The changing nature of poverty and growing inequality

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Key messages

The complexities and thresholds of poverty are being changed by technological, economic, environmental and social trends, making ending poverty more challenging.

A key obstacle to poverty reduction remains the difficulty in measuring poverty, which prevents informed policy making.

Partnerships at local, national, and global levels are important for improving capacity to fight poverty at different levels and reduce deprivations caused by systemic issues.

Policies to eradicate poverty should focus on international best practice, give priority to areas where the most impact can be had, and be aware of new forms of deprivation.

Policies to improve education, health, and employment outcomes must similarly grapple with new forms of deprivations driven by technological change and be driven by up-to-date data.

■ Introduction

In 2015, 736 million people (10% of the global population) were living in extreme poverty, surviving on less than USD 1.90 a day (United Nations, 2019). Extreme poverty is higher in least developed, landlocked, and conflict affected countries. About 79% of the world's poor live in rural areas. (United Nations, 2019). Although, the poor predominantly live in low income countries, there are also extremely poor people in other places. For example, India and Nigeria, the two countries with the most extreme poor in South Asia and sub-Saharan Africa, are not classified as low-income countries (Katayama & Divyanishi, 2020).

Income alone does not determine the wellbeing of individuals. Many deprivations are caused by factors outside of their control. Demographic changes, natural disasters (such as the ongoing COVID-19 pandemic), and climate change are slowing down progress in poverty reduction. Recent attempts to measure poverty have shown that it is much higher than estimates solely considering income. From 2008-2018, 23% of people in developing countries were multidimensionally poor. This is a measure of poverty that accounts for health, education, and standard of living (United Nations Development Programme and Oxford Poverty and Human Development Initiative, 2019). Living standards – a composite measure looking at access to cooking fuel, sanitation, drinking water, electricity, housing, and assets – were the highest contributor to multidimensional poverty in developing countries. Across regions, the share of the population multidimensionally poor is highest in Sub-Saharan Africa (58%) and South Asia (31%).

Global poverty eradication efforts are now equipped with better knowledge, data, and understanding of its causes. The initial focus on the adequacy of income has shifted; with time it has become evident that eradicating poverty requires access to good jobs and effective public finance to improve access to basic facilities. Additionally, peoples' economic, social, political, cultural, and natural environments also dictate the ease of eradicating poverty. The World Summit for Social Development in Copenhagen in 1995 was a watershed in the global agenda on eradicating poverty (United Nations, 1995). This summit recognised the multidimensional nature of poverty and the need for global, national and local partnerships for eradicating poverty.

In 2000, spearheaded by the United Nations, world leaders agreed on achieving the Millennium Development Goals (MDGs)[1], a framework of

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1 The Millennium Development Goals include: Eradicating extreme poverty and hunger; 2) Achieving universal primary education; 3) Promoting gender equality and empowering women; 4) Reducing child mortality; 5) Improving maternal health; 6) Combatting HIV/AIDS, malaria and other diseases; and 7) Ensuring environmental sustainability; and, 8) Developing a global partnership for development (United Nations, 2015): 1).

eight goals end poverty and related deprivations by 2015. The MDGs recognised the importance of systemic approaches to eradicating poverty, and concerted efforts made in the first fifteen years of the millennium were quite successful. However, by 2015, the agenda for eradicating poverty remained unfinished.

It was evident by 2015 that growth and equality are the main drivers of poverty reduction; an agenda for eradicating poverty should not only focus on providing services for the poor, but on growth strategies that benefit them. In September 2015, therefore, world leaders continued the development agenda started with the MDGs with the Sustainable Development Goals (SDGs), a new set of far-reaching goals attained by 2030 through promoting prosperity, peace, and protection of the planet. The SDGs consist of 17 goals and 169 associated and specific targets. Unlike the MDGs, the SDGs recognise the need for growth, innovation, access to decent work, reduced inequality, access to services and infrastructure, protecting the planet, sustaining communities and cities as important components for improving the lives of people. Further, recognising that many of the world's poor live in middle and upper-income countries, they are applicable to all countries.

