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IMPACTS OF LABOR MOBILITY ON HUMAN CAPITAL FORMATION

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Abstract

This paper examines effects of labor force mobility on human capital formation. After combining the results of five main directions of study, it concludes that the possibility to move to another place increases performance both in labor sender and receiver areas. Findings suggest that labor flow increases average human capital. Moreover, high probability of immigration boosts human capital in potential sender countries. However, these impacts diminish with respect to human capital level. If high level human capital moves to a better environment, it does not necessarily increase their or others performance. This paper presents insights into the issue of human capital flow effects, which has not yet been analyzed comprehensively.

Keywords: Human capital, labor mobility, urbanization, sender country, host country

Introduction

At increasing rate of labor force flow is expected to change not only population balances between regions and countries, but also it influences a process of human capital formation (Zhang et al 2009). Workers are prone to move towards places where they can get higher wages because of existing possibilities, and according to some scholars, this movement creates better opportunities for further developments in human capital (Shimada 2013). Logically, migration processes make labor market competition more severe and participants attempt to improve themselves (Borjas 2001). As a whole, this pushes general knowledge level and skills up. Mobility can be considered as an attempt to bring human capital to a place where it would earn more and be better utilized.

Labor force mobility, as a broad definition, refers to movements within economic sectors, changing occupations, or geographical migration within a country or abroad. In this paper only the latter one is considered. This literature critique examines the impacts of international and internal labor flow on human capital development – what effects those evolution has in a sender-county or a receiving-country, on an international scale. On internal level, this research investigates what the implications of mobility are, mainly focusing on urbanization and its impacts on human capital accumulation and growth.

Influential migration waves increased interest in investigating impacts of labor mobility. Earlier researches have been focused on what the impacts for labor receiving countries are, and how these processes affect a country's labor market. In contrast, later studies draw more attention to consequences for labor sending countries. Their conclusions are that migration processes have some positive influences on average human capital in the both kinds of countries.

This topic is relatively new in economic investigation and accordingly there are some unanswered questions. There are no widely accepted methods for how to handle the increased numbers of international migrants. Should the mobility process be restricted or encouraged in order to get positive results? This paper tries to answer this question by examining outcomes for sender and receiver areas.

On the country level, a leading trend is that labor force converges to some specific places, mainly capital cities or industrial areas. Consequently, this accumulation of population in some areas influences the key variables of the investigation: human capital formation and labor market performance.

While globalization intensifies international labor force flow, there are some approaches to modeling this process and measure its impacts. But less literature can be found focusing on internal labor mobility and its influences on market equilibriums or human capital formation.

There is not a considerable amount of studies that would allow for the estimation of impacts of labor flow on the whole global human capital.

According to the abovementioned facts, there are some informational gaps and unanswered questions. The existence of approaches for analyzing mobility results will create possibility for determining the optimality of key policy variables and defining effective mechanisms for international or local labor force flow regulation.

After reviewing a wide range of appropriate research, this paper seeks to provide proof that when there are no restrictions for labor force flow, then average human capital increases. In this way, this paper fills an informational gap on this issue.

Methodology

The paper is organized in a way to examine impacts of mobility on human capital. The impacts of mobility are considered on an internal and international level. The results are examined for receiver and sender countries. Additionally, high level capital (PhDs, researchers) mobility is observed and studied separately to draw a conclusion.

Through comparing existing literature on the topic the paper provides insights into the consequences of labor movement. Providing different arguments can draw a more complete picture of the problem. The paper considers both negative and positive influences on human capital formation processes.

It is expected that international mobility can cause different changes in different labor receiver countries. For instance, if country has a high level of human capital, emigration can improve this level a little. This view will be examined; moreover, the paper will try to present differences in impact magnitudes.

Other issues that should be emphasized are distinct effects for labor sending and receiving countries. Both sides of the game will be considered separately and the results will be drawn in a manner to distinguish impacts clearly.

