International Journal of Research in Business Studies and Management
Volume 5, Issue 9, 2018, PP 21-29
ISSN 2394-5923 (Print) & ISSN 2394-5931 (Online)

Comparative Study of the Effects of Human Capital on the Value Added of the Agricultural and Industrial Sectors

Arash Ketabforoush Badri[1], Karim Panahi[2]

[1]*Department of Economics, Faculty of Management and Accounting, Qazvin Branch, Islamic Azad University, Qazvin, Iran*
[2]*Department of Management, College of Management, Economics and Accounting, Tabriz Branch, Islamic Azad University, Tabriz, Iran*

***Corresponding Author:** Arash Ketabforoush Badri, Department of Economics, Faculty of Management and Accounting, Qazvin Branch, Islamic Azad University, Qazvin, Iran*

ABSTRACT

Human capital is the stock of competencies, knowledge, social and personality traits, including creativity, the embodiment of the ability to do something to produce economic value.The importance of understanding human capital cannot be ignored in the long-term economic development of countries. Because countries seeking to achieve economic development,must have a thorough examination of the characteristics of the human capital of their community. For this reason, attention is paid to the features and effects of this important concept on various economic sectorsand its ability to create added value in different sectors of agriculture, industry and services can be very important and necessary.So this study is trying in the form of a comparative studyevaluate the effects of human capital on the value added of the agricultural and industrial sector of 8 selected developing countries in period 2006-2015 using panel data. For this purpose, two models are intended to estimate the impact of human capital on the value added of the agricultural and industrial sectors. The results of both models show thateducation expenditure, health expenditure, domestic credits to the private sector and gross fixed capital have positive effects on value added of the agriculture and industry sectors during the studied period in selected developing countries.

Keywords: *Human Capital, Value Added, Agriculture Sector, Industry Sector, Panel Data.*

INTRODUCTION

Today, the role and importance of human power in the process of production and services in human societies are considered to be the most important factors. Without a doubt, human factor is the most important sector of development of societies. By taking a look at the levels of civilization it can be concluded that the role of human power has developed from simple working power (arm strength and mechanical work) to human capital (knowledge and skill) which is considered the most important factor of production, because if men cannot take advantage of sophisticated tools and technology, then technology development will be useless (Ketabforoush et al., 2016: 1).

The noticeable fact here is that nowadays, in fact the injection of specific amounts of physical and material capital to the third world countries has not necessarily resulted in their development process to get quicker, but merely the countries that had a productive organization and at the same time expert human capital, have been able to use and attract their material and physical capital decently and use them in their own growth process (Moradi et al, 2013:1013).

Human capital is one of the subjects discussed by economists. In studies and researches done about the factors creating growth, less than 50 percent of the growth is known to be caused by the primary factors of production (labor, capital and land) and the rest have been linked to unknown factors such as technology changes, increasing productivity and the remaining factor which is nowadays believed to be the role of human factor (Emadzadeh and Bektash, 2005: 38).

It is to be mentioned that economic sectors must pay special attention in order to find ways to improve using human power and making their industries productive and they must consider this, because special attention to quality and productivity of the labour force can help them achieve this purpose because of its beneficial results. So in order to achieve it, first it must be started from investing in human power (Okpala, 2007:81).

Considering the importance of different sectors, it is very necessary to examine the agricultural and industrial sectors, because the evaluation of past policies and the shaping of future strategies is important, and without knowing the relationship between these two sectors, it is difficult to fully understand the development of the dynamic and the establishment of effective policies for ideal economic growth.

For this purpose this paper is trying to comparatively study of the effect of human capital on the value added of the agricultural and industrial sector in selected developing countries using the panel-data method in the period of 2006 to 2014.

