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RESEARCH ARTICLE

HUMAN CAPITAL AND RETURNS TO EDUCATION. REVIEW OF LITERATURE

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ABSTRACT

This paper examines the concept of human capital and returns to education. The theory of human capital has its origins in the work of Schultz (1961) and Denison (1962) who postulated that there is positive correlation between increasing levels of education and economic growth due to productivity enhancing effect of education. Better trained workers are considered to be more skilled and productive than less trained workers justifying their higher wages. The theory relates the worker's knowledge levels to their formal schooling levels implying that higher levels of education schooling leads to higher productivity and wages. In this theory, workers acquire education to maximize the present value of lifetime earnings and the private returns are used to explain the demand for different levels of education. The theory of human capital has been used to explain income differential (Nyakundi, 2018).You and Giseung (2009) observed that; the returns of investment in education can be calculated from the earnings of the recipients of education. Psacharopoulos and Patrinos (2004) found out that the returns to schooling in developing countries are higher than in developed countries. Schultz (2004), Kingdon, Sandefur and Teal (2005), show that in general the return to an extra vear of education increases with the level of education. The importance of human capital was earlier investigated by classical economists such as; Adam Smith, Ernst Engell and Karl Marx. Later the most influential work about the distribution of earnings was developed by Gary Becker (1962). Human Capital Theory suggests that investments in education or training, like investments in physical capital, are only undertaken with expectation of returns. The popularity of estimating returns to education stems from the resulting efficiency, equity and financing implications. The comparison between investment in education and other investments can assist justify investments in education for individuals and governments (Becker, 2007). Moreover, the level or type of education's rank order of returns as compared to alternative investment returns could assist policy makers in the education subsector to make informed, evidence based investment decisions.

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INTRODUCTION

Measuring human capital on returns has been a significant challenge for economists and planners in education. This is because human capital is intangible and not directly observable. Human capital has. roots in the writings of classical economists (Adam Smith 1776; Marshall 1890).The link between education and earnings emerged in early 60's. The elusive nature of human capital is revealed in the various attempts by researchers to define the concept. Schultz (1961) defined human capital as the sum of skills and knowledge that are attained through education and experience. Later definitions incorporated innate attributes and abilities (Lang and Kropp 1986). OECD (2001) considers a wider definition that includes the creation of personal, social and economic well-being.

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Estimation of the returns to education has been a popular subject in the literature (Ashenfelter and Krueger 1994; Becker 1964; Becker and Chiswick 1966; Card and Krueger 1992; Card 2001; Duflo 2001; Heckman, Lochner and Todd 2006; Oreopoulos 2006; Rosenzweig 1995; Schultz 1961).Results from the relationship between education and earnings in employment have posted contradictory findings. The contradictory findings arise from the nature of various income earning activities which have different wage structure and are subject to different earnings dependent on varied working variables (You & Giseung, 2008; Donald, 2002). Human Capital Theory suggests that education and training are investments that increase the productivity of the learners (Becker, 2002; Mincer, 1974). The quality of labour is key contributors to the Gross Domestic Product (GDP) of any country. There are three main components of 'human capital' — early ability (whether acquired or innate); qualifications and knowledge acquired through formal education; and skills, competencies and expertise acquired

