



**UNITED NATIONS  
UNIVERSITY**

**UNU-MERIT**

**UNU-MERIT Working Paper Series**

**#2014-015**

**Education, training and skill development policies in Arab Gulf countries:**

**Macro-micro overview**

**Samia Satti Osman Mohamed Nour**

**Maastricht Economic and social Research institute on Innovation and Technology (UNU-MERIT)**

email: [info@merit.unu.edu](mailto:info@merit.unu.edu) | website: <http://www.merit.unu.edu>

**Maastricht Graduate School of Governance (MGSoG)**

email: [info-governance@maastrichtuniversity.nl](mailto:info-governance@maastrichtuniversity.nl) | website: <http://mgsog.merit.unu.edu>

Keizer Karelplein 19, 6211 TC Maastricht, The Netherlands

Tel: (31) (43) 388 4400, Fax: (31) (43) 388 4499

**UNU-MERIT Working Papers**

**ISSN 1871-9872**

**Maastricht Economic and social Research Institute on Innovation and Technology,  
UNU-MERIT**

**Maastricht Graduate School of Governance  
MGSoG**

*UNU-MERIT Working Papers intend to disseminate preliminary results of research carried out at UNU-MERIT and MGSoG to stimulate discussion on the issues raised.*

**Education, Training and Skill Development Policies in Arab Gulf  
countries: Macro-Micro Overview**

**By Dr. Samia Satti Osman Mohamed Nour**

**(January 2013)**

# **Education, Training and Skill Development Policies in the Gulf countries: Macro-Micro Overview**

**By Dr. Samia Satti Osman Mohamed Nour<sup>1</sup>**

**(January 2013)**

## **Abstract**

This paper uses a combination of secondary and primary data to provide a more comprehensive analysis of education, training and skill development policies in the Gulf countries. Different from earlier studies an interesting element in our analysis is that we discuss both the supply and demand sides of educational policies in the Gulf countries. A novel element in our study is that we present and compare the macro and micro views/perspectives concerning plans and policies implemented to improve skill upgrading through: enhancing educational system, provision of training, transfer of knowledge/external schooling effect, using the macro and firm surveys (2002) data.

**Keywords:** Education, training, skill, skill upgrading policies, Gulf countries.

**JEL classification:** H52,I20, I21, I24, I28, M53, O15

---

<sup>1</sup> Corresponding Author: Dr. Samia Satti Osman Mohamed Nour, Affiliated Researcher – UNU-MERIT- School of Business and Economics, University of Maastricht, Maastricht, the Netherlands; and Associate Professor of Economics, Economics Department, Faculty of Economic and Social Studies, Khartoum University, Khartoum, Sudan. E-mail: [samiasatti@yahoo.com](mailto:samiasatti@yahoo.com); [samia\\_satti@hotmail.com](mailto:samia_satti@hotmail.com). All the usual disclaimers apply.

## 1. Introduction

Economists of different schools of thought accepted the essential role of human capital in the form of education in the creation, acceleration and sustainability of economic growth, and improvement of the quality of life in any society. In particular, endogenous or new growth theories and empirical literature recognized the importance of human capital accumulation/formulation for economic growth in both developed and developing countries (cf. Lucas 1988, Romer 1990).<sup>2</sup>

In recent years, the UNDP-AHDR (2002, 2003) highlights the investment in human capital, education and knowledge in the Arab region. Earlier analysis in the literature shows the importance of a good education and investigates the causes and consequences of deficient educational and training systems, the lack of knowledge transfer and upskilling in the Gulf countries (cf. Musyken and Nour 2005, Nour 2005, Al-Sulayti 2002). From that perspective, therefore, it is convenient in this paper to provide insights to help generate policies to enhance skill upgrading by implementation of consistent policies for skills development: enhancing the educational system, and provision of training and transfer of knowledge/external schooling effects at the macro-micro levels in the Gulf. Thus, our paper is relevant to contribute to the few studies in the Gulf countries that address some aspects in relation to educational and training systems and policies in the Gulf countries (cf. Al-Sulayti 2002). In addition, we go beyond these studies, by providing a more comprehensive analysis to complement and fill important gap in the earlier studies in the Gulf literature. First different from earlier studies an interesting element in our analysis is that we discuss both the supply and demand sides of educational policies in the Gulf countries. Second, a novel element in our study is that we present and compare the macro and micro views/perspectives concerning plans, policies and mechanisms implemented to improve skill upgrading: education, training and transfer of knowledge. Finally, in contrast to the conventional view in the general literature and the finding in the Gulf literature (cf. Nour 2005,) our analysis presents a

---

<sup>2</sup> For theoretical and empirical literature on the importance of human capital see for instance, Stokey (1991), Schultz (1961), Mulligan and Sala-i-Martin (1995), Mincer, (1984, 1989), Mankiw, Romer and Weil (1992), Barro, (1991, 1996), Barro and Lee (1993, 1996, 2000); Lee and Barro (1997); Becker (1962, 1964), Romer (1990), Lucas, (1988).

new element by showing three successful cases of skill upgrading within the public sector firms and the discrepancy with private sector.

Based on the above, this paper aims to give an empirical investigation and policy analysis of skill development at the macro-micro levels. First we highlight the need for prioritizing skill development and we provide insights to help generate policies to reform the educational and training systems and upskilling of the labour force to ensure the social development and to foster economic growth in the Gulf countries/UAE.<sup>3</sup> Second, we examine the major mechanisms for reforming educational system, upgrading skills, enhancing the provision of training and the external effect of schooling/transfer of knowledge at the macro level in the Gulf countries/UAE. Third we substantiate the need for consistent macro-micro/ public-private policies to ensure the effective implementation of educational and training policies, skills upgrading and the external effect of schooling. Based on the above objectives, the major hypotheses to be tested in this paper are: first the UAE/Gulf countries need to upgrade skill through the relevant policies for enhancing educational system, provision of training and transfer of knowledge/external schooling effect at the macro-micro levels. Second, educational reform will have positive implications on (a) enhancing training provision, (b) skill upgrading (c) planning skill needs and matching educational output with the needs in the labour market, (d) enhancing the transfer of knowledge/ schooling effect and (e) collaboration between public and private institutions. Third, effective institutional environment: consistent policies of public and private institutions will enhance upskilling plan and skill development.

To fulfil our objective and test our hypothesis, we follow the new growth theory and literature in viewing human capital and its accumulation in a more broad/diffuse way: including education, training and external effect of schooling. We use the UNESCO conceptual framework and define education indicators as decomposed of: (1) Input indicators including both financial or public and private spending on education and human resources allocated in education (2) Output (quantitative and qualitative schooling indicators), which is defined by many indicators. We integrate the descriptive and comparative methods of analysis and use combination of primary and secondary data and

---

<sup>3</sup> In sections 3 and 4 our analysis focuses only on the UAE as a case study of the Gulf, due to availability of data for the UAE and scarcity of data for other Gulf countries.

information covering the macro-micro levels to test our earlier hypotheses and draw the major policy implications and conclusions on enhancing the educational and training systems. Primary data are based on two surveys: firm survey (2002) “Technological Change and Skill Development: A Comparative Study of Chemical and Metal Medium and Large Scale Enterprises in the UAE”. It covered 106 medium and large size firms active in chemical and metal industries in the UAE in 2002. And the macro survey on “Reform of Education, Human Resources Development and Policy Intervention” has been circulated amongst 40 of policy makers and experts in 14 public and university institutions in the UAE in 2002. The surveys were held in the UAE in 2002, the response rates of the firms and macro surveys are 42% and 75% respectively.

The rest of this paper is organized as follows: Section 2 discusses the supply-demand sides: major characteristics in particular, the structure, pattern and implications of educational policies in the Gulf countries based on data and information obtained from the UNESCO-UIS, UNDP and other relevant sources. We measure the supply side by resources or priority of financial and human investment in education, in addition we examine the demand for education as indicated by enrolment ratios and access to schooling and impacts on literacy, school life expectancy, training and quality of education. Section 3 examines the training and skill upgrading policies implemented by the large public firms in the UAE based on data and information obtained from these firms. Section 4 uses the results of the macro and firm surveys held in the UAE (2002) to present the macro-micro views and suggestions for relevant mechanisms and policies for skill development: enhancing the educational system, provision of training and transfer of knowledge/external schooling effect. Section 5 provides the conclusions.

## **2. Characteristics of educational policies in the Gulf countries: supply, demand, quality and impacts**

Before proceeding to discuss upskilling policies, it may be useful to begin with a brief explanation of the major characteristics of educational policies in the Gulf countries, in particular the structure and pattern of educational policies, the supply side as measured by resources or priority of financial and human investment in education. In addition, we examine the demand for education as indicated by enrolment ratios and access to

schooling and the impacts on literacy, school life expectancy, training and quality of education.

### 2.1 The structure and pattern of educational policies

The UNESCO-UIS (2004a) information on the structure/nature of educational system implies an insufficient duration of compulsory education in most of the Gulf countries.<sup>4</sup> For instance, the duration of compulsory education in the UAE, Saudi Arabia and Kuwait lasts for 6-8 years and falls behind the international standard of 12-13 years of compulsory education attendance in the advanced countries such as the USA, UK and Germany, and 9-11 years in Korea and Singapore respectively.<sup>5</sup>

“Moreover, the educational policies in the Gulf countries are characterized by a central administration pattern, which implies a high degree of centralization and intervention from the governments/ministries of education to control all the educational institutions” (cf. Al-Sulayti, 2002: 29-30). “The ministries of education administer around 95% of educational affairs, consequently the educational institutions are lacking independence, moreover, the educational institutions are characterizing by bureaucracy, routine, institutional rigidity and lacking perfect understanding of educational policies, dynamism, flexibility, planning, organizational development, monitoring, assessment, cooperation and problems solving ability. (cf. Fahmey and Mahmoed, 1993)” (cf. Al-Sulayti, 2002: 30).

### 2.2 The supply side of educational policies: financial and human resources

We use the UNESCO definition to show the supply side/priority of educational investment as measured by financial resources (public and private educational investment, the percentage share of public spending on education in GDP and total government spending) and human resources (teaching staff). Next, we show the demand for education (enrolment ratios) and the impacts in the Gulf countries.