One of the key constraints in eradicating poverty has been identifying the poor. Poverty has been measured using a variety of indicators, including monetary benchmarks. However, money alone cannot buy all resources that improve living standards (Piecing together the Poverty Puzzle, 2018). For example, governments facilitate the availability of quality affordable education and health services. Whether money can buy these services is dictated by the quality of available education and health services and their accessibility to people. Further, clean environments and safe communities cannot be bought in the market. These are determined by policies, socio-cultural practices, and the behavior of people. Moreover, inequality in human development across gender, ethnicity, and location is also determined social norms, culture, and development policies.

The Human Development Index (HDI) was one of the first attempts to incorporate the multidimensional nature of poverty at the country level (United Nations Development Programme, 2020). Developed in 1990, the HDI considers health, education, and income to calculate human development in a composite index. Taking this concept forward in 2010, the Oxford Poverty and Human Development Initiative (OPHI) developed a new global multidimensional poverty index (MPI). The MPI is a composite index that captures deprivation in education, health and living standards of individuals. This index measures composite multidimensional poverty as well as its individual components. For example, between 2011 and 2016, the share of multidimensionally poor people in Ethiopia dropped from 88.4% to 83.5% (United Nations Development Programme and

Oxford Poverty and Human Development Initiative, 2019). While this was due to improvements in all dimensions of poverty, key progress was made in access to drinking water, assets, and nutrition.

The MPI also helps to identify within-country differences in poverty. The multidimensional poverty rate in different provinces in Uganda varied from 6.0% to 96.3% (United Nations Development Programme and Oxford Poverty and Human Development Initiative, 2019). At present, due to data limitations, the MPI measures multidimensional poverty across 10 indicators. Although the methodology has room to include other indicators, a lack of data prevents expanding the measure to other important elements of poverty at a global level. In this context, this brief will first discuss trends in the changing nature of poverty and illustrate how different drivers are changing the complexity and thresholds of poverty using education, health and employment as examples.

■ Ending poverty requires strategies to address the complexities and changing nature of poverty

Efforts at global, national, and local levels to eradicate poverty have made progress. Globally, the share of people living in extreme poverty, measured as an income of USD1.90 a day, has declined from 36% in 1990 to 10% in 2015 (United Nations, 2019). However, progress is not uniform. Across country groups with different levels of income, a decline in poverty globally was due to the reduction in extreme poverty levels in upper-middle-income and lower-middle-income countries. The share of people living in extreme poverty dropped by 39 and 31 percentage points in upper-middle-income and lower-middle-income countries, respectively (The World Bank, 2020). In contrast, low-income country poverty levels dropped by only 18% percentage points over the same period. Across regions, East Asia and the Pacific showed the greatest reduction in extreme poverty, followed by South Asia. The reduction of poverty in China and India, with the largest populations in the world, contributed hugely to poverty reduction in East and South Asia respectively (United Nations, 2015). In contrast, poverty levels in sub-Saharan Africa reduced at a much lower rate. Further, extreme poverty rates remain higher in rural populations, and in countries most affected by conflict and climate variability.

The MPI measures show less progress. According to Sabina and Gisela (2017), of the 5.4 billion people who were assessed for multidimensional poverty in 2017, 1.45 billion people were found to be MPI-poor. This represents 27% of assessments across 103 countries. The incidence of MPI poverty is greatest in sub-Saharan Africa (65%) and in South Asia (55%). These averages can be misleading, however. The intensity of poverty in different countries with the same multidimensional poverty

levels can be quite different. For example, in South Asia, both Pakistan and Bangladesh have the same MPI value, but the inequality among the MPI-poor in the former is higher than in the latter (United Nations Development Programme and Oxford Poverty and Human Development Initiative, 2019). Both extreme poverty and the MPI mentioned above utilise data at the household level. As such, it is difficult to assess the gender differences in poverty. Available evidence suggests women are more likely to be poor than men in most countries (United Nations, 2015). This is due to unequal access to paid work, lower wages, assets such as land and property and social protection, among other reasons (United Nations, 2015).

