RISE
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INSIGHTS

Education and Employability: The Critical Role of Foundational Skills

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Key Points

- Foundational skills are associated with individual and societal economic gains.
- In developing countries, most children are not achieving the expected level of foundational skills.
- It is difficult for TVET to add value where foundational skills are very low.
- In developing countries, TVET interventions have only small impacts on employment outcomes and are more expensive to deliver than basic education.
- The focus on linking TVET systems to employer demands is unlikely to address the key binding constraints to better employment outcomes.
- In countries with high levels of learning poverty, investing in effective basic education programmes—particularly those which build strong foundational skills—is likely to be a more cost-effective way to improve employability than investing in TVET and critical to ensure that investments into TVET actually yield desired outcomes.

Executive summary

A great deal of policy attention is paid to the role that education plays in driving employment outcomes. Most of this attention has focused on post-primary education—particularly Technical and Vocational Education and Training (TVET). This paper sets out the less-discussed role that foundational skills, typically built through basic primary education, play in driving employability; how foundational skills affect TVET provision; and what implications this body of evidence has for education policy.

We acknowledge the need to consider how education systems build skills which will contribute to countries' economic aspirations. However, we suggest that the dominant discourse which focuses specifically on TVET and how it can be linked to employer demands is unlikely to be successful for several reasons. Firstly, we show that foundational skills are themselves associated with economic gains for individuals and societies. This, together with the evidence showing extremely low levels of foundational skills in many countries, suggests that focusing on improving foundational skills may be a more cost-effective approach to driving employability than has been previously acknowledged. Furthermore, we show that TVET (and other later forms of education) may struggle to add value where foundational skills are not in place. Focusing large amounts of energy and resources on reforming TVET may not achieve hoped-for impacts if TVET entrants don't have the necessary foundations to learn.

We discuss the popular policy prescription of linking TVET provision to employer needs. As well as noting our concern that this focus fails to acknowledge the binding constraint of low foundational skills, we also set out why employer demand for skills may not be a good indication of actual future skills needs. We therefore suggest a more nuanced discussion on skills for employability which acknowledges economic development goals; the skills that will be needed to achieve them; and, crucially, a country's starting point.

We end the paper by highlighting the fact that unemployment and underemployment are generally caused by a lack of jobs, not a lack of skills. We therefore urge policymakers to be realistic about the extent to which any education policy—whether focusing on foundations, technical, and vocation skills or any other type of skills—can affect

employment outcomes.

Considering the evidence presented in this paper, we suggest that policymakers in many low- and lower-middle income countries may want to consider a stronger focus on foundational skills. The major reason for focusing on foundational skills is that a quality education is a fundamental right for all children which will allow them to experience lifelong learning. This paper sets out that foundational skills will also be the first step towards achieving a more employable workforce—but also that policymakers should consider the full range of policies that need to be in place to deliver productive employment and economic growth.

Introduction

> *Building up quality education systems with well-qualified, supported, and respected teachers cannot, on its own, transform the world. It can, however, ensure people's learning dispositions are well cultivated early in life. A quality education can nourish individual's cognitive, interpersonal, and intrapersonal capacities, and enable people to master domains of knowledge (and relationships between them) that offer our best insights into understanding the natural and social world. It can underpin the capacity for skilled work, independent reasoning, and collaborative action…Striving to establish such quality education systems would provide a clear reference point for economic development.*
>
> Buchanan et al., 2020

Human capital—in particular, educational attainment—is an important driver of economic growth because it improves the productive capacity of a population (Aslam and Rawal, 2015).

Globally, many governments are investing in education with the aim of driving economic growth by improving the productivity and efficiency of citizens. Investment is often channeled into such goals as expanding educational opportunities and access, developing technical and vocational skills, and aligning educational systems to 21st century goals (see for example, African Development Bank, 2017; Jagannathan and Khatiwada, 2021). However less attention has been paid to the role of foundational skills—including literacy, numeracy, and socio-emotional skills—in driving employability and contributing to economic growth.[1]

Attaining a functional level of literacy and numeracy is indispensable to unlocking future aspirations, at an individual level and from a wider societal perspective. The ability to read, write, comprehend, and apply information, and to carry out basic numeracy tasks, establishes the foundation upon which students can build advanced learning, achieve their full potential, and contribute productively to society (Abadzi, 2006; Belafi et al., 2020).

Literacy and numeracy skills lay the foundation for youth to accumulate further skills; however, alone they will not deliver productive employment and economic growth. Growth and development are intrinsically related to policies that promote and strengthen the business environment, amongst other factors.

This paper does not suggest that driving employability should be the sole or main focus of education policy. Education is a human right which results in a wide range of positive impacts for individuals and society. Employability is just one of these positive impacts; however, it is a major concern for policymakers. Given that there are many policy pronouncements about the links between post-secondary education—particularly TVET—and employability, we aim to set out the evidence which shows how foundational skills fit within these discussions.

The rest of this literature review is broken down as follows: section 2 explains the concept of foundational skills; section 3 provides evidence on the learning crisis and the link between foundational skills and employment outcomes; section 4 outlines how efforts to improve basic skills relate to efforts to support TVET; section 5 discusses complementary factors needed to unlock skills-induced growth; and section 6 concludes the review.

[1] This review focusses mainly on evidence on foundational literacy and numeracy. However, we want to emphasise that the focus of this paper on literacy and numeracy is not intended to suggest that we see the role of socio-emotional skills as less important; they also play a critical role in influencing a wide range of personal and societal outcomes throughout a person's life.

Foundational skills

In this section we explain what we mean by the term foundational skills and summarise the evidence on the current state of foundational skills globally.