THEORETICAL AND EMPIRICAL LITERATURE REVIEW

Human Capital

In the recent decades, human sources have been considered as a smart factor playing an important role in the system with its skill and creativity. A country's productive human force is known as one of its valuable capitals; since the capital of knowledge is more important than the capital of production (Litman et al, 2008).Developing countries take advantage of human capital more than physical capital. According to statistics, human capital has the first role of wealth making in developing countries with 67 percent, while the share of natural and physical sources is only 33 percent. It is capital that can have the role of a big backup for big social movements in the 21st century (Moradi et al. 2013: 1013). Education, as the most obvious factor of human investment, has the primary role in improving the productivity of human power. Education on one side, increase the productivity and skill of the labour force and it reveals talents and on the other side, it provides the opportunity for using higher and better technology for the labour force. So the society will achieve its aims when it continues its way by human development. In fact, the base of plural human life is made on education and we live as we are educated, so with any for development in mind, in order to achieve it, all the effort is for people who must make this achievement reachable. Because in the present world, the education sector has the responsibility of educating the human power in the society, so it is known as the most important opportunity of training human power (Emadzadeh, Bektash, 2005:38-39). It is to be mentioned that international experiences and studies, are all pointed to the fact that development of different economic sectors and the matter of stable development, exclusively must pass the human field and before the circumstance of success, stability and continuousness of any development and change, investment in human development as the main factor of it.

Agriculture Sector

Agriculture, as one of the oldest production activities, is the most important economic activity of all countries in the world since old times. Also nowadays the agriculture sector is the primary part of the national economy, so that their economic growth and development is in direct relation with their total agriculture sector development, in other words, agriculture development is discussed in national development framework of countries (Heydari et al, 2015:309). Unfortunately, many less-developed countries do not pay adequate attention to agriculture sector in order to create quick economic growth, and are mostly tending to become industrial as soon as possible. The necessity of industrialization of basic sectors in these countries is understandable, but the fact that basic industry cannot be developed without any foundations, is less paid attention to in these countries (Peter, 2014: 93-97).

Industry Sector

Industry is one of the most important and vital sectors of any country's economy, which has noticeable effects on social, political and economic connections inside any country, because of this, paying attention to it for growth and development has been listed as one of the aims of most of the societies. This is why developing countries have been following the economic growth and development through this sector and have spent lots of money for solving the problems of those new industries (Izadi and Izadi, 2008). This sector is one of the structural sectors of economy that has an important role in determining cycles of economic boom and bust (Shahbazi and Karimzadeh, 2014:94). The industry sector has an important role in previous and future connections in productivity and production with other sectors. This sector, on one side, uses the products of other sectors as intermediate inputs and growth and development of this sector will help its growth and development and on the other side, will provide the required intermediate and capital products of other sectors and by this also it may

help growth of their production and productivity. If there is a technical improvement in the industry of producer of capital goods, more efficient and productive machineries will be produced which help the increase of productivity in sectors using these capital facilities. So, increasing productivity in industry sector will result this sector's production increase and also will help the growth of production and productivity in other sectors (Amini, 2004: 49-53).

Effect of Human Capital on Agriculture and Industry Sector

Among all, the one important factor which can make a big change in improving the situation of industry sector, is human capital. The importance of human capital in industry sector is noticeable because so far, no process has been invented which does not need human labour, so no production is done without human help. But co-operation during historical development and evolution of the societies has faced qualitative and quantitative changes of human labour in production. The role of human power from physical work has reached the most advanced level (means that man mostly thinks and the machine works). Industrial development is done based on two important capital sources of physical capital and human capital.

Investment on human power and excellence of labour force quality is one of the structures and most important and basic ways of increasing productivity, industry growth and ultimately, and accelerations of the society's economic growth. According to economic studies we can say that human capital is totally an economic concept. Another definition of human capital is knowledge, skill and experience, ability and ultimately discipline and creativity which is resulted by education and in different sectors in the labour force of the society it is saved and it causes increase of human power productivity created by increasing the qualitative level and effort (Nasiripoor et. Al, 2010: 59-61).

This fact that human power with high quality is known as a workshop's capital, has caused the developed countries to concentrate more on training human power and connections and relationships in the process of industrial production. By experience, these countries have found out that increasing the productivity of industries is possible by improving the quality of faster labour force. Although by replacing modern machineries, changing and improving the lines, applying new methods of inventory, etc. we can improve the productivity of different industries but we must consider the fact that also these factors as the main reason, depend on abilities and motivations of human source and we can definitely say that any machine, after all, has a limitation more than which we can't expect, but human abilities are infinite (Moshabaki et al. 2010: 548).

Previous Studies

Asumadu and Asantewaa (2017) examined the effect of energy, agriculture, macroeconomic indexes and human activities on environment pollution in Ghanna using the SIMPLE pattern in period of 1971 to 2011. The results show that there is a linear relation between energy, agriculture, macroeconomic indexes and release of CO2 gas.