What are the drivers of poverty reduction? In Asia, growth has greatly contributed (Wan & Wang, 2014). East Asia in particular has experienced fast growth in the past several decades. Extreme poverty in Asia has thus decreased from 49% in 1969 to 3% in 2014. However, growth has also slowed in the region due to increasing inequality. Asia became more inequal between 1965 and 2006; the Gini-index increased from 38.4% to 42.8%, although inequality has since decreased. Level of development, unemployment, technology change, urbanisation, globalisation, and aging were all contributors to increasing inequality in the region initially. The trend was larger for more developed East-Asia than for less developed South-Asia.

The Latin American experience also suggests income distribution is as important as growth for reducing poverty. In the 1990s, despite modest growth, poverty reduction was moderate, partly due to high inequality. However, from 2002 onwards the region saw a huge reduction in poverty levels, helped by economic growth accompanied by reduced inequality (Gasparini & Cruces, 2013, Bloeck, Galiani, & Weinschelbaum, 2019). Income distribution was improved in the region with a combination of reforms that resulted in the creation of better jobs and improved skills of workers, as well as social policy reforms that resulted in better social protection.

There are several drivers that are changing the nature of poverty. First, technology is slowing down gains made in poverty reduction due to increased inequality. Second, conflict has caused thousands of people to leave their homes and move to engage in marginal livelihood activities, depriving them of basic necessities. According to the United Nations (2015), conflict had forced more than 60 million people to abandon their homes by the end of 2014. Third, Environmental degradation, such as carbon dioxide emissions and eroding water and soil quality, makes it difficult to end poverty. Environmental stress diminishes the returns to livelihoods and access to basic needs such as water and food (United Nations Development Programme, 2011). The livelihood of the poor is

more likely to depend on sectors vulnerable to climate stresses such as agriculture, fisheries, and forestry (Kassa, Teferi, & Delelegn, 2018). Lastly, natural disasters (such as the COVID-19 pandemic and climate change and variability) affect the growth of countries and the livelihoods of the poor (Food and Agriculture Organization of the United States, 2019).

Education development needs to look beyond basic education to cater to changing lifestyles and markets

Access to education has improved overtime (United Nations, 2015). Primary school net enrolment rates in developing countries reached 91% in 2015, an increase of 8% since 2000. Literacy among young people aged 15 to 24 has also increased from 83% to 91% between 1990 and 2015. Gender disparities in school enrolments have been drastically reduced, and even eliminated in some regions for some levels of education. Between 1990 and 2015, the number of girls for every 100 boys in primary education has increased from 74 to 103 in South Asia.

Attending school alone is not enough to eradicate poverty. It is also important to learn essential skills. 617 million primary and lower secondary school-age children and adolescents in 2015 globally did not have minimum proficiency in reading and mathematics (United Nations, 2019). This amounts to more than 55% of children of this age. One-third of these children dropped out, while the rest lacked the necessary competencies due to poor quality schooling (United Nations, 2019). The share of children and adolescents not achieving minimum proficiency in mathematics and reading was highest in Sub-Saharan Africa, where more than 84% lacked basic competencies.

While proficiency in reading and mathematics is important, countries also need workers with science, technology, engineering, and mathematics skills to benefit from technological advancements as well as for facilitating innovations that help sustain competitiveness of firms. More developed countries have already recognized this need,

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and are putting mechanisms in place to monitor and develop more skilled work forces. A lack of information on the quality of education systems prevents investment to improve resources and the teaching of these subjects. The situation is exacerbated as even the small share of educated workers from developing countries are actively being sourced by more developed countries in their competition for talented individuals, casing brain drain.

While some countries still struggle to achieve universal access to education and ensure basic proficiencies in reading and writing, the world has moved forward. Technological change is transforming the labor market. The jobs done by low skilled workers are automated, while the demand for more skilled jobs is increasing. Access to these new job opportunities is only available for those with higher levels of education. In this regard, a good education is even more important than before to access good jobs. A highly skilled population is a key ingredient that determines a country's ability to keep up with technological change (World Economic Forum, 2019).