Foundational skills are the basic cognitive skills which all future learning builds on

In this review, we focus on the 'foundational skills' of basic literacy and numeracy that are expected to be acquired at pre-primary and primary school levels (World Bank, 2017). They encompass the critical rudimentary and essential literacy and numeracy sub-skills that facilitate the ability to perform more complex tasks such as reading fluently and calculating sophisticated mathematical problems. They create the basis for acquiring higher-order cognitive skills, problem-solving skills, and business skills.

Learning is cumulative and progressive. It is well established that identification of letters is related to the acquisition of more advanced literacy skills such as reading (Adams, 1994), in the same way that identification of numbers is related to advanced numeracy skills (Wright et al., 2006). In the same vein, progressing from identifying numerals and letters, differentiating them, and classifying them is a critical knowledge base for addressing more sophisticated problems such as reading words and sentences, and calculating mathematical problems (Munn, 1994). The skills therefore build on each other; equipping children with adequate foundational skills cultivates the fluency in literacy and numeracy required for advanced understanding of more complex problems (Pugalee, 1999). With strong foundational skills, children can go beyond rote memorisation and become equipped to apply their skills and knowledge to address more complex and real-world situations.

Filmer and Fox (2014) categorise productivity enhancing skills into five categories: basic cognitive skills such as numeracy and literacy; higher-order cognitive skills, such as problem solving and critical analysis; behavioural and socio-emotional skills, such as social skills and self-regulation skills; technical and vocational skills that are often specific to an occupation; and business skills such as entrepreneurship and managerial skills. The right mix of skills required for productivity in employment will depend on the specific requirements of the job; however, a critical factor is a high quality basic education that lays the foundation for students to acquire all other skills later in life, either through experience or further training (Filmer and Fox, 2014).

Efforts have been made by actors in global education to make foundational skills concrete and measurable and to create a metric against which the skills can be evaluated.

Sustainable Development Goal (SDG) 4.1.1, is defined by '*the proportion of children and young people (a) in grades 2/3; (b) at the end of primary school; and (c) at the end of lower secondary, achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex*' (United Nations, 2015). This indicator is informed by the results of a wide range of cross-national assessments. For example, the Organization for Economic Co-operation and Development (OECD) through its Program for International Student Assessment (PISA) measures proficiency levels in literacy, numeracy, and science amongst 15-year-old children (OECD, 2009). The World Bank's Learning Poverty indicator goes one step further than previous metrics to give a total proportion of children who are not learning—including both the proportion of children who are out of school and the (usually far larger) proportion of children who are in school but not learning even the most basic skills (World Bank, 2019).

In low and lower-middle income countries, the majority of children are not developing adequate foundational skills

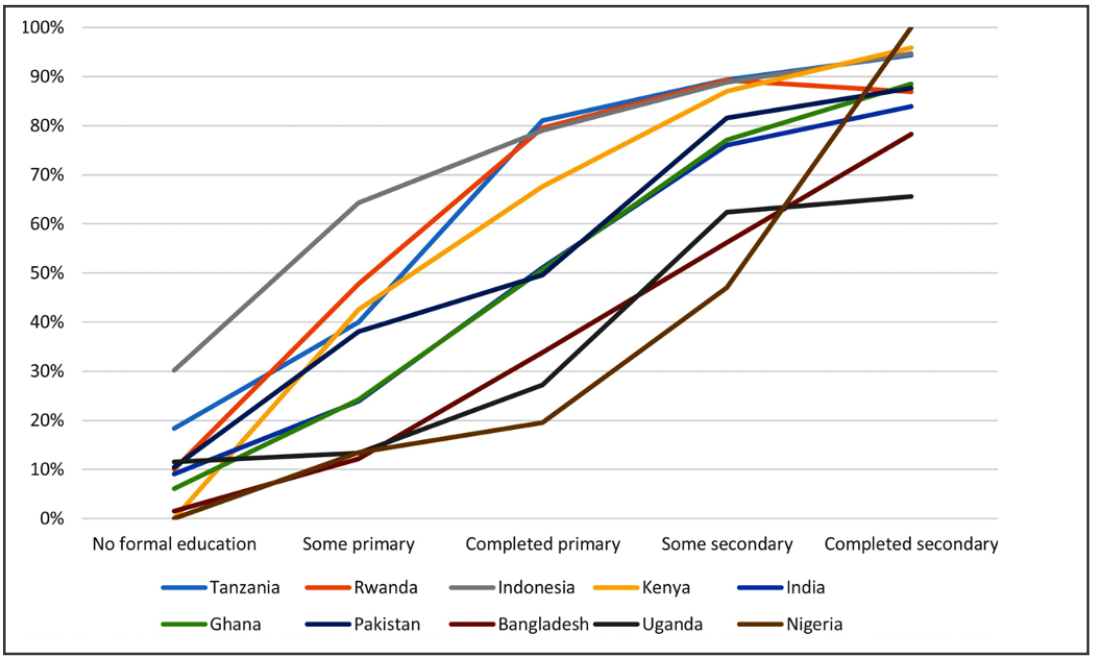
There is a growing body of empirical data showing that education systems are not meeting the demand for the skills and knowledge needed today. Globally, there are 258 million school-aged children who are currently out of school, lacking access to these foundational skills (UNESCO, 2020). However, even for the students that are currently attending school, there are much lower learning levels than expected and most children in low- and middle-income countries are not developing the foundational skills they need to thrive later in life (World Bank, 2019).

The World Bank's Learning poverty data estimates that over half the children in low- and middle-income countries cannot read or understand a basic story even though many have spent five or more years in school (World Bank, 2019). The latest update to the Learning Poverty data shows that learning levels were decreasing even before the COVID pandemic, and that post-pandemic, learning poverty may have reached as high as 70 percent of children globally (World Bank et al., 2022). UNESCO (2017) also estimates that 387 million children, over half of the primary

school age children worldwide, lack basic reading skills. The International Common Assessment of numeracy (ICAN), a cross-national numeracy learning metric, found that the proportion of Grades 2 and 3 students able to complete a set of foundational numeracy tasks ranged from 5 percent to 57 percent across 13 countries surveyed (PAL Network, 2020).

