



The Impact of Higher Education Output on Unemployment Rates in Jordan

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Abstract

The study examined the impact of the higher education output on unemployment rates in Jordan for the period 2000-2016. This study used the simple linear regression model to test the hypothesis of the study. The study found that the output of higher education in Jordan had a positive and significant impact on the level of unemployment in Jordan, where the output coefficient of higher education is (0.3) with the remaining factors are fixed, i.e. if the output of higher education increased by 1%, this will lead to an increase of unemployment by 0.3%, and this is due to the weakness of linking the outputs of higher education with the requirements of the Jordanian labor market. The study recommended the necessity of linking the outputs of higher education to the requirements of the Jordanian labor market to reduce unemployment rates.

Key words

Higher Education, Unemployment, Jordan

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1. Introduction

Education has been one of the most important pillars in determining the success of any economy. Studies have shown that there is a close relationship between the level of education and the economic performance of countries, where it has proved that societies with higher educational level are more productive than others because their employees are more able to absorb modern technology and ability to receiving specialized administrative and technical courses in the fields of their various productive and service work, which positively reflects on the income of individuals and the income of the society and hence on the revenues of the state. Therefore, all countries must provide an adequate level of education for all its inhabitants.

The relationship between higher education and the labor market is one of the most important issues that have implications in the various aspects of economic, social and political development. The relationship of higher education to the labor market is an integrative relationship that is determined by economic plans, policies and trends. The areas of business, in various economic sectors and in accordance with the requirements of development. Within the framework of these economic and developmental trends and the needs of the labor market, the required disciplines are determined (Berggren, 2012).

Marion *et al.* (2017) pointed out that the positive relationship between the outputs of higher education and labor market requirements depends on the ability of these outputs to meet the needs of the economic activity of the labor force with the required quantity and quality on one hand, and the ability of the economy in the labor market to grow and develop and the ability to absorb the appropriate numbers

and diverse disciplines and qualified to interact with his ambitions, leading to the direction of better recruitment of human resources available on the other hand.

Nen and Ştefan (2017) pointed out that this relationship cannot be achieved at the best level except through the adoption of an integrated approach to comprehensive economic and social development from the preparation and rehabilitation which is the task of education system and training in the broad sense to the recruitment stage.

The existence of a system to monitor the labor market and the developments that occur in it will work to achieve a real link between the market requirements and the outputs of education, so as to raise the level of professionalism of the private sector in order to be able to contribute to the process of scientific feedback and sound process in the selection of jobs on one hand and contribute to the development of the education and training system on the other hand. In the framework of meeting, its own needs to raise the system according to economic feasibility and return in all dimensions.

The developing countries, including Jordan, suffer from higher output of higher education. Unemployment rates in Jordan is (18.5%) in 2016 were mostly of different levels of educational qualifications. This study aims to investigate the impact of the higher education output on unemployment rates in Jordan for the period 2000-2016.

2. Literature Review

2.1. Theoretical Literature Review

Educational institutions have emerged mainly to serve the communities in which they arise. This calls for directing most of their concerns and activities to meet the needs imposed by the specificity of the development stage experienced by society. As the philosophy and objectives of education in general and higher education in particular are mainly to contribute to the development of society and to meet its requirements and needs, higher education is the main source for the formation of human skills and competencies and if we consider that the unemployed graduates a strong indicator of the gap between the outputs of education and the needs of the labor market, this is related to the weak sensitivity of the higher education system to the needs of the market, a crisis that lies in the nature of the development of institutions of higher education in the Arab world. A state of alienation has emerged between higher education, our reality, our needs and the needs of the labor market (Rasheed, 2014).

Higher education institutions are considered to be the main sources of economic development plans for specialized human resources, with the need to take care of the preparation of these resources as an indicator of the planning process of higher education on one hand and the preparation of economic and social development plans on the other (Al-Fanah, 2008).

The harmonization of higher education to the labor market is characterized by: the harmony of higher education with the changing labor market requirements, which reinforce the message of this education and highlight its ability to cope with the change in this market and forecast it before it occurs, and to provide appropriate training facilities for its requirements. The happiness of man and society is the focus of his economic activity and not merely the material gain (al-Khudair, 2000).

Therefore, the issue of harmonization between the outputs of higher education and the needs of the actual labor market is one of the most important problems faced by the third world countries. This phenomenon poses a great threat to the national economy of these countries. The lack of harmonization between the outputs of higher education and the requirements of the market lead to the emergence of negative phenomena such as unemployment, Social and economic problems and security, which may push these countries to use external expertise to meet the needs and elements of the national labor market.

