an investment to be economically justified, the rate of return should be positive and higher than the alternative rate of return. The global average rate of return to investment in one extra year of schooling is 10 percent. There are also high social returns to primary schooling, with the highest returns in sub-Saharan Africa. The rate of return to schooling for women is 12 percent versus 10 percent for men. Returns to primary schooling are just above 10 percent, returns to secondary schooling

are seven percent, while returns to university schooling are 15 percent. Average schooling has increased by 2 percent per year while the returns to schooling have declined by only 0.1 percent, making education is a good investment globally.

The high returns to schooling are due to demand, given global competition for skills; and supply, since the poor quality of education in many countries places a premium on scarce skills. Thus, for policymakers, it makes sense to expand schooling. Policymakers could use the returns evidence to guide their investments; for example, further expansion of university education appears to be very worthwhile for the individual, meaning that governments need to find ways to make financing available. Also, high rates of return are generated by investing in girls' education. But given the low quality of schooling in many countries, the expansion of schooling at any level must be guided on information about quality. After all, the demand is for skills that enhance productivity. Therefore, policies should focus only on expansion of quality schooling, measured by high cognitive and non-cognitive scores.



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Returns to schooling vary around the world. Some countries are doing very well because of their investments in schooling, while others are struggling. Workers' ability to reap the benefits of schooling is handicapped by the poor performance of traditional education systems in much of the developing world. Schools in many developing countries are failing to teach basic skills like reading and math. In some developing countries, early grade reading tests reveal that only low proportions of primary school students can read a simple sentence with ease and comprehension.

The picture is bleak in middle-income countries as well. Only four percent of 15-year-old students in lower middle-income countries and only 13 percent in upper middle-income countries are proficient enough in math to succeed in further education and in work. By contrast, 32 percent of students from Organization

for Economic Cooperation and Development (OECD) member countries are proficient. A majority of students in middle-income countries are functionally illiterate.

Technology rapidly changes the workplace and the skills demanded, immediately making current workers less employable. Meanwhile, education systems are slow to change in terms of the creation of new skills.

There is a critical skills gap

As the demand for new skills increases, the challenge will be to anticipate what those skills might be. For some the answer is science, technology, engineering, and mathematics (STEM) skills as well as coding, so that people can develop or work with the technology. But an alternative approach is to think about the kind of work that technology cannot replace. The Oxford Martin School

studies on the vulnerability of jobs to automation point to those that draw most on creative and social skills, and complex perception and manipulation. Future workers need to make themselves “immune” to automation as much as possible. But this does not mean that basic skills do not matter. In fact, we are seeing high returns to cognitive skills, especially non-routine skills. These skills can be summarized as follows:¹⁰

- Problem-solving skills to think critically and analyze
- Learning skills to acquire new knowledge
- Communication skills, including reading and writing
- Personal skills for self-management, making sound judgments and managing risks
- Social skills for collaboration, teamwork, management, leadership, and conflict resolution

Automation implies both deskilling and the need for new skills. For many developing countries, nurturing basic skills remains the most urgent priority. Early reading fluency is paramount, since in the digital economy lifelong learning becomes the key to success. Assuming education systems in developing countries do master the delivery of basic skills any time soon, anticipating what relevant additional skills are needed is a challenge.

Further, skills needed for success are not likely to come from the usual sources. Occupational skills are too often assumed to be what vocational systems produce. Yet all too often, vocational education

systems are removed from the world of work. Vocational education in many developing countries can be a “dead-end” schooling track and is often the second choice of students.

Technology not only shapes what skills are in demand, but also how skills may be acquired. It is changing the way we teach—scripted lesson plans in many low-income countries facilitated by technology; higher levels of accountability with technology, such as teacher monitoring; better flow of assessment information; and online courses (massive open online courses, or MOOCs).

The new model of education to emerge from the technological revolution is not yet known. MOOCs may not replace the traditional university teaching model, but they do have tremendous potential in the world where lifelong learning is valued. In the developing world, technology may well be a force for increased accountability and the production of skills, including teacher training. Invest smartly by investing in education systems

The most promising models of education and training that can deliver basic and new skills focus on the elements of effective education systems. Systems that do well prepare children early on, reform continuously, and use information for improvement and accountability.

Education systems reforms are needed in many countries. The following six are necessary components to achieve such reforms:¹¹



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1. **Assessment:** Measurement is the cornerstone of education planning and reform aiming to improve quality. Countries that are unable to determine where their education system stands currently will find it difficult to make improvements or to reach their goals. One example of success in this area can be found in Jordan, where use of international tests for benchmarking and the use of feedback loops led to impressive gains.¹²
2. **Autonomy:** Empowering schools will support quality improvements. This includes giving them ownership, resources, and voice.
3. **Accountability:** Accountability increases time on task and academic achievement. An accountability-based system usually entails a shift of decision making authority from the government to the community, which is represented by school governing boards and integrated by teachers, parents, and community members.
4. **Attention to teachers:** Studies across the world show that a good teacher—one that adds value to the learning process—can be effective in helping students to improve their learning outcomes. The top-performing school systems recruit their teachers from the top third of each graduate cohort.
5. **Attention to ECD:** Such programs may be the most cost-effective investment. Empirical evidence demonstrates that quality ECD interventions increase educational success and adult productivity, and decrease public expenditures later on, as in the case of Jamaica.¹³

6. **Attention to culture:** Culture is important and often neglected. The use of the mother tongue as the language of instruction is one cultural area frequently disputed in many countries. In many countries, a significant number of students do not speak the national language in the home, which has practical implications for education. Schools using mother tongues as the language of instruction have higher attendance and promotion rates, and lower repetition and dropout rates.¹⁴

To improve learning outcomes and prepare students for the world of work, countries must develop a system to determine current learning levels and future learning aims. Policymakers need to consider each aspect of the education system in defining an appropriate reform that will provide an inclusive and holistic approach to improving education outcomes.

Focus on results

The new focus on skills will require new investments in education. Many developing countries must expand enrollments while ensuring quality at the same time. New sources of financing will be needed. While more efficient use of existing resources will help, aid, public-private partnerships, and innovative financing are needed. The development of skills can be financed to a large extent through reallocations of spending priorities and innovative financing.

High returns suggest it makes sense to expand higher education opportunities based on efficiency and equity. High private returns suggest that the investment is

Measurement is the cornerstone of education planning and reform aiming to improve quality.





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worthwhile for students and that public subsidy is not needed. However, it is difficult for many to borrow for education, which keeps a good university education out of reach for many. This in turn limits the potential social benefits that could be derived if higher education were more equitable.

Given these constraints, some level of public intervention is justified. Governments can offer student loans to those in financial need, but typical student loans are unsustainable and penalize graduates too much. It would be better to factor estimates of graduates' future earnings into the design of financial support for students. This would amount to income contingent loan programs that base future payments on the earnings of graduates. Those who earn more, pay back their loans faster. Those experiencing difficulties finding high paying jobs pay back their loans in smaller increments over a longer period of time, or have their debts forgiven. Income contingent loans, which are available in several countries (Australia, Chile, Ethiopia, England, Hungary, Korea, New Zealand, and South Africa), require payments based on income until the loan is repaid.

A more private sector approach might involve human capital contracts—or income share agreements, where payments depend on income until the repayment period ends. Human capital contracts are a means of financing education through which investors finance students' expenses in exchange for a percentage of students' future earnings. One company, Lumni, already provides such contracts for 7,000 students in Chile, Colombia, Mexico, and Peru. The percentage of income and duration of payments is based on students' expected earnings. Upon graduation, each student then pays a certain percentage of income for a certain number years for each \$1 of support received.

But at every level of schooling there is a need for information to guide individual, family, and institutional investments in learning. At the compulsory level, it is useful for improving the system, implementing accountability, and informing choice. At the higher education level, information is needed to improve efficiency and equity. One of the challenges in most countries is getting the disadvantaged to stay in school and to apply for higher education. Even in the United States, where the returns to education are high on average,

great variation exists, even if the average university graduate will earn 67 percent more than a high school graduate.¹⁵ For those who attend some college but drop out, earnings differences do not justify the decision to enroll. There must be better information for such students and greater support networks to help them take on the challenge of college.

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Overheard at the Roundtable

Himanshu Aggarwal | Chief Executive Officer and Co-Founder Aspiring Minds

Jobs close the feedback loop for skills. So while one can continue to impart skills, if people don't see gainful employment it's not going to work. Matching inherent and acquired skills to jobs is key.



Eliza Erikson | Venture Partner Omidyar Network

It's important not to over-prioritize digital skills. There are a number of other high-growth jobs, whether it's nursing or even agricultural technicians that we don't think are going anywhere. So how can we, through technological innovation, blended learning, and even virtual reality, transform some more traditional training in these fields to make it much more high return?

Robert Mosbacher | Chairman Mosbacher Energy Company

No matter what we do in terms of identifying the skills that are necessary, or how we match the right people with those skills to the job opportunities, I think we also must talk about the lack of commitment of many SMEs to investing in, and developing, their talent once they are on board.