From 2010 to 2018, only 67% of adults aged 25 and above had some secondary education (United Nations Development Programme, 2020, Table 9). Further disaggregation of this statistic shows that more attention needs to be given to developing countries, and especially to women, to improve this statistic globally. The corresponding statistic was lower (60%) for developing countries, while it was 86% for OECD countries. The gender disparity in this statistic was also wider for developing countries, with women nearly 10% lower than men (United Nations Development Programme, 2020, Table 5). The disparity in access to secondary education varied across regions. The share of the population aged 25 and above with some secondary education was low in sub-Saharan Africa (34 %), South Asia (51%) and the Arab States (51%) (United Nations Development Programme, 2020, Table 9). These numbers were lower for tertiary education. Only 34% of the tertiary-age population were educated to that level in developing countries, compared to 75% in OECD countries (United Nations Development Programme, 2020).

■ Health systems must cater to the changing epidemiological profiles of countries

Impressive progress has been made in improving health outcomes. The number of deaths of children under 5 years of age has declined from 77 deaths to 39 deaths per 1,000 live births from 2000 to 2017 (United Nations, 2019). Despite progress, disparities in under-5 mortality rates persist. About half of the under-5 deaths occurred in Sub-Saharan Africa, and another 30% in Southern Asia (United Nations, 2019). The maternal mortality ratio has declined by 45% worldwide (United Nations, 2015, page 26). The proportion of births assisted by skilled health personnel has increased from 69 from 2006 to 2012, to 81 from 2013 to 2018. Although progress is seen in all regions across the world, some regions are lagging. For example, from 2013 to 2018, only 59% of births in sub-Saharan Africa were assisted by skilled personnel.

Despite progress in the above health measures, a range of Neglected Tropical Communicable Diseases (NTDs) are affecting billions of people

in tropical countries. Limited access to clean water, sanitary facilities, and hygiene is causing diarrhea, worm diseases, and malnutrition. These diseases are costing health systems billions of dollars (United Nations, 2019). Alongside communicable diseases, non-communicable diseases such as cardiovascular diseases, diabetes, and cancer are rising. Pollution, globalisation, changing lifestyles, and changing food habits are changing the epidemiological profiles of countries. Mortality rates attributable to non-communicable diseases are high not only in developed countries but also in developing countries. In 2016, the number of deaths among women attributable to non-communicable diseases per 100,000 people was highest in sub-Saharan Africa (633.6) and South Asia (543.1) compared to Europe and Central Asia (505.6) (United Nations Development Programme, 2020, Table 8). The corresponding number of deaths among men, although not higher than for Europe and Central Asia (812.6), was fairly high for sub-Saharan Africa (684.3) and South Asia (670.8).

Child malnutrition is continuing to hold back progress in eradicating poverty globally. Inadequate nutrition decreases the chances of survival, constrains the growth and health of children, and restricts brain development and ability to learn (United Nations Children's Fund (UNICEF), 2013). Furthermore, malnutrition is intergenerational; children of malnourished mothers are also more likely to be malnourished. In South Asia and sub-Saharan Africa, more than a third of under-5 children were malnourished during the 2010 to 2018 time period (United Nations Development Programme, 2020, Table 8). Within countries, malnutrition is more severe amongst rural populations and the poor. Many factors affect the prevalence of malnutrition. The immediate causes are inadequate diets and diseases. These, in turn, are affected by access to nutritious food, knowledge of food and food habits, and access to clean water and sanitation. These underlying causes are largely determined countries' social, political, and economic contexts of a country as well as the resources available to households.

Improved access to productive employment and social protection is needed for making development more inclusive

To be sustainable, growth needs to be inclusive (World Bank, 2017). Inclusive growth ensures that growth is broad-based and includes all economic sectors and most of countries' labor forces. Improving individual access to productive employment is the main means for inclusive growth and poverty reduction. Productive employment is facilitated by well-organised production systems that bring together different expertise through efficient markets and networks to produce high quality products (Hausman, et al., 2006).

