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The impact of tertiary education in low and lower-middle income countries: a rigorous review (0107)

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In the immediate post-independence period, tertiary education (TE) was the focus of extensive investment in low- and lower-middle income countries (LLMICs). After two decades of waning support in the 1980s and 1990s, changes in the global economy in the context of the emerging 'knowledge economy' have stimulated a renewed interest in TE. Alongside recent reform and revitalization efforts, there has been a growing interest in how it might be possible to capture the impact of TE investment on economic growth and development. This rigorous review seeks to answer the question: *What is the impact of tertiary education on economic growth and development in LLMICs?* It reviews and synthesises existing research evidence on 'tertiary education' (including research universities, polytechnics and technical colleges, teacher training colleges and two-year further education institutions), and its impact on development (involving improvement in GDP, but also poverty reduction and increased income equality, social justice and measures of well-being, including health and literacy).

The diversity of underlying theories prevalent in the literature necessitated the creation of an overarching conceptual framework to guide the review. A visual representation is presented in Figure 1:

### **Figure 1: The Contribution of Tertiary Education to Development**

The majority of literature on TE and development focuses on the first pillar of TE: teaching. Human capital theory has been a dominant paradigm informing this pathway (Becker, 1965; Schultz, 1961), although there is more recent work focused on endogenous growth (Lucas 1988; Romer 1986) and endogenous development (Hu 2008; McMahon 2009; McMahon and Oketch 2013). A second pathway to impact considers how TE can increase *capabilities* within a population. This pathway is largely informed by the work of Amartya Sen (1992; 1999; 2009), which posits that gauges of individual well-being and national prosperity based on income are inadequate, and that the focus of our evaluations should be on people's freedoms to do or be what they have reason to value. A third pathway considers the impact of TE on a wide range of institutions. According to this theory, weak political and economic institutions hamper growth (Aron 1996; 2000), while strong institutions, particularly political, judicial and trade institutions, have a positive impact on growth (Gleaser *et al*, 2004; McMahon, 2009).

In addition to the pathways to impact through human capital, there is a growing body of literature focused on the second pillar of TE: research and innovation. The research pathway to development has emerged as particularly dominant in the context of the knowledge economy. The central assumption underlying endogenous growth theory is the existence of what Romer (1986) refers to as the “positive externalities” associated with new knowledge.

Finally, there is literature on TE and development that considers the pathways to impact that flow through the third pillar of TE: “service”. In many LLMICs, the Land Grant model inspired a “developmental university” model of TE, in which TEIs were expected to contribute directly to regional development, through agricultural extension, research on development issues and the provision of direct services to the community. In recent years, the definition of “service” has expanded to include the dissemination of knowledge to government and other local industries. The hiring of faculty members as consultants on government initiatives is another example of such “service”, as are direct partnerships with local industries.

The theoretical models underlying the conceptual framework have to a large extent been developed in the context of high income countries, and are influenced by the specific characteristics of those contexts, such as the proportion of the eligible age group enrolled in TE, the research capacity of institutions and the broader characteristics of the economy and society. One of the principal tasks of the review, therefore, is to assess the applicability of these theories in LLMICs. Evidence of endogenous growth and endogenous development, for example, may not be detectable in low-income countries, if there is currently an insufficient proportion of university graduates in the population and an insufficient uptake of technological innovation for endogenous growth to occur.

In terms of methods, the process of review involves: clarifying the concepts and definitions of key terms; collecting research studies by identifying and screening relevant literature using a systematic review technique; screening individual studies for quality and relevance; and analysing the studies through a framework synthesis approach (Carroll et al. 2011). The application of systematic review techniques and the use of a screening tool, EPPI-Reviewer, helps to ensure that data collection and analysis process are methodologically robust.

The review considers the following types of studies:

1. Date: Studies published since 1990;
2. Types of Studies: Empirical research, using both quantitative and qualitative methods, that examines the various pathways to impact included in the overarching conceptual framework
3. Language: Studies written in English

4. Countries focus: Studies considering the impact of tertiary education on development in low- and lower- middle income country contexts

The initial database search yielded 6675 studies, which were reduced to 793 after screening on title and abstract. These were further reduced to approximately 150 on full text screening. At time of writing, the review is in the stage of coding of these full-text articles.

In order to present the findings in a systematic manner, the list of selected literature and categories will first be presented in the form of a structured narrative or summary table. Analysis of the impact of TE in LLMICs and the applicability of the framework will be conducted using the principles of framework synthesis, a method that allows for the identification of key issues and recurrent themes among studies (Thomas, Harden & Newman, 2012:191). Through this process, the literature will be mapped onto the existing conceptual framework, allowing us to identify areas of non-applicability. We also anticipate that there will be substantial gaps in the literature. Gap analysis will be completed at the end of the review, in order to highlight areas which would benefit from further research. In addition, the theoretical framework will be reworked in light of the findings to develop a model applicable to LLMIC contexts.

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