



GETTING MORE 'BANG FOR YOUR BUCK'

The overarching impact that education has on population health & life expectancy.

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The impact education has on life expectancy, a multi studies series looking at how education impacts various social factors which drive increased life expectancy in both developed and developing countries.

Life expectancy at birth is a commonly used indicator to describe the wellbeing and longevity of a population (Rabbi, 2013). It has been acknowledged to such an extent that it is recognised as one of the four criteria in the Human Development Index (HDI) published each year by the United Nations (UN). The HDI was designed to measure a country's levels of social and economic development (Human Development Index (HDI) | Human Development Reports, n.d.) and has been impactful in policy generation in both developed and developing countries around the world due to its simplicity and ease of understanding (Klenk et al., 2007).

Recently, evidence has become prominent in supporting the relationship between education and economic growth (Cooray, 2009), specifically in developing countries (WISE Channel, 2013). Historically, Gross Domestic Product (GDP) per capita has been among the most commonly linked determinant of life expectancy across the globe (Preston, 1975). Preston's study shows that life expectancy at birth increases over time (years) and rises with income per capita and is still considered an important piece in global public health policy (Bloom & Canning, 2007). Therefore, due to the positive relationship between education and economic output, countries with an improved education sector may also benefit from improved life expectancy in the long term. Education may even improve life expectancy independently from GDP (Lutz & Kebede, 2018).

Moreover, recent evidence suggests the impact of education goes beyond just economic growth. Individuals with better education tend to achieve better health outcomes, such as lower levels of morbidity, mortality, and disability frequently associated with a longer life expectancy (Baker et al., 2011; Luy et al., 2019). Conversely, lower educational achievement is generally associated with worsened health outcomes and a shorter life expectancy (Raghupathi & Raghupathi, 2020). Nonetheless, the ways in which education impacts on life expectancy are complex and interwoven, with various social, economic and health-based factors playing a role (Zimmerman & Woolf, 2014).

Various empirical studies examine the relationships between education, population health and life expectancy. One of the most thoroughly studied

countries is the United States, which has reflected major disparities in educational status over the last few decade (Luy et al., 2019; Montez & Zajacova, 2013; Olshansky et al., 2012).

The disparity is also attributed to other factors such as race, socio economic status, schools they attend and neighbourhood's they live in. Collectively, these trends have brought on various social and economic inequalities in society, such that individuals with greater educational attainment are likely to have better health outcomes, promote healthy lifestyles and thus, live longer.

A more recent study analysed empirical data from 26 OECD countries from 1995-2015 (Zimmerman & Woolf, 2014) and found that adults, who have achieved a higher education, have better overall health and lifespans when directly compared to their less-educated peers. This was due to the critical influence education played on reducing infant mortality and increasing child vaccinations. Furthermore, these authors found a significant impact of lower educational attainment on labour force discouragement. As labour inputs are important to a countries economic growth (Aggarwal, 2020) , this further underscores the idea that not only does education have a positive impact on the economy and labour market, but also can it lead to higher overall population health and life expectancy.

Since Preston's (1975) seminal study established a clear link between GDP per capita and life expectancy, it is important to understand what countries do to improve life expectancy in comparison to others with equal or higher GDP. Australia, for example has a life expectancy of 83.04 years (2019 data), which ranks them 7th in the world, whereas Australia's GDP per capita ranks 18th in the world (GDP per Capita (Current US\$) | Data, n.d.; Life Expectancy at Birth (Years), n.d.). Therefore, other factors besides GDP per capita appear relevant in improving life expectancy. Other notable examples include Israel, Sweden and New Zealand which all are ranked better in life expectancy than their GDP per capita suggests. While there are likely many factors contributing to these slight improvements in life expectancy, investment into education is a common theme throughout. Each of these countries spend well above the OECD average (Public & Private spending) as a percentage of their GDP (OECD Family Database - OECD). The investment may aid in contributing a multitude of benefits such as those mentioned previously. Hence, these countries seem to get 'more bang for the buck' in life expectancy for their respective GDP per capita.

The relevance of identifying education as a factor enabling countries to improve their life expectancy without relative GDP growth is important in developing countries such as East Timor. Naturally, there is a reliance on GDP to improve education standards, however case studies around the world suggest there are ways to focus on building GDP and education standards simultaneously. This is represented by the iterative nature of education, the economy and life expectancy, as they are all interwoven. For example, providing more public and/or private funding for education may stimulate the economy through increased workforce efficiency, facilitating knowledge transfer and innovation (Grant, 2017). This may lead to overall improvement in life expectancy by reducing infant mortality, improving vaccination rates and hygiene, as demonstrated in 26 OECD countries (Raghupathi & Raghupathi, 2020). Thus, a strengthened economy and a healthier, more productive workforce may lead to a positive feedback loop set off by education as a key enabler.

Currently, East Timor ranks 123rd in life expectancy (69.62 years) and 121st in GDP per capita. Hence, it is considered a developing nation. While it is important to identify what developed countries do to improve life expectancy, it is equally important to identify what lower income countries do. Various case studies show that lower income countries get 'more bang for their buck' in life expectancy due to investment into various policies and projects (Freeman et al., 2020). These findings may be transferred to East Timor, whose GDP per capita is comparable to those studied such as Ethiopia and Costa Rica. These specific case studies and factors will be summarised in the following paper in the series which looks more closely at developing countries.

In conclusion, empirical evidence supports the positive link between population health and life expectancy at birth. This link is impacted by a complex range of social, political, and commercial factors, including education. A focus on private and public investment in education, as seen in developed countries, will likely lead to a rise in life expectancy at birth, as supported by several case studies around the world (Luy et al., 2019; Raghupathi & Raghupathi, 2020). Moving forward, it is important to further examine this link and compare East Timor with similar developing countries to gain deeper insight into potential policy changes and investment areas. Other developing countries have been able to develop policy which invests time and resources into education to improve population health, and 'get more bang for their buck' in life expectancy. This could be a goal which East Timor may strive for to benefit their overall population health and wellbeing.

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