Higher education institutions absorb the output of public education but do not prepare them for entry into the labor market, creating a class of job-seeking graduates who are unable to meet the requirements of national development. Education systems are flimsy. This requires the development of educational plans and educational policies that are flexible, up-to-date, forward-looking and based on accurate indicators, data and information on the educational situation and the labor market (Rizk, 2007).

Universities and colleges of higher education should develop human resources capable of excellence in their work, provide a world-class performance and improve their international competitiveness. The human revolution is the foundation and purpose of development. It is the means and the motivation for its

programs if it has the challenge levels of advanced educational systems and activities, and curricula equipped with the information and knowledge required to lead the development process (Shehata, 2004).

The discrepancy between the needs of the labor market and the outputs of higher education has great social, economic and security effects, as well as the lack of utilization of human competencies and skills. The harmonization of the higher education system with the national development needs has two dimensions: quantitative, Skills and capacities required by economic and social development (Zahrani, 2001).

There are reasons for the lack of harmonization between the outputs of higher education and labor market institutions due to several factors, including the systems and outputs of higher education, including the labor market and economic policies in the country. The Arab Labor Organization (ALO) report notes that the lack of harmonization between the outputs of education and training and the needs of the labor market, The resources of education and training and the decline in the potential of youth as it is taught and training to unemployment and the difficulty of business owners to acquire the appropriate skills (Al-Rashid, 2014).

The outputs of higher education in particular represent the common denominator of the concept of human resources development, which consists of the poles of education and the economy, where the task of education is in preparation and rehabilitation, while the task of the economy is to provide employment, work for the human element and to the extent that cooperation, coordination and mutual support between education and economy, The level of harmonization between the outputs of university education and labor market inputs is determined. The future that has become apparent is characterized by university technology, cognitive explosion, economic blocs and cultural hegemony, all of which highlight the critical role of the human element in the future industry. Thus, the responsibility of university education for the preparation of human resources is shown in cooperation and integration with various governmental and private sectors in the community, in order to ensure the development of qualified and trained human capital, which is the decisive element of various aspects of development. Investment in the formation of human capital has social benefits in terms of achieving equality, social security, social participation, individual and social self-realization, and national economic returns, which are the preparation of the work forces on which society depends on the management of its institutions. Economic development, as its goal is to develop the capabilities of the human element, and aims at human development and preparation for practical life (Ashour, 2005).

The relationship between university education and development is an organic reciprocal relationship. Development in its comprehensive sense means a process of transformation in the economic, social, cognitive and cultural construction that leads to increased production, satisfying the basic needs of the individual, increasing his average income, fulfilling his demands and ambitions, expanding his choices, and developing this concept based on education in general And higher education in particular to create and contribute to the continuation of development (Habashi, 2000), and to improve the quality and productivity of the work component. Higher education contributes effectively to providing graduates with the skills, qualifications and experience that enable them to perform (Luqman, 2007); institutions of higher education provide the government and private labor market with qualified human cadres that meet their needs.

The labor market is subject to rapid and obvious changes as a result of technological, economic and political progress, which affect the professional choices of students due to the obvious increase in scientific and technological disciplines. The professions available in the labor market are numerous and varied and need to be prepared in an academic way based on scientific principles (MacAskill, 2014; Jeynes, 2007). The institutions of higher education in the modern era are no longer limited to preserving the cultural heritage and transferring it from time to time, but in the service of their societies looking for facts and facing continuous changes, contributing to finding solutions to the problems of society and providing the government and private labor market with qualified human cadres that meet their needs.

2.2 Empirical Evidence

The empirical studies of the impact of the output of higher education on unemployment rates in developing countries have indicated that the output of higher education in developing countries

contributes to the increase in unemployment rates because the output of higher education is not suitable for labor market needs in developing countries. The following is a summary of a number of empirical related studies:

Study of Elish and Alshammy (2016). Entitled by *The relationship between student enrollment in higher education programs and economic growth*. The study was conducted in Egypt. The aim was to identify the relationship between the level of enrollment of students in vocational education programs and the achievement of economic growth in local production. The study used the analytical methodology based on the analysis of official documents on the number of students enrolled in vocational education programs and then analysis of indicators of economic growth in the governorates that witnessed clear economic growth. The results showed a positive correlation between the high level of preparation of students enrolled in vocational education programs and the achievement of high economic growth rates in the surveyed governorates.

Study of Amro (2010). Entitled by *The Experience of the General Organization for Technical and Vocational Training in the Kingdom of Saudi Arabia - Harmonization of Education and Training Outputs and the Needs of the Labor Market*. The study aimed to identify the experience of the General Organization for Technical and Vocational Training in the Kingdom of Saudi Arabia - matching the outputs of education and training and the needs of the labor market. The study used the survey method. The results of the study showed that the institution has technical and professional specialties. The study depends mainly on the applied side. The practical aspect of the students' study is through the actual application of the study. Thus, the availability of productive materials can be exploited and utilized by different groups of society. Providing this production to those who need it. This production includes several areas such as carpentry, blacksmithing, welding, printing, photography and others.