---

<sup>4</sup> Al-Sulayti (2002: 15) indicates the insufficient laws/regulations regarding compulsory education attendance.

<sup>5</sup> See the UNESCO Education Statistics: UNESCO- UIS (2004a) UIS web site global statistics on education: [www.unesco.org](http://www.unesco.org).



*Table 1 - Public expenditures on education in the Gulf countries compared to world countries (1990-2001/2002)*

Country	Public expenditure on education as percentage of					
	GDP <sup>a, b, c</sup>			Total government expenditures <sup>a, b</sup>		
	1990 <sup>a</sup>	1998/ 1999 <sup>b</sup>	1999-2001 <sup>a</sup>	1990 <sup>a</sup>	1995/1997 <sup>d</sup>	2000/2001 <sup>b</sup>
Bahrain	4.2	3.67	3.00	14.6	12	11.41
Kuwait	4.8	n/ a	n/ a	3.4	14	n/ a
Oman	3.1	3.87	4.2	n/ a	16.4	n/ a
Qatar	3.5	3.58	3.6 <sup>c</sup>	11.1	NA	n/ a
Saudi Arabia	6.5	9.47	8.3 <sup>c</sup>	17.8	22.8	n/ a
United Arab Emirates	1.9	1.95	1.9 <sup>c</sup>	14.6	20.3	n/ a
United States	5.2	5.01	5.6	12.3	14.4	n/ a
Sweden	7.4	7.98	7.6	13.8	12.2	13.40
Norway	7.1	7.68	6.8	14.6	16.8	16.18
Republic of Korea	3.5	4.07	3.6	22.4	17.5	17.38
United Kingdom	4.9	4.71	4.6	n/ a	11.6	n/ a

Sources: (a) UNDP Human Development Report (2004), (b) UNESCO-UIS (2003), (c) UNESCO-UIS (2004b) country profile: data refers to most recent year between 1998-2002, (d) UNDP Human Development Report (2002)

Priority of public investment in education is measured by financial resources devoted to education, which is indicated by the share of public spending on education as a percentage of GDP and total government expenditures. For instance, Table 1 illustrates that the priority of public spending on education, as measured by public spending on education as a percentage of total government spending, in some of the Gulf countries are close to the levels in the developed countries. However, only in Saudi Arabia and Kuwait is this spending as a percentage of GDP close to the levels prevalent in the developed countries, while the rest of the Gulf countries lag behind in this respect. Public spending on education as a percentage of GDP shows considerable disparity and fluctuation across the Gulf countries. For instance, in the period 1998-2002, the highest public spending on education as percentage of GDP in Saudi Arabia was close to five and three times those of the UAE and Bahrain respectively. Moreover, the wide variations also hold for public spending on education as a percentage of total government expenditure, particularly evident between Saudi Arabia (22.8%) and Bahrain (12%). In addition, the trends of public spending on education as a percentage of total government expenditures vary across most of the Gulf countries, with large increase in Kuwait, Saudi Arabia and the UAE but a decline in Bahrain.

Moreover, the priority and trend of distributing the public spending varies over time between the Gulf countries. Table 2 shows that one common characteristic of educational policies in the Gulf countries is that the distribution/allocation of public spending on various educational levels tend to prioritize either primary or secondary education and seriously neglect tertiary education. Despite the recent gradual change in the distribution of public funding on education to increase spending on secondary education, in general the share of spending on tertiary education remains marginal and insufficient and even shows a declining trend in Saudi Arabia and Oman. Generally, there is a wide gap between Saudi Arabia, Kuwait and other Gulf countries, namely Oman and the UAE. Table 2 shows that the distribution of public spending by educational levels

may be related to the costs of various educational levels measured by spending per pupils, thus the low spending in tertiary education is probably related to high costs of spending on tertiary compared to secondary and primary pupils.

*Table 2 - Percentages distribution of current expenditure and current expenditure per pupil as a percentage of GNP per capita by educational level and in the Gulf countries (1990-2001)*

Country	Distribution of current expenditure by level (%) <sup>a, b, c</sup>						Expenditure per pupil as % of GNP per capita <sup>b</sup>					
	Pre primary and primary		Secondary		Tertiary		Pre primary and primary		Secondary		Tertiary	
	1990	1999/2001	1990	1999/2001	1990 <sup>b</sup>	1999/2001 <sup>c</sup>	1990	1996	1990	1996	1990	1996
Bahrain	n/ a	68.8 <sup>1</sup>	45.8	n/ a	n/ a	n/ a	9	8	23	19	n/ a	n/ a
Kuwait	53.4	68.5 <sup>1</sup>	13.6	n/ a	16.0	30.2 <sup>3</sup>	16	14	n/ a	n/ a	n/ a	87
Oman	54.1	36.4	37.0	51.4	7.8	1.8	12	n/ a	21	NA	68	n/ a
Saudi Arabia	78.8	82.2 <sup>1</sup>	n/ a	84.4 <sup>2</sup>	21.2	15.6 <sup>3</sup>	25	19	n/ a	n/ a	126	58
UAE	53.8 <sup>2</sup>	51.9	46.2 <sup>2</sup>	46.4	n/ a	n/ a	n/ a	n/ a	n/ a	n/ a	n/ a	n/ a

Note: (1) Data refers to 1996, (2) data refers to 1995-1997, (3) data refers to 1998

Sources: (a) UNDP Human Development Report (2004), (b) UNESCO–UIS (2000) World Education Report (2000), and (c) UNESCO–UIS (2003).

One common characteristic of educational policies in the Gulf countries is the lack of incentives or marginal contribution of the private sector on educational investment. Table 3 shows that the educational investment is almost entirely dependent on the public sector, with a very minimal contribution from private sector. More recently though, following the declining trends of public spending, private spending on education shows an opposite increasing trend to fill the gap in most of the Gulf countries. The extent of privatization shows an increasing trend in the UAE, Qatar and Oman but a declining trend in Bahrain.

*Table 3 - The Distribution of public and private expenditures on education and percentage ratio of private enrolment ratio in the Gulf countries (1990- 2000)*

Country	Public and private spending on education (%) <sup>a</sup>				Private enrolment at secondary and primary levels (%) <sup>b</sup>			
	Public		Private		Secondary level		Primary level	
	1990	1996	1990	1996	1990/1991	1999/2000	1990/1991	1999/2000
Bahrain	94.3	94.8	5.7	5.2	8.8	15.8	13.2	19.1
Kuwait	n/ a	n/ a	n/ a	n/ a	n/ a	27.9	25.0	31.1
Oman	92.0	89.7	8	10.3	0.7	n/ a	1.7	4.5
Qatar	97.3	91.8	2.7	8.2	12.3	n/ a	23.4	n/ a
Saudi Arabia	94.4	93.4	5.6	6.6	2.8	n/ a	4.1	6.4
UAE	95.4	92.3	4.6	7.7	20.6	32.0	32.2	45.0

Sources: (a) UNESCO–UIS (2000) World Education Report (2000): UNESCO's World Education Indicators, (b) UNESCO- UIS (2003).

The adequacy of human resources in education or teaching staff can be defined by pupil-teacher ratios; Table 4 shows that the adequacy of teaching staff varies across the Gulf countries and is generally better for secondary education when compared to primary

education and, in most cases, to tertiary education. One serious common problem with respect to human resources in education is the low quality of teaching staff as reported in the Gulf literature. “The educational system in the Gulf countries suffers from serious weak performance/low quality of teachers due to a lack of teaching skills and knowledge of recent teaching and learning techniques. For instance, a study investigates the teaching skills amongst university graduates who applied for Arabic, English and Mathematics teaching jobs in the public schools in Bahrain (1995/1996) shows that applicants’ success<sup>6</sup> in engineering studies, science, social science, commercial science and English are respectively 10%, 43%, 49%, 39% and 59%”.<sup>7</sup>

*Table 4 - Pupil-teacher ratio by level of education in the Gulf countries (1990-2001/2002)*

Country	Primary			Secondary			Tertiary	
	1990 <sup>a</sup>	1998/2002 <sup>b</sup>	2001/2002 <sup>c</sup>	1990 <sup>a</sup>	1996 <sup>a</sup>	2001/ 2002 <sup>c</sup>	1998/ 1999 <sup>c</sup>	2001/ 2002 <sup>c</sup>
Bahrain	19	16	16	16	15	12	n/ a	n/ a
Kuwait	18	14	14	10	11	10	15	n/ a
Oman	28	23	23	16	18	18	n/ a	31
Qatar	11	12	12	9	10	10	14	13
Saudi Arabia	16	12	12	13	13	13	18	20
UAE	18	15	16	n/ a	13	13	13	n/ a

Sources: (a) UNESCO– UIS (2000), World Education Report 2000: [www.unesco.org](http://www.unesco.org), (b) UNESCO– UIS (2004b) country profile: Data refers to most recent years between 1998-2002 and (c) UNESCO– UIS (2004c) Educational statistics (1998-2002)

### 2.3 The demand side of educational policies: the demand for and enrolment in education

Apart from the supply side, it is also important to examine the demand for education as measured by enrolment ratios. Table 5 illustrates that enrolment ratios vary across the Gulf countries, decline with the increase of educational level and, on average, lag far behind the levels in the developed countries. In particular, average enrolment ratios in tertiary education in all Gulf countries (21.35-18.52%) remain very low and lag far behind the levels of the developed countries (58.39-85%). That also holds for net enrolment ratios in primary and secondary education in the Gulf, except Bahrain and Qatar, which have enrolment ratios approaching those of the developed countries and are higher than in other Gulf countries.<sup>8</sup>

<sup>6</sup> The applicants who passed the exams

<sup>7</sup> See the Ministry of Education in Bahrain State (1995-1996) Unpublished Report in Al-Sulayti (2002: 28).

<sup>8</sup> “Probably, the low enrolment at secondary level is attributed to high drop out in transition from primary to secondary schooling and lack of effective actions in educational policy to legitimize the compulsory education” (Al-Sulayti, 2002: 15).