Across 10 low and middle-income countries, around half of young adults with primary schooling as their highest level are functionally illiterate (Pritchett and Kaffenberger, 2017). In rural India, more than half of Grade 5 students have not mastered Grade 2 literacy (Pratham, 2019).

Figure 1: Percentage of young adults with basic literacy skills in ten countries



Source: Financial Inclusion Insights data. Kaffenberger and Pritchett (2021).

Statistics are bleakest for the lowest-incomes countries, with only around 10 percent of children in primary school said to be proficient in reading and math (World Bank, 2018b). In Sub-Saharan Africa, the worst performing region, 87 per cent of primary-school aged children have not achieved proficiency in reading, followed by Central and Southern Asia where approximately 81 percent are not achieving proficiency (Rossiter et al., 2018).

Children who do not gain foundational skills early in their school career often fall behind and fail to catch up (Silberstein, 2021). Evidence shows that when children become unable to follow what is being taught in the classroom, many either remain in school but without learning or drop out of school because it is not benefitting them (Beatty et al., 2021; Silberstein, 2021; Kaffenberger et al., 2021; Spindelman, 2021). In India for example, many children in later grades (Grade 6,7,8) remain at a Grade 2 learning level (Muralidharan and Singh, forthcoming). In Kenya, after controlling for factors such as socio-economic status, age, and gender, Zuilkowski et al (2016) found that poorer performance on literacy and numeracy assessments in fifth grade predicts a higher rate of dropout by seventh grade. Similarly, a study looking at data from five developing countries found that test results at age 12 are associated with completed years of schooling at age 22 (although it is important to note that test results at age 12 do not fully account for later schooling indicating that other factors are also important [Das et al., 2022]).

Without developing foundational skills, young people cannot access further training and employment that requires higher order thinking and will be excluded from the benefits of a future of work (World Bank, 2019).

Foundational skills can be acquired in later years. Indeed in one study from Pakistan, children with lower levels of learning initially were found to learn more between Grades 3 and 6 than higher performing children (Bau et al., 2021). However, as teaching typically follows the curriculum, children who have not learned foundational skills in the first few years of primary school often do not learn them unless specific catch-up education is provided (Pritchett and Beatty, 2015). Even where catch-up education is provided, the big disadvantage of waiting until later in life to acquire foundational skills is that students will have missed out on all the learning they would have been achieving throughout their school career if they had learned the basics early. This was seen in a study by Chiplunker et al (2020) where

remedial education for secondary age children was able to improve foundational skills but had no impact on Grade 10 test results.

Summary

Foundational skills are the cognitive skills which all further learning builds upon. At present, a large portion of children in low- and lower-middle-income countries are not developing adequate foundational skills.

Relationship between foundational skills and employment outcomes

There are several channels through which foundational skills yield benefits for individuals and society at large. In this section, we describe evidence linking foundational skills to employment outcomes. A key takeaway objective of this section is not only to highlight the importantance of foundational skills for achieving other socio-economic outcomes, but to also emphasise the importance of foundational skills that are acquired early in life.

It is important to note up-front that researchers are constrained in their ability to identify the causal impact of foundational skills and/or early skills on later life outcomes because we cannot randomise who learns literacy and numeracy (for many reasons, including the fact that this would not be ethical), and because there is a lack of longitudinal data in low- and middle-income countries. However, we are able to draw both on correlation evidence (discussed below) and on evidence about 'how children learn' (for example, Abadzi, 2016) to examine whether and when foundational skills should be prioritised.

Foundational skills are associated with employment status and wages

Education leads to multiple benefits for individuals and society at large. Evidence suggests that schooling is associated with increased productivity and earnings for people in both formal and non-formal employment and economic growth (Filmer and Fox, 2014). Two key facts are important to emphasise. First, investment in the early years of schooling is thought to represent the highest rate of return to any investment in education (World Bank, 2018b). Second, productivity returns to investments in additional schooling are higher when foundational skills are stronger. A study from Ghana, Kenya, South Africa, and Tanzania shows that returns to schooling tend to be lower for people with poor foundational skills compared to those with higher skills. Therefore, further education and training is likely to provide most benefit to people with better foundational skills (Fasih et al., 2012).

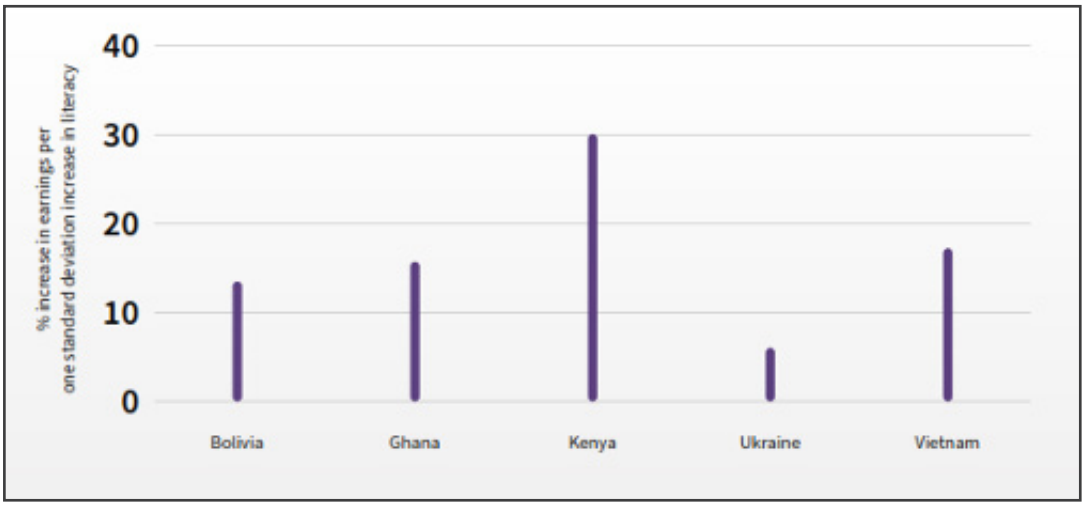
Foundational skills are associated with formal employment in at least some contexts (McIntosh and Vignoles, 2001). Evidence from high income countries shows that, other things being equal, people with weak foundational skills are more likely to be unemployed. Data from the Adult Literacy and Life Skills Survey suggests that low foundational skills predicted youth unemployment in Canada, the USA, and Norway (Lundetræ et al., 2010).[2] Findings also suggest that these skills are important not just in gaining employment, but also in advancing in it and retaining it (Bynner, 2004). British longitudinal studies of cohorts from 1952 to 1970 also reveal that for youth, unemployment rates are higher for those without strong foundational skills (Bynner and Parsons, 2001). Although evidence is scarce, foundational skills acquired through basic education are believed to be an important determinant of later employment in developing countries as well (World Bank, 2018b).