Also results of a country level and international level mobility will be considered separately.

The structure of the paper consists of five main directions. At first, internal mobility is considered in order to estimate its impacts on human capital development. In this context urbanization processes and their consequences are examined. Secondly, effects of international mobility are observed generally, observing how they change accumulated human capital across the world. Thirdly, this paper considers the influences of labor mobility for sender countries. Another point is to learn the effects of mobility for receiver countries. Finally, high level human capital mobility is reviewed. In order to distinguish the magnitude and significance of impacts, it is necessary to differentiate the impact of low level and high level human capital mobility and examine them separately.

The combined results of the considered directions provide a complete picture of mobility impacts.

Internal mobility – Urbanization

Urbanization and, more generally, internal mobility is expected to increase the average level of skills, as Grant (2012) argued. To consider the case of Georgia, about 52 percent of the population lives in rural areas but their contribution to the country's GDP is only 9 percent (Geostat 2015). This can be considered as very low performance. Also, it is widely documented in the world that labor performance is much higher in urban areas. Some studies are devoted to this issue. The following section provides insights into the linkage between internal mobility and human capital development.

Bertinelli (2003) considers some aspects of internal mobility on human capital development in a country. It is an accepted idea that education is more highly spread in urban areas and theoretically moving population from villages to cities can increase human capital. However, Bertinelli (2003) claims that there is U-shaped correlation between mobility and human capital development, with the implication that under some specific level of human capital in the region, internal migration does not necessarily have a positive impact on human capital.

The author uses data on countries spanning from 1960-1990 during which they observed urbanization level and secondary/tertiary education (the last is taken as proxy for human capital). In the indicated time period urbanization rate increased a little relatively to the growth of human capital and GDP per capita, the latter two of which increased almost 100 percent each.

Bertinelli (2003) claims that data is consistent with the idea that urban areas attract more motivated economic agents and these movements increase accumulated human capital that accelerates its development. To take into account country specific characters, the fixed effects method is used. The results lead to a U-shaped relationship. If a country has a 40 percent or lower urbanization level, mobility does not necessarily increase average human capital but if the initial urbanization level is high then there are positive impacts. It can potentially be said that the accumulated human capital has a larger impact.

The idea of the positive impacts of urbanization on human capital is supported by Rauch (1993). He argues that cities are more convenient for spreading educational externalities. He examined influences of site characteristics on labor performance. Having better communication systems makes sharing of knowledge or know-how less costly and intensive and in this way increases overall productivity in urban areas. Geographical

concentration increases knowledge sharing rate and in this way increases effectiveness of human capital.

One can say that these ideas work in reality and the rate of knowledge sharing has influence on the average performance. For example, good surgeons increase nurses' productivity that work with them. Positive externalities caused by human capital, which can be considered as a public good, are stronger in urban areas. Consequently, geographical concentration matters.

Storper and Scott (2009) investigated why cities are more attractive for the so called "creative class". Is it only for gaining advantages like amenities and Sunbelt places or there are some more important magnets for people to move to urban areas? While answering this question they argue that not only amenities attract people to move to cities but also there are more possibilities for developing their own human capital. Overall productivity is increased when Authors critically examined amenities-based mobility theories.

The main conclusions of these papers, devoted to urbanization issues in the context of human capital development, demonstrate positive impacts of mobility. However, there is no study that discusses these impacts in developing countries with relatively low urbanization level. In this case, the question is whether or not moving to cities ensures development of human capital. Urbanization increases demand for education, job trainings etc. If country is not capable to provide them, then human capital development issue is obscured. This is an issue worthy of further study.

The urbanization rate has been accelerating over the past decades. In the 1950s, nearly one third of earth's population lived in urban areas. In 2014, this indicator is 54 percent and for the next four decades urbanization level is expected to be about 68 percent (United Nations 2014). Consequently, it can help to develop human capital and increase overall performance.