through non-formal or informal education, like training on the job (Blundell, Dearden, Meghir, & Sianesi, 1999). The individual learners or firms that invest in education or training expect to gain through higher earnings, employability or productivity. The private economic returns to the individual is considered as the return to education. Estimation of the returns to education has been extensively investigated (Ashenfelter and Krueger 1994; Becker 1964; Becker and Chiswick 1966; Card and Krueger 1992; Card 2001; Duflo 2001; Heckman, Lochner and Todd 2006; Oreopoulos 2006; Rosenzweig 1995; Schultz 1961 Harmon, Oosterbeek and Walker 2003; Psacharopoulos 1972, 1973, 1981, 1985, 1993, 1994; Psacharopoulos and Patrinos 2002, 2004). Psacharopoulos and Patrinos 2002, 2004 have done several compilations including a few encyclopedia articles (Patrinos and Psacharopoulos 2010a, 2010b, 2002; Psacharopoulos and Patrinos 2008, 2004b). There areestimates of the return to schooling (Hendricks 2004; Montenegro and Patrinos 2014; Peet, Fink and Fawzi 2015). Bowles,Gintis and Osborn (2001) propose alternative view that education gives an indication of whether potential employees match the employee's incentives-enhancing preference, traits that assists in exercise of employees' authority. In the self-employment sector there exists no clear cut structure determining earning differentials. Even analysis of earnings in specific self-employment has hardly been examined. Carlos and Herman (2011) did not find clear reasons on the role of education on earning of the self-employed. Collins (1979) suggested that there was no productivity arguments involved as education was used as means of selection of workers. Apparently, the return to education is amongst the most commonly applied and discussed economic analyses with a rich history spanning back to the late 1950s. Evidently, a fewer studies have tried to establish the returns to education in low- and middle-income countries (Psacharopoulos 1981, Psacharopoulos 1985, Psacharopoulos 1989, Psacharopoulos 1994, Psacharopoulos 1994, Psacharopoulos and Patrinos 2002), however, the vast majority of current literature has centred on/has been concerned with high income surroundings (Card 2001).

The return to education is one ofthe most common economic analyses with history dating back to the late 1950s. Studies have to identified the returns to education in low- and middle-income countries (Psacharopoulos 1981, Psacharopoulos 1985, Psacharopoulos1989,Psacharopoulos 1994, Psacharopoulos 1994, Psacharopoulos and Patrinos 2002). More recent studies have focused on high income settings (Card 2001 Aditi,2016& Patrinos, 2016). Returns to education in a developing country context may be different from those ofhigh-income economies due to level of capital stock and capital investment, lower technological capacity, or more restricted schooling access (Psacharopoulos 1973, Kang 1993, Todaro 1989). In recent years, differences in capital stock and production technology have been declining due to an increasing rate ofglobalization and increasing rates of migration (Fischer 2003, Ghose 2004, UNCTAD 1999, World Bank 2001).The inclusion ofeducation in millennium development goals have led to increased school enrollment and literacy (UNESCO 1999, World Bank 1982).

Methods of Estimating Returns to Education: Returns to education have origins in the writings ofclassical economists (Adam Smith 1776; Marshall 1890). Formal modeling did not take place until much more recently (Schultz 1960, 1961; Becker 1964; Mincer 1974; Chiswick 2003). The study ofearnings by schooling has led to several empirical works testing hypotheses on a great variety of social issues such as ; racial and ethnic discrimination, gender discrimination, income distribution, and the determinants ofthe demand for education. But the dominant application that has used earnings by level ofeducation is the estimation of the rate of return to investment in schooling. The economic value of investment in education has largely been measured by its rate of return, frequently estimated by the internal rate of return or the earning function approach. Given the importance of the rate of return estimates for individuals and countries, especially developing countries, in making decision on educational investment, there is need to know how these methods compare as empirical researchers have used only one method, mainly due to data constraints. The internal rate ofreturn examines the returns of schooling while the earning functions look at returns arising to extra year ofschooling.

The use of internal rate of return approach exhibits diminishing returns to schooling, reflecting ever rising cost ofhigher increments ofschooling, while the earning function approach yields the opposite pattern, reflecting the greater relative increase associated in earnings with additional schooling. The rate ofreturn is greater using the internal rate of return approach than the earning function approach. The internal rate of return approach reveals a more accurate estimate of the earning return to the actual amount invested in schooling, whereas the earning function approach is more thorough in measuring earning differences associated with additional schooling. Bowles, Gintis and Osborn (2001) propose alternative view that education gives an indication of whether potential employees match the employee's incentives-enhancing preference, traits that assists in exercise of employees' authority and not necessarily their skills. Education is associated with other non-monetary benefits.