There is some evidence that foundational skills are important for entrepreneurs and business owners even in the informal sector. One of the factors behind the shortfall of skills in the informal sector in African countries is thought to be the poor quality of basic education of people in the sector (Adams et al., 2013) and a study from Ghana found that the adoption of good management practices was significantly higher among business owners who scored higher on basic cognitive tests (Fafchamps and Woodruff, 2012). There is also evidence that more schooling is associated with better business outcomes (although please note the caveat that more schooling is correlated with, but by no means a perfect predictor of, higher foundational skills). A study of small enterprises in Ghana found that micro and small business owners with more education kept better written business records (Fafchamps et al., 2011). Evidence also suggests that farmers with primary schooling tend to have higher profits than farmers without any schooling, indicating that, at the absolute minimum, basic education yields significant benefits (Abdulai and Huffman, 2005). Foster and Rosenzweig (2010) also showed that more educated farmers are likely to adopt new technology over less educated counterparts, either because they can access information about technology or because they are better able to learn and decode new information more efficiently.

[2] This study controlled for educational level.

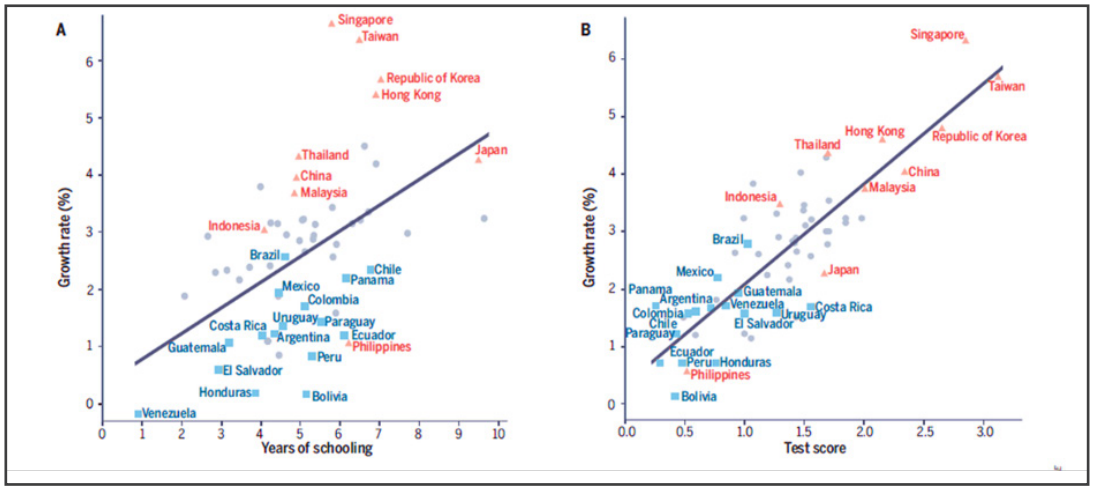
Achieving literacy and numeracy is associated with significantly increased earning potential in a range of countries.[3] One standard deviation increase in literacy is associated with increased earnings of full-time waged workers in a range of low and lower-middle income countries (Chua 2017; Figure 2). In high-income countries, one standard deviation increase in numeracy skills is associated with an 18 percent increase in earnings, or 16 percent when accounting for parental education (Hanushek et al., 2015). A study from the United Kingdom shows that literacy and numeracy is significantly associated with earnings and the wage premium has risen over time (De Coulon et al., 2007).

Figure 2: Literacy is associated with increased earnings in low- and middle-income countries



Source: Chua (2017)

Figure 3: Economic growth rates in East Asia and Latin America are more tightly correlated with average test scores than with years of schooling



Source: Hanushek and Woessmann (2016)

Foundational skills are associated with societal economic benefits

Beyond potential private returns, foundational skills are also associated with large societal economic benefits. There is a strong association between foundational skills and economic growth rates across countries (Hanushek, 2015). The association between education and economic growth is driven more by effective learning than by just schooling (years in school) (World Bank, 2018b). Indeed, differences in learning outcomes, as opposed to differences in average years of school attendance, can largely explain the divergent economic paths taken by east Asia and Latin America in recent decades (Hanushek and Woessman, 2016; Figure 3). A study which developed a globally comparable measure of learning outcomes with data representing 98 percent of the global population, found that learning levels account

[3] This should not be interpreted as returns to education because the studies do not all fully control for factors that might confound the analysis. The analyses instead show associations between learning and earnings.

for between a fifth and half of between-country differences in income (Angrist et al., 2021). New research estimates that achieving basic skills for all young people would lead to dramatic increases in economic growth in developing countries (Gust, Hanushek and Woessmann, 2022).