In summary, it can be said that urbanization, or generally internal mobility, has a positive influence on education and the skills level of people. The main reason is the high rate of knowledge sharing. It affects not only moved people but also hosts, who are compelled to increase their human capital in order to remain competitive.

International mobility – Sender country

This section examines impacts of international mobility on source country's human capital. The main questions are: Does labor outflow weaken accumulated capital or strengthen it? Second, are net changes positive or negative?

An high probability of migration affects sender country's average human capital. According to Shimada (2013) there are some positive correlations between these two parameters under some assumptions. However, he argues that this impact is not always positive. For example, if a source country has a very low quality education system, then the impact is not obvious. Because high migration probability increases demand for education, and when there is no high quality education supplied, then the effects are not so clear. One can also argue that increased demand for education moves related costs up and some low ability people are forced to go out from the education system. Consequently, to ensure positive impacts, having a normal educational system is a necessary condition. If an individual expects that his/her earnings will be higher abroad s/he will invest in education today and try to go abroad.

Countries' experiences indicate that there are positive impacts of labor outflow possibility on human capital boosting. This idea was documented by Jean-Pierre (1998), he examined the case of 127 countries and came to this conclusion. The model suggested by him enables to draw following two conclusions. First, in the long-run, probability of emigration positively affects the level of human capital. Second, for every given level of human capital, exists p (probability of migration) at which there is a bifurcation. In order to take advantage of migration effect on human capital, this p should be higher enough.

Developing countries can take advantage of forming expectations in society to boost human capital. Announcing supporting policies for studying or making internships abroad motivates people to improve their human capital.

Dustman and Glitz (2011) suggested another interesting idea. Migrants' decisions affect others' behavior and often trigger additional investments in education in home country. They argue that migration is driven by different returns to rate and key factor affecting income abroad is the level of human capital. According to authors, only minority of migrants add to their education in host countries. This fact supports the idea that people, who want to migrate, invest more in their education in home universities.

Rossi (2008) also claimed positive correlations between migration and education level in sender countries. He names remittances as the sources for increasing educational opportunities. At first, remittances affects child's work decisions, decreases need for pupil to earn money. Second, alleviating budget constraints allows children to have more years of schooling. Consequently, migration has positive impacts on education of children in home country.

On the other hand, Rossi (2008) did not documented qualitative impacts. May children do not drop out from the school but it does not necessarily mean that their human capital increases. It can be the case that if parents are abroad, then children study less effectively. So, in order to draw reliable conclusions, not only monetary but also other effects should be examined.

Migration can cause problems for a sender country. Physicians for Human Rights (2004) studied results caused by migration of health workers from sub-Saharan Africa. According to the report brain drain has caused significant negative impacts in more than 40 African countries. They considered three main problems. First, countries suffer from a shortage of professionals as a result of labor outflow. If there is a persistent migration process, then the number of trained workers is always less than needed in a country. Second, if locally-trained persons go abroad, then public resources devoted to their education can be considered as wasted funds. Third, if migration of high level human capital is persistent over time, then it affects development of infrastructures and facilities negatively. One can argue that the three problems have significant negative impacts on human capital development. Lack of professionals, shortage of appropriate infrastructure and wasted financial resources hinder human capital evolution. Consequently, migration has negative impacts for sender countries.

One can say that Physicians for Human Rights (2004) did not distinguish between short-run and long-run effects of migration. The report concentrates on short-run results that are negative. In the long-run, spillover effects and other factors come into play. For instance, if accumulated human capital in a developed country can generate innovations and better ideas, then these improvements can have highly positive impacts on human

capital in sender countries. Consequently, it seems that the possible long-run positive impacts are not taken into account.