Study of Hanoun and Al-Bitar (2008). Entitled *The Status of An-Najah National University Graduates: An Analytical Study*. The study aimed to identify the status of graduates of An-Najah National University in the Palestinian labor market (An-Najah National University/model), i.e., the degree of compatibility between the skills of graduates and the skills required for the labor market. An analytical descriptive study. Two referees were used and the study was applied on a random sample of 111 Graduates. The study showed that unemployment rates among graduates of Palestinian higher education institutions, which constitute 70% of the total number of graduates in the West Bank and Gaza Strip, The phenomenon of unemployment among graduates is attributed to a number of factors, including the characteristics of higher education in Palestine, while others are related to the characteristics of the local labor market.

Study of Al-Otaibi (2001). Entitled by *Analysis of the relevance of higher education outputs to the needs of the Saudi labor market*. The study aimed to describe, analyze and diagnose the problem of non-alignment or compatibility between the outputs of higher education in the Kingdom and the needs of the labor market. And in the same framework aims to identify the requirements of the business sector of institutions of higher education. This paper followed the descriptive analytical approach to the data and information collected from both the desk studies and the previous field studies and also from the published statistics. The results of the study revealed that there is a relative weakness in the outputs of higher education from applied scientific disciplines compared to theoretical disciplines. These results were confirmed by field visits to a number of private projects and interviews with recruitment managers.

Study of Al-Humaidi *et al.* (1999). Entitled by *Patterns of Higher Education in the Arab Gulf Cooperation Council Countries*, which showed that the proportion of specialists in theoretical and educational studies constitutes approximately 85% of graduates, and those graduates of these disciplines are no longer in the labor market in the private sector, which led to some kind of unemployment in university graduates. The study emphasized that higher education should be consistent with the requirements of the labor market, which requires scientific and technical disciplines, and administrative and organizational skills. The study recommended several recommendations, the most important of which are: the reduction of some theoretical disciplines in university education, especially some social and literary disciplines, Graduates of the lack of suitable employment opportunities, both in the public sector or private. Shorten the sections that need a limited labor market on the main centers of universities. Intensifying applied programs in higher education institutions and linking them directly in the field with the private sector. Engage the private sector in curriculum planning.

The present study differs from the previous studies that it investigates the effect of the outputs of higher education on unemployment rates in a developing country, in addition. To the best known of the study, this is the first study to be conducted on the impact of the higher education output on unemployment rates in Jordan for the period 2000-2016.

3. Methodology of research

3.1. Data

The study used annual data for the period (2000-2016) and collected from the statistics of the Jordanian (Ministry of Higher Education, 2017) regarding the number of graduates and the publications of the Central Bank of Jordan regarding unemployment rates (Central Bank of Jordan, 2017).

3.2. Methodology

The linear regression analysis model is one of the most widely used statistical analysis tools. The regression model is concerned with estimating the effect between a quantitative variable, the dependent variable, and another quantitative variable, the independent variable (Gujarati, 2012). This model produces a linear statistical equation that can be used to interpret the relationship between the dependent variable and the independent variable or to estimate the value of the dependent variable when the value of the independent variable is known. Depending on a review of previous studies unemployment is expressed as a function of higher education output.

3.2.1. The Model

$$UN = \beta_0 + \beta_1 ED + u_i \quad (1)$$

Where: Unemployment (UN) is the dependent variable, higher education output (ED) is the independent variable, β_0 , β_1 parameters and error term (U_i).

3.2.2. Study Hypothesis

This study examine the following null hypothesis: There is no statistically significant impact of the higher education output on unemployment rates in Jordan at a significant level of $\alpha \leq 0.05$.

4. Empirical Results and Analysis

4.1. Unit Root Test Results

In order to test the stability of the time series of the study variables, both the Augmented Dickey-Fuller (ADF), Phillips-Perron (PP), tests were used to ascertain the stationary of the time series (Al-Qudah, 2014; Eryigit, 2012).

The non- stationary of the time series results in false regression results. Thus, the two tests were conducted for the study variables at the level. In Table 1 all variables are non-stationary at the level, where the value of the significance of both tests is greater than 5%, thus accepting the null hypothesis that provides for the root of the unit (time series non-stationary). Therefore, Then the re-test, after taking the first difference was shown through the two tests (Augmented Dicky Fuller and Phillips Perron) and through the significant level value which was less than 5% for both tests, thus rejecting the null hypothesis and accepting the alternative hypothesis which states that there is no root unit i.e. the time series of variables are stationary. This study suggests that the effect of all temporary shocks will fade over time in the long run, especially that the Phillips Peron test takes into account random errors and is more complete than the Dicky Fuller test and thus the data is ready for analysis.