Table 5- Enrolment ratios by educational level in the Gulf compared to world countries (1990-2001/2002) (%)

Educational level	Primary level <sup>a</sup>		Secondary level <sup>a</sup>		Tertiary level <sup>a, b</sup>		Tertiary students in Science, Math and Engineering <sup>a, b</sup>			Vocational education (1990-1995) <sup>d</sup>	
	1990/1991	2001/2002	1990/1991	2001/2002	1998/1999 <sup>b</sup>	2000/2001	1994/1997	1996 <sup>c(3)</sup>	1996 <sup>c(4)</sup>	1990/1991	1994/1995
Bahrain	99	91	85	81	25.20	n/ a	n/ a	n/ a	42	13.25	12.69
Kuwait	49	85	n/ a	77	21.08	n/ a	23	27	n/ a	0.62 <sup>(1)</sup>	0.69
Oman	69	75	n/ a	68	n/ a	8.49	30	36	32	2.79	1.41 <sup>(5)</sup>
Qatar	89	94	70	78	27.66	24.62	n/ a	n/ a	19	2.92	1.78
Saudi Arabia	59	59	31	53	20.71	22.4 <sup>(2)</sup>	18	21	24	2.78	2.34 <sup>(5)</sup>
UAE	100	81	58	72	12.10	n/ a	27	29	25	0.71	1.41
Average Gulf	77.5	80.83	61	71.5	21.35	18.52	24.5	28.3	28.4	3.85	3.39
United States	97	93	85	85	75.66	72.62	n/ a	n/ a	n/ a	n/ a	n/ a
Sweden	100	102	85	99	62.30	70.04	31	n/ a	n/ a	n/ a	n/ a
Republic of Korea	104	101	86	89	65 <sup>e</sup>	77.62	34	n/ a	n/ a	18.04	18.64
UK	100	101	81	95	58.39	59.53	29	n/ a	n/ a	n/ a	n/ a
Finland	98	100	93	95	83 <sup>e</sup>	85 <sup>e</sup>	37	n/ a	n/ a	n/ a	n/ a

Notes (1) Data refers to 1992/1993, (2) data refers to 1999/2000, (3) data refers to (%) of tertiary students in natural science, engineering, agriculture and medical sciences 1996 (4) data refers to (%) of tertiary graduates in natural science, engineering, agriculture and medical sciences 1996 (5) data refers to 1993/1994.

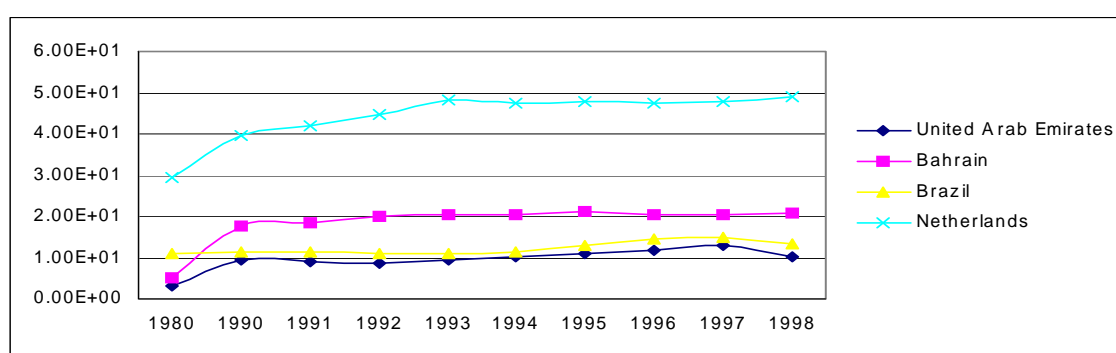
Sources: (a) UNDP Human Development Report (2004), (b) UNDP Human Development Report (2002), (c) UNESCO- UIS (2000) UNESCO's: World Education Report 2000, (d) UNESCO (1996) Statistical Yearbook and UNESCO Statistics: [www.unesco.org](http://www.unesco.org). (e) UNESCO- UIS (2004a) UIS web site global statistics on education: [www.unesco.org](http://www.unesco.org).

One major problem of educational system in the Gulf countries is the recent stagnation in enrolment in tertiary education, for instance, after considerable improvement in enrolment in tertiary education in the UAE until around 1994, the enrolment figures have stagnated in recent years – see Figure 1 below. Therefore, this implies an ample role for policy making to improve enrolment in tertiary education. In addition, as in most other developing countries, “... one serious problematic feature concerning the tertiary education in the Gulf is that enrolment and graduation ratios in tertiary education are biased against scientific, technical, engineering, agriculture, medical and natural sciences and focused on art, humanities, law and social sciences. For instance, in the period 1990-1996, enrolment and graduation ratios in medical sciences, natural sciences, engineering and agriculture accounted for only 28% as compared to 72% for art, humanities, law and social sciences; these biases are particularly serious in Saudi Arabia, Qatar, Oman and the UAE – see Table 8.5 above.<sup>9</sup> The share of tertiary students enrolled in sciences, math and

<sup>9</sup> “The irrelevant wrong policy for admission in higher education leads to focus on humanities and social science and biases against science, technology and engineering studies leads to mismatch, unemployment, shortage of technical skills that leads to dependence on foreign technical skills” (Al-Sulayti, 2002: 16-18). “The low share of enrolment in technical education relative to total enrolment in tertiary education, is probably attributed to both social/cultural aspect

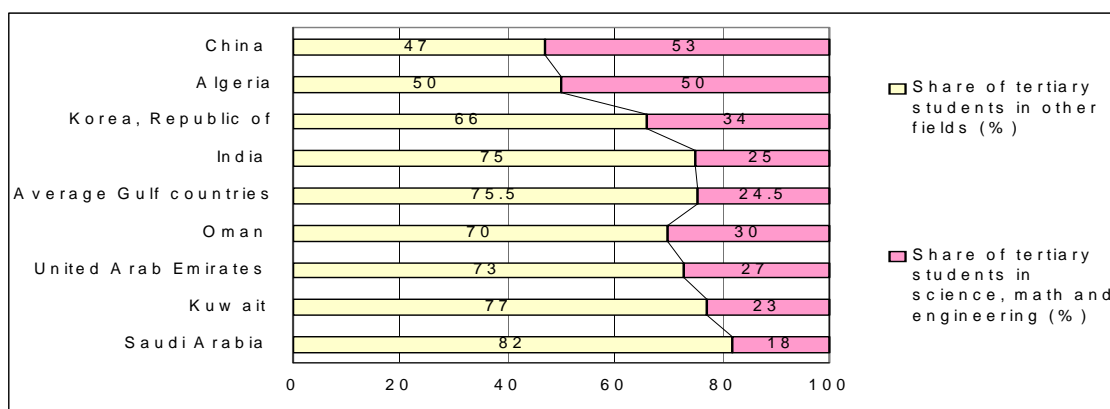
engineering in the Gulf is low compared to Korea (34%), Algeria (50%) and China (53%) – cf. Figure 2 below. A further problematic feature of higher education in the Gulf appears from the relative distribution of tertiary education students by attainment levels. Figure 3 below shows that for the majority (96%) of tertiary students the attainment was less than a university degree, while only a few (4%) obtained the first university degree or higher, falling far behind China (48%) and Korea (41%)”.<sup>10</sup> (cf. Muysken and Nour, 2005: 8, 9)

Figure 1- Gross enrolment in tertiary education in the UAE, Bahrain, Brazil and Netherlands (1980-1998) (%)



Source: WDI (2004) Database

Figure 2- Relative distribution of tertiary education students (%) by fields in the Gulf countries compared to Algeria, India, China and Korea (1994/1997- 1999/2000)

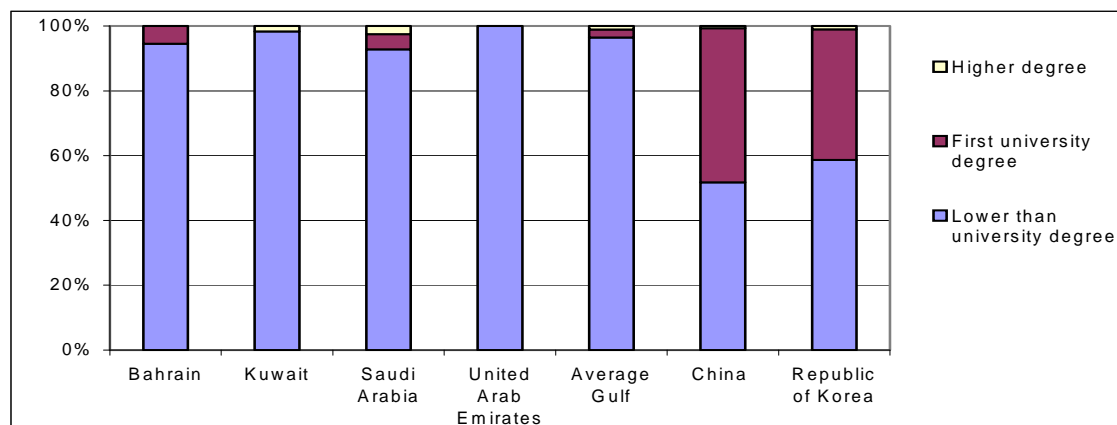


in the society that discourage the involvement in technical work and the weak relationship between educational policies and development planning” (Alfakhery, 1999: 82).

<sup>10</sup> Several studies in the Gulf literature pointed out that there is a mismatch between education systems output and the needs of the labor markets. El Sabaa (1997), Haan (1999) and Muysken and Nour (2005) indicate that biases in the educational system lead to mismatch. Muysken and Nour (2005) finds evidences of skills mismatch and attributed that to the interaction between deficiencies in educational system and poor educational qualification of the excessively used unskilled foreign workers and a lack of incentives to train them. In addition, Haan (1999) indicates other social/cultural reason of skill mismatch due to bias towards or preference of white-collar jobs and the bias against technical and manual work. Since these studies discussed the skills mismatch problem adequately, therefore, our analysis in this paper will not cover the skills mismatch problem, but will focus only on the relevant policy for skill development: in particular, the improvement of education, training and transfer of knowledge.