Measurement of the monetary and nonmonetary benefits from education is not possible without agreement on conceptual and methodological issues. There is general agreement that graduates not only have more employability and receive higher earnings, but also acquire higher social status, greater efficiency in consumption, better health, greater access to technological change and a broad set of cultural benefits including better opportunities for leisure. Benefits from education are also gained by enterprises. General education reduces the need for training and retraining when new technologies are incorporated. The higher productivity of more educated people, especially those having the abilities and skills that transmit higher education, is spilled out to other workers having an important effect on the whole productivity of the enterprise. A considerable part ofthe externalities that higher education graduates produce is captured not only by society in general (which justifies the public funding of higher education), but specifically by enterprises and graduates. Classification of research directions in measurement of return in education lists following types: the private return, the social return and the labour productivity return. The direct (private) and indirect (social) nonmonetary aspects of learning are called "non-monetary returns". Non-market returns are the combination of Private non-market effects and Community nonmarket effects.

Still measurement and methodology remain important problem to researchers. Some researchers represent approach to measure education in terms of years of schooling while other scientists' measurement is based upon qualifications gained (Dziechciarz 2011, Dziechciarz et al. 2015, Owens 2004). The rate of return to schooling equates the value of lifetime earnings of the individual to the net present value of costs of education. For an investment in education to be economically justified, the rate of return should be positive, and should be higher than the alternative rate of return. For the individual, weighing costs and benefits means investing if the rate of return exceeds the private discount rate. Individuals will invest if the returns are higher (psacharopoulos and Patrinos, 2018).

The Mincer equation the most widely used in empirical work can be used to explain a host of economic, and even non-economic, phenomena of investing in education. The application involves explaining (and estimating) employment earnings as a function of schooling and labor market experience. The Mincer equation provides estimates of the average monetary returns of one additional year of education. This information is important for policymakers who must decide on education spending, prioritization of schooling levels, and education financing programs such as student loans (Mincer 1974). This is important in deciding investment choices for education policy makers. The Mincerian earnings function has been the subject of controversy in the literature (Psacharopoulos and Layard, 1979; Heckman et al. 2006). One issue with the Mincerian method of estimating returns to education is missing variables, such as ability bias. Griliches (1977) analyzed the issue and found that the bias was small or negative. Adding more variables to the equation will not solve the problem and might add other biases (Patrinos 2016).

After many years of research on the relationship between education and earnings, economists and planners in education have a solid understanding of the *private* benefits of schooling. But much less is known about the *social* returns to education, even though economists have speculated about the possibility of human capital externalities for at least a century. Theory predicts that increases in the overall level of education can benefit society in ways that are not fully reflected in the wages of educated workers. Human capital spillovers may increase productivity over and above the direct effect of education on individual productivity. Furthermore, increases in education also may reduce criminal participation and improve voters' political behavior(Enrico Moretti, 2005).

The possibility that the social return to human capital differs from its private return has tremendous practical importance in making investment choices in education. The magnitude of the social return to education is an important tool for assessing the efficiency of public investment in education, since state and local governments subsidize almost all direct operating costs of primary and secondary educational institutions. The argument for public education is based on the recognition that education not only rewards the educated individual, but also creates a variety of benefits that are shared by society at large. The hypothesis of social return to education is not easy to test; it requires verification that the social return to a "unit" of human capital is different from the private return.

If schooling is an ideal measure of a human capital component, then Mincerian estimates of the private return to schooling investments are largely present in the literature. One of the of ways to estimate human capital externalities is developed by Rauch (1993). The author estimates the social return of education using differences in average schooling across cities. He faced the problem of identification of causality: more schooling is cause of higher salaries or higher income leads to more education. The solution to the problem in question is given by other economists (Acemoglu, Angrist, 2000), that use instrumental variable to estimate the effect of the average level of education on income. Returns to investment in education have been reviewed in recent past, (Psacharopoulos, 1973, 1985, 1994). The rise in differences in returns to education in 1980s and 1990s in many countries led to renewed interest in estimates of returns to schooling (Murphy & Welch, 1992).