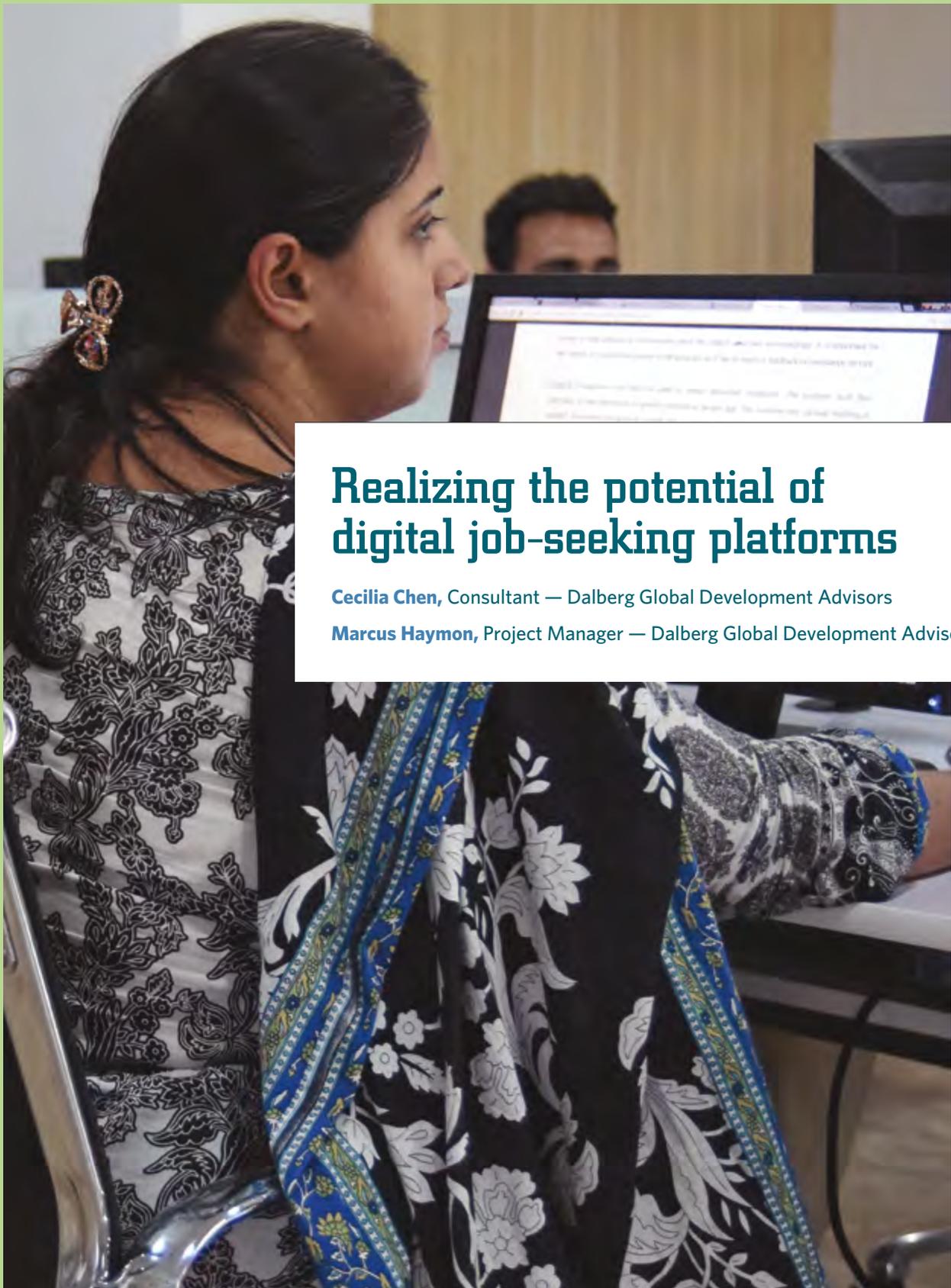
Jacob Korenblum | President and Chief Executive Officer SoukTel

Are we actually creating skilled workers if we're giving them digital employment? Is tagging a photo, or even promoting remote customer service, giving people a pathway to skill building? We don't want to be creating the sweat shops of the 21st century. But how then do we actually get to the point where we're providing better opportunities?

Anne-Marie Slaughter | President and Chief Executive Officer New America

I would argue that we need as many people in humanities as we need in STEM. Networks require a lot of human factors, they require the ability to look across and understand how different people might work together. They involve traditional management skills of figuring out how you head off a crisis before it arises.





Realizing the potential of digital job-seeking platforms

Cecilia Chen, Consultant — Dalberg Global Development Advisors

Marcus Haymon, Project Manager — Dalberg Global Development Advisors



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Labor market connectors for the digital age

Digital platforms are increasingly helping connect job seekers—from informal workers to highly skilled professionals—to suitable job opportunities. These platforms, which can aggregate vast amounts of data, accomplish three things.

First, they make it easier to learn about available jobs and requirements; second, they reduce the cost of recruiting; and third, they allow individuals to market themselves to a wider audience. Looking forward, digital search platforms can deploy their data aggregation and analytic capacity to reduce labor market inefficiency, including by devising more relevant assessment criteria for specific jobs, educating job seekers on market conditions and demands, and supporting career advancement through credentials and employer endorsements. Digital platforms, employers, and skills developers must collaborate closely to ensure that the workforce is being trained in the most relevant, market-responsive skills and that job platforms are valuable and relevant for both employers and job seekers. To support the continued growth and transformation of digital search platforms in emerging markets, local governments and the private sector (including both employers and investors) have crucial and catalytic roles to play.

Why digital platforms?

Even as unemployment remains high and people are unable to land good jobs, too often employers around the world report are unable find suitable candidates,

and many good jobs go unfilled. Digital platforms can help rectify this. The billions of people at—and just slightly above—the base of the labor market pyramid tend to lack the information, networks, and resources to find jobs. To meet their employment needs, we need more effective ways of linking job seekers with the opportunities that best match their skills, needs, and interests. Unemployment and underemployment reflect a mismatch in the demand and supply for skilled and unskilled workers; digital search platforms cannot solve this mismatch on their own, but they can contribute significantly to reducing large information gaps, including in emerging markets. Such technology can increase overall productivity by improving the allocation of labor and skills to the most suitable opportunities in the market.

Current offline solutions (such as newspaper postings, job boards, recruitment agencies, or simply knocking on doors) are expensive, slow, and often ineffectual. With more and more people now digitally connected, even those at the base of the pyramid are increasingly using web or mobile connectivity to access job platforms. A key feature of these platforms is their ability to accumulate a large database of job seeker profiles, job positions, and employers. Algorithms and automation

enable both job seekers and employers to easily make personalized, sophisticated, and detailed searches. This gives digital job platforms the following advantages over offline services:

Information can be democratized: Open access digital job platforms level the playing field, particularly for those who do not have professional networks or cannot otherwise access relevant sources of information. Companies will be encouraged to manage and maintain their reputations as good employers (due to greater transparency and fluidity of labor markets) to attract and retain the best talent. Closing the gap between applicants “in the know” versus those with fewer connections can lead to more efficient labor markets and to higher wages for workers.

Job search costs are far lower: Relative to offline platforms, digital platforms dramatically reduce time and money spent on the job search for both the job seeker and employer. Digital offers the potential for much faster communication, screening, assessment, and matching. This technology allows both sides to search a much larger range of opportunities or candidates at a fraction of the time when compared with an offline search, thereby increasing the chance of finding a better match. Further, such platforms can help job seekers reduce the stigma associated with unemployment or job searching. In Morocco, for instance, job seekers regularly wait in line—sometimes all day—at a jobs center to initiate the first step in the job search process. Digital platforms allow the job seeker to conduct most of the search and inquiry process in private, online. In regions where there are cultural biases against women actively searching for jobs, online platforms can increase women’s labor force participation. For example, women comprise more than one-third of digital job platform Souktel’s 15,000 users in the West Bank and Gaza, but only 19 percent of the entire labor force in the same area.¹

More ways of signaling are possible: Job seekers can showcase their skills, experience, references, and other traits (e.g., soft skills, digital badges that validate a specific skill) to a wide set of potential employers, and freelancers can display their work and provide recommendations. Digital badges, credentialing, and endorsements are becoming more prevalent, accessible, and legitimate, and can facilitate better matching. Mozilla’s “Open Badges” software allows organizations to issue verified online learning badges that platform users can earn and in turn advertise to potential employers.

Current trends

Many digital job platforms have emerged in developing countries in recent years to combat rampant unemployment and underemployment. These platforms typically target either lower-skilled job seekers most suited for work in the informal sector and micro, small, and medium-sized enterprises (MSMEs) or higher-skilled, white-collar workers sought by larger companies, either



domestic or multinational. Successful digital platforms have formed a close working relationship with both employers and training institutes. Specifically, they've responded to market priorities to focus on soft skills and work-readiness criteria (e.g., punctuality) and have allowed job seekers to showcase work experience, verifiable credentials, and past employer references. For instance, at Lynk, an on-demand job matching platform serving blue-collar workers, workers receive badges for being punctual, which they can use to unlock skills boosters that will enhance their profile.

Digital platforms are most successful when they demonstrate each of the three advantages identified earlier; however, each advantage is more or less important dependent on which professional niche or sector the platform targets. For instance, in the local construction sector, it might not be crucial to provide transparency on wages, because pay levels are well-known. In this case, digital platforms help primarily by improving the efficiency of matching and by more thoroughly vetting workers hired as a result of past employer reviews and references.

What are the opportunities associated with digital job platforms?

We see three main areas of opportunity for the future of digital job platforms:

Opportunity 1: Digital platforms can use their trove of high quality data not only to reveal, but also to actively push and advertise the latest, in-demand skills to job seekers. For instance, LinkedIn can identify actionable trends in regional labor markets, such as which fields are growing and which are waning, making it possible to recommend related and more successful fields to users in waning industries. For developing countries, trends might predict demand for specific language skills, a type of customer service, or business process outsourcing capabilities. Armed with this knowledge, job seekers can tailor their CV and invest in new skill-boosters or “nanodegrees” that will better position them in their job market.

Using web platforms or text messaging, job seekers in rural areas who are considering migrating for economic reasons can query and receive information on the skills



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PHOTO: © NATHAN GIKUNDI / INTERACTION

needed and corresponding wages of jobs available in various cities. This information would enable individuals to make better decisions about whether or where to move. From the employer's or investor's perspective, being able to map workers' skills by region can help assess the case for companies to expand, diversify, or relocate.

To help bridge the skills gap, many job matching platforms are also linking up with training programs. Viridis Learning and Andela offer training and corresponding certifications that link closely to employer needs so they can facilitate better matches, which are based on verified knowledge or skills. Viridis allows students to build highly tailored career pathways, accumulate verified work experience and education credentials, and identify suitable employers and positions; meanwhile, Viridis streamlines recruiting by sourcing job seekers who have proven they possess the skills, ability, and interests required by the employer. Lagos-based Andela seeks to close the global gap between the

growth in tech jobs and the shortage of people with skills to fill them by offering free world-class training in software development and business, after which the graduates are placed in top tech companies. Kazi Connect, based in Nairobi, is more than just a job platform serving informal, lower-skilled workers; it also offers workers the chance to skill up through training courses and mobile education, and offers certifications that can be uploaded onto their profiles.