Rockstorm et al. (2017) investigated the effect of stable agriculture growth on human welfare. In this study, they defined a paradigm for increasing the amount of stability and turn it into an operational framework for agriculture development.

Eskandari and Zeraatkish (2016) examined the effect of value added and exports of fisheries sector on economic variables of agriculture sector in Iran using the VAR method in period of 1989 to 2013. The results show that the shock to the variable of growth of exports of fisheries sector on variable of value added of agriculture shows meaningful fluctuations. The effect of the shock to the variable of the growth of the value added of fisheries on the variable of growth of value added of agriculture has always been positive effect and the effect of this shock on the variable of growth of value of agriculture exports has been negative.

Ketabforoush et al. (2016) studied the impacts of human development on the industrial value added in developing countries at the period 2006 to 2012 by using panel data method. The results show that human development has a direct impact on industrial value added.

Alavi-rad and Kanour (2014) investigated the effect of energy consumption on value added of economic sectors of agriculture, industry and services in Iran in period of 1991 to 2010 using the FMOLS and DOLS. The results show that there is a long-term co-assembly relation between energy consumption and real gross domestic production without oil. The elasticity of real gross domestic production without oil

compared to energy usage, resources of gross capital and employed human force according to theories and many studies are experienced and comparing these tensions in both methods of estimation show that long-term co-assembly relationship are too close to each other.

Fakoya (2014) examined the relation between productive resources, value added of industry and economic growth in the period of 2004 to 2012 years in 15 selected countries in Africa utilizing the panel data model. The results suggest that production and value added of industry sources have a significant positive impact on economic growth in studied countries.

Shahbazi and Karimzadeh (2014) studied the effects of monetary and fiscal policy and industry sector of Iran in the period 1979 to 2010 using ARDL[1] method. The results show that monetary and fiscal policy have significant and positive effects on value added of the industry sector in short-term. Also monetary policy in the long-term, have a significant negative impact on value added of industry sector.

Rocco and Smith (2013)studied the relationship between human resource development and training. The results show that education has a significant positive impact on the development of human resources.

Irfan et.al (2012) examined the relationship between human capital and economic development in Pakistan in the period 1972 to 2009 using ARDL method. Findings suggest that a there is two-way relationship between human capital and economic development in Pakistan in the studied period.

Econometric Methodology and Variables

Panel Data

Panel data is data from a (usually small) number of observations over time on a (usually large) number of cross-sectional units like individuals, households, firms, or governments. In other words, panel data analysis is a method of studying a particular subject within multiple sites, periodically observed over a defined time frame. With repeated observations of enough cross-sections, panel analysis permits the researcher to study the dynamics of change with short time series. The combination of time series with cross-sections can enhance the quality and quantity of data in ways that would be impossible using only one of these two dimensions. Panel data has some more advantages; since panel data is related to individuals, firms, states, countries, etc. over time, there is bound to be heterogeneity in these units. The techniques of panel data estimation can take such heterogeneity explicitly into account by allowing for individual-specific variables. By studying the repeated cross section of observations, panel data are better suited to study the dynamics of change. Panel data can better detect and measure effects that simply cannot be observed in pure cross-section or pure time series data. By making data available for several thousand units, panel data can minimize the bias that might result if we aggregate individuals or firms into broad aggregates (Gujarati, 2004).

Data and Variables

The study population consisting of 8 selected developing countries including Indonesia, Malaysia, Thailand, Iran, India, Pakistan, Belarus and Russia. Period is used 2006-2015. Time series data from these countries have been collected from WDI 2015. The model presented in this paper follows:

$$L(AGRI_{it}) = \beta_0 + \beta_1 L(EDU_{it}) + \beta_2 L(\mathrm{HE}_{it}) + \beta_3 L(\mathrm{DCP}_{it}) + \beta_4 \mathrm{L}(\mathrm{GFC}_{\mathrm{it}}) + \varepsilon_i \quad (1)$$

$$L(IND_{it}) = \beta_0 + \beta_1 L(EDU_{it}) + \beta_2 L(\mathrm{HE}_{it}) + \beta_3 L(\mathrm{DCP}_{it}) + \beta_4 \mathrm{L}(\mathrm{GFC}_{\mathrm{it}}) + \varepsilon_i \quad (2)$$

$LAGRI_{it}$ = Logarithm of value added of the agricultural sector of the country i (constant 2005 dollars)

