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A Critical Analysis of How much does education matter and why? The effects of education on socioeconomic outcomes among school-leavers in the Netherlands

Final Project

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This critique was written with the assistance of AI tools such as ChatGPT

Introduction

In the study *How Much Does Education Matter and Why? The Effects of Education on Socio-economic Outcomes among School-leavers in the Netherlands* written by Rolf K. W. van der Velden and Maarten H. J. Wolbers. The paper examines the total(measured and unmeasured) impacts of education on socio-economic outcomes(employment opportunities, job security, and annual wages) among students who finish upper secondary or tertiary school in the Netherlands. This empirical study shows the effect of education is typically underestimated in labour market research. Education has a huge impact on all outcomes under investigation. Aside from education, the study also considers the selectivity of study programmes to be another predictor variable for the effect of socio-economic outcomes. The study also found that the effects of the latter educational characteristic are only significant in the private sector and that the differences between schools do not have an impact on wages and job security, but they do have some impact that affect employment opportunities.

The Dutch education system is characterized by high stratification and standardization which means that there is an early separation of students into distinct educational tracks based on test performance and teacher recommendations at age 12. This kind of education system offers limited opportunities to switch paths later but the standardization allows nationwide consistency in teacher training, curriculum, school budgets, and examination. Once the students reach the start of secondary education, the students are placed into one of four main tracks: VMO(prepare students for university master programs (WO)), HAVO(allows students to enter a bachelor's program in higher vocational colleges (HBO)), VBO and MAVO(provides students access to vocational education (MBO) or apprenticeship). The Dutch education system also features horizontal stratification due to having hundreds of study programs available at each educational level. For example, sociology at master's level, business administration at the bachelor's level, or nursing in senior secondary vocational education. This system is different compared to other schools because while most other schools offer a wide array of programs, the school quality is not linked to the programs offered. However, despite standardized curricula nationwide, educational outcomes vary between schools. This reflects the difference in student performance and socio-economic outcomes. Research shows that school related differences account for 5-15% of variation in primary and secondary education outcomes which aligns with international patterns. This study has also extended previous research that focuses on higher vocational education to examine socio-economic outcomes across the full spectrum of Dutch upper secondary and tertiary education programs. These kinds of programs encompass about 85% of students transitioning to the labor market, highlighting the role of educational program choice in shaping socio-economic outcomes.

There are two theories that explain the importance of education on the labor market. The Human capital theory argues that education is crucial because it imparts knowledge and skills that

directly affect the worker's labour productivity. Another theory called the job competition theory states that education is important because it selects on general learning abilities, which in turn determine the individual's training costs for acquiring job-specific skills. According to Almendarez, human capital theory rests on the assumption that formal education is highly instrumental and necessary to improve the productive capacity of a population (Almendarez 2011). This theory emphasizes how education increases the productivity and efficiency of workers by increasing the level of cognitive stock of economically productive human capability, which is a product of innate abilities and investment in human beings. The Human Capital Theory (HCT) concludes that investment in human capital will lead to greater economic output, however the validity of the theory is difficult to prove. The reason why it will be difficult to prove is because usually economic strength is largely dependent on tangible physical assets with labor being a necessary component as it increases in the value of the business from investment in capital equipment.

Throughout western countries, education has been re-theorized under human capital theory as primarily an economic device. HCT has been the most influential economic theory of western education, which has also set up the framework of government policies since the 1960s. The human capital theory stresses the significance of education and training as the key to participation in the new global economy. The Organization of Economic Cooperation and Development (OECD) stated that the radical changes to public and private sectors of the economy introduced over recent years in response to globalization will severely and disturb many established values and procedures. The OECD also asserts that internationalism is a means to improve the quality of education. OECD countries have been increasingly more directly based upon knowledge stock and their learning capabilities. The success of any nation in terms of human development is largely dependent upon the physical and human capital stock. The rationality behind investment in human capital is based on three arguments. 1) The new generation must govern the appropriate parts of the knowledge which has already been accumulated by previous generations. 2) The new generation should be taught how existing knowledge should be used to develop new products, to introduce new processes and production methods and social services. 3) People must be encouraged to develop entirely new ideas, products, processes, and methods through creative approaches. In order to enhance human development for the general society, it is necessary to apply the human capital theory to more educational systems because this contribution of education to economic growth and development occurs through its ability to increase the productivity of an existing labor force in various ways. According to Psacharopoulos and Woodhall (1997), they claim that 1) Direct economic returns to investment, in terms of the balance between the opportunity costs of resources and the expected future benefits. 2) Indirect economic returns, in terms of external benefits affecting other members of society. 3) The private demand for education and other factors determine individual

demand for education. 4) The geographical and social distribution of education opportunities. 5) The distribution of financial benefits and burdens of education.