Opportunity 2: Employers across the spectrum are increasingly focusing on soft skills, and digital job platforms can build innovative criteria and tools to assess these skills. In the future, workers' dynamic career pathways will require assessment systems that gauge competencies and soft skills not evident from a traditional CV. Already, business process outsourcing companies are finding CVs to be less helpful than tests on interpersonal and other soft skills. To meet this change, job platforms are testing and perfecting



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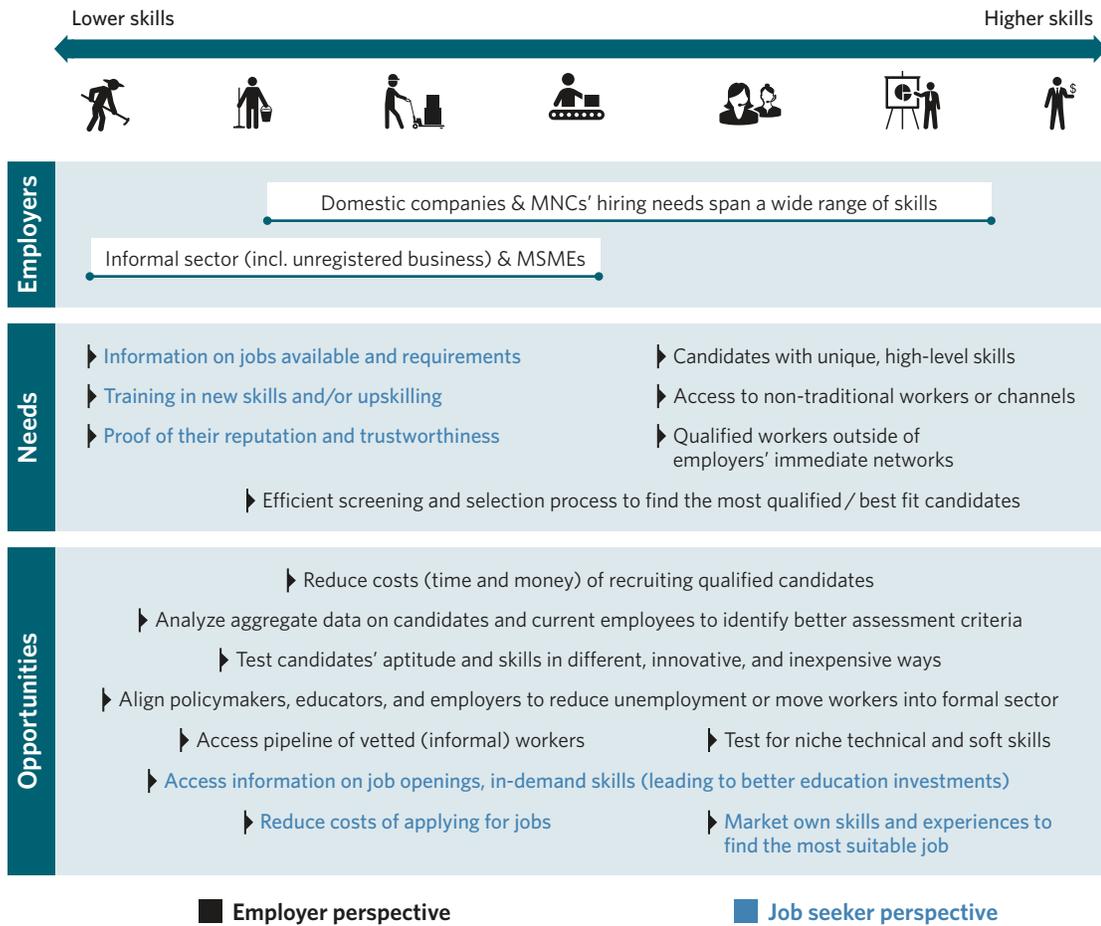
Employers across the spectrum are increasingly focusing on soft skills, and digital job platforms can build innovative criteria and tools to assess these skills.

a different set of tests that calibrate for traits such as critical thinking, grit, and dedication to company/work. Knack uses video games to measure a job seeker's soft skills and behavioral qualities, such as creativity, persistence, extroversion, and leadership abilities. These casual games seek to reveal how creative, cautious, or adept at multitasking a job seeker is and then suggest professions that best match the job seeker's strengths.² Similarly, Pymetrics uses neuroscience-based games to more objectively assess a job seeker's cognitive and emotional traits. Pymetrics has been building gender, ethnic, and pedigree bias-free algorithms based on the gameplay of successful employees to determine which traits predict success in over 100 careers. By comparing a job seeker's results to metrics most predictive of success in that career, Pymetrics can then calculate whether the candidate is a good match or not. Using such games to assess skills may also net job seekers from nontraditional pools who might otherwise have been screened out. Alternatively, such tests may be

ideal for lower-skilled positions where soft skills are more important than academic credentials or technical skills.

Opportunity 3: Digital platforms can allow job seekers to showcase and build credibility for their technical skills, increasing the value of continuous learning and enabling career advancement. Typically, it is difficult for workers engaged in task-based work to build a career with growth potential that will help them progress up the socioeconomic ladder. Digital platforms can build functions that certify trainings and upgrades in skills, such as digital certification, employer reviews, and peer endorsements, which incentivize workers to improve their skills. Through online courses or local training centers, users can earn digital badges that certify their technical skills, credentials, or even nanodegrees. These badges can help an individual prove her experience and seniority, and support upward mobility. Lynk's platform creates in-depth profiles for all its blue-collar workers,

Figure 1. Needs met and opportunities captured by digital search platforms



where they can display details of their technical skills, work experience, credentials from training, pictures of their work, customer feedback, and more.

In Figure 1, we use skill level as a dimension to segment digital job platforms, since workers' skill level will determine the services and offerings that platforms should offer. From the employer's perspective, for instance, a successful digital platform that sources lower-skilled, blue collar workers will need to have low transaction costs, expertise in pre-vetting job seekers for basic technical skills, and experience assessing relevant soft skills (punctuality, attitude, grit). Meanwhile, employers looking for higher-skilled or white-collar workers prioritize finding the right candidate (in terms of fit,

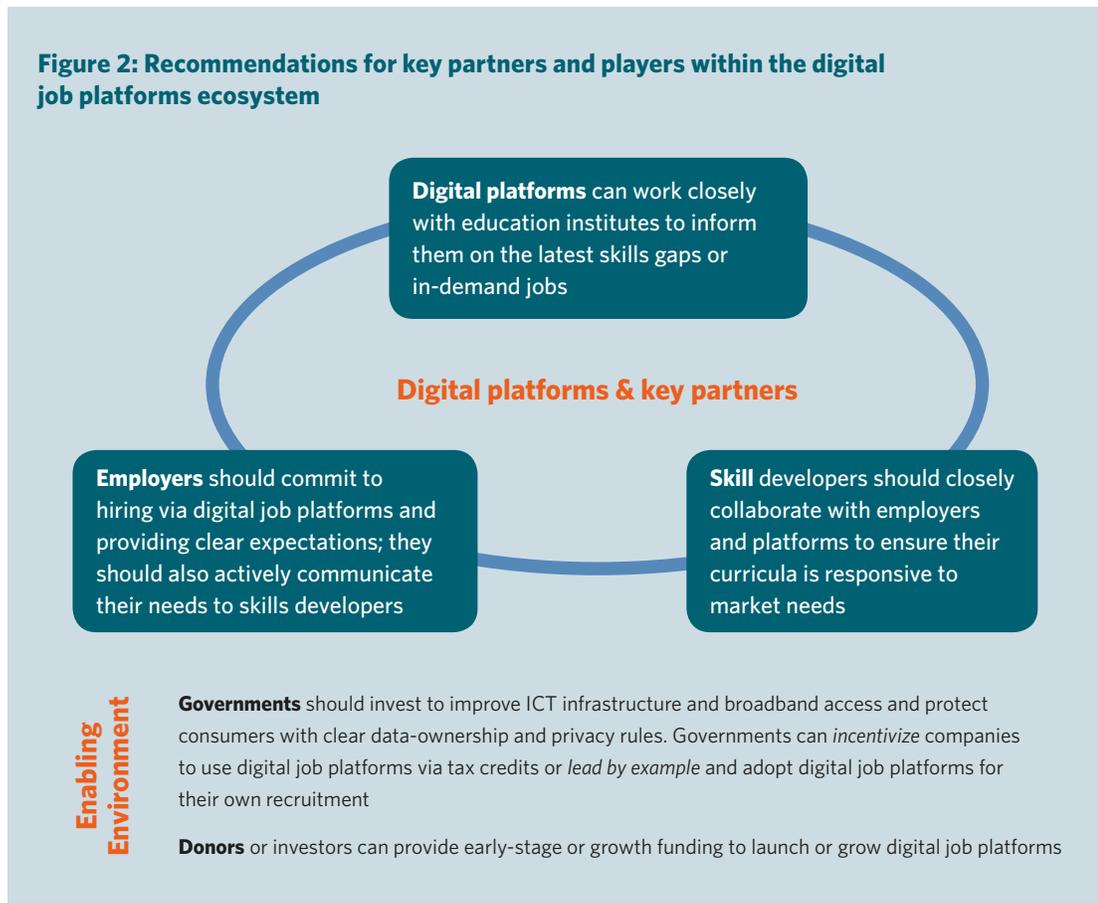
experience, and niche talent) who will add value to and stay at the company, and can therefore justify somewhat higher transaction costs. For these employers, digital platforms will need to do less vetting (since workers will have formal education records), but can add value by being able to source qualified candidates across regions and assess a different set of soft skills (leadership, management, persuasion). On the job seeker's end, lower-skilled workers prefer the platform to be easy to use, accessible (often mobile is easier than web interface), free or affordable, and to serve as a place to build their track record. Higher-skilled workers prioritize ease and efficacy of finding suitable jobs and quality of employers and positions listed.



PHOTO: © JAKE LYELL / MCC

Lower-skilled workers prefer the platform to be easy to use, accessible, free or affordable, and to serve as a place to build their track record.





What can stakeholders do?

While digital search platforms present a tremendous opportunity to tackle information asymmetry in the labor market, their development remains nascent. To capitalize on the opportunities that digital platforms present and enable these platforms to fulfill their potential, stakeholders need to take coordinated action. Each category of stakeholder will have a different role to play in advancing digital search platforms and ensuring that the enabling environment can accommodate the emergence and growth of these platforms (see Figure 2).

By working together, investors, donors, innovators, and others can help ensure that digital search platforms lead to more efficient labor markets and, through them, to inclusive economic growth and more equitable societies.

The authors would also like to thank Joe Dougherty, Devang Vussonji, Robin Miller, and Walter Lamberson for their feedback and contributions.

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Overheard at the Roundtable

Chris Locke | Founder Caribou Digital

I don't think that platforms are ephemeral. I think in many ways platforms are the new institutions. There needs to be this understanding that if you own a platform, you can have an inordinate amount of impact on people's lives. There is a responsibility that comes with being that platform owner.



Jeff Vogt | Director, Legal Department International Trade Union Confederation

I think we also need to look very closely at the equality of jobs that are created through digital platforms. We have seen very dramatic shifts in the way employment has been structured, which have led to an erosion of the possibility of collective action and thereby the deterioration of wages and working conditions.

Elizabeth Tse | Senior Vice President, Operations Upwork

We spent most of the time talking about the supply side of work, but it's important to think about how to increase the awareness and the demand for job-matching platforms on the buyer side, because that ultimately determines sustainability for it.