Table 1. Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) Tests. Unit Root Test

Variable		PP	ADF	Result
UN	Level	0.9988	0.9539	Not stationary
	1rst difference	0.0497	0.0488	stationary
ED	Level	0.9175	0.7794	Not stationary
	1rst difference	0.0000	0.0005	stationary

4.2. Residuals Stationary Test

To ascertain whether the variables are integrated of first degree or not, the study tested the degree of integration of residuals and this is illustrated in Table 2.

Table 2. Results of the Residual stationary test

Variables	level		
	Deceleration	ADF	PP
Z= resid	1	***0.0000	***0.0000

***, **, * indicates that the variables are stationary at a significant level of 1%, 5% and 10%, respectively. The results obtained in Table 2 show that the residues are stationary.

4.3. Co integration Tests Results

The Co integration test, which is developed by Johansen (1990), is applied to the variables of the study to see whether they are co integrated or not Al-Qudah (2016). The results of Table 3 indicate that there is no co integration between the study variables at the significant level of (5%), according to (Max Eigen Value Test), and (Trace Test), and therefore we accept the null hypothesis (H0) and reject the alternative hypothesis (H1) which indicates a co-integration at 5% significant level. The results of the joint co integration test indicate that there is no long-term equilibrium relationship between the variables of the study, i.e., they do not show similar behavior in the long term.

Table 3. Co-integration Tests

Number of Vector Integrations	Eigen Value	Trace Statistic	Critical Value 5%	Max Eigen Value	Critical Value 5%
None	0.6319	15.1534	15.4942	14.991	14.26
At most 1	0.0108	0.1643	3.8414	0.1643	3.84

The value of both Eigen and Trace indicates that there is no co integration between the study variables at the 5% significant level.

4.4. Simple Linear Regression Results

Table (4) shows the results of the regression of the independent variable (outputs of higher education) on unemployment rates in Jordan. The results show a positive and statistically significant effect of the output of higher education on unemployment rates in Jordan. Therefore, we reject the null hypothesis that there is no statistically significant effect of the higher education output on unemployment rates in Jordan, and accept the alternative hypothesis of the impact of the outputs of higher education on unemployment rates in Jordan, Where the coefficient of output of higher education is 0.300270. This means that if the output of higher education increased by 1%, unemployment increases by 0.3%. The study results consistent with the results of the studies of (Al-Otaibi, 2001; Al-Amro, 2010, and the study of Al-Hamidi *et al.*, 1999).

The value of adjusted $R^2 = 0.477$ shows that 0.477 of the changes in unemployment are caused by the output of higher education.

Table 4. Results of simple linear regression analysis

Dependent Variable: UN
 Method: Least Squares
 Date: 12/08/17 Time:13:59
 Sample: 2000 - 2016

Prob.	T-Statistic	Std. Error	Coefficient	Variable
0.0000	7.086954	16251.69	115175.0	C
0.0013	3.949793	0.076022	0.300270	ED
15.60087	F-Statistic		0.509818	R-Squared
0.001284	Prob. (F-Statistic)		0.477139	Adjusted R-Squared

5. Conclusions

The current study examined the impact of higher education output on unemployment rates in Jordan. The study used the simple linear regression model to examine the study hypothesis. The results of the regression indicate that there is a positive and statistically significant effect of the outputs of higher education on unemployment rates in Jordan. This can be attributed to the poor of coordination between the outputs of higher education and the needs of the Jordanian labor market on the one hand and the surplus in the number of graduates on the other hand makes getting a job is not easy. Moreover, the local market needs more professional experience than the need for academic certificate holders, which contributes to solving the problem of unemployment.

The value of adjusted $R^2 = 0.477$ shows that 0.477 of changes in unemployment are caused by higher education outputs, as well as shown by the value of F (15.6) and its significance of (0.001284). The model is valid for measuring the causal relationship between the independent variable and the dependent variable.

The implication of the study is that the results showed that there is a positively statistically significant effect of the outputs of higher education in Jordan on unemployment rates. Therefore, if the interested and political decision-makers want to reduce the unemployment rate, they can work to link the outputs of higher education with the needs of the Jordanian labor market.

The study recommends further studies on the impact of secondary and vocational education on unemployment rates in Jordan, as well as higher education in educational sciences, social sciences, science, engineering and medical sciences on unemployment in Jordan.

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