Source: UNDP (2004)

Figure 3- *Relative distribution of tertiary education students (%) by attainment levels of higher education in the Gulf countries compared to China and Korea (1999/2000)*



Sources: UNDP - AHDR (2003) and UNESCO-UIS (2003); UNESCO web site ([www.unesco.org](http://www.unesco.org))

Further serious problems include the negligence of vocational education across the Gulf countries (except Bahrain) and the problem of the declining trend in the enrolment ratios in vocational education in the Gulf countries (except the UAE and Kuwait), see Table 5 above.

Moreover, another problematic feature is the lack of incentives/minimal enrolment in private schooling compared to intensive enrolment in public schooling, which may be related to the high cost of private schooling and the minimal contribution of the private sector spending in total spending on education compared to the public sector. Similar to public enrolment, private enrolment ratios decline with the increase of educational level, i.e. are higher at primary level and lower at secondary level. Private primary and secondary enrolment ratios show an increasing trend over time with considerable variation across the Gulf countries, namely between the UAE and Saudi Arabia and Oman, see Table 3 above.<sup>11</sup>

<sup>11</sup> The scarcity of reliable information limited our analysis from discussing two interesting issues related to educational policies: the contribution of private sector in both spending and enrolment in tertiary education; and the enrolment of the citizens from the Gulf countries in overseas educational institutions. The high GDP per capita has encouraged a considerable number of the citizens from the Gulf countries to seek higher education abroad. The only available information indicates that during the period 1999-2002/2003 the number of students from Saudi Arabia, Qatar and Oman who study in the United States declined by 31%, 26% and 25% respectively – see the UNDP - AHDR (2003: Table 1: 23). This may substantiate the need for improving domestic higher educational institutions to fill the gap and absorb the students who have returned.

#### 2.4 Return and quality of educational policies

Another common characteristic of the educational system in the Gulf countries is the weak internal efficiency/quality of both primary and secondary education; the severity of the problem varies across the Gulf countries.<sup>12</sup> For instance, Table 6 illustrates that in the period 1990-2002, the percentage of repeaters in primary schooling is higher in both Saudi Arabia and Oman, while the percentages of transition to secondary and tertiary education are low in both Saudi Arabia and UAE.<sup>13</sup>

The average for all Gulf countries in terms of quality of education has improved over time, as is apparent from the considerable decline in the percentage of repeaters in primary schooling and increase in the percentages of transition from primary to secondary education; however, across individual Gulf countries poor quality is still obvious. For instance, Table 6 indicates that throughout the period 1990-2002, the percentages of repeaters in primary schooling remained the same in Kuwait. In half of the Gulf countries – namely, Bahrain, Oman and Qatar- the percentages of transition from primary to secondary education has declined. Therefore, further efforts are needed to enhance the quality of education at all levels, in order to avoid the exacerbation of the problems that will result in the event of a failure to implement some effective policies to improve the quality of education.

*Table 6 - Quality of Education in the Gulf countries: percentage of repetition and transition (1990 - 2002)*

Indicator	Percentage of repeaters: primary education (%)		Percentage of reaching secondary and tertiary education (%)		Primary to secondary transition rates (%)
	1990 <sup>a</sup>	1998-2002 <sup>b</sup>	(Secondary) 1995 <sup>a</sup>	(Tertiary)1995 <sup>a</sup>	1998-2002 <sup>b</sup>
Bahrain	5	4	99	95	98
Kuwait	3	3	97	96	98
Oman	9	4	99	96	98
Qatar	7	3	100	98	96
Saudi Arabia	9	5	96	89	97
UAE	4	3	93	83	98
Average Gulf	6.17	3.67	97.33	92.83	97.5

<sup>12</sup> No relevant data and information are available to allow an assessment of the quality of tertiary education.

<sup>13</sup> “The poor quality is attributed to: (a) High repetition rates, for instance, repetition rate at primary level for female in Saudi Arabia is around 14%, at some secondary level in Kuwait increased to 31% and at industrial education level in Bahrain increased to 38%. (b) Weak absorptive capacity and performance level of students at all levels. (c) Failure of educational strategy to motivate innovative skills and problem solving ability/skills. (e) Weak monitoring and examination systems due to traditional, inefficient and subjective assessment methods and lack of international recognition/ bases. (f) Lack of monitoring systems/ institutions to measure and assess the performance of educational and training institutions” (Al-Sulayti, 2002: 21-24).

Sources: (a) UNESCO–UIS (2000) UNESCO’s World Education Report (2000) (b) Calculated from UNESCO –UIS (2004b) country profile: statistics refer to the most recent year between 1998-2002.

In addition, the poor quality of education can be observed from the results of the Third International Mathematics and Science Study Score for students during 1994-1995, where the poor performance of Kuwait [taken to represent the Gulf countries] in terms of mathematics and science school training fell far behind Singapore, USA, Japan and Europe. For instance, of the 41 countries in which half a million 13 years old were tested, Kuwait with Colombia and South Africa took the last three places in both subjects, while Singapore reached first place in both subjects ahead of the USA, Europe and Japan, which scored third place in both subjects. These figures indicate that there are indeed large quality differences in two subjects of critical importance to technological and skill development (cf. Lall, 1999: 22-23).

#### 2. 5. The impacts of educational policies on literacy and access to schooling (school life expectancy)

Educational policies in all the Gulf countries lead to only slight improvements in school life expectancy in the UAE, Kuwait and Qatar and enrolment in all educational levels in Bahrain and Qatar. However, the educational policies have insufficient effects on improving school life expectancy, which remains low and lags behind when compared to the international standard. One important positive implication of educational policies is the increase in literacy rates; however, the educational policies have so far only managed to alleviate rather than fully eliminate the youth illiteracy problem in the Gulf countries. For instance, Table 7 illustrates that in the year 2002, the illiteracy rates amongst the youth population are in excess of 5% in Qatar (5.2%), Saudi Arabia (6.5%), Kuwait (6.9%) and the UAE (8.6%), and are lower than 2% only in Oman (1.5%) and Bahrain (1.4%). This implies that there is an ample room for policy to increase the literacy rate among the young population.

Furthermore, when comparing the supply and demand sides, we observe that the supply side or public spending seems to be only one component in the educational policies, because higher public spending per se does not imply a higher demand, participation and enrolment ratios, access to schooling/school life expectancy and higher



literacy rate. For instance, despite higher spending on all these counts, Saudi Arabia falls behind Bahrain, which reports moderate spending but better demand/enrolment ratios at all educational level, access to schooling/school life expectancy and literacy rates.

*Table 7– Educational outcomes: Youth illiteracy rate and school life expectancy in the Gulf countries (1990-2002)*

Country	Youth illiteracy rate (% ages 15-24) <sup>a</sup>		Youth literacy rate (% ages 15-24) <sup>a</sup>		School Life Expectancy <sup>b, c</sup>	
	1990	2002	1990	2002	1992 <sup>b</sup>	1998 <sup>c</sup>
Bahrain	4.4	1.4	95.6	98.6	13.5	13.0
Kuwait	12.5	6.9	87.5	93.1	7.0 <sup>(1)</sup>	8.7
Oman	14.4	1.5	85.6	98.5	n/ a	8.76 - 9.0 <sup>(2)</sup>
Qatar	9.7	5.2	90.3	94.8	11.8	13.1
Saudi Arabia	14.6	6.5	85.4	93.5	8.5	n/ a
UAE	15.3	8.6	84.7	91.4	10.6	10.7

Note: (1) data refers to 1991 (2) data refers to 2000/2001

Sources: (a) Calculated from UNDP Human Development Report (2004) (b) UNESCO–UIS Statistical Yearbook (1999): [www.unesco.org](http://www.unesco.org) (c) UIS–UNESCO (2003): [www.unesco.org](http://www.unesco.org).

### **3. The impact of educational policies on training policies: large public firms and public policies of training and skills upgrading**

Educational policies in the Gulf countries have insufficient effect on training provision and failed to integrate sufficiently with training policies. “The relationships between educational and training policies vary across the Gulf countries, as technical education and training are either integrated with or separated from educational institutions.<sup>14</sup> Despite these differences, however, in both cases the educational policies in the Gulf countries are still in need to enhance the fruitful cooperation, co-ordination and integration with training policies” (Al-Sulayti, 2002: 20-21).

Earlier findings in Nour (2005) show that the lack of interaction between educational and training systems hinders the provision of training and upskilling plans within private firms, and also leads to duality/discrepancy between macro-micro views with respect to implementation of upskilling plans. We will illustrate below that the interaction between educational and training policies appears to be effective only within large public firms that adopt training policies consistent/ in line with public policies.

<sup>14</sup> In most of the Gulf countries – Bahrain, Qatar, Oman and the UAE – both the educational and training institutions are integrated within one entity administered by the ministries of education, whereas in both Saudi Arabia and Kuwait the technical education and training are administered by independent institutions headed by the minister of labour and social affairs and the minister of education respectively (Al-Sulayti, 2002: 20).

Table 8 illustrates that the three largest public enterprises in the UAE, namely, the Gulf Pharmaceutical Industries (JULPHAR), Abu Dhabi National Oil Company (ADNOC) and Dubai Aluminium Company (DUBAL), all seem committed to implement diversified training and skill upgrading policies that are quite consistent with the line taken by public policies. In particular, they adopt similar strategies that highlight training and upskilling of workers, linkages with universities to absorb national graduates, active human resources development units and recruitment policies to set up and implement regular internal and external training plans and wide use of ICT to upskilling workers especially national workers. Therefore, in contrast to the private firms, the large public firms (JULPHAR, ADNOC and DUBAL) have successfully contributed to serve the public policies for enhancing training and skill upgrading, especially amongst the national workers – cf. Table 8 below. However, it is less clear whether the large public firms induce positive effects on upskilling workers in private firms. In our view, the interpretation of the serious public-private discrepancy can be attributed to presence of high resources, support and incentives within public firms, which are probably lacking within private firms.<sup>15, 16</sup>

*Table 8- Human resources development and training policies in the large public firms in the UAE*

Firms	Human resources development strategies and training policies in JULPHAR, DUBAL, and ADNOC
1. JULPHAR	<p>JULPHAR's human resources development unit aims to upgrade skill levels via the following:</p> <ol style="list-style-type: none"> <li>1. Offering high school training programmes for the high secondary school students.</li> <li>2. Offering educational grants to different educational institutions and individuals to encourage competition and positive impact in society.</li> <li>3. Attracting university trainees and experts in the field of science and pharmacy from the emirates and from abroad.</li> <li>4. Offering short and medium on the job induction training programmes based on training needs.</li> <li>5. Offering staff ongoing internal and external ICT training/ upgrading opportunities.</li> <li>6. Providing specialized long term training programmes.</li> <li>7. Employing graduate UAE nationals to acquire knowledge and experience under the supervision and training of professional and skilled experts.</li> <li>8. Facilitating, transferring and sharing of knowledge in the medical/pharmaceutical fields, via: <ol style="list-style-type: none"> <li>a. Arranging scientific seminars and educational programmes for various pharmacists and doctors in different specialities.</li> </ol> </li> </ol>

<sup>15</sup> For instance, the selected three largest public firms have several common characteristics such as large market size, namely size of employment, capital (local capital), market, products, sales, sales revenues; investment in ICT, use of advanced technologies and active R&D/technology development unit.