McKenzie (2006) studied impacts of migration on years of schooling in Mexico. They compared educational attainment of children in migrant family (those who had family members abroad) and their counterparts from non-migrant families. They have found negative correlation between migration and schooling. Migration lowers years of schooling by 1.4 and 1.7 years for boys and girls respectively. For Mexicans, return to education in Mexico is much higher than return to education abroad. If a Mexican young person expects to go abroad, then s/he invests less in education. In case of migrant families, the probability of going abroad is increased and, consequently, children in such households often leave schools. Authors concluded that remittances have small effect on education and overall migration has negative effect on human capital development in the sender country.

One can argue that there is a missing point in this study. McKenzie (2006) consider data only on 16-18 years old people. What is an impact of remittances on tertiary education? Without answering such questions, conclusions about net effects of migration on educational attainment are not strongly valid.

Some economists suggest that migration or even the high probability of going abroad increases human capital in sender countries. Positive impacts have been claimed, for instance, by Shimada (2013), Jean-Pierre (1998), Dustman and Glitz (2011), and Rossi (2008). Main idea which can be highlighted is that high possibility of migration provides a stimulus to invest more in education. On the other hand, negative impacts have been documented by Physicians for Human Rights (2004) and World Bank and Palgrave Macmillan (2006). Their suggestions rest on the idea that migration possibility declines quality and quantity of labor force.

These contradictory differences can be explained in a following way: people who claim negative impacts of migration are mainly constrained to the short-run perception, compared with supporters of positive impacts. There are discrepancies because it seems impossible to take into account all results caused by migration and calculate any net impact.

In summary, in the long-run labor mobility has positive impacts on human capital development. This idea is proven not only by theoretical models but also by considerably large data for countries. On the other hand, the short-run perspective is obscured.

International mobility – host country

In order to observe both sides of international labor flow, the following section investigates results of mobility on receiver countries' human capital. The aim is to assess the magnitudes and directions of the influence.

Rich literature can be found on the issue of how immigration affects receiver country. Migration waves to the developed world heated debates over this issue and many researches or policy advices were developed as a result. The main trend in latter studies indicates that there appear to be more positive impacts of immigration. Reported net effects on human capital development, at least, are not negative.

This section examines how newcomers influence natives' education and skills improvement decisions. Does having a large number of immigrants restrict resources for natives to develop themselves? Does increased competition caused by additional labor

inflow serve as an incentive for further investments in education? These questions are addressed here.

According to Chiswick (1989), in the long run immigration reallocates native labor force in a more effective way. In the paper, she argues that labor force inflow encourages investments in education and generally pushes people to move to another group where they are more productive. In the suggested model, the short and medium-run correlation between emigration and human capital is ambiguous but the long-run equilibrium is determined. It is characterized by the formula: $h_i r (T'_i - t_i) = \lambda$, where h_i – is an average efficiency of human capital, r – rate of discount, T'_i – marginal costs of human capital ($T_i = h_i t_i$), t_i – is per worker investment in human capital, and λ – is a langangian multiplier, actually showing earnings level. In the case of an increased number of migrants, the model indicates that in order to maintain or increase earnings, natives have to increase their efficiency. Thus, the overall skill levels go up for every worker. There is a logic to saying that when labor force supply increases in the market, then individuals should make themselves more valuable in terms of productivity if they want to maintain their existing earnings.

McHenry (2015) agrees with general idea that low skilled immigration is an incentive for natives to get better education. He demonstrates this idea with US census data. The entering high level of human capital increases the average level (assuming that it does not cause any decrease in the education level of natives) and the entering low quality labor capital increases its own education level. Empirical investigation of the reaction to low skilled labor inflow showed that natives respond with more schooling. There has been an increase not only in the share of natives completing 12 years of schooling, but also in involvement in higher education programs. Thus, immigration has positive impacts on human capital of receiving country.

Hunt (2012) argues that there are both positive and negative influences of immigration on the educational level of natives. However, the net effects are positive. Analyzing IPUMS micro-data from 1940-2000 and 2010's ACS data, the author concludes that the increasing rate of immigration pushes the probability of 12 years of schooling up. According to Hunt (2012), if the share of immigrants increases by one percentage point, then probability of completing school goes up by 0.3 percentage point. Thus, natives respond to the increased competition with more education. Consequently, the average level of human capital increases.