Labor market research often underestimates education's impact on the socio-economic outcomes, as they primarily focus on measurable variables such as education level while neglecting systematic and unmeasured effects. The Dutch education system's high standardization and stratification make study programs more significant in shaping outcomes than the schools themselves. In order to showcase this, an hierarchical multilevel model was created. This model denotes Y as some socio-economic outcome, X is a vector of characteristics of individual i , S is a vector of characteristics of schools and P is a vector of characteristics of study programme p . R , U and V are random error terms at the individual, school, and study programme level respectively.

Critique

Upon reading and analyzing this paper, I found one reasonable criticism that should be addressed. The critique is the lack of a diverse random sample of school leavers. According to table 1 of the study, it states that ethnic minority (versus native Dutch) included in this study was only 3%. However there is great representation of the minority groups that are present in vocational schools and university preparatory tracks. Table 2 of the article *Ethnicity, Schooling, and Merit in the Netherlands* shows the distribution of ethnic groups across secondary school types in the third year (Werfhorst and Tubergen 2007). According to table 2, there were 57.3% Moroccan and 49.5% Turkish students compared to Dutch students (32.2%) in the lower vocational schools. In the university preparatory track, it was predominantly Dutch students (31.6%) with Moroccan (10%), Surinamese/Antillean (17.6%), and Turkish students (19.9%). So why does this study only include 3% of the ethnic minority when there is clearly good representation of minority groups to sample from? This would lead to selection bias, omitted variable bias, biased in hierarchical model outputs, and limited generalizability in the study. Selection bias is the result when a sample doesn't represent the whole population of school leavers. As a result, the results of the study may disproportionately reflect the experiences of the sampled group. Omitted variable bias is when a non-diverse sample lacks key variables (such as the race/ethnicity of the school leaver, or family's socio-economic background) that is important for understanding education's socio-economic impacts on various groups of people. Generalizability is when the results of the findings may not apply to school leavers outside the study's sample. When there's bias in hierarchical model outputs, the biases in the sample at one level can cascade through the analysis. For example, if some school types or study programs are underrepresented, their variance components might be inaccurately estimated.

Most research relies on convenience and purposive samples, which could be randomly or non-randomly selected. Convenience samples are taken from easily accessible sources, while purposive samples target specific characteristics relevant to the study. Outcomes from these samples can only be generalized to the subpopulation they represent. In research, people implicitly seek to generalize the findings from the sample to the entire population. However, this is possible only if our sample is representative of the population and a sample is representative of the population only if it is randomly drawn from the population(Andrade 2020). A convenience sample is a type of sample that is drawn from a source that is convenient to the researcher. For example, a convenient sample of students may be drawn from a nearby university, but these students may not be representative of all students, such as students from other schools of study. Research that is conducted on convenience samples can only be generalized to the population that was conveniently accessible, from which the sample was drawn. This would be imprudent to generalize findings to city schools, private schools, and other types of schools in the world. Research that is also conducted on purposive samples are defined for a purpose that is relevant to the study. The greater the number of inclusion and exclusion sample selection criteria set, each for a necessary purpose, the more purposive the sample becomes(Andrade 2020). For example, a study where only the population that is of specific interest, or they make the sample homogeneous(when between subjects variance is reduced, statistical significance is more easily obtained), or they exclude subjects who are at risk of serious adverse events. A disadvantage of purposive samples and convenience samples is that the more purposive the sample is, the more limited the external validity will be.

For this study specifically, I recommend using the stratified random sampling method. The reason stratified random sampling would be effective in samples for this study is because it will reduce sampling bias, increase precision, analyze subgroups, and be representative of diverse populations. Stratified sampling will reduce sampling bias because it divides the population into relevant strata(groups) and randomly selects from each stratum. This will minimize the chance of selecting a sample that doesn't reflect the overall population demographics. Stratified sampling will also increase precision because each stratum is more homogeneous, the data collected within each stratum is likely to be more precise compared to a simple random sample. Stratified sampling will analyze subgroups because stratified sampling allows researchers to analyze data specific to different subgroups within the population, providing valuable insights into how various demographics respond to a particular question or phenomenon. Stratified sampling will be representative of diverse populations because when dealing with populations that have distinct subgroups, stratified sampling is crucial to ensure that all groups are adequately represented in the sample.

Conclusion

Therefore, this study demonstrates the significant impact of education on socio-economic outcomes within the Dutch system. The study also emphasizes how important formal education is because it imparts knowledge and skills that directly affect the worker's labour productivity. The study refers to the human capital theory that refers to the assumption that formal education is highly instrumental and necessary to improve the capacity of a population. This theory also states that education increases the productivity and efficiency of workers by increasing the level of cognitive stock of economically productive human capability. Typical labor market research often underestimates education's impact on the socio-economic outcomes, as they primarily focus on measurable variables such as education level while neglecting systematic and unmeasured effects. Upon further inspection of the study, I've found that the study lacks sample diversity as they only have a 3% when there is evidence of a reasonable minority population. After finding this issue, adopting stratified random sampling would be the reasonable solution because it would strengthen the findings and enhance their applicability across populations. This approach ensures accurate, generalizable insights into education's role in shaping socio-economic trajectories.

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