<sup>16</sup> From the results of the Firm survey (2002) and the selected three cases of large public firms studied in this chapter, it may be true that public firms are systematically larger than private firms. It is therefore plausible to expect that the large public firms to have higher financial capacity to support training and skill upgrading than private firms. However, it is less clear and hard to make generalization to conclude whether this applies to all other public firms as well, because the available information for the UAE indicate the classification of firms according to size, activities and ownership (nationality of main owner(s)) rather than public- private sectors.

	<ul style="list-style-type: none"> <li>b. Participating in both local and international medical conferences.</li> <li>c. Participating in continuous education through a network of scientific offices in the UAE, Middle East, Europe and USA.</li> <li>d. Providing grants to research organizations and universities of international repute that are actively involved in the development and discovery in the field of pharmaceutical technology.</li> <li>e. Encouraging an active R&amp;D unit to be continuously involved in the development of ways and means to explore new application of generic dosage forms.</li> <li>f. Employing over 20 scientists, including Ministry of Health approved pharmacists to be involved in the development of new products, which have resulted in the registration of more than 600 dosage forms worldwide.</li> </ul>
2. DUBAL	<p>DUBAL's human resources development unit aimed at upskilling workers through the following:</p> <ul style="list-style-type: none"> <li>1. Offering various training programmes, such as on the job training within the plant itself. For instance, about ninety five per cent of the workforce has participated in some form of training.</li> <li>2. Offering the employees training opportunities through ongoing project work, as well as visits to other leading producers around the world.</li> <li>3. Emphasis on continuing to employ UAE nationals; contributing to the development of the national workforce by hiring, training and further developing young nationals.</li> <li>4. Collaborating with colleges and universities in the UAE and abroad to recruit national graduates.</li> <li>5. Providing pre-employment courses and graduates and management development programmes, in addition to special training programmes (in-house and abroad) for UAE nationals supported by a dedicated team of trainees and professional experts.</li> <li>6. Providing external accreditation training courses and learning units for special learning courses.</li> <li>7. Offering teamwork operation, such as the suggestion scheme (SS), Performance, Enhancement Programme (PEP), Continuous Improvement Team (CIT) and Total Quality Management (TQM) programmes designed to involve all workers in the ongoing process of continuous improvement.</li> </ul>
3. ADNOC	<p>ADNOC's human resources and development implementation policy is based on the following:</p> <ul style="list-style-type: none"> <li>1. Promoting an active human resources development unit, establishing competency based career development programmes and the national recruitment committee to attract and encourage the recruitment and development of national workers in the oil and gas industries.</li> <li>2. Emphasis on continuing to employ UAE nationals; the firm survey (2002) indicates that the current share of national workers is 37% and is expected to increase to 50%, 60% and 75% in the short, medium and long terms respectively.</li> <li>3. Offering various internal and external training opportunities to create and maintain a learning environment within the organization. Offering special training programmes to UAE national employees in order to meet the targets of public policy to upgrade national workers. ADNOC supports its training institute (ADNOC Training Institute (A.T.I.), which established in 1979 to contribute to meeting the needs of ADNOC group of companies for skilled national manpower. For instance, the number of graduates from ATI increased continuously from 386 in 1994 to 1150 in 2000.</li> <li>4. Providing career development programmes to promote work performance.</li> <li>5. Offering an annual scholarship programme, which started in 1974, with the aim of motivating interested and excellent UAE secondary school students to study abroad in the fields related to oil and gas industries. The number of scholarships increased rapidly from 100 in 1994 to 527 in 2000; most of these are offered for studying abroad in the USA (84%), UK (8%) and Australia (2.9%). In addition, local scholarships are offered in collaboration with the local universities, such as the UAE University (4.7%) and Higher Colleges of Technology (0.4%).</li> <li>6. Linking education and industry via establishing the Petroleum Institute in Abu Dhabi (2001) to offer undergraduate and postgraduate programmes in the fields of engineering, applied science and research, particularly related to the petroleum industry. The Petroleum Institute is established in collaboration with international industry partners including BP, JODCO, Shell, Total and Colorado School of Mines (CSM) in the U.S.</li> </ul>

Sources: (a) JUPHAR Achievement Report, publications and web site, (b) DUBAL Achievement Report, publications and web site and (c) ADNOC Achievement Report (1995-1999), ADNOC Human Resources Development book, publications and web sites.

The major policy implication from these findings is that the improvement of the educational systems in the Gulf countries is essential and requires improvement of the quality/internal efficiency, supply (investment) and demand (enrolment) sides, particularly with respect to tertiary and technical education. From that perspective, we explain below the views of the policy makers and experts regarding the relevant plans and policies to reform the educational system, which is essential for skill development. After that, we show that policy makers, experts and firms all view the improvement of education as important for enhancing the provision of training and knowledge transfer/external schooling effects.

#### **4. Plans, Policies and mechanisms for skill development: the macro- micro views**

It is useful in this section to discuss and compare first the relevant plans and then policies and mechanisms for skill development from both macro and micro perspectives/views.

##### **4.1 Plans for skill development: the macro- micro views**

In light of the above findings, we now use the results of the macro and firm surveys (2002) to provide insights to help generate policies to enhance skill levels by implementation of short and long terms plans at the macro-micro levels. We then compare and integrate the macro (official: policy makers and experts) and micro (firms) views concerning the important tools and plans for skills development in the current, short run and long run.

The policy makers and experts suggest several important instruments for skills development, some of which have already been implemented and others being implemented now or in the near future. For instance, Table 9 shows that the policy makers and experts highlight investment in vocational training and formal education, improving the quality of teachers, trainers and mentors, and investment in training of existing employees. This is to be coupled with learning on the job, sending teachers and mentors abroad to acquire knowledge and skills, using ICT to upgrade skill levels, enhancing the system of accreditation and licensing and enhancing the system or programme of apprenticeship. Measures such as sending students abroad to acquire

knowledge and skills, supporting long distance learning, sending workers abroad to acquire skills and bringing/attracting new foreign skills, scientists and engineers from abroad are viewed as somewhat less important factors. Plans currently implemented include investment in education, investment in training of existing employees, using ICT to upgrade skill levels, encouraging learning on the job, investment in vocational training, bringing/ attracting new foreign skills, scientists and engineers from abroad and sending students abroad to acquire knowledge and skills. However, our earlier discussion in this chapter and in Nour (2005), illustrates the serious shortcomings of some of these components, particularly with respect to investment in education, training and vocational education. Hence, the officials' view suggests further efforts in the short run to motivate investment in education, investment in training of existing employees, investment in vocational training, sending workers abroad to acquire skills and improving the quality of teachers, trainers and mentors. Further efforts considered important in the long run to enhance the system or programme of apprenticeship, support long distance learning, encourage the system of accreditation and licensing, send teachers/instructors and trainers abroad to acquire knowledge and skills and to improve the quality of teachers, trainers and mentors.

*Table 9 – Plans and tools for skill development: macro-policy makers and experts view*

Tools for skill development (%)	Import- ance	Has been already implemen- ted	Short run/ current plan	Long run/ future plan
Investment in formal education.	96%	61%	29%	11%
Investment in vocational training.	100%	46%	29%	14%
Investment in training of existing employees	93%	57%	29%	7%
Improving the quality of teachers, trainers and mentors.	96%	36%	25%	25%
Sending teachers/instructors/ trainers abroad to acquire knowledge and skills.	79%	25%	21%	32%
Sending students abroad to acquire knowledge and skills.	68%	43%	14%	21%
Sending worker abroad to acquire skills.	61%	36%	29%	18%
Bringing / attracting new foreign skills, scientist and engineers	57%	46%	21%	11%
Using ICT to upgrade skill levels.	75%	54%	11%	14%
Encouraging Learning on the job.	86%	50%	21%	18%
Supporting long distance learning.	64%	25%	7%	39%
Enhancing the system of accreditation and Licensing.	75%	25%	11%	36%
Enhancing the system or programme of apprenticeship.	75%	21%	-	43%
Total response	28	28	28	28

Source: Own calculation based on the macro survey (2002).

On the other side, at the micro level/across firms, the results of the firm survey suggest differing points of view with different priorities that highlight learning on the job as main

priority,<sup>17</sup> especially in the short run.<sup>18</sup> At the same time, investment in training of existing employees, using ICT to upgrade skill levels, bringing/attracting new foreign skills, scientists and engineers, supporting long distance learning, sending trainers, mentors and workers abroad to acquire skills and knowledge are receiving less attention, particularly in the short run. Firms highlight these components and learning on the job in the long run – see Table 10 below.