Most workers in developing countries are vulnerable, and engaged in unpaid family work or self-employment. In low-income countries, close to 90% of workers were in informal employment (International Labour Organization, 2019). Within low-income countries a higher share of women (92%) than men (88%) informally employed (International Labour Organization, 2019). In comparison only 18% of workers in high-income countries were in informal employment. Such workers often lack access to social protection benefits, such as paid holidays and paid sick leave, available to workers in more formal work settings, which increase their likelihood of falling into poverty. More than half (53%) of the employed in developing countries are in vulnerable employment. These shares are particularly high in sub-Saharan Africa (75 %) and in South Asia (72%) (United Nations Development Programme, 2020, Dashboard 1).

Like workers in vulnerable employment, agricultural workers' incomes vary due to natural and man-made disasters (e.g., pandemics such as COVID-19, adverse weather events, insect attacks, conflicts). From 1998 to 2017, 77% of the direct economic losses were attributable to climate-related disasters such as floods, droughts, heat waves, and other extreme weather events (United Nations, 2019). From 1998 to 2017, the economic losses due to disasters were as much as 1.8% of GDP in low-income countries, compared to only 0.4% in high-income countries. The share of workers in agriculture in developing countries was high (34%), making workforces in those countries more vulnerable. This share was particularly high for sub-Saharan Africa (55%) and South Asia (42.7%), while it was only 22.5% in Europe and Central Asia.

Automation and other technological developments are increasing the demand for skilled workers while reducing the demand for low skilled workers, thus polarising the labour market.

Inequality caused by technological change will be a major challenge facing labor markets (Wan & Wang, 2014). Developments in genetics, artificial intelligence (AI), nanotechnology, and 3D printing are influencing how people work, live, and socialise. These trends are reshaping economies and changing the organisation of labor markets and occupational structures. Automation and other technological developments are increasing the demand for skilled workers while reducing the demand for low skilled workers, thus polarising the labor market. These changes are apparent in developing countries such as India, where manufacturing jobs are being polarised with technological change (Vashisht, 2018). How to slow down the declining labor share of national incomes is a major challenge facing policymakers (Wan & Wang, 2014). In developing countries, only 32.5% of the labor force was skilled in the 2010-2018 period (United Nations Development Programme, 2020, Dashboard 5).

In more developed Europe and Central Asia, 71.8% of the labor force were skilled workers. The share of skilled workers is particularly low in South Asia (20%) and sub-Saharan Africa (25.6%).

While technological change is benefitting skilled workers and capitalists at the expense of lower-skilled workers, it is also creating opportunities for previously marginalised workers. ICT is enabling firms to offer more flexible work opportunities, which are more attractive to females and youth. Entrepreneurs are increasingly using ICT to source inputs and market products, which has enabled them to reach a wider market. Governments can facilitate the benefits of ICT by improving infrastructure and investing in education and skills training. In their absence, the gap between the poor and the more privileged will continue to increase, as the poor are left behind by innovations.

■ Measuring poverty

Several factors constrain the measurement of poverty. The first of these is data limitations. In countries where poverty is greatest, the availability of data to identify its causes is limited. Although poverty is influenced by systemic deprivations as well as individual-level deprivations, information on systemic exclusions (e.g., access to schools with qualified school teachers) is limited (Morales, Charvet, & Ordóñez, 2020). Given that poverty is multidimensional and context specific, qualitative information is needed to fully understand household behavior and the nature of deprivations. Qualitative information can also provide rich data on different types of cultural, social, and economical interventions, needed to reduce the vulnerabilities of different population groups.

Second, not all dimensions of poverty are easily quantifiable. Environmental degradation is affecting people's health and livelihoods (Kassa, Teferi, & Delelegn, 2018). But limited information is available about environmental quality. Similarly, climate variability is increasingly becoming unpredictable, making it difficult to enact strategic decisions to develop livelihoods (Bangalore, Smith, & Veldkamp, 2019). Climate change is affecting people's livelihoods and living standards in complex ways influenced by interrelated systemic issues that need collective and collaborative efforts to address. Some data gaps at the country level can be filled using administrative data and proxy indicators. Although such information can provide a fairly good understanding of factors affecting poverty, data comparable across countries and regions are also necessary on different levels and types of deprivations to ensure that policies focus on the most critical issues (Morales, Charvet, & Ordóñez, 2020).