Children who acquire foundational skills early also do well on a range of other socio-economic outcomes. As discussed earlier, mastery of foundational skills may help students keep up with the curriculum, and as a result, stay in school. Staying in school longer and specifically learning while in school are associated with such positive benefits as reduction in fertility rates and child mortality, improvement in female empowerment, and financial behaviours index (Olagbaju, 2020; Mensch et al., 2019; Kaffenberger and Pritchett, 2020; Figure 4). Studies have also suggested linkages between foundational skills and general problem solving skills (Lucangeli et al., 1998; Pugalee, 1999). Labour markets and working situations change rapidly, and basic skills that enable the acquisition of new and advanced skills are pivotal to function in modern workplaces. (McIntosh and Vignoles, 2001).

Summary

Foundational skills are associated with individual and societal economic benefits.

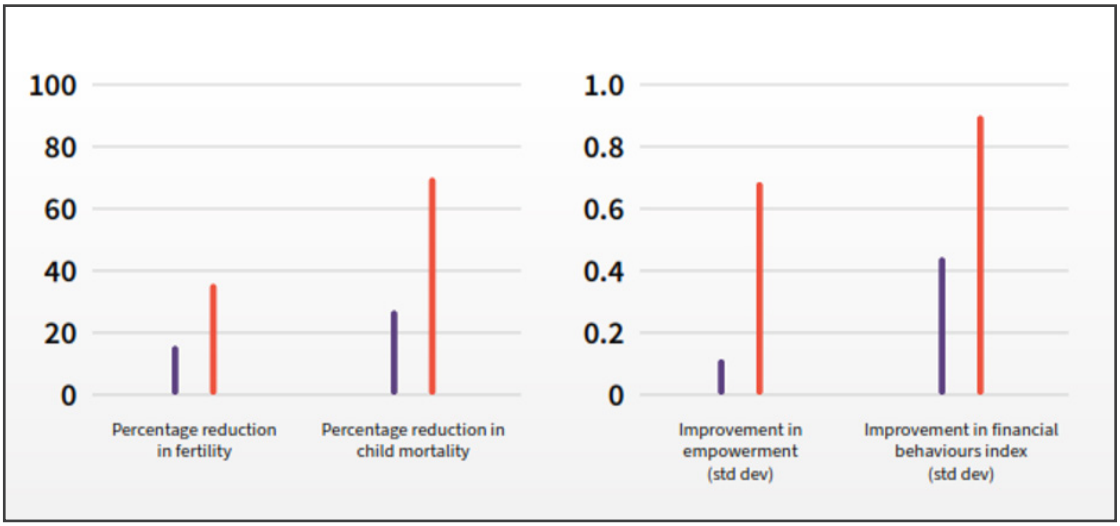
Balancing foundational skills and technical vocational skills

This section discusses the need for education policymakers to balance different priorities and focuses particularly on TVET which is a high priority for many policymakers due to its supposed impacts on employability. We set out evidence that suggests that TVET has relatively small impacts on employability in developing countries and make the case that a major reason for this is that students entering TVET institutions do not have the necessary foundational skills to build on. Given this, and given the relative expense of TVET provision, we suggest that TVET reform may not be a cost-effective strategy to build employability in contexts where foundational skills are very low.

Education policymakers need to balance a range of priorities

The previous sections outline the importance of foundational skills and summarise the available evidence linking these to employment outcomes. Despite the importance of foundational skills and the fact that many children globally are not acquiring them, foundational skills are still not at the top of the agenda for many educational stakeholders globally. A survey of policymakers across 36 low- and middle-income countries revealed that policymakers ranked technical and vocational education (TVET) higher than other education priorities, including foundational literacy and, when faced with significant funding tradeoffs, were significantly more likely to choose to prioritise TVET (Crawfurd et al., 2021). Their findings also revealed that policymakers were more likely to choose a hypothetical educational system that generates more dutiful citizens over one that generates more children who have attained foundational literacy (Crawfurd et al., 2021).

Figure 4: Schooling plus learning leads to the greatest gains in female health and empowerment



Source: Kaffenberger and Pritchett (2020)

Even though global education spending grew steadily in low- and middle-income countries (prior to the COVID-19 pandemic) (Education Finance Watch, 2021), education systems must balance available resources across several educational levels (pre-primary to tertiary), programmes (such as school feeding and adult education programmes), and priorities (school connectivity, girls' education, inclusion of children with disabilities, etc). Decision makers must make the difficult choice of where to invest available resources, amongst a long list of options that can yield desired short and/or long-term outcomes. For example, TVET may appears attractive to national policymakers who believe it can help improve short term unemployment pressures and associated political instability (Azeng and Yogo, 2013). Similarly, national and global policymakers have tended to respond to COVID-19 related school closure by pushing the focus on increasing internet connectivity and digital literacy—despite the fact that research evidence shows that technology is neither necessary nor sufficient for learning (Global Education Advisory Panel, 2022) .

On the demand side, parents might demand an emphasis on other forms of interventions, such as improving school access or providing school feeding, which can also affect where resources are channelled. Survey data from Kenya reveals that voters might reward politicians' interventions in education that improve access, but not those that affect quality of learning (Harding and Stasavage, 2014). Harding and Stasavage (2014) attribute this to the fact that whereas an action to abolish school fees is quickly and easily verifiable, provision of school input (which can affect learning) is more difficult to monitor.

Since the onset of the pandemic, two-thirds of low- and middle-income countries have cut their education budgets (Education Finance Watch, 2021), which means that education programmes and interventions are now competing for less resources.