Literature points that systematic changes in the production process led to changes in the demand for certain types of labor. It was argued much earlier in that education if more productive the more volatile the state of technology (Nelson & Phelps, 1966; Griliches, 1969; Welch 1970; Schultz, 1975). A more selective rate of return estimate review focusing on the causality debate between schooling and earnings (Card, 2001) reaffirms Griliches (1970) conclusion that the effect of ability and related factors does not exceed 10% of the estimated schooling coefficient. Instrumental variable estimates of the returns to education based on family background are higher than classic Ordinary Least Squares estimates based on the early work of Mincer, Becker and Chiswick (Becker & Chiswick, 1966; Mincer, 1974). The estimation method makes little difference on the returns to education.

There are good theoretical reasons why education could lead to wider, non-economic benefits. Better-educated people tend to be better informed about health and nutrition, are less likely to run health risks, and have better information on where to secure good medical care. Those with more schooling are less likely to smoke, less likely to be heavy drinkers, and are more likely to exercise. There is also argument that parents transfer values to their children through education. An alternative view is that earnings increase with education due to credential effects. This refers to the idea that higher levels of schooling are associated with higher earnings, not because they directly raise productivity, but because they certify that the worker is likely to be productive. In this sense, education merely sorts workers according to their unobserved attributes; it does not necessarily augment their intrinsic productivity. For public policy reasons it is important to distinguish between the human capital (productivity) and screening hypotheses about returns to education. In very basic terms, these two hypotheses mean, respectively: schooling imparts skills that enhance productivity; hence, increases in earnings are due to the increased productivity brought about by investments in schooling (human capital); while the screening hypothesis maintains that employers select workers with higher qualifications to reduce their risk of hiring someone with a lower capacity to learn; in this case, higher earnings may not be due to productivity alone (screening). With these concepts in mind, if the only purpose of schooling is to sort prospective employees, then questions arise as to the appropriateness of public investment in the expansion or

improvement of schooling (Bowles and Gintis, 2001). The aim of the paper is to analyze the private and social rates of return to education. This informs the investments choices individuals and governments make over education.

RESULTS AND DISCUSSION

Estimation of the returns has been investigated (Ashenfelter and Krueger 1994; Becker 1964; Becker and Chiswick 1966; Card and Krueger 1992; Card 2001; Duflo 2001; Heckman, Lochner and Todd 2006; Oreopoulos 2006; Rosenzweig 1995; Schultz 1961). Contributions on the subject have grown exponentially, to the point of being difficult to track (Harmon, Oosterbeek and Walker 2003; Psacharopoulos 1972, 1973, 1981, 1985, 1993, 1994; Psacharopoulos and Patrinos 2002, 2004a). Several compilations have been undertaken, including a few encyclopedia articles (Patrinos and Psacharopoulos 2010a, 2010b, 2002; Psacharopoulos and Patrinos 2008, 2004). There are also a few attempts to create databases of comparable estimates of the return to schooling (Hendricks 2004; Montenegro and Patrinos 2014; Peet, Fink and Fawzi 2015).

Emrah, A. (2012). Assessed human capital attainment levels in the Mediterranean using a unique micro dataset. The results show that labour markets in the EU-MED countries reward schooling and experience more than the southern Mediterranean countries, with the exception of Israel and Turkey. The returns to education were very low in Algeria, with almost flat returns. Apart from these results, the regional analyses show that rural-urban inequality is prevalent in the SMC. Turning to the human capital measure, the results showed that the labour-market based measure leads to some surprising results. Several SMC, most notably Turkey, Israel and Morocco, rank higher than EUMED countries. In particular, the returns to education in Greece, Spain and Portugal were relatively low. There is some evidence that the job market conditions may also be contributing to these findings, especially in Greece and Spain, where unemployment among the young university and secondary school graduates is much higher than the national averages implying that these individuals are unable to contribute to aggregate productivity.

