Roadblocks to US Higher Education Access and Influence on US Long-term Economic Growth

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Keywords: US higher education, Economic development, Income inequality.

Abstract. It has attracted attention that, despite having the best university system, US college enrollment rate has been stagnant since 1970 and remained much lower than other developed countries, such as Canada or EU countries. The purpose of this paper is to examine the role of education on economic progress, to explain the inconsistency between increasing college premium and stagnant college enrollment rate, and end up with possible policies. It is counter-intuitive that it is not the daunting US university tuition fee that discourage students from college. Instead, studies have shown that it is early-age education (from age of 3 to 5), living environment and marriage status of parents that determines the high school/college academic performance of a student.

Introduction

Since 1970, the college enrollment rate in the US has been stagnant since 1970, while the college premium has been increasing, which, along with the “great moderation” and the deregulation in financial institutions, contributed to exaggeration of US income inequality. The US democratic system pushed the federal reserve to set fed-fund rate to near-zero for several years and expand easy loan to the low-income as a hidden way of income transfer, and this led to the deteriorate of mortgage debt and eventually lead to the collapse of mortgage market in 2008.

Research Purpose

The increasing income inequality, resulted from stagnant college education rate, harms the equal education access of next generation and decrease social mobility, which will discourages US economic growth in the long run. The paper seeks to give explanation of this social phenomenon and provide advices on feasible policies.

Education’s Influence on Technology Progress and Economic Growth

There is a close relationship between education and economic development. Critical sources of long-run economic growth in a steady state system include technological progress and growth of population; that is, in a consumer sovereignty country, the productivity increases with the improvement of skilled labors and capital[1], and education determines the supply of skilled labor and the level of technology in the future. In this paper, I will first demonstrate the relationship among education, technology progress and economic growth, and then identify the roadblocks in US society to the increase of supply of educated labors, and end up with possible corresponding policies with viability analysis.

Relationship between Education, Technology and Economic Growth

Technology has brought both positive and negative consequences to human societies. Just as Raghuram G, Rajan put in the Fault Lines[2], it frees workers from drudgery and enable them to better use of their talents. However, technology can be equally disruptive in the short run, especially
toward those low-skilled labors, and such effect may persist into the long-run if these people are not capable of adapting.

Education and technology progress form a self-enforcing circle. A successful education system continuously nurtures future scientist and engineers, and advances technology innovations (both in natural sciences and social sciences). Meanwhile, technological development (such as computers and laboratories) facilities the mastery of scientific methodology and promotes efficient education in general. For example, Dr. Wenglinsky’s research found that the use of computers in the classroom was positively and substantially correlated with the level of academic achievement in mathematics among the student of eighth grades\(^3\). The intricacy of education and technology also forms a networking effect: Scientists, advanced laboratories, large funding, and mature education system will further attract more talents from other countries.

According to Dr. Eric A. Hanushek’s research, the educational level, or the cognitive skills of the population, is significantly related to long-run economic growth\(^4\). “The effect of skills is complementary to the quality of economic institutions”. (Eric A. Hanushek, Ludger Woessmann, 2010).

![Figure 1. Association between years of schooling and long-run economic growth. Added-variable plot of a regression of the average annual rate of growth (in percent) of real GDP per capita in 1960-2000 on average years of schooling in 1960 and the initial level of real GDP per capita in 1960.](image)

Note: Degree-granting institutions grant associate’s or higher degrees and participate in Title IV federal financial aid programs. Projections are based on data through 2016. Some data have been revised from previously published figures.


![Figure 2. Actual and Projected undergraduate enrollment in degree-granting postsecondary institutions, by attendance status: Fall 2000 through 2027.](image)
Whereas a sound education system helps produce skilled labors and future scientists, a defective education system creates problems. As Dr. Raghuram pointed in the Fault Lines, the major problems of current US education system are the lower high school graduation rate, lower college enrollment rate, and larger educational inequality, as compared with many other developed countries. These problems lead to low class mobility. The increasing educational inequality, which directly led to income inequality [5], created strong democratic political demand for transferring wealth from the rich to these who were left behind in the technological revolution. The easy credit pushed by the banks greatly encouraged individuals’ risk taking and eventually led to the collapse of the US housing market [6, 7].