Third, technological change is transforming the way people live, work, and interact (International Labour Organization, 2017). For example, the

availability of affordable and easy to use ICT has created platform-based market places (e.g., Airbnb, Uber), which provide numerous different services (Institute of Policy Studies of Sri Lanka, 2019). New innovations are introduced, changing the capability sets needed for people to access productive employment and live satisfying lives. According to the World Bank, two-thirds of all jobs in developing countries are susceptible to automation (International Labour Organization, 2017). Jobs are being replaced and changed by machines. Motor car mechanics, who were low skilled workers need better skills to repair new cars that come with high-tech components. Such changes introduce new facets to the already complex determinants of poverty. In addition, the thresholds which determine cutoff points of deprivations in existing dimensions are also changing. Literacy or completion of primary education is no longer sufficient to transcend poverty as higher skills are increasingly demanded to access public services (which are increasingly automated) and jobs.

Lastly, epidemiological country profiles are rapidly changing. Disease burdens are shifting from young children and pregnant mothers to long term illnesses affecting the adult population. Further, greater connectivity is making countries more vulnerable to diseases such as COVID-19. Globalisation, technological change, environmental degradation, and aging are all contributing to these changes. Such changes are influencing poverty through new channels. As limited systematic data is collected on these new types of diseases and their causes, policy attention is needed to tackle these emerging health issues.

■ Conclusion and recommendations

Eradicating poverty

The world has made great progress in eradicating poverty. But this agenda is not finished. As we better understand poverty and its causes, it is increasingly evident it is influenced by interrelated deprivations and exclusions that can only be addressed by collective actions and interventions at different levels. Development outcomes across countries and population groups are influenced by several historical practices, social norms, laws, and access to services. Further, the challenges of eradicating poverty are context-specific and change from location to location. A good example is the challenges faced by women when participating in the labor market. On the supply side, factors such as skills gaps, security concerns during work and while traveling to work, issues with transport, difficulties in balancing work with life activities in societies where women are considered to be the primary caregiver, and social-cultural norms that discourage women in market activities, are hindering their participation in the labor force. On the demand side, among other things, lower wages (compared to men), discrimination

in the workplace, protective labor laws that make women workers more expensive to the employer, and work environments that are not women-friendly dissuade them from the workplace.

Given these contexts, policies to eradicate poverty should:

- Learn from international best practices of poverty eradication, customised to suit local contexts. Poverty eradication policies should consider multiple channels (social, political, economic, etc.) that influence deprivations, rather than depend on quick fixes that concentrate on one or two aspects. For example, encouraging women's labor market participation would require a combination of policies aimed at improving the equal treatment of women in the workplace, making transport safe and affordable, and facilitating a work-life balance. Specific policies needed would depend on the national / local context. Policymakers should learn from best practices for capitalising on the opportunities provided by new technologies to address old problems.

- Give priority to areas that have a broader influence on poverty reduction. For example, investing in education will not only improve education outcomes but also help to achieve health and employment outcomes as well. Such services that have a broader influence on poverty alleviation should be given priority.

- Pay attention to emerging dimensions of deprivations as well as existing ones. Improving access to ICT infrastructure can help find new solutions to old problems. Such services that could facilitate innovations in reducing poverty should be given priority.

Improving education outcomes

While filling the remaining gaps in education, more attention should also be given to improving learning outcomes and increasing the quality of teaching. Quality teachers and well-equipped schools are essential for improving the quality of education. Developing countries need to be supported and encouraged to invest to develop, recruit, and deploy quality teachers to all schools. Evidence suggests that even in countries that have made progress in education outcomes, schools lack good quality teachers because of poor infrastructure for teacher training and issues with teacher recruitment and deployment (Arunatilake & Abayasekara, 2017).