$LnIND_{it}$ = Logarithm of value added of the industrial sector of the country i (constant 2005 dollars)

$LnEDU_{it}$ = Logarithm of government expenditure on education of country i (% GDP)

$LnHE_{it}$ = Logarithm of health expenditure of country i (% GDP)

$LnDCP_{it}$ = Logarithm of domestic credit to the private sector of country i (% GDP)

$LnGFC_{it}$ = Logarithm of gross capital formation of country i (constant 2005 dollars)

ε_{it} = random error

The Estimation Results

Results of Model 1

As we can see in table 1 and according to possibility of the statistic of F test and Housman, the stable effects method is the most decent one for estimating the model.

[1] . Autoregressive Distributed Lag

Table1. *Results of F test and Housman for model estimation*

Test	F test	Housman test
Statistic	101.7230	66.3250
Prob	0.0000	0.0000

Reference: *Research findings*

Based on this, the results of the estimation of the introduced model for defining the pattern of effect of human development on value added of agriculture sector using stable panel data effects method is shown in table 2.

Table2. *The results of the first model estimation*

Variables	Coefficient	T Statistic	Prob
LEDU	0.3276	8.5420	0.0000
LHE	0.2543	6.7172	0.0000
LDCP	0.0815	3.0287	0.0026
LGFC	0.5653	2.9391	0.0035
R^2 =0.7971 $\overline{R^2}$ =0.7812		D-W =1.82	

Reference: *Research findings*

The results related to stable effects method show that raios of the variables of the model have been statistically meaningful. Also all of the variables have the expected theoric mark. Education expenditure, health expenditure, domestic credits to the private sector and gross fixed capital have had positive effects on value added of the agriculture sector during the studied period in selected developing countries. Elasticity of value added of agriculture sector compared to education costs is 0.32. This shows that with 1 percent increase of education expenditure, the value added of agriculture sectorincreases by 0.32 percent. Foundamental change of cultural beliefs, social, political and economic sectors in order to create and fit with new capacities and quantitative and qualitative improvement of human, educational and economic capacities, can happen with more human development which itself helps create a growing industry.

This requires training efficient and expert human force. Correct education is in fact one of the primary and logical ways of directing the efforts of employees in every company and it causes using hidden talents, taking advantage of creativity and creation of flexibility of mind required in employees. The more decent and efficient the education is, the wider it is going to direct a specific society to purposes such as development, skill, change and improvement and these changes cause the employees of a company to be more successful doing their duties. Educating human force is a lucrative investment the output of which has an effective role in flourishing and efficient development in any economic sector and also in improving the general culture of the society. Paying attention to education is one of the foundamental dimentions of human development because it is one of the inevitable choices of people, a choice which has no relation with their level of wealth or social rank. Learning is an inseprable and undeniable part of human development. Educated human force has decent tools for fighting social deprivations and they can make decisions which can have positive effects on their lives and they will be able to exchange information with eachother and by that, they can play a role in enriching knowledge and culture of the human society, increase production and creating value added in different economic sectors such as agriculture. So it can be concluded that paying attention to education of human force is important in order to achieve agriculture growth.

As it is observed, with 1 percent increase of the value of health expenditures, the value added of agriculture sector increases 0.25 percent. Improving and increasing the amount of value added of different economic sectors such as agriculture, etc. will be possible if the labor force ismentally and physically healthy. Healthcare expenditures will result in increase of capital stock by improving health indexes and finally will result economic growth of the countries. Health can be considered as an important part of human capital and usually it is expected that healthy individuals who are employed with specific amounts of production factors have more efficiency in time unit compared to sick labor force. Healthy people are usually more motivated and hardworking to have more income. Inspite of that, investment for increasing healthcare services can increase the efficiency of other investments in training healthy human force in fields such as general and professional education. Sanitation and health can affect growth and development of a country in different ways. The first factor which

can be pointed out is better productivity of healthy labor force compared to others. Healthy labor force can use their physical abilities more and better than others and have more creative and capable minds. Beside this direct effect, improvement of health and sanitation in human force will result motivation for continuing education and gaining better skills. Because improving health and sanitation situation on one side will cause attraction of investment in education and educational opportunities and on other side, by increasing learning ability, it will make individuals more capable of learning and gaining social skills. So it can be concluded that healthy human force work more and better than others and have more capable and creative minds. Beside this direct effect, health also has some indirect effects on production. For instace, improving health in human force will result motivation for more education and learning better skills, because improving health situation will increase attraction of investment in education and educational opportunities which itself has positive effects in productivity of different economic sectors such as agriculture. So with increasing healthcare costs, we can see increase of value added of agriculture sector.

