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Driouchi, Ahmed and Harkat, Tahar

IEAPS, Al Akhawayn University, Ifrane, Morocco

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# **Macroeconomic and School Variables to Reveal Country Choices of General and Vocational Education: A Cross-Country Analysis with focus on Arab Economies**

By:

Ahmed Driouchi & Tahar Harkat, IEAPS, Al Akhawayn University, Ifrane, Morocco

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## **Abstract**

This research focuses on the analysis of the determinants of general and vocational educational choices in Arab economies with comparisons to other regions of the world. The selected framework considers educational choices as influenced by macroeconomic and education variables. The empirical investigation is based on regression analysis as inspired by the above model. Time series analysis is also used for Arab countries. The results indicate that education in the groups of countries analyzed is generally driven by unemployment, economic growth and the schooling results. Arab countries do show that vocational educational accounts for the schooling performance, only. Comparisons with other groups indicate that Arab countries need to strengthen the links between general and professional education as this allows for a more balanced educational and employment systems, not accounting only for the performance of general education.

**JEL:** I25, J68, M51

**Keywords:** Vocational education, Arab world, Comparisons

## **I. Introduction**

Skill updating, recovery and acquisition require continuous upgrading of skills as implied by the shortage in abilities (Manpower, 2009, 2010, 2011, 2012, 2013, 2014 and 2015) in relation to the forward looking job markets and the progress of the knowledge economy. The educational processes and especially the offers of training need to be adjusted to these changes (Mackinsey Global Institute, 2012) through the offers of general and vocational education. Regional and national reports do refer to similar shortages as shown under the skill and job monitoring system of Europe (Cedefop, 2012). The European Training Foundation (ETF) is also an EU agency that accounts for transition and developing countries to promote the potential of their human capital with the reform of education, training and labor market systems (ETF, 2014 and 2015).

In the sense of the present research, the transmission and valuation of knowledge and skills are considered as the major corner stones for the acquisition of abilities and their transformation in job acquisition or/and enterprise creation. The new policies for training are likely to satisfy over shorter runs, the needs of the youngest segments of the population and also those of potential employers. The new directions of policies are consistent with the requirements of job creation and thus development of employment but also the promotion of abilities as enterprises suffer today from shortages of skills.

Training is thus the major channel assumed to ensure the promotion of abilities with their valuation for the benefit of the individual and society. But, the necessary training needs to be using up to date knowledge and know-how besides ensuring aptitudes for long life learning as individuals and groups are faced with possibilities of changing jobs. Such training is required to be efficient with a duration that adjusts to both the needs of job seekers and potential employers.

Different reports and strategies have been developed during the previous few years, for the medium and long terms to reduce unemployment and to ensure flows of competencies in the labor markets. The ETF (2014) has already addressed the major issues prevailing in labor markets in Jordan, Algeria, Egypt, Saudi-Arabia and Tunisia. The new Moroccan employment plan has already included skill upgrading and skill recovery prior to employment. But major issues are still characterizing the new on-going employment policies. They concern the duration of trainings, the provision by a publically dominating organizations, the limited roles of private offerings, the absence of linkages with research and development and the quasi-absence of creation of new enterprises for skill upgrading and recovery.

The new system to be suggested need to account for the above concerns with the emphasis placed on all levels of regular educational attainments. It adds desired abilities to each level for non-educated, primary, secondary and tertiary educated individuals. But, the qualitative and quantitative amounts of the additional knowledge provided for each level, is to be based on the state of art but also the requirements of both learners and potential users of skills and abilities.

Among the questions that need clarification, one needs to investigate how the on-going macroeconomic and education policies have been influencing the directions of preferences for general and vocational education. This is the major empirical issue addressed in this research. Is enrollment in vocational and general education linked to economic variables as assessed by the existing macroeconomic aggregates? How these links vary by country groups and how can we characterize the situation of Arab countries? What specific development policies need to be emphasized in the context of Arab countries?

The current paper introduces a literature review on this issue, followed by a theoretical framework and the empirical model applied. The results are then introduced and discussed.