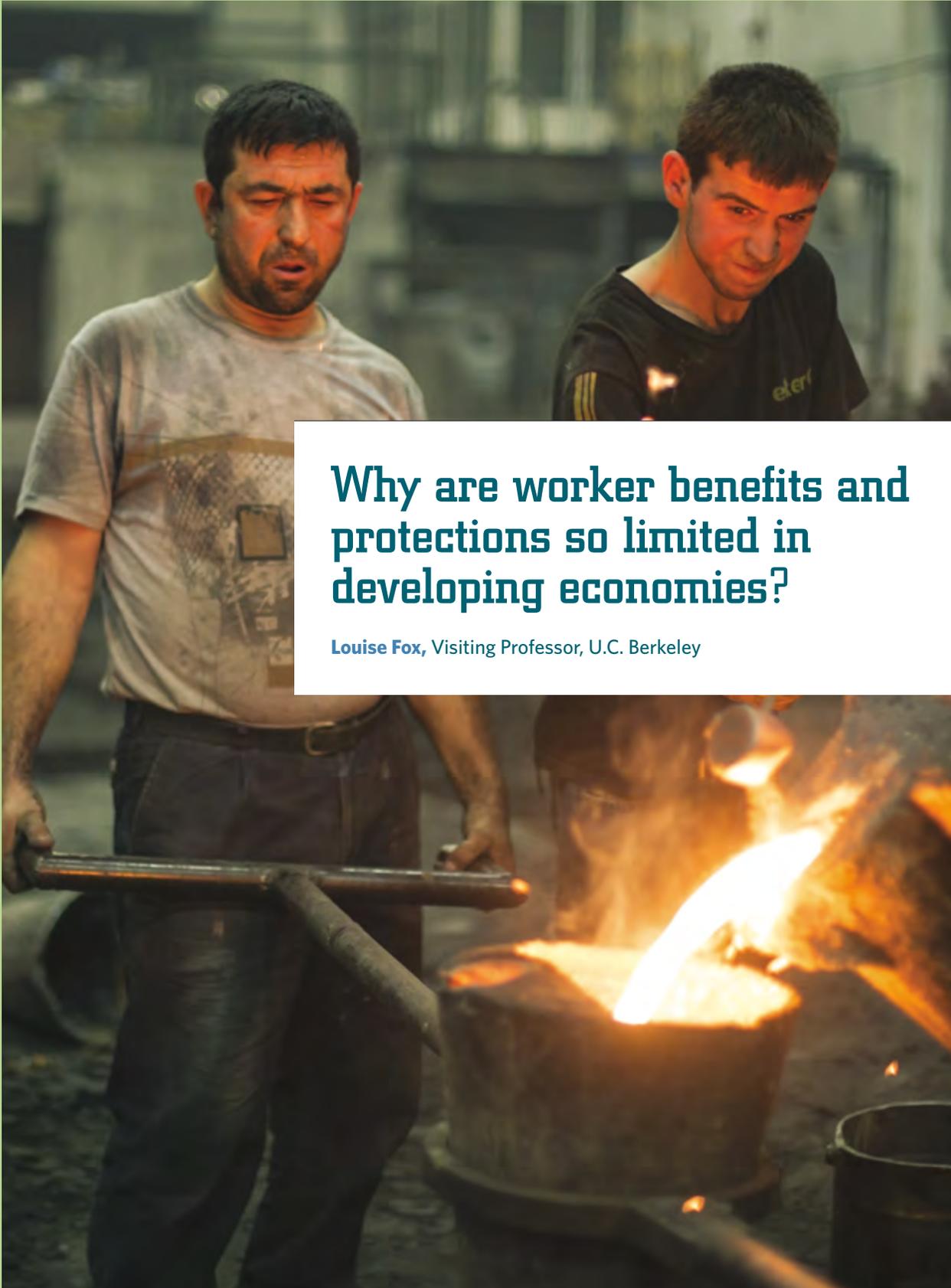
Anish Shivdasani | Chief Executive Officer and Co-Founder Giraffe

Even though Giraffe is still growing, we have already been able to identify patterns of demand for skills where there is a shortage of supply. We are now taking steps to upskill people to meet that demand.

Karl Loo | Chief Executive Officer and Co-Founder ServisHero

Technology has a lot of power to alleviate racial job discrimination. We have worked with UNHCR and other NGOs to place individuals from marginalized communities into jobs by partially anonymizing their identities so they're able to find paid work. This is a short term solution, but I think a longer term solution will be a to undergo some sort of cultural transformation, which will help people with the skills get the jobs that they need.





Why are worker benefits and protections so limited in developing economies?

Louise Fox, Visiting Professor, U.C. Berkeley



PHOTO: © ALIALSABAH HELLA / INTERACTION

One of the major economic and social achievements of the 20th century in developed countries was the establishment of employment protection and social insurance systems that provided income stability.

Labor markets in the developing world are characterized by high informality, low union membership, and minimal social insurance coverage, which pose challenges to long-term socio-economic development. What is causing this divergence even while incomes are rising rapidly in developing countries? Several factors stand out: (i) the changing nature of manufacturing and the early transition to the service economy in developing countries; (ii) continued high growth of the labor force; and (iii) the adoption of complex, comprehensive systems ahead of the necessary administrative and governance capacities. Developing countries might improve performance by seeking new paths as they strive for less hazardous, more secure work places.

What is the issue?

The creation of modern industrial enterprises in the 18th and 19th centuries in developed countries brought the world of work out of the household. This shift of economic activity from household farms and firms to wage jobs¹ in organized workplaces was initially difficult for workers, as 19th century factories were grueling and hazardous places. But what emerged from the shift eventually resulted in individual income stability over the business cycle and over the life cycle, including protection from major idiosyncratic income risks such as loss of earnings due to job loss, ill health, and inadequate savings for old age.

Two key sets of laws brought this about this landmark achievement:

1. Employment protection legislation, which provides protection against discrimination, arbitrary hiring and firing, employer abuse of power against employees, and danger in the workplace.
2. Social insurance legislation, which transfers income to people over time as specific loss-of-income events occur. Known as income smoothing, this is achieved through mandatory participation (risk pooling), with contributions collected from wages.

These protections came about through collective action by the labor force, most prominently by unions. Employment covered by these protections has come to be known as formal employment.

Modern wage-paying enterprises were critical to the development of these systems for a number of reasons. First, when work takes place in an enterprise, the associated risks to employee earnings and income are not under the control of the worker, and thus are insurable. This is a big difference compared to self or family nonwage employment. In nonwage employment, the individual or the household makes most of the decisions that determine income risks, including what to produce when, how to produce it, and where to sell it. This means that, for example, the income risk



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associated with an economic downturn or an injury while working cannot be insured as the individual's own behavior affects the risk and therefore the insurance payment². Second, wage payments by an enterprise are easy to tax and compliance is in turn easier to monitor, as an enterprise has to keep track of the payments anyway. Third, the presence of many workers in one location makes organizing for collective action easier.

In cases where risk was not dependent on the behavior of the individual as employer (such as old age and long-term disability pensions), coverage was extended to the self-employed and employer-owners. For example, France's old-age pension system dates back to 1910, but mandatory coverage for the nonfarm self-employed was only added in 1948, while self-employed farmers were only added in 1952. Coverage of the self-employed in the U.K. was added at about the same time, and coverage of the self-employed in the U.S. was added in 1954. As created, the systems implicitly assumed a nuclear family without divorce. Families of workers were expected to benefit through the insured's benefit or, in the case of death, survivor benefits. As women increased their participation in the labor force, additional benefits such as maternity leave and leave to care for a dependent family member were added. The growth of less traditional families and changing roles within families brought about innovations such as paternity leave, and old-age pension systems were also gradually adjusted to take account of life events such as divorce.

After World War II, social insurance was considered so fundamental that it was incorporated as a right in the Universal Declaration of Human Rights, passed by the U.N. in 1948. The expectation was that developing countries would offer coverage similar to that of developed countries to their existing wage labor force. As their economies grew, a greater share of the labor force would transition into formal employment—sooner rather than later. After all, by early in the 20th century, European countries had already extended coverage to the majority of their employed population, because these people were already wage employees. For example, 60 percent of the labor force in France and two-thirds in Germany were covered by the public pension system in 1920.³ By the 1950s, participation was mandatory in most developed countries for all economically active citizens, with only a few specific exempted classes such as military and students working as apprentices.

Unfortunately, coverage has not expanded rapidly in the developing world. Although all countries in the world have created some semblance of a social security system, only 27 percent of world population has access to a comprehensive social security system, according to the International Labor Organization (ILO).⁴ The reasons are as follows:

- Globally, only 50 percent of employment is in a wage job. In poor countries in Africa and South Asia, the share is as low 20 percent.

- A large share of wage employment in developing countries is casual, not subject to a contract (also called informal employment). Even formally registered firms in Africa report that up to half of their employment is informal.
- Most nonwage employers in developing countries do not formally register as self-employed service providers, but rather as household farms or firms. The latter are generally not in the earnings tax net, either because they are too poor or their earnings are difficult to verify. If income cannot be estimated, it cannot be insured.
- Partly as a result of above trends, only a small share of wage and salary employment is unionized.⁵ This means that while laws mandating social security coverage may be on the books, collective action mechanisms in civil society to ensure implementation are missing.

The lack of formal employment in developing countries has been termed a missing employment transformation.⁶

Why has employment transition slowed or stalled?

Not only is the modern enterprise the most efficient form of production organization, it is also an ideal risk-sharing entity, once a certain employment size has been reached. During industrialization, developed countries created large, specialized production units. The productivity of labor in these firms allowed the spread of worker protection and social insurance, as employees were happy to receive both cash earnings and benefits in kind in the form of worker protection and insurance. The lack of globalization meant that international competitiveness was not a strong driver of employment or wages, as only the local labor market mattered. By the time the service economy took hold as the major employer in developed countries, the employment transition had already taken place. While service sector firms tend to be smaller in developed countries, they are still formal and pay wages. A significant share is unionized (e.g., grocery clerks, bank tellers, and drivers).



PHOTO: © TREVOR SAMSON / WORLD BANK

After World War II, social insurance was considered so fundamental that it was incorporated as a right in the Universal Declaration of Human Rights, passed by the U.N. in 1948.



Developing countries are not able to follow this path for a few reasons. First, the nature of industrial production has changed with globalization. Second, their demographics are fundamentally different. Third, the nature of the social security systems which have been put in place.

Modern deindustrialization. A number of studies have recently noted the increasing capital intensity of industrial processes, especially manufacturing but also construction.⁷ As transportation and logistics costs have fallen and industrial goods have become internationally traded, quality standards and standardization

have gone up. Both are more effectively achieved with automation. This has reduced the labor content of industrial products, especially the less skilled labor content, which is the type of labor plentiful in developing countries.⁸ As a result, while the share of real manufacturing in total output has remained high in developing countries since 1960, manufacturing employment as a share of total employment has gone down. Whereas European countries employed over half of their labor force in industry during their industrial employment peak, industrial powerhouses such as China and Vietnam only employ about 25-30 percent of their labor force in these sectors. In Latin American

Development economists have expressed considerable doubt that today's low-income countries will be able to match the manufacturing export performance East Asia.



countries the share is even lower, as their industrial output is lower and the share of services is higher in GDP. In the low- and lower-middle-income countries of sub-Saharan Africa, the share of industrial sector wage employment is only about five percent.