Several studies provide estimates for private returns to schooling in the Mediterranean region. Pritchett (1999; 2006) emphasizes that the steady expansion of the attainment rates in the Middle East and the North Africa (MENA) region has not paid off in the form of increased productivity. Moreover, education does not appear to have had a positive impact on the growth of per capita output, with the accumulation of physical capital driving most of the results.For non-oil exporting countries, such as Egypt, Morocco, Tunisia, and Turkey, the relationship appeared to be negative, with increased educational attainment reducing growth rates. Similarly, Makdisi et al. (2007) find that initial enrolment ratios (for 1960) account for a substantial part of the output gap between the MENA and other regions, including East Asia and Latin America. One of the only cross-country studies for the region, Salehi-Isfahani et al. (2009) investigates private returns from schooling for urban males in the form of earnings using labour force and household surveys from Egypt, Iran and Turkey. The authors found that returns to education are the greatest in Turkey, where an additional year of schooling leads to roughly a 12% return on wages (according to 2003 figures). Aside from labour market conditions, the authors contend that the high returns may also be due to an inherent selectivity bias in Turkey also present in Iran where tough national selection procedures may be effectively leading to an over-representation of students with relatively high cognitive abilities in higher levels of education. A broader cross-country comparison conducted by Psacharopoulos and Patrinos (2004) reveals that the returns are exceptionally low in some of the developing southern Mediterranean countries, such as Egypt and Tunisia. The results are paradoxical due to the presence of a strong negative relationship between private returns and the level of development. In other words, the private returns to education in Egypt and Tunisia tend to be substantially lower than other countries with similar income levels. This is not the case in Morocco, another SMC country, where private returns are among the highest. The results imply that the improvements in educational attainment have failed to transform the labour markets and enter into the aggregate production process. Several structural shortcomings that are typically present in the region have been put forward to explain these results. First, despite high levels of attainment, the educational systems suffer from low quality due to inadequate funding, large class sizes, and inappropriate teacher education, (World Bank, 2008). Second, informality is prevalent in most countries in the region, which could undermine the returns from education, both private and social, if skilled workers have a greater tendency to be informally employed, (Angel-Urdinola & Tanabe, 2012.

The concept of the rate of return on investment in education is very similar to that for any other investment. It is a summary of the costs and benefits of the investment incurred at different points in time, and it is expressed in an annual (percentage) yield, like that quoted for savings accounts or government bonds. Returns on investment in education based on human capital theory have been estimated since the late 1950s. Human capital theory puts forward the concept that investments in education increase future productivity. The popularity of estimating returns to education stems from the resulting efficiency, equity and financing implications. The rank order of returns to a level or type of education, and a comparison with the returns of alternative investments can assist education policy makers to make informed investment decisions (Mincer, 1974). Previous compilations have shown that private returns to primary education decline over time, but slightly (Psacharopoulos 1981). Previous work also shows that returns are highest for primary education, the general curricula, the education of women, and countries with the lowest per capita income (Psacharopoulos 1985& Nyakundi 2018). Also, primary education continues to exhibit the highest social profitability in all world regions. Social and private returns at all levels generally decline by