Technical and Vocational Education and Training (TVET) is a popular policy priority

Unemployment (the number of working aged people who are without work, currently available for work, and seeking work) and underemployment (a lack of decent and productive work) are major policy concerns for many developing countries. Globally, the number of young people has been increasing, with the world's population aged 15-24 years estimated to peak at 1.4 billion by 2065 (United Nations, 2019). The youth population in 42 of the world's poorest countries is projected to increase by 62 percent by 2050 (United Nations, 2019). Simultaneously, youth unemployment rates have also been increasing, with the International Labour Organisation estimating that young people are three times as likely as older adults to be unemployed (International Labor Organisation, 2020). Given that young people comprise a large proportion of the world's working age population, their employment prospects affect current and future economic growth in their countries and globally.

TVET has been widely pushed as a pathway to reducing unemployment (UNESCO, 2016) and, is a popular focus for developing country policymakers (Crawfurd et al., 2021).[4] The key objective of TVET is to impart practical job-relevant skills on youth to make them ready for the labour market. This orientation toward employability skills, in theory, aims to address skills mismatches that many policymakers assume contribute to unemployment (Allais, 2015). This perception largely hinges on the success of TVET in countries like Germany, Switzerland, and Austria, and TVET's supposed role in advancing East Asia's industrialisation. However, returns to TVET vary widely across systems. In general, data on TVET outcomes globally are scarce. In the rest of this section, we pull together available evidence to delineate the performance of TVET.

Taken together, the evidence from high income countries suggests that TVET and basic education result in similar employment outcomes. Unweighted comparisons of employment outcomes have tended to show that TVET graduates have lower employment outcomes than secondary school graduates (Karasiotou, 2004; Earle, 1997). However, these cannot be considered as a reliable measure of the impact of TVET since they do not account for the confounding factor of student ability. On average, students entering TVET streams are likely to have lower academic ability and therefore any difference in outcomes may be explained by this. Studies which have attempted to control for academic ability have shown mixed results with some showing TVET has slightly greater short-term impacts on employment (Choi, 2019) and others suggesting that basic education leads to superior outcomes (Karasiotou, 2004). Studies which have made use of natural experiments in Romania and Croatia where some students were shifted from a TVET programme to an academic secondary school found that the two groups had similar overall employment rates (Malamud and Pop-Eleches, 2006; Žilić, 2016).

[4] It is worth noting that the relative popularity of TVET in development discourse has waxed and waned over the years. While it is beyond the scope of this paper to provide a detailed history, it appears that it was popular in the 60s and 70s as a means to support 'manpower planning'; it reduced in popularity in the 80s and 90s as various development actors suggested that it was costly and relatively ineffective; and it has gained popularity again in some parts of the global education community in recent years linked to a push for 21st century skills and the fourth industrial revolution.

That said, the impact of different types of education may differ over graduates' lifetimes. Research from high-income countries which attempted to control for academic ability, suggests that there are short-term improvements in employment outcomes for TVET graduates but over the longer term, they perform worse than those who have had a more general education (Choi, 2019; Hanushek, 2017). It is hypothesised that this may be because TVET graduates have lower general transferable skills so they may struggle to adapt and retrain to emerging labour market trends. This is in line with evidence that TVET graduates have lower literacy levels which may impede future job adaptability (Choi, 2019).

A recent meta-analysis of TVET interventions found that they have positive impacts on employment outcomes in both low- and high-income contexts which are comparable to interventions focused on foundational skills (Kemper et al., 2022). Notably, this review which summarises research carried out up to 2020, reports higher impacts on employment in low-income contexts than has been reported by previous reviews (Tripney et al., 2013; McKenzie, 2017; and Kluve, 2019). The authors in the most recent study estimate that TVET graduates have a 6.5 percent increased chance of finding a job compared to those without the training. Their analyses suggests that TVET programmes in high-income contexts are likely to lead to impacts via genuine increases in human capital whereas in low-income contexts the impacts are more likely to be due to signalling and/or selection effects.

TVET cannot succeed if students don't have the necessary foundational skills

The above analysis evaluates TVET as it is currently practiced. Therefore, it suffers from the same potential criticism as any attempt to measure the effects of existing education interventions, which is the fact that if you are measuring the impact of a badly implemented intervention, the impacts will of course be small. TVET can work well, and this has been seen in several countries that have highly functioning TVET systems—most notably Germany, Austria, and Switzerland (Hoffman and Schwartz, 2015; Euler and Wieland, 2015). It is therefore instructive to consider what factors enable the TVET system to flourish.

A major factor in the success of any TVET programme is the level of foundational skills amongst its students. This is discussed further below. In addition, for any kind of skill (foundational skills or technical/vocational skills) to contribute to employment and economic growth, a range of broader enabling factors need to be in place. These are discussed in section 5.

Foundational skills underlie the development of occupational, business, and entrepreneurial skills (Xu and Zia, 2012). Countries such as Germany, Austria, and Switzerland, all score highly on international tests indicating that most students entering the TVET system are likely to have acquired functional foundational skills. However, even within these countries, research shows one of the challenges confronting TVET systems is the fact that some students do not have sufficient levels of literacy and numeracy skills to benefit from TVET teaching (Hoeckel and Schwartz, 2010). For example, in Austria, TVET students perform relatively poorly in literacy and numeracy skills, and employers complain that students beginning apprenticeships have insufficient skills in reading, writing, and mathematics (Dornmayr et al., 2007; Schneeberger et al., 2008). This problem is mitigated by various TVET systems, such as the Chinese system that integrates foundational skills training into its technical and vocational education (World Bank, 2018a).

In the labour market, the ability to learn and acquire new skills is important, and employers value foundational skills that support such learning (Smits, 2007). Growing evidence from high income countries suggests that strong foundational skills are important for TVET graduates to thrive in the labour market. A study of workplace literacy requirements in central and Eastern Europe suggest that the most marketable workplace competencies are developed through foundational skills tied closely to literacy (Köllő, 2006). In the United Kingdom, employers prefer job candidates with strong literacy and numeracy skills, over those with job-specific vocational skills; essentially, they want trainable workers (Martin et al., 2008). A study in Australia that examined the effects of literacy and numeracy on labour market outcomes, found that approximately half of the total effect of schooling on labour force participation and on unemployment can be attributed to literacy and numeracy (Chiswick et al., 2003). Fundamentally, a necessary condition for TVET to succeed is that the students can apply their foundational skills in nuanced ways. This is essential to bridge the skills-gap in the labour market and to achieve growth and development.