## **II. Literature Review**

Research on earnings and human capital depletion (Arrazola, De Hevia, Risueno and Sanz, 2004 and Ben-Porath, 1967) has been expanding to include skill obsolescence mainly during the active and employment life (Van Loo, De Grip, and De Steur, 2001; de Grip, 2006; de Grip, Bosma, Willems and Boxtel, 2007; and Allen & de Grip, 2012). The speed of skill obsolescence and related empirical results show that the educational level is more susceptible to the obsolescence of skills, and these results suggest improving the existing training programs (Van Loo, 2007). Other studies have addressed analyzes of skill losses in relation to unemployment (OECD, 2015; World Bank, 2006, 2012 and 2014; Driouchi, 2015; Boughzala, 2013; Khalifa, 2013 and 2014; Cedefop, 2012 & Demmou, 2012). Ragui and Krafft (2016) discuss the dynamics of unemployment in Egypt, Jordan and Tunisia. The duration of unemployment is assessed in relation to a promising economic model. Bouoiyour, Dumas, El Merghadi, El Yacoubi and Hanchane (2008) have already looked at the assessment of the vocational training system and impacts on development with focus on Morocco and Tunisia, in the context of FEMISE based research projects. The roles of FEMISE research based suggestions about professional education and its roles in development have been increasingly stressed during these last years. The economies of the South Mediterranean region and mainly those of North Africa have been largely discussed in relation to the strengthening of vocational education (Mediterranean Institute, Circle of Economists and FEMISE, 2015).

Different authors and organizations have been and are still interested in the importance of skill upgrading as this is increasingly imposed by the knowledge economy, globally but mainly for the Arab world (Brock & Moore, 2006; Jovanovic & Rousseau, 2002). WEF (2014) emphasizes that skills are a critical asset for individuals, businesses and societies and that skills are even more pronounced in a dynamic and globalized world. Further analysis is pursued in WEF (2016). The EU Commission (2008) has emphasized the severity of the financial crisis

that adds to the world's economy. This same report aims at putting Europe on the road to recovery through the enhancement of the human capital and employability by upgrading skills. ETF (2015) provides initiatives that are heavily based on active market programs aimed at addressing inefficiencies in the education and training system and reduce skill mismatch. However, less attention is given to sustainable job creation policies, education and lifelong learning policies. Employment policies that promote better job prospects for young people are still to be elaborated (ETF, 2015). These are accompanied by series of analyzes in eight countries for the period 2013 and 2014 according to this ETF study. AlMunajjed (2012) observes that high economic growth and investment in education have not prevented Gulf Cooperation Council (GCC) from the issue of shortage in abilities in nationals while these countries have high unemployment rates. The British Council (2013) workshop addresses the inter-related issues of the quality of vocational education services, the relevance of education to labor market skills for employment and enterprise status of vocational education and skills training. Schwalje (2013) stresses the necessary moves of Arab countries toward knowledge-based economic development and the transition to more effective skills formation systems. ILO (2008) emphasizes that the major problem identified across the Arab region is that investments in education and training are not yet resulting in satisfactory levels of productive employment. Training of skills upgrading and recovery are needed under active employment policies. Research has found that unemployment and under-employment, places high pressure on young people before accessing the real life and employment. This is observed for young men between the ages of 25 and 29 according to ILO (2008). The 2013 ILO employment report (ILO, 2013a) and the one on Global Youth unemployment Trend (ILO, 2013b) have stressed such needs. These reports indicate that the costs of long-term unemployment continue to rise and undermine the potential growth of Arab economies. The report (ILO, 2013b) describes clearly the difficulties related to jobs and skills. FEMISE (2011) addresses the importance of the

development of the skills needed to sustain research and innovation in Arab countries. The research report finds that vocational education plays important roles on both sides of demand and supply for skills and that individual choices are critical to ensure the best learning path. But, further research is still underway with emphasis on skill mismatch and new recommendations to policy making. Recent examples of such research are provided by Gamblin, Hogarth, Murphy, Spreadsbury, Warhust and Winterbotham (2016) and by Baião (2016). But, the most promising theoretical guidance is provided by Hanushek et al. (2013). Calero, Huertas and Bara (2016) is a recent publication dealing with education, age and skills.

In modern knowledge-based economies, research has found that education is a foremost determinant of the employment and economic growth. Further, its impact goes to the extent of affecting the opulence of future generations. For this, policy-makers should not focus their interest on attainment and inputs, but rather on understanding the determinants of the education processes to advance in forthcoming prosperity (Woessmann, 2016).

performance within two types of education as vocational or general. Findings show positive and significant impact of the vocational education, not limited to, on certain sectors such as the technology sector. A new model that combines the vocational skill formation with higher education is introduced and tested in Austria, Germany, and Switzerland with results showing positive impact on macroeconomic variables for only two countries, but not Germany (Lukas, 2016). Thus, attention should be concentrated on understanding the contribution of each type of education on the macroeconomic as well as the education variables.