**Factor for the Decreasing High School Graduation Rate**

It may be counterintuitive that the high college tuition fee and monetary opportunity cost of completing high school/college degree did not play a significant role in discouraging student from getting a college degree. In fact, the college premium, with discounted tuition fee, has been increasing since 1970 [8].

Current statistics corroborate with Dr. Doldin’s finding that the US high school graduation rate and college enrollment rate has been stagnant since 1980 [9], and it even declined since 2010 [10]. The first possible roadblock is the nonmonetary cost of completing another year of schooling. Recent research shows that cognitive skills and behavior measured as early as age five can to a large extend predict one’s probability of graduating from high school [11]. Such pattern indicates that family background (family stability), early child education (the way children are raised), and early experience may account for high school graduation rate. For example, Almond, Edlund, and Palme’s (2009) study showed that the radiation of utero of Swedish children influenced their cognitive skills and the probability of completing high school. Other researchers (e.g., Cunha and Heckman 2008; Cunha, Heckman, and Schennach 2010; Cunha et al. 2006; Fryer and Levitt 2004) found that the black-white gap in high school graduation rate could be explained by the fact that the cognitive and socioemotional skills of white children are, on average, higher than their black counterparts in the age of 3 to 5, and “the skill gaps stem to a considerable extent from differences in parental investments during early child-hood” [12].

Another factor is the learning environment, or the quality of school. Deming et al. (2011) found that for the students who lived in neighborhood of Charlotte-Mecklenburg, North Carolina—where the quality of local public schools was much lower than national average—but attended a better middle school or high school (in a public school in other place or in a private school) had a 9% more high school completion rate than their counterparts. The research also found that one of the largest benefits of attending a better middle/ high school (especially a private school) was the reduced probability of committing or experiencing crimes in the next seven years.

The increase of academic difficulty of completing high school also contributes to the stagnation of high school graduation rate, which counteracts the increased benefit of a college degree, or college premium. Murnane, Richard J.’s research showed that “requirement for earning a high school diploma has increased” and “the increase in requirements had a negative impact on the graduation rate of vulnerable groups”. In 1983, fearing that the weak skilled labor force would slow down the US economic growth, the government passed a series of policies to improve the skills of student of a high school degree, which included the introduction of minimum competency graduation tests, demanding exit examination, and challenging coursework. Although it was hard to quantify the difficulty of the exit test and therefore the research results varied, research in general found that such increased requirement negatively influences the graduation rate of low-achieving students. For example, the rate is negative 6 to 7 percent according to Jacob (2001) and Bishop et al. (2001), while such influence is much smaller according to Dee and Jacob (2007), but they all report statistically significantly negative relationship.

**Possible Policies to Increase High School Graduation Rate and College Enrollment Rate**

Based on aforementioned analysis toward decreasing high school graduation rate, I advise the following policies to alleviate or even reverse the trend.
Early child education. The government should increase the awareness of the importance of early child education and teach parents how to educate and raise child in a scientific way.

Increase the quality of school (from elementary school to high school). The quality of school, especially elementary school and kindergarten, is critical. As mentioned above, a child’s performance in high school is largely determined by his/her cognitive skills and behavior at the age of 5 to 6. A famous decade-long Student/Teacher Achievement Ratio (STAR) experiment also showed the powerful relationship between quality of kindergarten and college enrollment rate.

Conclusion

Technology is an essential source for long-term economic growth, and the quality of today’s education represent the future of technology progress. However, despite having the best universities and research systems around the world, the US is facing a stagnant high school graduation rate and college enrollment rate. It takes a generation’s time for today’s US education to influence the real economy, but such influence it profound and hard to dissolve. Although income transfer, such as easy credit, from the have to the have-never is an easy way of hiding income inequality and reducing social pressure, education reform is the only way to fundamentally solve the problem. Factors such as stability of family and social income inequality are hard to change within a short period, but the government can alleviate this trend by sparing more funding to improve the quality of elementary education system as well as community security. In the follow-up study, we can do further research on the feasibility of these policies and incorporate current US debt problem into our model.

References