Concerted efforts must be made to learn from best practices in teacher training and deployment, and provide schools with the resources needed to improve the effectiveness of teaching and learning processes. Technology and distance learning programs are effectively used in some

education systems to provide quality education to children in rural areas (Khumalo, 2018). Fostering such innovations could expedite improving access. Periodic evaluations of resources at schools, the quality and adequacy of teachers, and learning outcomes of children, should be done so that policies can be evaluated and improved. This is an essential step, as improperly implemented initiatives might result in increasing inequalities across schools (Arunatilake & Jayawardena, 2014).

Improving health outcomes

As with education, the world has made impressive progress in improving health outcomes. But emerging health issues such as malnutrition and NCDs are undermining this success. More attention should be given to designing policies to improve emerging health challenges such as malnutrition and reducing NCD risk factors (World Health Organization, 2013). The health infrastructure in many developing countries is focused on improving maternity and childrens' health. The capacity of health systems to prevent and treat emerging health issues needs to develop.

Information on the prevalence of different types of diseases should be collected, so policymakers have better information on areas needing attention. This can be done using a combination of methods such as periodic surveys and administrative data. In many countries, data generated at hospitals are not complete due to improper recording. Further, data generated cannot be easily used due to manual entry methods. Initiatives for strengthening and modernising data generation in health care facilities at different levels, as well as strengthening local capacity to use that data effectively to inform policymakers, should be developed. This could help to generate better knowledge of the epidemiological profiles of a country. The use of innovations in technology to track and monitor health outcomes and take health services to people should be supported (Joseph-Shehu, Ncama, Mooi, & Mashamba-Thompson, 2019). At present these innovations are mainly used in developed countries, but can be especially effective in reducing NCD burden as the NCD care involves regular monitoring of symptoms.

Improving access to quality employment

Access to good jobs is the best means of improving development outcomes. Technological developments are constantly changing the world of work. Highly skilled workers and capitalists primarily benefit from technological change (Wan & Wang, 2014). To make technological change-driven growth more inclusive, investments in tertiary education and infrastructure are necessary to improve the skills of workers. Investment must be encouraged that create better jobs (Gasparini & Cruces, 2013, Schwab, 2019).

Access to skills training and university education must be expanded through improving the quality of education delivery of the existing institutions, mobilizing private and public resources for expanding tertiary education facilities and providing support for students to access quality tertiary education programs. A combination of archaic labor laws, social norms, and infrastructure issues are making access to quality employment more difficult for women, youth, and marginalised groups. Such bottlenecks in improving the accessibility and flexibility of jobs should be identified and rectified to improve access. Technology can be useful in creating jobs that overcome some of the earlier mentioned obstacles for accessing quality employment. (Suhaida, Nurulhuda, & Yap, 2013). Policies should learn from such innovations.

Improving evaluation and development of poverty alleviation programs

Better information and better knowledge of the causes of poverty and how they affect populations are necessary to mitigate them. Eliminating poverty is becoming elusive its nature is constantly changing. Some aspects of poverty, such as safety, susceptibility to climate change, and environmental degradation, are less easily measured. But, comparable measures – qualitative or quantitative – are useful for gaining policy attention. While we struggle to eradicate deprivations in basic needs, these new dimensions are slowing down progress in poverty alleviation. Adverse weather events or conflict can destroy homes and livelihoods, and undermine public services (Leichenko & Silva, 2014).

A better understanding of the different channels through which pollution, conflict, and climate change affect poverty, and finding effective ways to cope with such adverse shocks, are important for sustained poverty alleviation. Initiatives must be put in place to collect regular information on these measures at the local level. Although globally comparable data is important to assess relative poverty levels, a variety of qualitative data and administrative data could help to understand deprivations across different dimensions. Supporting national-level research institutions to use such data can help fill gaps.

Innovations in digital technology (e.g., satellite images) and data generated through ICT can generate knowledge that provides valuable information. Coupled with survey data, this can generate knowledge in deprivations across different dimensions. The capacity of local research institutions and statistical agencies to use such information to generated knowledge must be strengthened.

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