The focus is on Arab countries in order to study the determinants in the enrolment in vocational and general education, and the outcomes show the high correlation between these latter variables and wage inequality or differentials. Also, the culture of the Arab countries tends to limit participation in vocational and technical education even though they have large

capacities to invest in education for development. Statistics about the enrolment in technical and vocational education as a percentage of total enrolment in secondary programs noticed a drop out between the year 1999 and 2011. For instance, Algeria went from a rate of 14.3% to 9.5%, Morocco went from 7% to 6.1%, and Bahrain and Djibouti went from 15.2% to 6.8% and 14.2% to 4.2% respectively (Mona and Fatma, 2008, Abdulghafur and Collins, 1997, UNESCO Regional Bureau, 2014).

Recent studies about vocational and technical education in the Arab countries are also oriented to the understanding of their impact on the development level in both the societal and the individual levels. Even if the rate of return of the general education is on average outperforming the one of vocational education, on a macroeconomic scale, these latter types of education are more beneficial to the economy (Mona and Fatma, 2008).

Within Arab states, a lack of coordination still exists between ministries and skills or training providers. This ranges between the basic education and goes the extent of vocational education and employment services. The gap also exists within policies of the skill integration on different sectors such as trade and technology. Furthermore, the imperfection in balancing between the vocational and general education leads to limited results in terms of creating productive employment, either by enterprises that face the lack in demand of the skills needed to adopt new technologies, or by the youth who face uncertainty in switching from education to decent work (Arab Forum on Development and Employment, 2008, Nour and Mohamed 2013; Nour and Mohamed 2015).

Other determinants of vocational education are explained by income, public funding and public investments in the education sector. This explains the inadequacies among Arab education and their effect on the labor market and the economy in general. In the case of Lebanon, like many of its neighbors, it is facing a growing rate of unemployment, particularly among women and youth. Employers face a serious lack of skills among youth, although the

country is known for its high level of education. The Lebanese Center for Policy Studies explains this by the failing of education, mostly the vocational one. In other cases, vocational professions are perceived to have inferior working conditions, and hence, people stay away from them. (Saif, 2012 and Hall, 2016 and Busemeyer, Cattane, Wolter, 2011 and AFD, 2014).

Analysis of education policies in the Arab world explains the imperfections in vocational education. This is mainly due to the lack of data availability that limits the computation of indicators for analyzing the impact of different types of education on a macroeconomic level, and shedding light on different sectors attractiveness. This leads to under-employment in some sectors because of the deficiency of suitable human resources, and over-employment in other sectors (UNESCO, 2014 and Masri, 2009).

### **III. Theoretical framework**

The theoretical framework selected here accounts for both the macroeconomic environment surrounding the education sector and the performance of this latter in relation to the dropout from school. This assumes that favorable macroeconomic conditions as they relate to lower unemployment and favorable economic growth, encourage enrollment in vocational education as this is needed by enterprises. At the opposite unsatisfactory economic conditions lead to lower enrollment under limited enterprise needs for skilled workers. Previous empirical studies distinguish individuals who receive vocational education from those who receive general education as two independent variables. In order to examine the benefits of these two types of education on the economy, a model is developed by Malamud and Pop-Eleches (2008, 2010) to analyze their impact on different macroeconomic variables such as unemployment. The model consists of a regression analysis where unemployment is

the independent variable, while the difference between the benefits of vocational and general education is the explanatory variable.

Another model developed by Caroline (2013, 2016) examines whether enrolment in general education reduces the risk of unemployment. The model uses as well unemployment as an independent variable, while it uses education variables such as the dropout rate and the general education as the dependent variables. This latter variable is a dummy variable. The model is tested on Sweden and findings show the significant and negative impact of the general education on the dropout rate, and show the significant positive correlation between the increase in the rate of general education and the increase in the risk on unemployment.