Elasticity of the value added of the agriculture sector compared to the domestic credits to the private sector is 0.08. This shows a positive and meaningful relation with the value added of agriculture sector, so that with 1 percent increase of provided facilities for the private sector, we can see 0.08 percent increase in value added of agriculture sector. In total, facilities have a positive effect on the value added and investment in agriculture sector. Because of less development of financial markets in developing countries, the agriculture sector depends on facilities provided by banks in order to provide for their activities.

Elasticity of the value added of the agriculture sector compared to that of gross fixed capital formation is also said to be positive. This shows that there is a positive and meaningful between gross fixed capital formation and value added of agriculture sector, so that we can say with 1 percent increase of value added, stable physical capital increases 0.56 percent.

The estimatedR^2 by the model is 0.79. This shows high explanatory of independent variables and shows high percentage of the reliability of the results. There is also no autocorrelation in the estimated model and Durbin Watson 1.82 is confirmed it.

Results of Model 2

Table 3 shows that the value of F test statistic using fixed effects would be more appropriate. Houseman also test statistic indicates the suitability of the method for estimating the fixed effects model.

Table3. *Results of F- Lymr and Houseman test of the estimated model.*

Test	F- Lymr Test	Houseman Test
Statistics	63/1723	56/1978
borP	0/0000	0/0000

Sources: *research findings*

The Estimation Results

Accordingly, the results of model estimation are introduced to determine the effects of human development on value added of industrial sector using a fixed effects panel data are presented in table 4.

Table4. *The results of the second model estimation*

Variables	**Coefficient**	T **Statistics**	borP
LnEDU	0/1617	8/1120	0/0000
LnHE	0/1940	3/2064	0/0019
LnDCP	0/0812	3/3960	0/0000
LnGCF	0/3812	4/4421	0/0000
R^2 =0.8773$\overline{R^2}$ =0.8678		D-W =1.84	

Sources: *research findings*

The results of the fixed effect show that the ratios of model variables in spite of domestic credit to the private sector, statistically were meaningful. Also all the variables have the theoretical expected marks. Variables of education expenditure, health expenditure, domestic credit to the private sector and gross capital formation have a positive effect on the value added of industry sector in the considered period in the selected developing countries.

The elasticity of the value added of industrial sector is 0.16compared to the education expenditure. This shows that 1 percent increase of education expenditure, increase the value added of industry sector by 0.16 percent. Basic changes of cultural beliefs, social, economic

institutions, for creating and being decent with new capacities and qualitative and quantitative human, educational, economic abilities can happen by more human development which provides the possibility for a growing industry. This requires educating productive and expert human power. Correct education in fact is one of the principals and logic ways of leading the effort of the workers in any company and it results in use of hidden talents, using the imagination power and creating the required thinking flexibility in the workers.

The more efficient and better the education is, widely it leads a society to aims like development, skill, change and improvement and these changes cause the workers of a company to be more successful doing their duties. Educating the human power is an investment with high profit the productivity of which is in sufficient spreading in every economic sector and also in improving the general culture of the society it plays a more important role. Focusing on education is known as one of the dimensions of human development because it is one of the undeniable choices of the people. A choice that has no relation with wealth level or social status. Education is an inseparable part of human development. Educated human power, has decent tools for opposition with social deprivations and they can make decisions that can have positive effects on their lives, they can exchange information together and through this, for their own role they can be useful for enrichment of knowledge and culture of the society, increasing production and creating added value in different economic sectors like industry. So we can say that focusing on education of human power is necessary for reaching purposes of industry growth.