the level of a country's per capita income. Overall, the returns to female education are higher than those to male education. The returns to the academic secondary school track are higher than the vocational track – since the unit cost of vocational education is much higher; and the returns for those who work in the private (competitive) sector of the economy are higher than in the public (noncompetitive) sector (Psacharopoulos 1994). The costs incurred by the individual are the foregone earnings while studying, plus any schooling fees or incidental expenses incurred. The private benefits amount to how much extra an educated individual earns (after taxes) compared with an individual with less education. More and less in this case refer to adjacent levels of education – e.g., university graduates compared to secondary school leavers. The social rate of return includes the society's spending on education – for example, money spent on renting buildings and professorial salaries. The social attribute of the estimated rate of return refers to the inclusion of the full resource cost of the investment – the direct costs by government and the foregone earnings of students as they invest in their education. Ideally, the social benefits should include non-monetary benefits of education, such as the number of lives saved because of improved sanitation conditions followed by a woman because she has received more education. Given the scant empirical evidence on the social benefits of education, the social rate of return estimates are usually based on directly observable monetary costs and benefits of education. Since the costs are higher in a social rate of return calculation relative to the one from the private point of view, social returns are typically lower than a private rate of return. The difference between the private and the social rates of return reflects the degree of public subsidization of education – since practically the only difference is the addition of social costs (Patrinos, 2016).

Psacharapoulos (2009) on returns to investment in higher education in European countries found out that; returns varied between countries. The returns were higher in newly established countries such Czech Republic, Poland, Hungary and Turkey and lowest in Scandinavian countries such as Denmark and Sweden. On average university graduates had 61% advantage over secondary school leavers. Higher education investment for individuals and society was found to be profitable. However Carlo and Herman (2011) observed that there is no productivity argument involved, education is just legitimizes means for social closure and exclusion. Similarly Bowles and Gintis (2001) viewed education as a tool determining where an employer places an employee to perform certain tasks. Boothby and Drewes (2006) examined the diploma earnings in Canada. The report findings were that the college earnings premium increased between 1980 and 2000. Ferrer and Riddell (2002) also identify a small earnings premium to non-university post-secondary education (compared to those with a high school education). While college graduates enjoy a more modest earnings premium than university graduates, they still benefit from a substantial rate of return for two reasons. First, college is typically cheaper than university in Canada. Also, college programs tend to be shorter. Studies on returns to diploma education to the self-employed in Kenya have hardly been examined.

George (2007) discusses the significant difference between different countries when it comes to quality of education in certain areas. Higher percentage of Indian students study computer science than American students; therefore, using specific human capital theory, this would suggest that Indians would be more successful in starting a business in the technology field compared to Americans, simply because they have more related educational attainment. Computer service self-employment activities are among the growing self-employment activities in urban centers of Kenya. Hyder (2007) undertook to examine the magnitude of public and private wage differentials in Pakistan. Using cross-section data drawn from the nationality representative labour force survey of Pakistan for 2001 and 2002, the role of human capital in wage gap was examined.

Results showed that primary and University levels reported higher rates of return than secondary level of education in Pakistan. This findings were in agreement with an earlier study by Psacharopoulos (1994) which reported that rate of returns to educational level in Pakistan were highest for University 21 percent, 11 percent for secondary and 20 percent for primary levels of education. However Psacharopoulos and Patrinos (2002), in a global update for the rate of returns to level of education, showed that in the case of Pakistan the order were 8.4 percent, 13.7 and 31.2 percent primary, secondary and university. The studies reviewed were focused on the formal sector. Michael (2011) estimated the on-farm and off-farm (labour market) returns to education and qualifications for a sample of farm operators in Northern Ireland. The modeling analysis examined years of schooling to estimate the marginal gain in earnings associated with additional schooling. The analysis also explored the returns to specific qualifications for example degree level and agricultural qualification. The results were that; investment in education pays substantial dividends in terms of higher wage rates.