Development economists have expressed considerable doubt that today's low-income countries will be able to match the manufacturing export performance East Asia; they are more likely to point to a future of commercialized agriculture and services, as well as a capital-intensive mineral-exporting sector.⁹ Privately-owned service sector firms tend to be smaller, and in developing countries they stay informal. Productivity tends to be lower, as do earnings. This makes expansion of traditional developed country employment protection and social security coverage more difficult, not the least because it is harder to monitor compliance with a large number of small firms.¹⁰

Demographics. Informal employment is the opposite of formal employment; on every dimension it is less secure. Not only do people working in the informal economy not participate in social security schemes (by definition), they have to manage a broad range of economic risks themselves, including weather shocks, loss of markets, and lost work time due to ill health. Demographics are the reason informality remains such a large share of the labor force in developing

countries. Creating firms takes capital, technology, and knowledge, including management skills as well knowledge about market access. Even when the number of modern formal firms is growing rapidly, if the labor force is growing even more rapidly, the share of the labor force absorbed by the growing modern sector will not increase very fast. For example, in many countries in sub-Saharan Africa, the private sector was creating wage jobs at two-to-three times the rate of growth of the GDP between 2000 and 2010. But the base was very small, so the share of the labor force employed in this sector expanded only slightly. Cross country evidence shows that the share of the labor force in informal employment only declines substantially once labor force growth falls below about 1-1.5 percent.¹¹ In sub-Saharan Africa, fertility and population growth remain high, much higher than in developed countries at the beginning of the 20th century. The labor force is growing at nearly three percent, and the population is very young and getting younger. A young population tends to depress savings and investment as well, slowing private sector development.

Bundled social protection. Following the lead of developed countries, as well as the advice and standards set by international organizations, developing countries have passed legislation creating the same type of comprehensive coverage provided in developed countries—despite lacking the tax base or the institutions to



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manage and govern the system. As a result, the systems in developing countries tend to have high payroll tax rates but poor benefits and limited coverage. Enforcement of employment protection legislation is spotty and enforcement and adjudication of claims is time consuming for firms and employees. High administration costs as a share of revenues leave fewer resources to pay social insurance claims. Most importantly, the labor productivity in many firms is not high enough to fund the costs of the required nonwage benefits (including payroll taxes), nor are they equipped to pay a competitive wage (one that encourages employees to come to work instead of striking out on their own or working informally). Alternatives that would provide a lower, but less costly, rate of protection are resisted by both those currently covered and those who aspire to be covered. Administrative reforms have proven difficult as well, as social insurance budgeting and administration is inherently complex and nontransparent. Yet both are needed for traditional social protection to expand coverage in the small business and nonwage sectors.¹²

What can be done in developing countries?

Social insurance system coverage issues are not limited entirely to developing countries. The expansion of the “gig” economy, which is really a resurgence of nonwage employment enabled by digital platforms, has started to challenge traditional sources of income security in

developed countries as well. Because expansion of this type of work coincided with the aftermath of the 2007–8 financial crisis, some attribute the expansion to the low aggregate demand during the ensuing recession. In reality, many people in the U.S. work in the gig economy for the same reason that many people in developing countries work informally—the desire for flexibility and autonomy.¹³ Consumers are benefitting from Uber and Task Rabbit; so is business (e.g., the growth of Amazon’s Mechanical Turk).

These platforms are taking off in emerging market as well. Many small emerging market businesses sell on Ebay (and remain small). China’s Alibaba enables small businesses to sell to a vast Asian market, as well as to the world beyond. Alibaba is planning to expand to Africa. Kenya’s M-Pesa banks the unbanked, including informal traders and small business. SleepOut, Airbnb, and booking.com of Kenya, attract business to small hotels and B&Bs. E-commerce is creating jobs for local logistics providers (delivery services, etc.). But are these platforms creating formal jobs? There is no evidence of that yet. Owners of small B&Bs may be richer because they can fill their beds more often by using SleepOut, but they still do not have disability insurance. In principle, M-Pesa, could help governments do a better job of monitoring employment and collecting employment taxes to fund coverage, but this would require tackling other longstanding tax administration issues in Kenya.



PHOTO: © DAVID DOREY / MICROENSURE

Some countries chose to expand pension coverage in the 20th century by creating a universal, noncontributory system. Examples include the British National Health Service or Denmark and Australia's universal old-age and disability pensions system funded out of general revenues. The universal pension systems are called "first tier" systems because they provide a bare minimum living standard.¹⁴ Developing countries with aging populations might consider this approach. In countries such as those in sub-Saharan Africa, where half of the population is under the age of 18, this approach would be problematic as the old-age dependency burden is very low, and there is a large gap in life expectancy between the rich and the poor. Child benefits seem to be a more effective way to fight poverty.

One obstacle to effective administration of social insurance (and tax systems) is the lack of a unified personal identification system. Advances in biometrics have led countries such as India to introduce such systems for all government transfer payments. Privacy issues have been raised over this approach, but it may be one area

where technology can enable the efficient expansion of the welfare state.

Finally, there is no reason why emerging markets have to travel the path that developed countries did. Mobile telephony showed the benefits of leapfrogging approaches in the face of intractable, poorly functioning public utilities. Unfortunately, there does not seem to be much innovation going on in this space. Examples of potentially innovative ways of providing social protection to the informal sector include:

- To solve the problem of collective action when those who might benefit are in very small economic units, organize providers of services who use online platforms so they can lobby for a minimalist system which meets their needs.
- For the nonwage employment to become safer, the individual and the household have to be persuaded to modify their behavior. Why not try nudges and social platforms to change behavior instead of regulation?



PHOTO: © OMIKYAR NETWORK

Essay Endnotes

1. Technically, a wage is a payment per hour for work, while a salary is a payment per day/week/month, unrelated to actual hours worked during the day. A wage employee can thus claim overtime, while a salary employee cannot. As shorthand, in this paper we use the term “wage” to stand for both wages and salaries. But a wage employee does not include someone paid by the item (piece-work) nor does it include the self-employed, who may charge customers by the piece, task, or the hour.
2. If the presence of insurance can encourage the insured to behave in a significantly more risky fashion, a moral hazard occurs, which blocks insurance systems from functioning efficiently, if at all. For this reason, long-term disability pensions for the self-employed usually have a significant waiting period before the benefit is provided, and may be only provided in the case of major disability. This deters people from taking excessive risks, knowing that they will not bear high costs.
3. Maurizio 2005. *The Boundaries of Welfare: European Integration and the New Spatial Politics of Social Protection*.
4. International Labor Organization 2015. *World Social Protection Report 2014–15: Building economic recovery, inclusive development and social justice*.
5. Fraser Institute 2015. *Economic Freedom of the World: 2015 Annual Report for country by country estimates on union density*.
6. Fox and Thomas 2016. *Africa’s Got Work To Do: A Diagnostic of Youth Employment Challenges in Sub-Saharan Africa*.
7. Rodrik 2015. *Premature Deindustrialization*; Acemoglu and Autor, “Chapter 12 - Skills, Tasks and Technologies: Implications for Employment and Earnings,” in *Handbook of Labor Economics*.
8. This is the case even with nominally nontraded goods such as construction services or tourism.
9. Filmer and Fox 2014. *Youth Employment in Sub-Saharan Africa*.
10. In South Africa, minimum wage violations are much more common in the service sector compared with the industrial or agricultural sectors. See Borhat, Kanbur, and Stanwix 2015. *Partial Minimum Wage Compliance*.
11. See discussion in Porta and Shleifer 2014. *Informality and Development*.
12. Several low income countries have tried to extend contributory health insurance pensions systems to nonwage workers. This has been more effective than expanding pension coverage, in part because of existing public health care systems. See ILO 2014, *op cite*.
13. Maloney 2004. *Informality Revisited*.
14. Most retirees in these countries also have a contributory pension which they “funded” (or built up an entitlement) while they were working.



Overheard at the Roundtable

Madeleine Albright | Chair Albright Stonebridge Group

Social policy has not caught up with technology. So a lot of the questions on how to deliver social benefits are linked to moving the government forward.



Peter Gross | Marketing Director MicroEnsure

We find that low-income people protect themselves from risk in often inefficient ways. So our job is to transition them from those informal, inefficient approaches to more efficient, formal products.

Helen Clark | Administrator United Nations Development Program

The concept of the universal basic income must be seen as a safety net from which you can then piece together enough income and enough work for a life with dignity. It's not a substitute for work, but a platform on which you can build.



Michael Faye | Co-Founder GiveDirectly/Segovia Technology

If we de-linked the need to meet basic needs from where you spent your time, how would you spend this time? And in a world where we need fewer jobs and have a surplus of time, how do we fairly allocate that extra time across the population?

A woman with dark hair, wearing a black headset with a microphone, is looking down at a computer keyboard. She is wearing a black long-sleeved shirt. The background is a blurred office setting with a computer monitor and some papers. The entire image is set against a light green background.

Can outsourcing boost employment for low-skilled workers?

Eric Simonson, Managing Partner of Research — Everest Group



PHOTO: © EMPOWER PAKISTAN

Setting the stage

As the world has flattened, some forms of services have become easily traded across geographies, cultures, and cost structures. Many countries—most notably India and the Philippines—have accelerated their economic growth through thriving information technology (IT) and business process services exports.

The outsourced¹ market for global information technology and business process services is \$660–690 billion in annual revenue. Of this market, approximately 20–25 percent is delivered as service exports from one country to another. In aggregate, the services exports market has been growing 10–15 percent per year for over a decade.

The types of services comprising this market include IT application development and maintenance, IT infrastructure management, finance and accounting, procurement, supply chain, customer support, marketing, engineering, and many industry-specific activities such as insurance claims processing, clinical trials management, and airline fare audits. This array of activities utilizes a spectrum of skills, ranging from data entry to information management to analysis to communications.