Also, with 1 percent increase in health expenditure, the added value of industry sector increase by 0.19 percent. Improving and increasing the added value of different economic sectors like industry, etc. depends on the work forcebeing mentally and physically healthy. Healthcare costs will result economic growth of the countries by improving health factors and increasing the human capital. Health can be known as an important part of the human capital and as usual, it is expected that healthy people who are working with a specific amount of production factors, in a unit of time, will have more productivity than the sick labour force. Healthy people usually with more motivation to get income, are more hardworking and more productive. Despite, investment for increasing healthcare services can increase the efficiency of other investments in educating healthy human power like general education and professional education. Health can affect the growthand development of a country in different ways. The first factor we can mention is better productivity of healthy labour force compared to the others. Healthy labour force, has used its physical ability more and better than the others and has a more creative mind. Beside this direct effect, improving health in human power, will result in motivation for continuing education and learning more skills. Because improving the situation of health on one side will increase the attractiveness of investment in education and educational opportunities and on the other side, by increasing the ability of learning, will make the people more ready for continuing education and gaining social skills. So that healthy human power works more and better than others and has a more ready and creative mind.

Beside these direct effects, health also has some indirect effects on production. For instance, improving health in human power will result motivation for more education and learning better skills, because improving health situation, on one side will increase attractiveness of investment in education and educational opportunities which will have positive effects on function of different economic parts like industry. So by increasing the costs of health we can see the increase of the industry sector's added value.

The elasticity of value added of the industry sector comparing to domestic credit to the private sector is 0.08. This shows existence of a positive relation with the added value of the industry sector, as with 1 percent increase of the domestic credit to the private sector, 0.08 percent increase of the value added of the industry sector. Generally, domestic credit to the private sector have a positive effect on the added value and investment in the industry sector. Because of less development of financial markets in developing countries, the industry sector depends on bank loans for providing for their activities.

At last, the elasticity of the added value of the industry to gross capital formation was also estimated positive. This shows that there's a positive and meaningful relation between gross capital formation and the value added of the industry sector. So that 1 percent increase in

gross capital formation, value added of the industry sector increase 0.38 percent.

Also theR^2 estimated by the model is 0.87. This shows high ability of explaining of the independent variables and show the high percentage of gained trust.

Conclusions and Policy Recommendations

The role of human force has reached its most advanced level form physical work (which means human mostly thinks and machine works). Developing different sectors is based on two important capital resources which are physical capital and human capital. The thing that has been most focused on in developed countries is human capital. Human resources have two primary roles in economic growth and development. The role of labor as an early factor of production and the role of human as a factor beyond labor and other production factors are the two roles in production and economic growth. Human capital includes factors such as education level, skill, profession, experience, health and sanitation of the labor force. Education has always been considered a certain tool in improving the quality of functioning and solving problems of management and lack of it, is also one of fundamental problems of any organization.Therefore, this paper has considered comparative study of the effect of human capital on the value added of the agricultural and industrial sectorof 8 selected developing countries in period of 2006 to 2014 using the panel-data method. For this purpose,2 models were presented.The results of the first model showed that educationexpenditures, healthcare expenditures, domestic credits to the private sector and gross fixed capital formation have had positive effects on the value added of agriculture sector in the studied countries. So that we can say with 1 percent increase of the mentioned variables, the value added of agriculture sector will increase 0.31, 0.24, 0.08 and 0.56 percent respectively.The results of the second model show that the costs of education, costs of health, the amount of facilities given to the private sector and fixed physical capital, have a positive effect on the added value of the industry sector of the considered countries. As we can say by 1 percent increase of the mentioned variables, the added value of the industry sector respectably increase 0.15, 0.19, 0.08, and 0.39 percent. In mentioning the political suggestions we can point to this fact that considering the role that human power and the amount of capital in economic growth play in increasing production and creating value added, education and increasing the level of labour force quality and besides, effective use of machinery and tools in the process of production, can be known as an effective step for achieving economic growth, increasing production and creating added value. So the policies must be in a way that they can cause plans of encouraging foreign and domestic investment, efficient allocation of production and labour and capital factors between different sectors, creating relation between wage and productivity, improving and developing decent work environment, spreading of technical and professional skills decent for workplace.

References

[1] Alavi-rad, Kanour, R.(2014). The Effect of Energy Consumption on the Value Added of Agricultural Economics, Industry and Services in Iran: An Analysis Based on Collective Panel Approach, Agricultural Economics Research, Volume 3, Issue 1, 1-19.

[2] Amini, A. (2004), Measure and analyze the determinants of total factor productivity in the mining industry, light peak, 4, 47-69.

[3] Asumadu, S., Asantewaa, P.(2017). The impact of energy, agriculture, macroeconomic and human-induced indicators on environmental pollution: evidence from Ghana, Environmental Science and Pollution Research, Volume 24, Issue 7, 6622–6633.