The need for strong foundational skills in order for a TVET system to flourish may help explain the history of South Korea's educational development. While the Korean TVET system is often held up as an example to aspire to, post-war Korea spent many years focusing on building strong foundational skills for all children before it started developing its tertiary education system (Spindelman, forthcoming).

Research in sub-Saharan Africa also supports the idea that basic skills are a pre-requisite for TVET and even for

traditional apprenticeships (Adams et al., 2013; Choi, 2019). A study from Tanzania that sought to understand the skills required by employers in the agricultural sector, found that the skills listed were science-oriented and involved problem-solving and therefore required TVET students to have a solid foundation in literacy and numeracy skills from the primary school level (Takei, 2016). Takei (2016) also suggests that creating entry requirements that require functional foundational skills to enter TVET would help in developing the generic skills listed as important in the agricultural sector and would strengthen the likelihood that these skills would be transformed to fit the needs of the sector.

Achieving universal mastery of foundational skills is also important for addressing social and equity concerns in education provision. In fact, research shows that TVET is not a substitute for equipping disadvantaged and marginalised youth with strong foundational skills (Almeida et al., 2012). For marginalised people, skills acquisitions are more effective when built on a solid foundation of quality basic education (Adams et al., 2013). According to Almeida et al. (2010), one of the best ways to revitalise TVET programmes to better serve marginalised populations, is to ‘’enhance basic literacy and numeracy skills in marginalized populations, to establish a solid foundation for individuals to learn new skills throughout life (pg. 86).”

The fact that technical and vocational skills can generally only be built if students have foundational skills may explain why the impacts that TVET have on employment in low income contexts appear to be more driven by signalling and selection effects than by actual improvements in human capital (Kemper et al., 2022). It is conceivable that TVET interventions in low-income contexts could achieve real impacts on human capital and that this in turn would increase the impact on employment outcomes if the entrants to the programme had the necessary foundational skills.

TVET is more expensive than basic education

Generally, provision of TVET programmes are more expensive than basic education programmes (Mingat et al., 2010). Mingat et al. (2010) indicate that per student spending on TVET provision in sub-Saharan Africa is typically three times as costly as basic education programmes, because TVET often requires specialised training and equipment. In Ghana, TVET cost per student is approximately five times the cost of primary school education, and three times the cost of senior secondary school education (Adams, 2009). In Mozambique, TVET costs four times more than basic education (Fox et al., 2012).

The costs associated with Adult Literacy Programmes (ALP) are also generally lower than TVET costs . ALPs usually use available resources and facilities, such as existing buildings, learning materials, teachers, etc., from the basic education system, unlike TVET that requires specialised resources (Blunch, 2017).[5]

Summary

Given the relatively high cost and similar employment outcomes to basic education interventions, many have argued that investment in TVET in developing countries is poor value for money (Blattman and Ralston, 2015; McKenzie, 2017; Allais, 2015). Here we set out that one major reason for this may be that TVET cannot ‘add value’ where foundational skills are very low. The policy implication is that even where the success of TVET is the key policy aim, the focus may still need to be on first building foundational skills.

Relationship between employability, employment, and economic growth

In this section, we discuss the broader ‘demand-side’ factors which affect employment rates and economic growth as well as discussing how the supply of educated workers can best be linked to future labour market demand.

Unemployment and underemployment are usually due to a lack of jobs not a lack of skills

Acquisition of skills improves individual employability and is highly associated with economic growth. However, provision of skills alone will not guarantee a solution to youth unemployment and economic growth (Almeida et al., 2012). Skills are a necessary but not sufficient condition for growth. Skills and employment are intrinsically related to economic growth and development, but the ways in which they contribute may be indirect and long-term (Hanushek, 2017).

[5] It is worth noting however that evidence suggests poor performance of ALPs in improving literacy and numeracy skills of participants in many developing countries (see Blunch, 2017).

While it is beyond the scope of this review to explore this in detail, it is important to note that employment levels (and economic growth) require a range of other preconditions, including (but not limited to): a stable macroeconomic environment; political stability, strong institutions, and infrastructure services; a business environment that is enabling for the private sector; policies that remove constraints on the acquisition of different forms of capital; access to markets; financial services; and so on (Sumberg et al., 2021; Filmer and Fox, 2014; Almeida et al., 2012). Put simply, unemployment and underemployment are usually more related to a lack of jobs than a lack of skilled workers to fill them, yet policymakers often focus on supply of skilled employees without a simultaneous focus on the various other factors which affect the demand for skilled workers (Sumberg et al., 2021; Buchanan et al., 2020; Takei, 2016).

Even 'supply-side' factors such as productivity of individual workers will be affected by the economic environments where they work as much as by the technical and job-specific skill level attained. Policies that improve employment opportunities and the general business environment on the demand side of the labour market are therefore crucial to effectively translate learning into productive employment and earnings (Moses et al., 2016). When the existing preconditions and policies are in places, efforts to improve the skills of young people through any avenue can be complementary, thereby creating a supply of skilled people that are more employable and positioned to be productive.

Education systems need to build the skills needed for the future—but this is not the same as focusing narrowly on employer demands

Policymakers need to consider how the supply of potential workers being developed by education systems (from primary school to post-secondary) fits with their longer-term economic strategies.