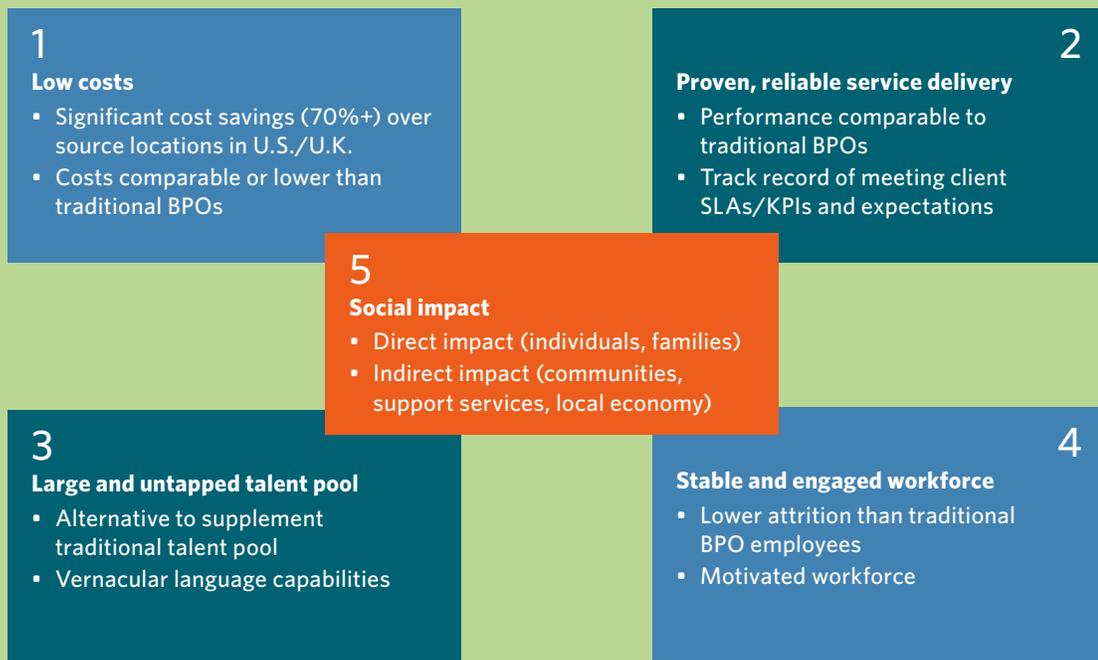
In emerging countries, traditional business process outsourcing (BPO) has created millions of jobs over the past decade. These jobs are generally for college graduates, although also for high school graduates to provide basic voice-based contact center services in countries where English skills are strong (e.g., the Philippines, South Africa). Sophisticated ecosystems for labor development and placement in the BPO sector have

emerged, but there are still labor shortages and only a portion of college graduates are qualified to take on such jobs. Further, attrition is a major pain point, with dropout rates often in the range of 30–50 percent per year. As the BPO industry grows, companies poach from each other, plus some workers leave the BPO industry to take other types of roles or for personal reasons (e.g., starting a family, moving closer to aging parents).

Who is considered disadvantaged and therefore an “impact worker”?

- Economically disadvantaged | low income areas, lack access to jobs
- Socially disadvantaged | minorities, gender groups
- Persons with disadvantageous life circumstances | disabled, health limitations

Note: This applies to a subset of the BPO workforce (e.g., most BPO employees in India are not impact workers). Economically disadvantaged applies to those below the normal, college educated standard within the large metro areas of a country

Figure 1: The five components of impact sourcing

As a part of its Digital Jobs Africa initiative, in 2014 the Rockefeller Foundation asked Everest Group to analyze options for disadvantaged populations to participate in this market for BPO.² The effort focused on six African countries (Egypt, Ghana, Kenya, Morocco, Nigeria, and South Africa), as well as India and the Philippines (the leading emerging economies providing business process services exports). The analysis included over 60 interviews, 30 completed data collection responses, 250 survey responses, and 14 case studies and testimonials.³ The scope included both non-voice transactional work and voice-based work (e.g., contact center).

Key findings

The study⁴ estimated that the impact sourcing market is approximately 12 percent of the overall BPO market for the group of countries in scope, growing at 11 percent per year, and represents about 235,000–240,000 workers. Further, the analysis revealed four primary findings:

- There is a compelling business case for impact sourcing

- Much of impact sourcing work is “unintentional”
- The impact sourcing model can be effective in a range of types of work
- There are notable variations in impact sourcing across different countries

Business case for impact sourcing

Although many initially assume that impact sourcing is motivated primarily by social responsibility objectives, the analysis revealed a solid business case for adopting impact sourcing. The business case rests on five components, as shown in Figure 1.

1. Low cost

In comparison to traditional BPO models that utilize lower cost offshore destinations, impact sourcing offers similar or greater cost savings. Traditional BPO models offer 60–70 percent operating cost savings in comparison to onshore (higher cost labor) delivery models from tier-2 cities in the United States. Impact sourcing lowers offshore delivery costs by



PHOTO: © DOMINIC CHAVEZ / WORLD BANK

an additional 5–20 percent, resulting in a total cost savings potential of 66–82 percent, depending on location and type of work.

2. Proven, reliable delivery

Impact sourcing work has also shown to be competitive in terms of quality of service provided. Although impact workers often require a longer period to adjust to the work environment and business context, they are viewed as providing similar levels of accuracy and timeliness compared to non-impact workers.

3. Large and untapped talent pool

For organizations seeking to manage a portfolio of service delivery work, the impact worker market helps increase the available talent pool. Impact workers are typically from populations that have higher levels of unemployment and for which an office-based job is highly attractive. Although not all individuals will be suitable for impact sourcing work, the potential available talent pool is dramatically increased for certain types of work such as domestic voice support, data entry, rules-based data manipulation, and so on.

4. Stable and engaged workforce

Organizations using impact workers report 15–40 percent lower attrition than for their traditional employee models. Lower attrition means impact sourcing is competitive, since it reduces the costs of hiring and training replacement staff. While impact workers are not paid less than others, they tend to be less costly to employ since they are less likely to quit. Impact workers tend to be more deeply bonded to their employer and there is a stronger fit of the employment value proposition. The combination of increased stability and engaged workforce provides more predictable service delivery and associated client satisfaction.

5. Social impact

And, of course, there is a positive social impact that sweetens the overall attractiveness of impact sourcing. This social impact is not only for the impact worker, but also their family and community. The increased compensation results in a tripling or quadrupling effect for the local economy. Additionally, the workers develop enhanced skills that last beyond the role, increasing their long term ability to make key investments such as in their children's health and education.

“Unintentional” use of impact sourcing

One of the most interesting findings is the extent to which many organizations are integrating impact sourcing into their normal talent models without specifically attempting to do social good. In fact, of the 235,000–240,000 impact workers in the scope of the study, 63 percent are working in employment contexts for which the use of impact workers was unintentional and programs and policies specific to impact workers have not been developed. Further, of the 37 percent in intentional impact sourcing models, only 12 percent were undertaken by organizations purely focused on impact sourcing.

This poses an interesting dilemma. On the one hand, this unintentional phenomenon demonstrates the commercial viability of an impact worker model and shows that market forces lead organizations to tap alternative labor pools. Further, it suggests that impact workers are able to enter the traditional BPO sector and perform and develop as well as more advantaged workers. On the other hand, it suggests many people (service providers, customers) are poorly informed about the possibility of impact sourcing work. Also, the unique needs of impact workers are not being fully addressed, thereby limiting its potential.

There are multiple scenarios through which impact work might be structured. Some organizations directly employ impact workers in their own delivery centers. Others may unintentionally be utilizing impact workers through the work delivered by their outsourced BPO provider. And yet others will intentionally seek out impact workers and contract with an impact sourcing service provider (ISSP).⁵ Training institutes play a critical role in some markets. They help employers of impact workers identify appropriate resources for their particular service model and may have costs subsidized by government or non-government programs. Further, they can continuously and efficiently operate at scale for basic training (bringing impact workers up to par with traditional sources), after which more advanced and specific training by the eventual employer is provided.

Types of work delivered by impact sourcing

Impact sourcing models can deliver a wide array of services within the broader BPO sector; however, not all BPO work is appropriate for impact sourcing. The most common types of work delivered by impact workers include:

Impact workers are able to enter the traditional BPO sector and perform and develop as well as more advantaged workers.



PHOTO: © ITUC

- Contact center: language and communication skills for customer support, telemarketing, technical helpdesk, etc.
- Data processing: transactional work using a computer such as data entry, data mining, document digitization and archiving, data validation, and transcription
- Content services: requires some domain knowledge and language skills to provide editing, copy writing, digital marketing, translation, and image cleanup
- Data analysis: requires more extensive domain knowledge and computer skills for online research, content tagging, image tagging, etc.
- Finance & accounting: required domain and computers skills vary in order to support the specific attributes of activities such as invoice processing, image validation, indexing of invoices, etc.

Impact sourcing is most highly adopted for contact center and data processing types of work since the required skill sets are most aligned to impact workers' capabilities. For contact centers, much of the work is in support of domestic market outsourcing (e.g., India impact workers supporting customers in India).

Notable variations by market

Across the eight countries included in the analysis, variations in the level of adoption of impact sourcing and the type of impact sourcing work are clearly evident. India, South Africa, and the Philippines comprise 96 percent of the total impact workers analyzed. Of the other five countries, Egypt, Ghana, Morocco, and Nigeria are roughly equal in size in terms of the extent of impact sourcing, and Kenya is almost twice the size of the others.

Factors that seem to explain these variations include languages and dialects spoken and their relevance to other geographic markets, maturity of the domestic market services sector, perceived attractiveness of services industry roles to workers, and availability of educated resources and training programs outside of major metropolitan centers.

Although impact sourcing models can operate in almost any environment, market conditions that

appear to increase the adoption rates of impact sourcing include a mature BPO domestic market; tier-2 and tier-3 cities with basic education and training programs; internet connectivity; and English as a major language. The combination of these factors creates the conditions to more easily create a service delivery operation with access to a plentiful, capable, and interested workforce.

Challenges to reaching the potential

Despite the compelling case for impact sourcing, four challenges hinder impact sourcing from reaching its potential. First, market awareness and consideration for intentionally pursuing impact sourcing is fairly limited. Many organizations already view global service delivery as a complicated and sensitive matter (e.g., regulatory issues, risk) and are therefore reluctant to attempt using an unorthodox model that may require altering their traditional approaches (e.g., location selection, contractual guarantees, provider selection, monitoring). With sufficient education and case studies, this can be moderated over time, but will continue to be a constraint.

Second, impact sourcing requires embracing a different talent model. Since most organizations are already struggling to integrate onshore and offshore, internal and outsourced delivery, and transactional and judgment-oriented talent models, a further dimension of potential complexity can be daunting. The key is to focus on service requirements for which impact sourcing is uniquely positioned to meet the need.

Third, emerging technology capabilities such as automation and cognitive computing are removing the need for human intervention for some basic work, which is instead completed by computers. This then leaves more complicated tasks for people to complete and is generally less amenable to impact sourcing skill sets. Robotic process automation (RPA) is a particularly powerful tool because the technology mimics an actual worker and can function across multiple systems as a human would without requiring changes to the existing underlying systems. The market for RPA technologies was only \$70 million⁶ in 2015, but is growing by 70 percent per year and forecast to double every year for the foreseeable future. In the first half of 2016, some technology providers report reaching annual growth rates in excess of 200 percent. RPA is clearly a thriving



market, but also still fairly nascent and it is unclear how much it will actually impact employment.