Table 10- Plans and tools for skill development: micro-firm view

Tools for skill development	Of special Importance (%)					To be pursued now/ in the short run (%)					To be pursued in the near future/ long run (%)				
	All Firms	Chemical	Metal	Large	Medium	All Firms	Chemical	Metal	Large	Medium	All Firms	Chemical	Metal	Large	Medium
Response Rate:															
Investment in training of existing employees	53	50	57	56	50	39	40	36	50	27	55	60	45	44	67
Sending trainers and mentors abroad to acquire skills.	22	14	36	17	28	6	10	0	6	7	71	60	91	75	67
Sending workers abroad to acquire skills.	11	5	21	11	11	3	5	0	6	0	61	50	82	63	60
Bringing / attracting new foreign skills, scientists and engineers.	42	32	57	39	44	29	15	55	19	40	55	65	36	56	53
Using ICT to upgrade skill levels.	47	55	36	61	33	35	45	18	50	20	39	35	45	25	53
Encouraging learning on the job.	86	82	93	94	78	61	60	64	56	67	32	35	27	31	33
Supporting long distance learning.	33	18	57	28	39	19	20	18	13	27	58	60	55	63	53
Total response	36	22	14	18	18	31	20	11	16	15	31	20	11	16	15

Source: Own calculation based on the firm survey (2002).

From Tables 9-10 we observe the discrepancy in the macro-micro views/perspectives concerning the selection of both tools and plans for skill development. For instance, the macro/policy makers and experts' view tends to highlight investment in vocational training and formal education, improving the quality of trainers and mentors and investment in training of existing employees as top priorities. Their next priorities are: encouraging learning on the job, sending trainers and mentors abroad to acquire skills, using ICT to upgrade skill levels. Supporting long distance learning, sending workers abroad to acquire skills and bringing/attracting new foreign skills, scientists and

<sup>17</sup> As reported by 86% of the respondents firms.

<sup>18</sup> As indicated by 61% of the respondents firms.

engineers from abroad are viewed as somewhat less important tools. On the other side, the micro (firm) view highlights learning on the job as main priority. The rank of the firms' other priorities are: investment in training of existing employees, using ICT to upgrade skill levels, bringing/attracting new foreign skills, scientists and engineers, supporting long distance learning, and sending trainers, mentors and workers abroad to acquire skills and knowledge.

From the policy makers, experts and firms' perspectives the top priorities in the short run are investment in education, training (including vocational training), sending workers abroad to acquire skills, improving the quality of teachers, trainers and mentors, learning on the job, using ICT to upgrade skill levels and bringing new foreign skills, scientists and engineers. From the policy makers, experts and firms' perspectives the top priorities in the long run highlight enhancing the system or programme of apprenticeship, supporting long distance learning, encouraging the system of accreditation and licensing, sending teachers, mentors, workers and students abroad to acquire knowledge and skills.

From the macro/policy makers and experts' perspective, the top priorities in the short run are investment in education, training (including vocational training) of existing employees, sending workers abroad to acquire skills and improving the quality of teachers, trainers and mentors. Less emphasis would be placed on learning on the job, bringing new foreign skills, scientists and engineers, sending trainers and mentors abroad to acquire skill, using ICT to upgrade skill levels, supporting long distance learning and sending trainers, mentors and workers abroad to acquire skills. On the other side, firms highlight encouraging learning on the job as top short run priority, followed by investment in training of existing employees, using ICT to upgrade skill levels and bringing new foreign skills, scientists and engineers. Less emphasis would be placed on supporting long distance learning and sending trainers, mentors and workers abroad to acquire skills.

Furthermore, from the macro/policy makers and experts perspective, the top priorities in the long run would be on enhancing the system or programme of apprenticeship, supporting long distance learning, encouraging the system of accreditation and licensing. This followed by sending teachers/ instructors and trainers abroad to acquire knowledge and skills and improving the quality of teachers, trainers

and mentors. Less emphasis would be on sending students and workers abroad to acquire skills, supporting learning on the job, using ICT to upgrade skill levels, bringing new foreign skills, scientists and engineers and investment in training of existing employees. On the other hand, firms tend to highlight sending trainers, mentors and workers abroad to acquire skills as main long run priority, followed by supporting long distance learning, investment in training of existing employees and bringing new foreign skills, scientists and engineers. Less emphasis would be placed by firms on using ICT to upgrade skill levels and encouraging learning on the job.

In addition to the above observed discrepancies between macro-micro views concerning the selection of plans and tools and arrangement of priorities and policies for enhancing skill, we explain below the visible differences in the macro-micro perspectives in suggesting policies for improving the provision of training and transfer of knowledge. Therefore, the above findings substantiate our third hypothesis, which imply that further efforts are needed to enhance the consistency between the macro-micro views and public-private sectors. Particularly with respect to the arrangement of priorities and plans to ensure more successful and consistent implementation of policies for skills development and encouraging private sector participation in education and training.

#### 4.2 Policies and mechanisms for skill development: the macro- micro views

The implementation of the above plans for skills development requires an integration of the macro-micro policies; the results of the macro and firm surveys (2002) are useful for discussing and integrating these policy perspectives. Our findings below prove our first hypothesis that the Gulf countries need to upgrade skill through the relevant policies for enhancing educational system, provision of training and transfer of knowledge/external schooling effect at the macro-micro levels. From the macro survey we find that the policy makers and experts' view concerning skill development policies highlights the mechanisms/policies for enhancing the efficiency of educational system, enhancing the provision of training, planning skill needs and enhancing the external schooling effects/transfer of knowledge. Additional mechanisms/policies identified include monitoring skill needs on a regular basis, enhancing social partnership and collaboration between educational and training institutions, employers, workers and the state to



determine skill needs and the most effective ways of meeting and financing them, promoting of resources allocation and importing skills from abroad.<sup>19</sup>

Our analysis below discusses the mechanisms for enhancing the educational system, transfer of knowledge/external schooling effects and provision of training. Other components include: planning skill needs, monitoring skill needs on a regular basis, enhancing social partnership in skill development, promoting of resources allocation and importing skill from abroad are somewhat integrated in the above components. We begin with the reform of educational system because we want to argue that both training provision and transfer of knowledge can be enhanced by an efficient educational system.

**a. Reform of educational system**

Beginning with the reform of the educational system, Table 11 summarizes the official view concerning the reform of the educational system, which highlights improvement of the quality of teachers and mentors, improvement of infrastructure, encouragement of modernization and dynamism in the educational system and enhancing planning for educational need. In addition, they prioritize the improvement of internal efficiency/quality of basic, secondary and tertiary education; enhancing the linkages (network) between universities, colleges, technical and training institutes; monitoring educational needs on a regular basis; and encouraging the system of flexibility of educational institutions. Further reform measures include increasing the harmony/consistency between educational output and market needs by focusing on particular future skill needs, increasing public spending on education, increasing motivation and incentives to change student attitudes, increasing spending and incentives to encourage enrolment in technical education and increasing private sector involvement on education. Finally, we suggest an improvement of duration of compulsory education and autonomy of educational institutions. Our results in the next section confirm our second hypothesis that the reform of the educational system is expected to have a direct positive effect on motivating/enhancing the transfer of knowledge/external schooling effects and enhancing the provision of training.

---

<sup>19</sup> As reported by 97%, 93%, 93%, 83%, 79%, 79%, 76% and 72% of the respondent policy makers and experts respectively.

Table 11- Policies and mechanisms for skill development: (a) macro/official view: Reform of educational system

Macro policies and mechanisms for enhancing the efficiency of education system:	%
Improve the quality of teachers or mentors.	97%
Encourage the system of modernization and dynamism.	97%
Improve the infrastructures.	97%
Better Planning for educational needs.	93%
Improve the internal efficiency/ quality of basic education.	93%
Improve the internal efficiency/ quality of tertiary education.	90%
Enhance the linkages [network] between universities, colleges, technical and training institutes.	90%
Monitoring educational needs on a regular basis.	90%
Encourage the system of flexibility of educational institutions.	86%
Increase the harmony/consistency between educational output and market needs by focusing on particular future skill needs.	86%
Increase public spending on education.	86%
Increasing the motivation and incentives to change the attitudes of educated economically active population.	83%
Increase spending and incentives to encourage enrolment in technical education.	79%
Increase private sector spending and involvement on education.	72%
Total response	29

Source: Own calculation based on the macro survey (2002).

In recent years, there have been several recent initiatives in the Gulf countries aimed at long term solutions to develop human resources, reform educational and training programmes and the labour market. For instance, the UAE has established the National Human Resources Development and Employment Authority (TANMIA)– affiliated to the UAE Ministry of Labour and Social Affairs to help improve the skills of the UAE nationals looking for jobs. In our view, these recent initiatives would be more effective if the governments in the Gulf collaborate with the private sector to work actively to influence both the supply and demand sides by implementing more effective policies to increase incentives, for example through subsidies to improve both education and training. For instance, public policies can influence the demand side for education and change the low enrolment ratios at the tertiary level, especially technical education, by providing more fellowships, scholarships and prizes for engineering and science students, and increasing incentives for students to increase attraction for enrolment into science and engineering at secondary schools levels. The governments should continue to upgrade schooling and increase enrolment at all levels, especially in higher education.

**b. Enhancing the transfer of knowledge/ external schooling effect**

This section corroborates our second hypothesis that the reform of the educational system is expected to have a direct positive effect on motivating/enhancing the transfer of knowledge/external schooling effects. For instance, Table 12 shows that the macro-micro views highlight the potential positive implications of improving the qualifications of

skilled and unskilled workers, the quality of education and training in enhancing the transfer of knowledge/external schooling effects. The macro-micro views differ with respect to the potential effect of improving firm conditions to encourage external effects and sponsoring educational scholarship. Moreover, the macro survey shows that the policy makers and experts' view indicates that the transfer of knowledge/external schooling effect can be motivated via increasing the information about future educational, training and skill needs in the productive sectors. There is also a need to increase awareness about the future value of investments in education and training to minimize the risk aversion: preference of more certain short term returns to available jobs than long term skill investments; in addition to increasing the interaction to market needs and enhancing a system of certification of skills acquired. Both the provision of adequate incentives for trainers and minimization of education, learning and training costs are expected to have somewhat less important potential effects in the transfer of knowledge/external schooling effect.<sup>20</sup> (cf. Muysken and Nour, 2005)

*Table 12- Policies and mechanisms for skill development: (b) macro-micro views: factors enhancing the transfer of knowledge/ external schooling effect*

Factors enhance external schooling effect/ knowledge transfer	All Firms	Chemical	Metals	Large	Medium	Official
Improves the qualifications and ability of unskilled workers to learn from skilled workers.	87%	82%	94%	90%	84%	100%
Improves the qualifications of skilled workers to permit the positive effects on unskilled workers.	82%	73%	94%	80%	84%	95%
Improves the quality of training to coincide with international standard.	62%	55%	71%	65%	58%	100%
Improves the quality of education.	56%	50%	65%	55%	58%	100%
Improves firm conditions to encourage the external effects.	41%	36%	47%	35%	47%	100%
Sponsors educational scholarship.	26%	27%	24%	35%	16%	90%
Total response	39	22	17	20	19	20

Sources: Own calculation based on the macro Survey (2002) and firm survey (2002).