Hanushek, Schwerdt, Wiederhold, Woessmann (2015) have developed a model for better understanding the mechanisms and causes relating education skills to the labor market outcomes. This model compares cross country differences in skills in order to understand the different impacts for this latter variable on cross country economic prosperity (Caselli, 2004 and Hanushek, Woessmann, 2012). The aim of this study is to analyze the determinants of general and vocational for different group of countries with special focus on Arab economies. For this, an adjusted model that combines most of the one discussed above was developed in order to study the macroeconomic and education variables at once:

$$Outcome = \beta_i + \beta_i X_1 + \beta_i X_2 + \beta_i X_3 + \beta_i X_4 + \varepsilon_i$$

Where Outcome is the ratio of vocational to general education,  $X_1$  and  $X_2$  are the macroeconomic variables such as growth in GDP and unemployment respectively, and  $X_3$  and  $X_4$  are the education variables such as children dropout rate and adolescent dropout rate.

Regressions are computed for each group of countries  $i$ .

#### **IV. Empirical Analysis**

The above theoretical framework helps in guiding the empirical investigations related to upgrading and recovery of skills. The countries under study include those Arab economies of North Africa and Middle East for the period 2000-2016.

The main variables used include unemployment rate and the duration of unemployment in addition to the requirements of technological changes as expressed by series of indicators and labor market characteristics. Ragui and Krafft (2016) provide promising grounds for the enrichment of the empirical analysis to be pursued in this research. In addition, the reforms and the targets set in the new labor policies undertaken in some Arab countries are also analyzed to capture the role given to different forms of vocational education. Also, Salehi-Isfahan, D., Belhaj-Hassine, N. and Ragui, A. (2014) in dealing with equality of opportunity in educational achievement in the Middle East and North Africa, provide further research incentives including the use TIMSS (Trends in International Mathematics and Science Study). The use of the scores of this test is not different from those of the PIACC mobilized in Hanushek et al. (2013).

The analysis of vocational and general education has been achieved on a global scale, for specific group of countries, as well as the interaction among them. In order to analyze these two different forms of education, a ratio of vocational to general education is computed, as simply the number of students enrolled in secondary vocational over those enrolled in secondary general.

In the first component of this analysis, regression is pursued with this ratio as the dependent variable, while the explanatory factors are the GDP growth, the unemployment rate, and the dropout rate from schools over years between 2000 and 2014. Data are extracted from the World Bank database for the 246 countries.

The aim from this analysis is to study trends, if significant, of general or vocational on the economic and educational variables perspectives. The results will give more support to the youth labor markets and to reducing unemployment rate within each type of economy (Hanushek, Woessmann, Zhang, 2011).

Regarding the vocational to general education ratio, it is an indicator that explains the portion of students, in terms of percentage, enrolled in the vocational education from the total students enrolled in the general education. The mean percentage of the portion of vocational education is 13.51% from the total general education, while the median is 7.54% within a range between 0.02% and 64.18%. This means that the percentage of the portion of vocational students differ from a group of countries to another, which is high likely to be explained by the type and variety of industries within their economies. For instance, as the percentage of the building, digital, medical as well as other sectors increases, it requires more of vocational training (Langthaler, 2013). The mean of vocational to general education ratio for Arab countries is 0.03, which shows that Arab countries prefer more general education as the percentage of enrolment in vocational education is only 3.22% of the general education. This is also the case of African, Asian, and American countries, with the respective rates of 7.7%, 7.4%, and 16.8%. On the other hand, ECE (Eastern and Central European) countries show a relatively higher mean of 44.89%, which is similar to European countries with 23.21%. This explains that ECE and European countries have a preference for vocational education.

The second component of the empirical analysis is based on time series approach with focus on Arab countries. For these countries, the yearly time difference in drop out from primary school is tested in relation to the enrollment in vocational education. This means that professional education is tested as a policy response to school drop-out according to: (Out of school in year  $t$ ) = (out of school in year  $t-1$ ) +  $\beta$ \*(enrollment in vocational education). The response is captured by the  $\beta$  coefficient.

## V. Results

The attained results are introduced respectively for regression and time series analyzes.

### 1. Hypotheses related to the mix of vocational and general education in relation to macroeconomic variables

When analyzing the results by groups of countries, the ratio of vocational to general education appears to be mainly under the effects of macroeconomic variables as in the group of all countries, America, Asia, ECE, Africa and ECE, America and ECE. Arab countries show only the effect of children out of school on vocational enrollment ratio. The increase in out of school leads to higher enrollment. An opposite result is found for Africa and ECE with America and Asia. But, for Africa and ECE, the enrollment ratio is also under the effects of unemployment (negative) and economic growth (negative) in addition to children out of school (negative). Table 1 shows the summary of the regressions results of all group of countries as it showcases the regressions results of the comparison between groups.