A study by Zafar and Hina (2003) on education and earnings in Pakistan confirmed the positive role of education as each year of education brought about 7% returns for wage earners .The survey found out that the returns are 15% higher for those who have all skills as compared to those who did not possess any of these skills. The impact of technical training and private schools was found to be positive and significant. The study noted that basic skills were important and led to higher wages. This suggested enhancing literacy and numeracy skills through formal and informal education .The study advocated emphasis to be placed on market oriented approach in education. Mohammad (2005) in a study on returns to education of the self-employed in Bangladesh found that substantial non-linearity in returns to education in Bangladesh: returns increased across levels of education. Primary education had the lowest returns. The finding that primary education had the lowest return does not imply that investment in primary schooling is necessarily

inefficient. The suggestion was to equip graduates of primary education with skills necessary for the world of work. Evidence from the UK re-affirms that investment in education potentially yields a positive return to the owner of human capital. In comparison to other European countries, the education systems in the UK have performed well in terms of participation in early childhood education for children aged 4 and over, digital skills acquired at school, tertiary education attainment rates and adult participation in lifelong learning3 (European Commission, 2015). As per the OECD (2016; 2013), the UK has seen high investments in pre-primary, primary and secondary education with a rapidly growing participation rate. Virtually all 15-16 year-olds in the UK are enrolled in education, given education is compulsory.

Namirembe (2014) on Private returns to Education for the Wage-employees and Self-employed in Uganda found that; for both sectors an individual's extra year of schooling is associated with an increase in earnings of 15 percent. Kingdon and Söderbom (2007) found similar returns to education for the agricultural workers, wage-earner and the self-employed among the older cohort in Pakistan. However this results contrast with findings for Ghana (Kingdon & Söderbom, 2007) where the returns to education for wage employment are higher than self employment.

The results found low returns to primary education for both types of workers. Perhaps to employers, primary education does not signal adequate levels of productivity and thus attracts low remuneration. This casts doubt on the impact of primary education on an individual's productivity and employability especially in self-employment. Samir and Barry (2013) found little evidence of human capital effects in the earnings determination process in the self-employment sector in Tanzania. The potential confounding role of school quality effects and parental background for rate of return analysis was observed. Failure to control for such background variables potentially led to an overstatement in the estimated returns to education. A comparison of evidence from other countries in East Africa shows that despite an extremely small secondary and university education system the private rates of return to education in the Tanzanian wage employment sector are relatively low. The study is a contradiction of the human capital theory which associates education with increased returns (Samir, 2013).

Momanyi (2008) on benefits of non-formal education to jua kali artisans found that jua kali artisan with training exhibited higher levels of performance than those with less or no training. Barasa and Kabwe (2001) on fallacies in policy and strategies of skills training for the informal sector concluded that the sector was attracting high qualification and 70% of the respondents had passed well in school subjects such as mathematics, science and English. The study by Maundu and Twoli (1996) on the skills required in operations of Jua Kali recognized the importance of cognitive business operation such as; craft, process skills, marketing and sales techniques and artisan as important in determining the success of Jua Kali enterprises. Ombati (2006) in a study conducted among rural farmers found out that they were willing to embrace modern communication but the farmers were hindered by poor infrastructure, lack of government initiative and bureaucracy. Ondieki (2006) found that artisans with secondary education produced a higher product quality than those with primary education. Mogambo and Omwenga (2015) on challenges faced by garages in Shauri Moyo in Nairobi found out finances were the biggest challenges. The available literature reviewed in Kenya relating levels of education in self-employment is inadequate and many of the studies cited were focusing on the challenges facing the self-employed and few have related levels of education and returns to education in computer and motor spare industries.

Conclusion

The concept of returns to education remains inconclusive and continues to draw attention on the role of human capital in the production process. There is no agreement in literature on specific type of human capital that is relevant in the labour market. Studies show increased returns to levels of education while others indicate returns are higher in lower levels of education as compared to higher ones.

Recommendations from the review of literature

From review of literature the following recommendations were made

- Tailor education to meet the labour market needs I terms of the skills required
- Countries should provide education that makes recipients economically independent
- The social benefits of education though difficult to measure are important in provision of education
- Investment in education should be focused in basic education where returns are higher

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