**c. Enhancing training provision**

Our results in this next section confirm our second hypothesis that the reform of the educational system is expected to have a direct positive effect on enhancing the provision of training. From the macro-firm surveys it appears that views of the policy makers and experts and those of the firms are consistent in highlighting the reform of educational system as an important mechanism to improve the provision of training, and the reform of educational and training systems for the enhancement of knowledge transfer/external schooling effects. However, on the other hand, there appears to be clear discrepancies

<sup>20</sup> As indicated by 86%, 83%, 83%, 83%, 69% and 55% of the respondent policy makers and experts respectively.

between the macro-micro views (and also across firms) concerning the arrangement of priorities of other mechanisms for improving the provision of training. For instance, Table 13 presents the policy makers and experts' view to improve the provision of training that highlights enhancing training programmes to fit both the changing skill needs and changing technical needs, and enhancing planning for training needs and availability of trainers and mentors. Other measures towards enhancing the educational qualifications of workers, increasing the availability of training materials and equipment, regular/adequate assessment and monitoring of training needs, increasing the appreciation of/ information on the benefits of training, enhancing the availability of finance to cover training costs and enhancing the specialized training institutions are also highlighted. Further, measures aimed at improving the quality of trainers and mentors, enhancing the interactions between training institutions and firms, enhancing the appropriability of the return from investment in training, enhancing the system of training certification, increasing the participation of private training institutions and decentralization of decision-making are also mentioned.

Table 13 - Policies and mechanisms for skill development: (c) macro- micro views: promotion of training

Policies intervention for enhancing training provision	Official	All firms	Chemical	Meta	Large	Medium
Enhancing the educational qualifications of workers.	93%	56%	44%	71%	40%	64%
Enhancing the availability of training materials and equipment.	93%	63%	67%	57%	60%	64%
Enhancing training programmes to fit the changing technical needs.	97%	63%	67%	57%	60%	64%
Increasing the appreciation of or information on the benefits of training.	90%	63%	67%	57%	60%	64%
Regular/adequate assessment and monitoring of training needs.	93%	56%	67%	43%	60%	55%
Improving the quality of trainers and mentors.	83%	50%	56%	43%	60%	45%
Enhancing training programmes to fit the changing skill needs.	100%	50%	56%	43%	60%	45%
Increasing availability of trainers and mentors.	97%	50%	56%	43%	60%	45%
Enhancing adequate planning for training programme / needs.	97%	50%	56%	43%	40%	55%
Enhancing the availability of finance to cover training costs.	90%	56%	56%	57%	60%	55%
Enhancing/ encouraging the specialized training institutions.	86%					
Enhancing the interactions between training institutions and firm.	76%	31%	22%	43%	20%	36%
Enhancing the full appropriability of the return from investment in training.	76%	44%	44%	43%	40%	45%
Enhancing the system of training certification of skills acquired.	76%	38%	22%	57%	40%	36%
Increasing the participation of private training institutions.	76%					
Decentralization of decision-making.	72%					
Restriction the mobility of trainees.		38%	33%	43%	40%	36%
Total response	29	16	9	7	5	11

Sources: Own calculation based on the macro Survey (2002) and firm survey (2002).

The firms' view indicates that the provision of training could be improved by enhancing training programmes to fit the changing technical needs, increasing the appreciation of/information on the benefits of training, enhancing the availability of training materials and equipment and enhancing educational qualifications of workers. Mechanisms such as enhancing the availability of finance to cover training costs, regular/adequate assessment and monitoring of training needs, increasing availability and improving the quality of trainers and mentors, enhancing training programmes to fit the changing skill needs and enhancing planning for training needs are viewed by the firms as being of somewhat less importance. That also holds for enhancing the appropriability of the return from investment in training, enhancing the system of training certification, restricting the mobility of trainers and enhancing the interaction between training institutions and firms. Since training is costly, firms prefer policy interventions to finance training; however, it is less clear to what extent firms have a sound policy to contribute to training costs, as only 55% of all respondent firms have upskilling plan – cf. Nour (2005): Table 5.9 Chapter 5

## **5. Conclusions**

In this paper we use some secondary data and information and the macro and firm surveys (2002) to analyse the educational, training and skill development policies in the Gulf countries. We prove hypothesis 1 in Section 1 above concerning the need for skill upgrading through the reform of the educational and training systems/policies and the transfer of knowledge. In particular, we show that skill development depends on: (a) reforming the educational system; (b) enhancing the provision of training; (c) planning skill needs and matching educational output with market needs; (e) enhancing the transfer of knowledge/schooling effect; and (d) incentives and collaboration between public and private institutions.

Our findings in Section 2 show that the educational policies in the Gulf countries share several problematic features such as an insufficient duration of compulsory education, the dominance of public sector and the lack of incentives/marginal

contribution of the private sector on educational investment. Additional problems include poor quality, insufficient demand (enrolment ratios), an insufficient supply (spending) and the biased structure of tertiary education. However, despite these similarities, we also observe enormous variations, particularly with respect to the supply and demand sides of educational policies. Differences in the supply side include financial resources or priority of public expenditures on education relative to GDP and total government expenditures, allocation/distribution of public spending and spending per pupils at various educational levels, human resources or availability of teaching staff and the extent of privatization. Differences regarding the demand side include enrolment ratios and outcomes or implications on literacy rates, access to schooling/school life expectancy and interaction with training.

We find that the priority of investment in education, as measured by public expenditures on education as a percentage of total government expenditures, is approaching the level prevalent in developed countries; however, the priority of investment as a percentage of GDP in most of the Gulf countries lags far behind the level of the developed countries. When comparing supply-demand sides, it turns out that the supply side or public spending seems to be only one component in educational policies, because higher public spending per se does not lead to higher demand, participation and enrolment ratios, access to schooling/ school life expectancy and higher literacy rates. For instance, despite higher spending in Saudi Arabia, the demand/ enrolment ratios, access to schooling/school life expectancy and literacy rates are all falling behind those in Bahrain, which shows moderate spending, but better demand/enrolment ratios at all educational levels, better access to schooling/school life expectancy and literacy rates.

We observe that while the educational policies in the Gulf countries have raised enrolment ratios and literacy rates, they have failed to show satisfactory outcomes with respect to access to schooling/school life expectancy and training. This is due to serious deficiencies concerning the quality of education, coupled with the serious problems of biased structure and inadequate spending and enrolment in tertiary education in these countries. Hence, the major policy implication from our findings is that the improvement of the educational policies in the Gulf countries is vital and requires an improvement in the quality/internal efficiency, in the supply (investment) and demand (enrolment) sides,

particularly in tertiary and technical education, and encouraging private sector investment in education.

Our results in Section 3 show that the implication and interaction between educational and training policies seem to be effective only within the largest public firms, which appear more committed to implement skill upgrading policies that are consistent with the line of public policies. The large public firms successfully contribute to serve public policies of training and skill upgrading via establishing active human resources development units, recruitment policies and specialized training centres to implement various regular and special internal and external training programmes, especially for national workers. In addition they encourage the use of ICT to upgrade skill levels, offer scholarships and collaborate with universities to absorb young national graduates. These results oppose our earlier findings in Nour (2005), which indicate a lack of effective interaction between educational and training policies and a lack of incentives for provision of training within private firms. Hence, these findings imply a further duality/discrepancy at the micro level/across public-private firms.

In Section 4 we use the results of the macro and firm surveys (2002) to integrate the divergent macro-micro views concerning plans and mechanisms for skill development in the short and long run and propose some policies and recommendations. The short run plans include investment in education and training of existing employees, the use of ICT to upgrade skill levels, and tools to encourage learning on the job and investment in vocational training. The long run plan highlights sending trainers, mentors and workers abroad to acquire skills, supporting long distance learning, beside continued investment in the above tools to ensure implementation of the short run plan. We show that the macro-micro views and policies for skill development highlight planning and monitoring skills needs on a regular basis, promoting resources allocation, reforming the educational system as an important mechanism for enhancing the provision of training and transfer of knowledge/external schooling effects.

The policy makers and experts' view concerning the reform of the educational system highlights improving the quality of teachers and mentors, improvement of infrastructure, encouragement of modernization and dynamism in the educational system and enhancing planning for educational needs. They also prioritize the improvement of

internal efficiency/ quality of basic, secondary and tertiary education; enhancement of the linkages (networks) between universities, colleges, technical and training institutes; monitoring of educational needs on a regular basis; and encouraging the system of flexibility in educational institutions.

In recent years, there have been several initiatives in the Gulf countries aimed at long term solutions to develop human resources, reform educational and training programmes and the labour market. In our view, these recent initiatives would be more effective if the governments in the Gulf collaborated with the private sector to work actively to influence both the supply and demand sides by implementing more effective policies to increase incentives, for example subsidies, to improve both education and training. For instance, public policies can influence the demand side for education and change the low enrolment at the tertiary level, especially technical education, by providing more fellowships, scholarships and prizes for engineering and science students, and increasing incentives for students to increase attraction for enrolment into science and engineering at secondary schools levels.

We verify our second hypothesis that the educational reform will have positive implications on enhancing training provision, skill upgrading, planning skill needs and matching educational output with the needs in the labour market, enhancing the transfer of knowledge/schooling effect and collaboration between public and private institutions.

Moreover, the macro-micro suggestions with respect to knowledge transfer/external schooling effects stress the improvement of quality of educational and training systems, qualifications of skilled and unskilled workers. In addition, recommendations include increasing information about future skill needs and the value of investments in education and training, interaction/consistency to market needs and a certification system.