Concerning Arab countries, only the children out of school variable affects the model but with a low coefficient that accounts for 0.001. This means that each one percent increase in this significant explanatory variable increases the vocational to general ratio by 0.001, or 0.1% increase in the total portion of secondary student enrolled in vocational education from the total general education.

Regarding Asia, both unemployment and GDP growth significantly affect the ratio positively, with the coefficients 0.566 and 0.453 respectively. This concludes that Asia macroeconomic variables are enhanced by the vocational education.

For America, unemployment and GDP growth both significantly affect the vocational to general ratio. On the first hand, unemployment is negatively affected by the vocational ratio, which is the opposite of the GDP growth.

European and ECE countries have significant positive coefficients of the unemployment variable. Further, ECE countries vocational to general ratio positively affect itself, while it negatively affect by the GDP growth. More results are shown in table 1.

Table 1: Regression of the ratio vocational to general education on the macroeconomic and the education variables results

Group of Countries	R <sup>2</sup>	Observations	Intercept of Ratio	Unemployment	GDP growth	Children out of school	Adolescent out of school
America	0.955	4	NS	-0.835 (-3.745)	0.598 (2.658)	NS	NS
Asia	0.395	16	NS	0.566 (2.635)	0.453 (2.11)	NS	NS
Arab	0.896	4	NS	NS	NS	0.001 (4.024)	NS
ECE	0.802	3	0.304 (15.378)	0.016 (17.468)	-0.127 (-32.493)	NS	NS
Europe	0.443	8	NS	0.646 (2.106)	NS	NS	NS
All	0.901	14	0.176 (2.716)	NS	-0.017 (-2.04)	NS	NS
Africa & Arab	0.233	23	NS	NS	0.013 (2.217)	NS	NS
Africa & ECE	0.942	6	0.915 (5.594)	-0.013 (-3.093)	-0.053 (-4.871)	-0.015 (-5.042)	NS
Africa & Europe	0.235	30	0.205 (3.594)	NS	-0.023 (-2.754)	NS	NS
America & Asia	0.494	10	0.178 (-2.472)	NS	NS	-0.004 (-2.472)	NS
America & Arab	0.461	11	0.213 (2.387)	-0.023 (-2.522)	NS	NS	NS
America & ECE	0.568	11	0.385 (2.908)	0.027 (2.310)	-0.037 (-2.036)	NS	NS
America & Europe	0.581	11	NS	NS	0.028 (2.561)	NS	NS
Asia & Arab	0.49	17	NS	0.006 (2.369)	NS	NS	NS
Asia & ECE	0.47	21	NS	0.021 (4.004)	NS	NS	NS
Asia & Europe	0.414	23	NS	-0.007 (-2.074)	NS	NS	NS
Arab & ECE	0.278	22	0.254 (4.793)	NS	-0.027 (-2.721)	NS	NS

Arab & Europe	0.441	20	0.186 (2.887)	NS	-0.032 (-3.414)	NS	NS
ECE & Europe	0.995	7	0.133 (2.892)	0.014 (2.881)	-0.022 (-4.963)	NS	-0.006 (-2.172)

t-stat is given between parentheses under each estimated coefficient

When comparing the above models, using the F-statistics, only the pairs of Africa and Africa/ECE, America and Africa/America, Arab and Arab/America, Asia and all, All and Arab countries besides all and Asia, appear to be statistically significantly different. But; Arab countries appear to be different also from Europe and America. F-statistics was computed in order to compare if there is any significant different between groups of countries. According to table 2, results show that American, Arab, and Asian countries have significant differences with all other countries. This implies that the macroeconomic and education variables that are significant in these latter countries models are different from the rest of the countries. Further details are included in table 2.