The magnitude of these effects depends on human capital level according to Borjas (2001). Having more differentiation in criteria for accepting immigrants seems to be more effective than having a selective policy that only admits highly educated immigrants.

Borjas (2004) examined the correlation between the number of foreign students and the number of native students attending graduate programs. At least, in the short-run, number of students that can be admitted in graduate programs is restricted. Logically, increasing number of foreign students would have negative influence on admission of natives. Borjas (2004) found that there is not any significant crowdoout effect for the average native, but some groups are remarkably affected. In case of white men, negative impact is quite strong.

To summarize the section, there are two contradictory ideas. First, immigration increases competition and, thus, boosts average human capital. Additionally, it

encourages effective allocation of the labor force in the receiver country. On the other hand, immigrants use restricted educational resources and, consequently, the average level of natives' human capital is affected negatively.

In the long-run, slots of graduate programs can be increased. It means that the crowding out effect will be eliminated. The conclusion is that long-run impacts of migration on human capital are positive.

Mobility of high level human capital

Previous parts of the paper suggest positive impacts of mobility. This section examines high level human capital flow consequences. Addressing a question how migration of researchers or PhDs influences an average human capital. This category should be highlighted separately for some reasons. This is a relatively very small group of migrants and it cannot have traditional influences like reallocation of labor force in a receiver country or change incentives for education. Also this group is not expected to have country level influence on a sender area. The main aim while considering this group separately is to observe how these processes affect migrants' productivity itself. What are gains or losses for their own human capital?

Bouwel and Veugelers (2013) examine impacts of international mobility on researchers' performance. They use data of EU-born PhDs; this survey contained 998 people's answers about their achievements or expectations. The conclusion was that mobility increases the overall productivity of researchers. They compared results for EU-mobile and US-mobile researchers. There is a possibility that mostly more aspirated and talented people manage to migrate to the US and this is a reason why US-mobility increases the number of publications or professional experience relative to EU-mobility. In order to eradicate this problem, the authors use a propensity score matching method and find out that there is no significant difference between the two groups in terms of performance. This fact indicates that the destination is not a crucial factor for researchers' productivity.

Two problems can arise: first, this survey may overestimate the reality because respondents are biased in their estimations of their own performance. Secondly, researchers have access to vast library sources by means of electronic libraries. As such, researchers moving from the EU to the US do not necessarily increase their skills and productivity (by moving).

It should be taken into account that the authors do not distinguish between the PhDs disciplines. For instance, there are perhaps better laboratories and environment for physicians in the US to develop themselves but economists can achieve equally high performance in EU. This fact should be taken into account as this differentiation would make clearer that the "right mobility" can have positive impacts. For instance, it can be the case that mobility of economists does not have impacts on their performance but mobility of chemists increases their productivity.

Fernandez-Zubieta et al. (2013) suggest a model to analyze effects of academics' flow between institutions. In the paper, the authors argue that there is no significant indication of any existing positive impact of mobility itself. Based on the data of UK researchers they concluded that academicians flow does not enhance human capital. However, the small sample size of 171 people of their econometric analysis is a small caveat.

Some theoretical frameworks suggest that immobility decreases scientific quality over time. Dutton (1980) supported the idea that inbreeding and immobility affect scientific performance negatively. He analyzed data on 301 high education institutions. Regression analysis showed that inbreeding is negatively correlated with outcome variables, such as time devoted to academic work etc. One can argue that if person does not test different alternatives and stays stuck to one institution, then s/he is not in hard competition and has less motive to develop. However, it cannot be concluded that mobility increases productivity but it should be analyzed.

It should also be mentioned that high level human capital mobility is “one way” in most cases, which means that migrants tend to stay in a host country. Bouwel and Veugelers (2012) show that top foreign PhDs in the US are very likely to stay, about 70% of students reported that they wanted to make career in the US. Examined data of 375 European students studying in the US showed that 264 of them stayed.