Furthermore, the macro-micro views regarding improvement of the provision of training vary in arranging priorities, but generally emphasize the enhancement of training programmes to fit both the changing skill and technical needs, enhancing planning for training needs and quality and availability of trainers and mentors. Other measures include the enhancing of training materials and equipment, and the educational qualifications of workers, assessing and monitoring of training needs



regularly/adequately, increasing the appreciation of/ information on the benefits of training, enhancing the availability of finance to cover training costs and enhancing specialized training institutions.

Finally, our results show a serious discrepancy between private and large public firms regarding the implementation of public policies of training and skill upgrading and also divergent macro-micro views concerning the arrangement of priorities to implement plans, mechanisms and policies for enhancing skill, provision of training and transfer of knowledge. This proves our third hypothesis that effective institutional environment: consistent policies of public and private institutions will help to enhance upskilling plan and skill development. Therefore, we recommend further efforts to be made to enhance the consistency between the macro-micro views and public-private sectors, particularly with respect to arrangement of priorities, plans and mechanisms to ensure more consistent, effective and successful policies for skill development and encouraging private sector participation in education and training.

## 6. References

- Alfakhery, J. J. (1999), "Human Development Indicators in the UAE: A comparative study of UNDP Human Development Reports 1994- 1998," *Labour and Social Research and Studies Series* No. 1- The UAE Ministry of Labour and Social Affairs – Department of studies, research and statistics – Dubai (1999): pp. 81-82. (in Arabic)
- Al-Sulayti, H.A. (2002), "Education and Human Development in the GCC Countries: An Analytical Study," *ECSSR Strategic Studies*, No. 71, Abu Dhabi, ECSSR, (in Arabic).
- Barro, R. (1991), "Economic Growth in a Cross Section of Countries," *Quarterly Journal of Economics CVI* (1991) Vol. 106, No. 2: pp.407- 443.
- Barro, R. (1996), "Determinants of Economic Growth: A Cross- Country Empirical Study," *NBER Working Paper Series*, No. 5698.
- Barro, R. J. and W. Lee (1993), "International Comparison of Educational Attainment," *Journal of Monetary Economics* Vol. 32, No. 3: pp. 363-394.
- Barro, R. J. and W. Lee (1996), "International Measures of Schooling Years and Schooling Quality," *American Economic Review, Paper and Proceedings*, Vol. 86, No. 2: pp. 218 –223.
- Barro, R. J. and Lee. W. (2000), "International Data on Educational Attainment Updates and Implications," *NBER Working Paper Series*, No. 7911.
- Barro, R. J. and X. Sala – i- Martin (1995) "Economic Growth," – New York, McGraw Hill.
- Becker, G. S. (1962), "Investment in Human Capital: A theoretical Analysis," *Journal of Political Economy*, Vol.70, No.1: pp. 9-49.
- Becker, G. (1964), "Human Capital," Chicago: the University of Chicago press (1964)
- El Sabaa, S., 1997, Linking Technology to Industrial Development in the United Arab Emirates, *Trade and Industry Magazine*, vol. 22, no. 263, Dubai, November, pp. 16-29.
- Fahmey, M. S. and Mahmoud, H. A. (1993), "Problems of Educational Administration in the Gulf Cooperation Council countries," *The Arab Education office for the Gulf countries – Riyadh* (1993) in Al-Sulayti, H.A. (2002), "Education and Human Development in the GCC Countries: An Analytical Study," *ECSSR Strategic Studies*, No. 71, Abu Dhabi, ECSSR, (in Arabic) pp29-30.

- Firm Survey (2002) "Technological Change and Skill Development: A Comparative Study of Chemical and Metal Medium and Large Scale Enterprises in the UAE," February / 2002 – April / 2002.
- Haan, H., 1999, The UAE: Assessment of Technology Use in Some Selected Sectors: Towards Introduction and Explaining Capital and Skill Intensive Technologies, Specialist Report, no. 6, Dubai/Amsterdam, January/March.
- Lall, S. (1999) "Competing with Labour: Skills and Competitiveness in Developing countries," *Issues in Development Discussion Paper* No. 31. Development Policies Department, ILO-Geneva, p. 17.
- Lee and Barro, R. J. (1997), "Schooling Quality in A Cross Section of Countries," *NBER Working Paper Series*, No. 6198.
- Lucas, R. E. (1988), "On the Mechanics of Economic Development," *Journal of Monetary Economics*, Vol. 22, pp. 3-42. North Holland.
- Macro Survey (2002) "Skill Creation, Human Resources Development and Policy Intervention: Interviews with Policy Makers and Experts in the UAE," February / 2002 – April / 2002.
- Mankiw, N. G., Romer, D. and Weil, D. (1992), "A Contribution to the Empirics of Economic Growth," *The Quarterly Journal of Economics*, Vol. 107, No. 2, (May 1992): pp. 407– 437.
- Mincer, J. (1984), "Human Capital and Economic Growth," *Economics of Education Review* Vol. 3, No. 3.
- Mincer, J. (1989), "Human Capital Response to Technological Change in the Labor Market," *NBER Working Paper Series*, No. 3207.
- Mulligan, C. B. and X. Sala-i-Martin (1995), "Measuring Aggregate Human Capital," *NBER Working Paper Series*, No. 5016: p.2.
- Muysken, J., Nour, S. (2005), "Deficiencies in Education and Poor Prospects for Economic Growth in the Gulf Countries: The Case of the UAE," Paper presented at the ETIC European Doctoral Training Programme, Maastricht, October 2003. (forthcoming: *the Journal of Development Studies*, 2005, Taylor and Francis Ltd., UK).
- Nour, S. (2005), "Technological Change and Skill Development in the Arab Gulf Countries" November 2005, Doctoral dissertation, Maastricht University Press, Maastricht, the Netherlands.
- Romer, P. M. (1990), "Endogenous Technological Change," *Journal of Political Economy*, Vol. 98, No.5, Part 2: pp. 71-102.
- Schultz, T. W. (1961), "Investment in Human Capital," *American Economic Review*, Vol. 51, No. 1: pp. 1-17
- Stokey, N. L. (1991), "Human Capital, Product Quality and Growth," *Quarterly Journal of Economics*, World Development Indicators Database
- UNDP (2002) "Human Development Report (2002): Deepening Democracy in a fragmental World," *UNDP- New York- Oxford- Oxford University Press- July 2002.*
- UNDP- AHDR (2002), 'Arab Human Development Report (2002): Creating Opportunities for Future Generations', *Regional Bureau for Arab State*, New York- USA and Amman, Jordan
- UNDP (2004), "Human Development Report (2004): Cultural Liberty in Today's Diverse World," *UNDP - New York-Oxford, Oxford University Press*, July.
- UNDP- AHDR (2003), "Arab Human Development Report (2003): Building a Knowledge Society", *UNDP – RBAS- New York- National Press*, Amman, Jordan, July.
- UNESCO Institute of Statistics Data and Statistics (1996), "UNESCO Statistical Yearbook": "The World Education Indicators on school life expectancy 1992": [www.unesco.org](http://www.unesco.org)
- UNESCO Data and Statistics (1999), "UIS-UNESCO Statistical Yearbook (1999)": [www.unesco.org](http://www.unesco.org)
- UNESCO- UIS (2000), "World Education Report (2000): UNESCO's World Education Indicators"  
: <http://www.unesco.org/education/information/wer/htmlENG/tablesmenu.htm>
- UNESCO-UIS, (2003), "The UNESCO Education Data and Statistics Indicators 1998-2001," [www.unesco.org](http://www.unesco.org).
- UNESCO- UIS (2004a) UIS web site global statistics on education: [www.unesco.org](http://www.unesco.org).**
- UNESCO -UIS Data and Statistics (2004b): Country Profile: [www.uis.unesco.org](http://www.uis.unesco.org).
- UNESCO– UIS (2004c) Educational statistics (1998-2002)**
- UNESCO–UIS/OECD (2003) "Financing Education- Investment and Returns: Analysis of the World Education Indicators", 2002 Edition, UNESCO, 2003.

## The UNU-MERIT WORKING Paper Series

- 2014-01 *The medium-term effect of R&D on firm growth* by Marco Capasso, Tania Treibich and Bart Verspagen
- 2014-02 *Diverse and uneven pathways towards transition to low carbon development: The case of diffusion of solar PV technology in China* Michiko Iizuka
- 2014-03 *User innovators and their influence on innovation activities of firms in Finland* by Jari Kuusisto, Mervi Niemi and Fred Gault
- 2014-04 *Migration, remittances and household welfare in Ethiopia* by Lisa Andersson
- 2014-05 *Path-breaking directions of nanotechnology-based chemotherapy and molecular cancer therapy* by Mario Coccia and Lili Wang
- 2014-06 *Poor trends - The pace of poverty reduction after the Millennium Development Agenda* Richard Bluhm, Denis de Crombrughe, Adam Szirmai
- 2014-07 *Firms' adoption of international standards: Evidence from the Ethiopian floriculture sector* by Mulu Gebreeyesu
- 2014-08 *School choice, segregation, and forced school closure* by Cheng Boon Ong and Kristof De Witte
- 2014-09 *Gender difference in support for democracy in Sub-Saharan Africa: Do social institutions matter?* by Maty Konte
- 2014-10 *Why are women less democratic than men? Evidence from Sub-Saharan African countries* by Cecilia García-Peñalosa and Maty Konte
- 2014-11 *Tipping points? Ethnic composition change in Dutch big city neighbourhoods* by Cheng Boon Ong
- 2014-12 *Technology life cycle and specialization patterns of latecomer countries. The case of the semiconductor industry* by Giorgio Triulzi
- 2014-13 *Patents as quality signals? The implications for financing constraints on R&D* by Dirk Czarnitzki, Bronwyn H. Hall and Hanna Hottenrott
- 2014-14 *Assessment of effectiveness of Chinese aid in competence building and financing development in Sudan* by Samia Satti Osman Mohamed Nour
- 2014-15 *Education, training and skill development policies in Arab Gulf countries: Macro-micro overview* by Samia Satti Osman Mohamed Nour