Table 2: F-statistics table of some comparisons between groups

Comparison	Group of countries	F-statistic	Significant/ Non Significant	F-critical at $\alpha=0.05$
Africa & America	Africa	2.223	NS	2.41
All	America	2.000	NS	3.11
America & Arab	America	13.280	S	3.11
All	Asia	3.500	S	2.48
Africa & Asia	Asia	1.027	NS	2.11
All	Arab	12.000	S	2.67
Arab & Europe	Arab	105.556	S	2.45
America & Arab	Arab	74.667	S	2.7
Asia & ECE	ECE	0.673	NS	3.41
Africa & Europe	Europe	1.243	NS	2.69

Arab & Europe	Europe	1.265	NS	2.87
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## 2. Hypothesis related to school drop-out and vocational education/General education in Arab Countries

Under this hypothesis, failure to pursue for primary and secondary education is assumed to lead to drop-out from primary and from secondary education levels. Vocational education is then targeted by those that need to learn about professional skills.

The outcomes of this analysis show that each Arab country as in table 3, is exhibiting a time series pattern that relates vocational education enrollment to the yearly first difference in school drop-out meaning that over these years, each Arab country has been mainly responding to yearly changes in the general school performance. This is shown even under a limited number of observations to the point that no estimates are found for Qatar and Saudi Arabia. But the coefficients for the other countries are too low but statistically significant indicating that only a small proportion of those that leave general education join professional training.

Table 3: Outcomes of time series analysis for Arab countries, Method: Time Series

Estimation

Country	Observation	Coefficient	t-statistic	Durbin-Watson stat
Algeria	13	3.47E-06	14.285	1.756
Tunisia	12	1.34E-05	8.990	1.829
Qatar	2	0.003	n/a	1.986
United Arab Emirates	4	0.000	62.148	2.203
Morocco	15	2.69E-05	33.761	1.824
Mauritania	4	0.000	0.000	1.944
Lebanon	12	0.000	4.996	2.178
Saudi Arabia	3	0.000	n/a	n/a

Egypt	6	7.05E-06	3.874	2.002
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These results are also tested with the simple use of Ordinary Least Squares applied to per country time series data with the following outcomes attained

Table 4 : Regression results of enrolment in vocational education and the dropout rate, Method: OLS estimation

Country	Observations	R-square	Constant	Coefficient
Algeria	11	0.011	-48601.919 (-1.346)	0.054 (0.333)
Tunisia	11	0.051	-15930.020 (-1.064)	0.158 (0.736)
United Arab Emirates	3	0.656	12306.576 (1.660)	12.564 (11.952)
Morocco	13	0.519	-437902.785 (-4.366)	11.169 (3.600)
Lebanon	10	0.121	20742.972 (1.386)	-1.718 (-1.114)
Egypt	3	0.97	293134.526 (5,454)	2.707 (8.102)

The results show that Morocco, Egypt and the United Arab Emirates appear to be clearly following the model based on relating changes in drop-out to vocational enrollment. The related coefficients are higher for the United Arab Emirates and Morocco. The coefficient for Egypt is relatively lower.

## VI. Discussion and Conclusion

As shown from the above results, the enrollment ratio for Arab countries as a group appears to be mainly driven by the dropout from school. Per country analysis has also confirmed

this result with a simple process time series driving enrollment in vocational education. But, the enrollment ratio for other countries and groups appear to be most of the time, driven by macroeconomic variables as they relate to the pursued educational and macroeconomic policies. In addition, the regression models for Arab countries appear to be different from those pursued in American and European countries. The overall policy practice seems to be linking the difference of yearly drop out from general education to enrollment in vocational activities.

In opposition to these simple findings, other authors have introduced other variables in the estimations. Afzal et al. (2010) have used time series analysis on Pakistan to investigate short-run and long-run linkages between school education and economic growth. Links between school education and economic growth are found. These results confirm the existence of direct relationship between school education and economic growth. Also Devi and Devi (2014) examine the influence of variables like government spending and number of schools on school enrolment in Pakistan. Data have been collected on student enrolment, government spending and schools for the period 2001 to 2010. The results of study show a positive relationship of numbers of schools and government spending with student enrolment. Previous contributions such as that by Agodini, Uhl and Novak (2004) addressed the issue of enrollment in vocational secondary education. This confirms that further economic research is needed to promote policies for each Arab country to ensure linkages between school dropout, unemployment and economic growth to ensure short and longer term adjustments in schooling and job creation. The new system of vocational education needs to account for the above concerns with emphasis on the levels of educational attainments. It adds desired abilities to each level for non-educated, primary, secondary and tertiary educated individuals. But, the qualitative and quantitative amounts of the additional knowledge provided for each level, is to be based on the state of art but also the requirements of both learners and potential users of skills and abilities.



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