Although there are good arguments that these technologies may reduce the aggregate potential for impact sourcing, there are some new types of demand that are created by these changes in technology. Most notably,⁷ machine learning technologies (e.g., image recognition, recommendations, predictive models) require extensive amounts of data to analyze and calibrate their algorithms. Much of the data required may not be readily available or structured in ways that can be accurately processed (e.g., missing contextual tagging information, inconsistent conventions across data sets). In these situations, impact sourcing is valuable because it can help enhance data sets in a cost-effective way and do so rapidly due to the ability to quickly scale the available resources. In fact, many impact sourcing service providers find that startups are among their most attractive customers.

Finally, having sufficient access to appropriately-skilled talent pools is a concern. Although the theoretical talent pool is large, the rate at which those individuals can learn the basic skills to operate effectively in a service delivery model is often slower than demand can absorb. Accelerating the growth of training institutes that collaborate across industry and communities is a key leverage point for helping unlock a greater flow of talent.

Impact sourcing is already providing value to many organizations and to the impact workers serving them, but there is a compelling case for expansion. Increasing awareness and basic training capabilities are important parts of the journey. Additionally, advances in technology will pose both a risk to and an opportunity for scaling up the model.

Essay Endnotes

1. Outsourcing is contracting with a third-party organization for the delivery of a service—regardless of where service delivery is occurring. Offshoring is delivering a service from a low-cost country—which may be via an outsourced agreement or may be through a “captive” operation of the organization receiving the service (in which case the workers are employees). Outsourcing refers to “who” does the work; offshoring refers to “where” the work is done.
2. The effort excluded IT services, for which disadvantaged populations are rarely utilized. The term “BPO” is used in this analysis to refer business process services delivered by individuals working through third-party outsourcing agreements and those doing similar work, but employed directly by the company receiving the services (the “captive” model).
3. From organizations such as Accenture, Aegis, Deloitte, Infosys, Microsoft, Pangea3, RuralShores, SureHire, TCS, Teleperformance, and Valeo.
4. Full report and associated case studies and testimonials available at <http://www1.everestgrp.com/impact-sourcing.html>
5. Examples include Adept Technologies, B2R, CloudFactory, Daproim, Digital Divide Data (DDD), Head Held High, Piramal Udam, RuralShores, Samasource, and Techno Brain.
6. Everest Group 2015. Service Delivery Automation (SDA) – The Story Beyond Marketing Messages and an Assessment of SDA Tools.
7. The Internet of Things (IoT) is another technology advancement which produces significant data and may require increased levels of services appropriate for impact sourcing. However, these use cases are not yet readily evident.



Overheard at the Roundtable

Sajid Shah | Chief Executive Officer Empower Pakistan

Imagine the impact if we could convert the 2 million individual freelancers in Pakistan into 2 million businesses. We are teaching freelancers how to grow from being a sole entrepreneur into a team owner, to create their own company, and hence, to create more employment opportunities.



Brian Cao | Chief Executive Officer and Founder LYCEEM

Because there are 6 million different stores operating on Taobao, new market entrants face intense competition. So, we train new small and medium sized stores on Taobao how to open their store, how to acquire consumers, how to run promotions, and how to maintain customer relationships.

Henrietta Fore | Chairman and Chief Executive Officer Holsman International

The local economy, the gig economy, and the small and medium sized enterprises are often the backbone of the economy. They power the economy. They create the quality of life.



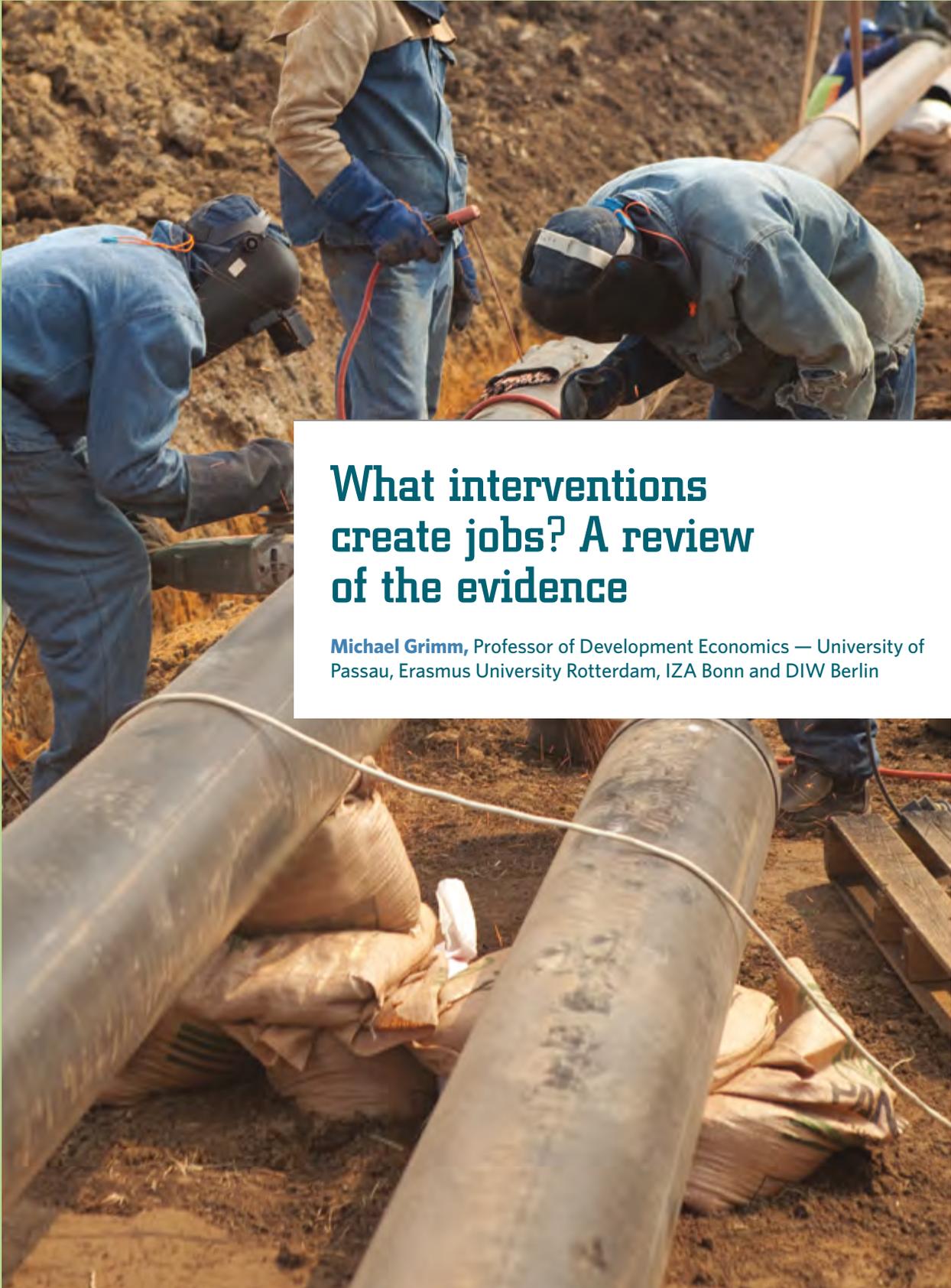
Seni Sulyman | Director of Operations, Lagos Andela

On the one hand, there is huge unmet demand for tech talent. On the other hand, there's a massive population of young people in Africa who are brilliant, globally minded and very eager to excel, but they don't have equal opportunities. What we are doing at Andela is bridging that gap, developing human capital while simultaneously solving a business problem.

Vaughan Lindsay | Executive Director, LeapFrog Labs LeapFrog Investments

We need to find a way of opening up the markets so trillions of dollars flow into solving these problems. We need to become comfortable with a much more mixed economy to solve these problems, because they are too big for us to segment them into profit and not-for-profit.





What interventions create jobs? A review of the evidence

Michael Grimm, Professor of Development Economics — University of Passau, Erasmus University Rotterdam, IZA Bonn and DIW Berlin



The job challenge

Creating new jobs and in particular “good jobs”—in other words, jobs in high productivity sectors and that offer decent working conditions—is one of the major challenges faced by low- and middle-income countries.

According to the World Bank’s 2013 World Development Report on jobs, around 600 million jobs are needed across the globe over the next 15 years to keep employment rates at their current level. Governments, nongovernmental organizations, and donors spend large amounts of money on targeted programs and broader policies to enhance employment creation and the creation of new firms. Because most employment in low- and middle-income countries is in micro, small, and medium enterprises (MSMEs), these firms are often targeted by such interventions. Typical interventions include the provision of finance and financial services, entrepreneurship training, business support services, wage subsidies, and measures that transform the business environment. But do they work?

Lessons from experiments and quasi-experiments

Over the past 15 years, many of these interventions have been evaluated using a randomized or quasi-experimental approach, i.e., based on a comparison of treatment and control groups so that the identified effects can be considered as causal. Summarized below are the major findings from a systematic review covering 55 evaluations.¹ Figure 1 shows the regional distributions of the studies.

Figure 1: Distribution of included studies across regions

| Regions | #of Studies |
|------------|-------------|
| LAC | 26 |
| SSA | 8 |
| South Asia | 7 |
| EAP | 6 |
| ECA | 5 |
| MENA | 2 |

Source: Own representation.

Access to finance

Interventions that aim to improve access to finance include microcredit schemes, conditional or unconditional cash or in-kind grants, as well as a few interventions focused on saving devices (26 in total). The amount of finance involved is typically between \$100 and \$2,000. Figure 2 shows how in theory access to finance should improve business performance and eventually create jobs.

With respect to employment creation, most microcredit schemes turned out to be rather unsuccessful; only 13 out of 40 impacts that were measured show a

Figure 2: Simplified results chain linking interventions and employment outcomes



Source: Own representation.

statistically significant increase in employment or firm creation. Twenty-five out of the 40 treatment effects were not statistically significant. In two cases, a statistically significant negative effect was found. Positive effects on employment, if found at all, were small, especially for already existing small and microenterprises. Major effects were achieved with regard to the creation of new (mostly micro) enterprises and the expansion of already larger, well-established profitable firms.

Key lessons:

1. The high proportion of statistically insignificant results does not necessarily mean that microcredit does not work. Employment generation is typically not a primary objective of microcredit programs. Rather, income stabilization most frequently seems to be the major intent. Most enterprises make use of the credit or cash grants, if directly offered, but the money is primarily used as working capital, e.g.,

to pay inventories; many also use it just for consumption or to pay back earlier loans. Seldom would these result in capital investments in machines or buildings. Hence, such interventions might have no employment effects, but more often they show significant impacts on sales and revenues.

2. The generation of a substantial employment effect may require a major push, but most loans seem to be simply too small and their maturities too short to lead to large changes in the capital stock and the production technology. Hence, growth is often generated by extracting more output from a given number of workers than by increasing the number of workers. More efforts need to be made to target those entrepreneurs that can make good use of loans and shift the attention away from just income stabilization and poverty reduction and instead more toward productive investments.