Conclusions

The study was done to estimate the impacts of labor force flow on human capital formation. The main goal was to analyze how mobility affects labor skills, education, and economic productivity of workers. Based on an investigation of existing literature, the paper drew a picture to compare the positive and negative aspects of the mobility. This paper examined both sides of a coin in an attempt to show the different effects of labor mobility.

The research was organized in such a way that captures impacts of internal and international mobility separately. This structure was designed to capture effects entirely for any type of labor geographical mobility. While considering changes caused by migration sender-country and receiver-country outcomes were presented. The paper also documented urbanization's positive impact on average human capital, but Bertinelli (2003) adds that there is a kind of pitfall. When a country has a very low level of urbanization, then increasing labor flow to cities has a negative effect on human capital development.

Analysis of international mobility shows that migration has positive impacts for both sender and receiver countries. In the first case, probability of migration and human capital development are positively correlated. Inasmuch as people expect to earn more abroad, some of them invests in their education additionally because of this factor. If a country has normal educational system, then this process increases the average educational level.

Effects of migration on receiver countries have been studied widely. Literature indicates that in most scenarios, labor inflow reallocates human resources in a better way and consequently increases overall productivity.

In order to capture in what way the level of moved human capital affects general results, the paper examined cases of researchers and PhDs flow distinctly. This investigation found no significant impacts and come to the conclusion that high level human capital mobility does not necessarily increase either migrants' or natives' productivity. Consequently, there is no significant positive impact of “brain drain” on human capital development in receiver or sender countries.

Summarizing the results of the research draws a following pattern. Generally, labor force flow accelerates human capital development process. Mobility has

diminishing positive effects; as a level of moved human capital increases the magnitude of impacts goes down.

There can be stated some suggestions to study this issue further. At first, scientists should investigate labor flow impacts on the world's human capital development, considering the global population as a whole body. This idea is not examined yet comprehensively. Mostly, there are studies regarding receiver countries and a recent trend shows interests in exploring effects for sender countries. But there is no research considering mobility impacts on global society's skills, knowledge and performance entirely.

Another suggestion is to observe optimal thresholds for encouraging urbanization in developing countries and define the conditions under which internal mobility has positive impacts on human capital growth.

The conclusion of this paper is that in the long-run, mobility has strong positive impacts on human capital development. In the short-run there can be considered serious counterarguments that make the impact obscured.

Appendix

Inasmuch as there are not comprehensive researches about managing labor mobility in the less developed world in order to increase an average human capital, this section contains some suggestions on the matter.

Population growth over time and technical progress increase mobility rates all over the world. According to United Nations (2013) there were more than 231mln migrants in 2013, compared to 174mln in 2000. It also shows that there has been an increase in the percentage indicator of immigrants as a part of total world population: 3.23 percent of the earth population were migrants in 2013 compared to 2.84 percent in 2000. These facts indicate that the mobility of labor forces increases. Developing world should set up an effective policy to use this tendency for improvements in human capital level.

One method can be managing expectations about migration. When a government declares supportive programs for studying abroad and tries to liberalize visa-regime with the rest of the world then people logically invest more in their education to take advantages. As going abroad from developing countries is associated with higher returns and better earnings. But there should be discrepancy between expectations and reality. By means of avoiding a high rate of labor outflow, developing country's government can keep these people in the country, this method can increase labor productivity.

In order to set optimal policy, developing countries should take into account both qualitative and quantitative effects. The high rate of migration can result in two contradictory outcomes. First, it increases the level of human capital in the sender country, and second, it decreases quantity of labor force. Consequently, while setting migration rules governments should optimize with respect to qualitative and quantitative parameters.

In summary, it can be concluded that through appropriate migration policy countries can increase their human capital. It can be achieved without significant decrease in a labor force quantity.

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