[4] Emadzadeh, M., Besktash, F.(2005). The Effect of Value Added Education on the Industry Sector. Journal of Science and Development, No. 16, 37-50.

[5] Eskandari, S., Zeraatkish, Y.(2016). The Effect of Value Added and Export of Fisheries on Economic Variables in the Agricultural Sector in Iran, Aquaculture Development, Volume 10, Number 3, 1-12.

[6] Fakoya, M. B. (2014). Natural Resource, Value added and Economic Growth: Empirical Analysis from Selected African Countries, Kamla-Raj J Hum Ecol, 48(2), 227-233.

[7] Heydari, H., Davoudi, N., Pasha, M.(2015). The Effects of Reducing Agricultural Tariffs on Macroeconomic Variables Using Global Trade Analysis Project, Journal of Agricultural Economics and Development Vol. 29, No. 3, 308-318.

[8] Gujarati, D.(2004). Basic Econometrics, McGraw-Hill, NewYork.

[9] Izadi, H., Izadi, M.(2008), Effects of changes in exchange rates on the industrial value added

plucking model, Journal of Economic Research, Volume 43, Number 85, 25-59.

[10] Irfan, C. M., Mahboobi, H., Muhammad, S. (2012). Human Capital Formation and Economic Development in Pakistan: An Empirical Analysis, Munich Personal RePEc Archive, Paper No. 38925, May, 1-16.

[11] Ketabforoush Badri, A., Ketabforoush Badri, A., PoorabdollahiSheshgelani, A., Ghahremani, F. (2016). Analyze the Impacts of Human Development on the Industrial Value Added, Noble International Journal of Economics and Financial Research, Vol. 1, No. 1, 6-11.

[12] Litman, R.H., Pratsch, L.W., Ustad, I.M., Welch, R.A., Tychan, T.J., Denett, P.A.(2008). Guide to a balanced scoredcard: Performance management methodology. USA: Department of Energyhttp: //www. deo.gov/sites/prod/files/ maprod/documets/BalancedScoredcardPerfAnd Meth.pdf.

[13] Moradi, M., Sheybani, A., HabibiMohebSeraj, A., & Sadat Hosseini Sadr, Z.(2013). A Study on the relationship between human development and intellectual and human capital in banking industry. European Online Journal of Natural and Social Sciences, Vol.2, No. 3(s), 1012-1022.

[14] MoshbakiEsfahani, A., KhodadadHoseini, H., Zabet, Mohammadreza (2010), The effect of performance evaluation on improving manpower in the police headquarters, Journal of Police Management Studies, Issue 4, Winter, 547-562.

[15] Nasiripoor, A., Rayisi, P., Tayebi, J., Mehrabiyan, F., Farmanbar, R. (2010), Component measuring labor productivity, Guilan University of Medical Sciences, Summer, Volume 19, Number 74, 58-67.

[16] Okpala, A.O.(2007). Knowledge Infrastructure, Service Sector, And Economic Growth In Africa. International Business & Economics Research Journal , Volume 6, Number 7, 81-88.

[17] Peter W. 2014. Agricultural liberalization, poverty and inequality: Indonesia and Thailand. Journal of Asian Economics, 35, 92-106.

[18] Rocco, T.S, & Smith, D.H.(2013). The relationship between human resource development and adult education: Working towards an understanding. Training & Development. New Horizons in Adult Education and Human Resource Development. Vol 25 Issue 4, 1-3.

[19] Rockstrom, J., Williams, J., Daily, G., Noble, A., Mattews, N., Gordon, L., Wettestrand, H., DeClerck, F., Shah, M., Steduto, P.(2017), Sustainable intensification of agriculture for human prosperity and global sustainability, Ambio, Vol.46, Issue 1, 4-17.

[20] Shahbazi, K., Karimzadeh, E. (2014), The effects of monetary and fiscal policy on value added of industrial sector in Iran, in line with the general policies of industry, strategic and macro policy Quarterly, Volume 2, Issue 8, Winter, 93-110.

Citation: *Arash Ketabforoush Badri, Karim Panahi. "Comparative Study of the Effects of Human Capital on the Value Added of the Agricultural and Industrial Sectors" International Journal of Research in Business Studies and Management, vol 5, no. 9, 2018, pp. 21-29.*