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Entrepreneurship training

Training measures include technical and vocational training (in-class and on the job), business skills training, business plan development, financial literacy training, and life skills training. How they should work is also shown in Figure 2. The review drew on 20 of the 55 evaluations. From this sample it appears that skills constraints are believed to be more relevant to new microenterprises than for already established MSMEs: The majority of interventions target microenterprises with up to five employees or aims to enhance self-employment in groups highly at risk of unemployment such as the youth.

Looking across all studies just one-third (nine out of 31 impacts) showed significant positive employment effects. Twenty-one treatment effects were not statistically significant. Yet most programs produced significant

improvements in business and behavioral skills, and sometimes also higher optimism and motivation. In many cases training has enhanced the entrepreneurial spirit and forced (potential) entrepreneurs to think more carefully about their business models.

Key lessons:

1. Training was found to help unprofitable firms either to become profitable or to close down. Likewise, training can prevent non-profitable business ideas from being started.
2. Some studies report higher investment, while very few report process or product innovations and improvements in sales and revenues. Even fewer studies measure higher profits and, fewer again, employment. Short-term positive effects often seem to vanish in the long run.



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3. There are no straightforward results on the influence of targeting. The evidence is mixed on whether the return on training is higher for those with initially lower skills. The review suggests, however, that training is more helpful for startups than for business expansion.
4. The more tailored and substantial the training the better, but it is not necessarily the more complex programs that are the most successful. It appears that training needs to address specific knowledge gaps and be substantial to be effective, where substantial means that the training runs at least over an entire year with at least one training session per week.
5. Some training interventions also include financial assistance and it seems that this combination of finance and training is particularly successful.

Regulation

This section covers a set of 10 studies, which are rather heterogeneous in the specific nature of the underlying interventions. Broadly, they fall under the heading of business development services and targeted subsidies (including wage incentives). All the studies on wage-related interventions are in Asia, while the others cover

almost exclusively Latin American countries. Only one of these 10 studies is based on a randomized design, while the others exploit the variation in the policy across time and space to identify effects.

The studies show mostly positive and statistically significant employment effects. Although general conclusions have to be treated with care due to small number of studies, it seems that business support services and targeted subsidies can contribute to employment generation if they are demand driven, tailored, and focused.

Key lessons:

1. Larger firms may need quite specific and sophisticated support, whereas small firms just need rudimentary improvements to their business.
2. Tax breaks and fiscal incentives conditional on process and product innovations seem to be particularly effective. However, the robustness of the findings is somewhat low given the small sample size. Remarkably, there are no relevant evaluations from East and Southeast Asia, where at least in some countries business support services may have played an important role.

In most low- and middle-income countries, the bulk of urban micro and small enterprises are informal.



3. It is obvious that wage subsidies are in general a quite expensive intervention. The pure wage subsidy program in Turkey has costs per month and per job created that correspond to roughly 94 percent of the total cost of employing a minimum wage worker. This may still seem acceptable if the jobs created are sustainable, but evidence regarding whether this is really the case is scarce.² A major cost component is the dead weight loss produced by the fact that many of the workers hired under a subsidized rate would have been hired anyway. This is also confirmed by an experimental study in Sri Lanka, where the authors find a strong correlation between pre-program hiring intentions and program uptake.³

Business development

In most low- and middle-income countries, the bulk of urban micro and small enterprises are informal, i.e., they are not registered with the tax authority and operate outside most regulations. A key policy question is whether the performance of these firms could be improved and their size (in terms of employed capital and staff) could be expanded through formalization. On the one hand, it is believed that formalization increases access to credit and other resources important for business success and expansion (see Figure 2). On the



other, formalizing could imply a new tax burden, on top of which come the bureaucratic costs of formalization, which can already be so steep that they alone prevent firms from becoming formal.

As formalization involves both costs and benefits, it presents a dual conundrum: What interventions are suited to enhance the firm's formalization, and what are the effects of becoming formal? Five studies were identified that can credibly establish a link between formalization and employment. They concentrate on Brazil and Mexico, where significant reforms have been implemented to reduce the costs of formalization. The studies show that it is difficult to get the average firm formalized as the average firm is simply too small and not profitable enough to make use of the potential that formality offers. Among those firms that do formalize, performance typically improves, including employment, but for most only modestly.

Key lessons:

1. Programs that compel firms to formalize are unlikely to produce any significant employment effects, since for many previously informal firms, such a change in status confers additional costs and no increase in profits.
2. Programs that offer cheaper and easier formalization procedures are more likely to have success but

only for a relatively small group of entrepreneurs and firms that already exhibit higher initial performance. In a field experiment in Sri Lanka, firms were offered cash rewards for formalizing.⁴ Even if the equivalent of one month of the median firms' profits are offered, only around one-fifth of all firms register as businesses. (Interestingly, the lack of property rights for the land they work on is a major deterrent to formalization for many entrepreneurs.)

3. In general it seems easier to formalize firms while they are in the start-up phase rather than formalizing those firms that are already fully operational.

Implications for the job agenda and the future of work

Overall the review shows (Table 1) that creating and enhancing employment by MSMEs is a very complex challenge.

- Many conditions have to be met before interventions favoring individual enterprise both improve business performance and lead to additional jobs.
- It seems much easier to have an effect on management practices, sales, and (short-term) profits than on employment. Many interventions seem to lead to changes at the intensive margin but fail to deliver productivity increases that go hand in hand with more jobs.



- Targeting seems to be key to achieving positive employment effects. Not all potential and actual entrepreneurs can make good use of support. Different types of interventions will be required to increase employment for different groups.

There is no general evidence for poverty traps, i.e., small firms are not systematically bound to remain poor. To the contrary, returns to investment are generally quite high—returns of 60 percent per year are not rare—and these firms can grow to some extent even if the optimal firm size might in many cases be well below what is typically called a medium-sized firm.⁵ MSMEs can and need to play an important role in securing and creating new jobs. That being said, the development of a vibrant private sector also requires the presence of large and export-oriented firms. However, it is difficult to see how bigger firms could solely provide the jobs needed over the next 15 years, especially since in low- and middle-income countries only a small fraction of the workforce is employed by such firms.

Hence, governments in poorer countries need to pay attention to both MSMEs as well as large and export-oriented firms to push the job agenda. Interventions targeted at MSMEs should take the above findings seriously, for example by improving their targeting and by having a more focused set of objectives. Improving productivity of those firms that have

potential but are constrained by outside factors—like access to capital, a lack of specific skills, and adverse business environments— is important. This is because, at least in the manufacturing sector, import competition will increasingly become a threat to MSMEs. Already now imports from China and other countries with high labor productivity have pushed local producers in many sectors out of the market.

For larger formal firms, governments of poorer countries need to think about interventions that direct resources towards sectors that allow for an integration of domestic firms into global value chains. Poor countries can benefit from two recent developments. First, wages in China are rising and its economy is undergoing structural transformation to cope with these rising wages. This in turn opens a window of opportunity for sub-Saharan Africa and possibly parts of the Middle East and North Africa (MENA) where in the future less sophisticated products can be produced at lower cost, provided these countries make progress with respect to infrastructure and the general business environment. Second, the digital economy offers the possibility to deliver services from poorer countries to the rich world. India has demonstrated that this can be a viable strategy by its international call centers. In general, the digital economy will offer new opportunities for countries that have an educated workforce.

Table 1: Distribution of standardized effect sizes by intervention area

| | Finance | | Training | | BDS/Wage | | Formalization | |
|-------------------------------|-----------|------------|-----------|------------|-----------|------------|---------------|------------|
| | Count | Share (%) | Count | Share (%) | Count | Share (%) | Count | Share (%) |
| Negative effect size (<0) | 13 | 24.1 | 8 | 22.2 | 2 | 10.5 | 0 | 0 |
| Small effect size (>0, <0.2) | 33 | 61.1 | 16 | 44.4 | 12 | 57.9 | 5 | 71.4 |
| Med. effect size (>0.2, <0.5) | 7 | 13.0 | 5 | 13.9 | 2 | 10.5 | 0 | 0 |
| Large effect size (>0.5, <1) | 1 | 1.9 | 7 | 19.4 | 3 | 15.8 | 2 | 28.6 |
| Total | 54 | 100 | 36 | 100 | 19 | 100 | 7 | 100 |

Notes: Effect sizes are computed as the standardized mean difference (SMD), i.e. as the ratio between the change in the outcome due to the intervention divided by the standard deviation of the outcome in the control group (or at baseline). If the outcome is a binary outcome such as 'having set up a firm or not' the risk ratio is computed (-1). Effect sizes are not fully comparable across studies and hence can only roughly reflect the order of magnitude of program impacts. There are more impacts than studies as many studies show impacts for different types of interventions.

Source: Grimm and Paffhausen (2015).

While shifting such jobs from rich to poor countries will reduce poverty and inequality in poor countries as well as inequalities between rich and poor countries, it may exacerbate inequalities within rich countries.⁶

How can the global development community strengthen the evidence base for job interventions?

This review clearly shows that the available evidence remains sketchy, in particular for large parts of sub-Saharan Africa, MENA, and Asia—regions where in the coming decades the need for jobs will be the highest. Information that can help to improve targeting is needed. So far, very few studies are able to assess the longer-term effects of interventions and policies aimed either directly or indirectly at improving the job market and raising labor productivity. Moreover, the analysis of program costs is particularly lacking. Almost none of the 55 studies analyzed provided a detailed cost effectiveness analysis detailing the cost of creating an additional job with a certain program compared to another. This gap should serve as a wakeup call to both implementers and researchers. Implementers should provide the necessary numbers and researchers should go beyond studying simple impacts, which is not helpful for those who have to allocate resources across different interventions. As argued above, the challenges are increasing so action is important.

Essay Endnotes

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Overheard at the Roundtable

Rebecca Taber | Head of Government and Nonprofit Partnerships Coursera

Tens of thousands of Coursera learners are not only finishing their coursework, but reporting getting jobs that they said they wouldn't have otherwise. And with the right partnerships, we're seeing particularly high completion rates. So one question is: how can we set up the right experiments to get the right blend of online and offline learning, which has the highest efficacy and potential to scale.



Neal Keny-Guyer | Chief Executive Officer Mercy Corps

Working in fragile states, where there is often not much of an alternative to the informal, gig economy, we help young people build a portfolio of useful skills and gig work for that reality. This is so critical in these fragile places.

Mary Robinson | President Mary Robinson Foundation - Climate Justice

We're being very shortsighted in not realizing the importance of getting new technology and investment to developing countries for the jobs that they will need to create to replace jobs in the resource extractive industries, and we're running out of time.



Roopa Kudva | Partner and Managing Director, India Omidyar Network India Advisors

How do you make interventions in the education system for students aged 16 to 18, so that you don't have millions of people coming out of school with degrees that are of absolutely no value, and then thinking later on about how to upskill?

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