A particular concern for many policymakers is aligning TVET training with the needs of employers; many authors state that there is a disconnect between the skills that TVET graduates have, skills that employers require, and generally, the skills required to drive growth and development in specific country contexts (Moses et al., 2016). For example, in Botswana, results from an evaluation report on the reorganisation of TVET programmes showed that students and teachers both feel that there is a limited relationship between TVET programmes in the country and the labour market demand (Moses et al., 2016) while in Tanzania, agricultural TVET programmes skills have been found to be mismatched with employer demands (Takei, 2016).

However, careful analysis is required to understand whether a lack of skills, a lack of jobs, or a combination of both is at play in a particular geographic and sectoral area. There is evidence that 'skills mismatches' are often overstated as a constraint to employment—and that employers may not be well-placed to identify long-term skills needs (Allais, 2015). For example, recent research suggests that there was probably not a generalised skills gap in the USA in recent decades despite many politicians stating that there was. In fact, although US employers reported that they could not fill roles due to a lack of skills, the evidence on hiring did not back this up (Weaver and Osterman, 2017; Kok, 2018). Instead, the research suggests that high requirements for skills in job adverts were a consequence, not a cause, of high unemployment (Modestino et al., 2016).

There is some evidence that in developing countries too, the skills gap theory has been overstated as an explanation for unemployment when the actual causes are more complex. For example, survey data from India indicates that firms are far more worried about a range of business environment issues including corruption, infrastructure, and labour regulations than they are about a shortage of skilled employees (World Bank, 2014). Analysis from a range of developing countries suggests that the constraints to employment are generally on the 'demand-side' (i.e., barriers to firms innovating and growing and therefore creating jobs) rather than on the 'supply-side' (i.e., a lack of skilled personnel) (Bloom et al., 2014). Careful analysis in the Indian manufacturing labour market suggests that skills gaps do exist in some sectors—but that in other sectors there is little evidence that skills gaps exist even though employers state that they do (Mehta, 2015). Similarly, Allais (2012) reveals that relying on employers to define what skills are needed tends to result in a very narrow definition of skills. This is especially important when situated within the debate that argues that firm-specific human capital skills are just as relevant as industry and occupational-specific skills for hiring, job retention, and promotion (Jara-Figueroa et al., 2018). Therefore, what an employer defines as the skills needed may reflect skills needed to prosper in a given firm rather than skills needed by the industry in general.

Even where genuine skills gaps exist at present, they may not persist into the future and thus we should be cautious about calls to base long-term training plans on today's skills needs. Thus, an intention to link education with future economic growth may translate to a focus on developing strong foundational skills, broad areas of expertise, and the ability to learn and adapt such that future employees are able to acquire specific skills needed by the future labour market (Allais, 2021).

Given all this, there is a need for a more nuanced discussion on skills gaps and attempts to link supply and demand. We need to consider how we can demonstrate if/where skills gaps exist (bearing in mind that employee reports of skills gaps may not be reliable evidence of their existence) and what types of education policies will deliver the workers who can adapt to the (as yet unknown) skills needs of the future.

Summary

The assumption of employability as a goal of education systems will only be realised when policymakers develop a well-defined economic growth strategy that explores all potential pathways of growth and incorporates them into national policies and plans. While there will be many factors which are important to the success of economic policy, it will be important to identify the binding constraints to success in specific contexts. In many cases, these may be demand-side factors that cannot be affected by education policy. But even where education is a key factor, foundational skills are a necessary first step for later forms of education (including TVET) to add value.

Conclusion

Much of the discussion in the development sector on education and employability focuses on the role of TVET. As set out in this paper, TVET provision is unlikely to be the key binding constraints to employability in countries with very low levels of foundational skills. Furthermore, where governments are not succeeding in getting majority of their children to be able read, it may be unlikely that the government will have the capacity to manage the far more complicated task of matching training to emerging labour market needs.

In this review we have drawn on evidence to demonstrate that:

- Foundational skills are associated with individual and societal economic gains.
- In developing countries, most children are not achieving the expected level of foundational skills.
- It is difficult for TVET to add value where foundational skills are very low.
- In developing countries, TVET interventions have similar impacts on employment outcomes but are more expensive to deliver than basic education.
- The focus on linking TVET systems to employer demands is unlikely to address the key binding constraints to better employment outcomes.

Taken together this evidence strongly suggests that in countries with high levels of learning poverty, investing in effective basic education programmes—particularly those which build strong foundational skills—is (1) likely to be a more cost-effective way to improve employability than investing in TVET; and (2) critical to ensure that investments into TVET actually yield desired outcomes.

A solid basic education is required for future skills development. Any interventions aimed at improving skills and making people more employable needs to begin by creating the conditions that ensure that students acquire a strong foundation through basic education at primary and secondary levels.

Basic skills are important for employability, not just for vocational work, but all forms of work.

Although skills requirements vary across professions, all workers will need to build on the job skills and acquire new skills during their careers. The benefits of basic skills will be even more pronounced in environments undergoing rapid technological change because basic literacy and numeracy skills also underpin access to digital literacy, 21st century skills, and other competencies needed in the digital economy.

Sound numeracy and literacy skills support lifelong learning and overall career progression and development. For adults, these basic skills underscore all other forms of learning, formal and informal, throughout life. As economies continue to evolve and the demand for skills change, the complementarity between basic skills and the acquisition of all other skills/education priorities, will become more apparent.

If countries choose to make TVET a policy priority, they must enhance the foundations of TVET by investing in quality early universal basic education programmes that build literacy and numeracy skills. They will also need to consider carefully how TVET can be aligned to future labour market needs—bearing in mind that employer skills demands may not be the most appropriate guide.

Setting foundational skills as a priority is critical to achieving meaningful progress in terms of other growth and development outcomes. To establish economies that can compete globally in an increasing technical and knowledge-based economy, there must be commitment by government and other key education stakeholders to prioritise learning and the universal acquisition of basic literacy and numeracy skills that equip people to succeed in further education and work.

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