

Mohamed A. Ramady

The Saudi Arabian Economy

Policies, Achievements and Challenges

Second Edition



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CHAPTER 13

EDUCATION : A TOOL FOR A KNOWLEDGE BASED ECONOMY

Overview

- There are **many reasons** why education plays a crucial role in Saudi Arabia:
 - A young population structure.
 - Influx of foreign labor which needs to be replaced.
 - Lack of natural resources besides exhaustible oil.
- The key issue is not the amount of expenditure but the **orientation** and **quality** of the education sector.
- A major problem of the Saudi education system is that it had attributed high social prestige to university education, while under estimating the significance of technological and vocational education.
- There is now an urgent emphasis on building up quality **“human capital”** to launch Saudi Arabia’s knowledge-based economy.

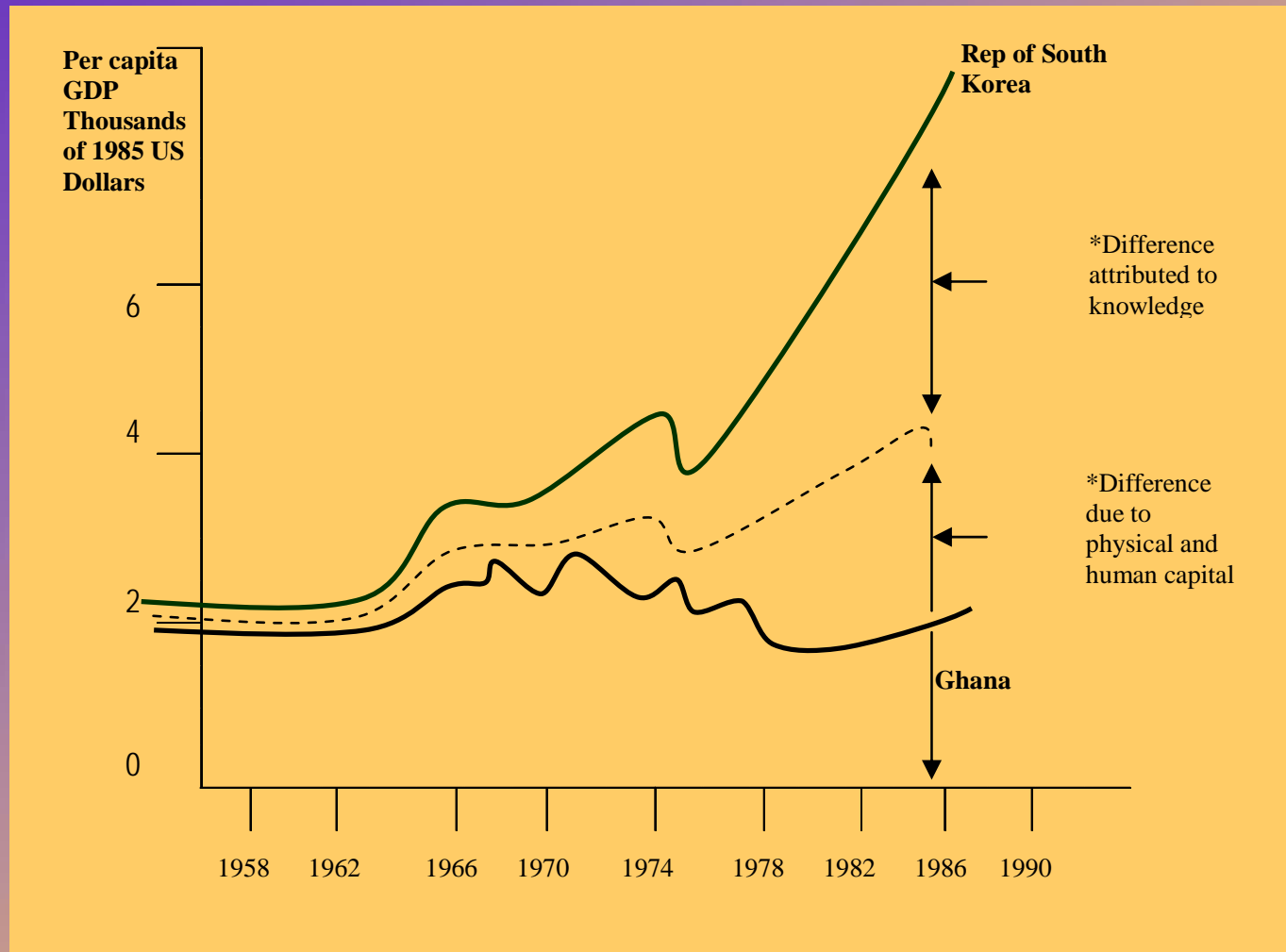
Meeting the globalization challenges

- Developing economies face significant new trends in the global environment, **with knowledge acquisition being a critical component.**
- Today, economic growth is as much a process of knowledge accumulation as of capital accumulation, and nations that **lag behind** in this soon find themselves behind in the table of economic development.
- The aim is to gain a **competitive edge** over others in a globalized economy.
- As such, there are both **opportunities and threats** stemming from being part of a global environment.

Table 13.1 Opportunities and threats stemming from changes in the global environment

<i>Change factor</i>	<i>Opportunities</i>	<i>Threats</i>
Growing role of knowledge	<ul style="list-style-type: none"> • Possibility of leapfrogging in selected areas of economic growth • Resolution of social problems (food, security, health, water supply, energy, environment) 	<ul style="list-style-type: none"> • Increasing knowledge gap among nations.
ICT revolution	<ul style="list-style-type: none"> • Easier access to knowledge and information 	<ul style="list-style-type: none"> • Growing digital divide among and within nations
Global labour market	<ul style="list-style-type: none"> • Easier access to the expertise, skills and knowledge of professionals 	<ul style="list-style-type: none"> • Growing brain drain and loss of advanced human capital
<ul style="list-style-type: none"> • Political and social change 	<ul style="list-style-type: none"> • Positive environment for reform • Spread of democracy 	<ul style="list-style-type: none"> • Growing brain drain and political instability • Loss of human resources

Figure 13.1 Knowledge as a factor in income differences between countries: Ghana and the Republic of South Korea 1956 –90

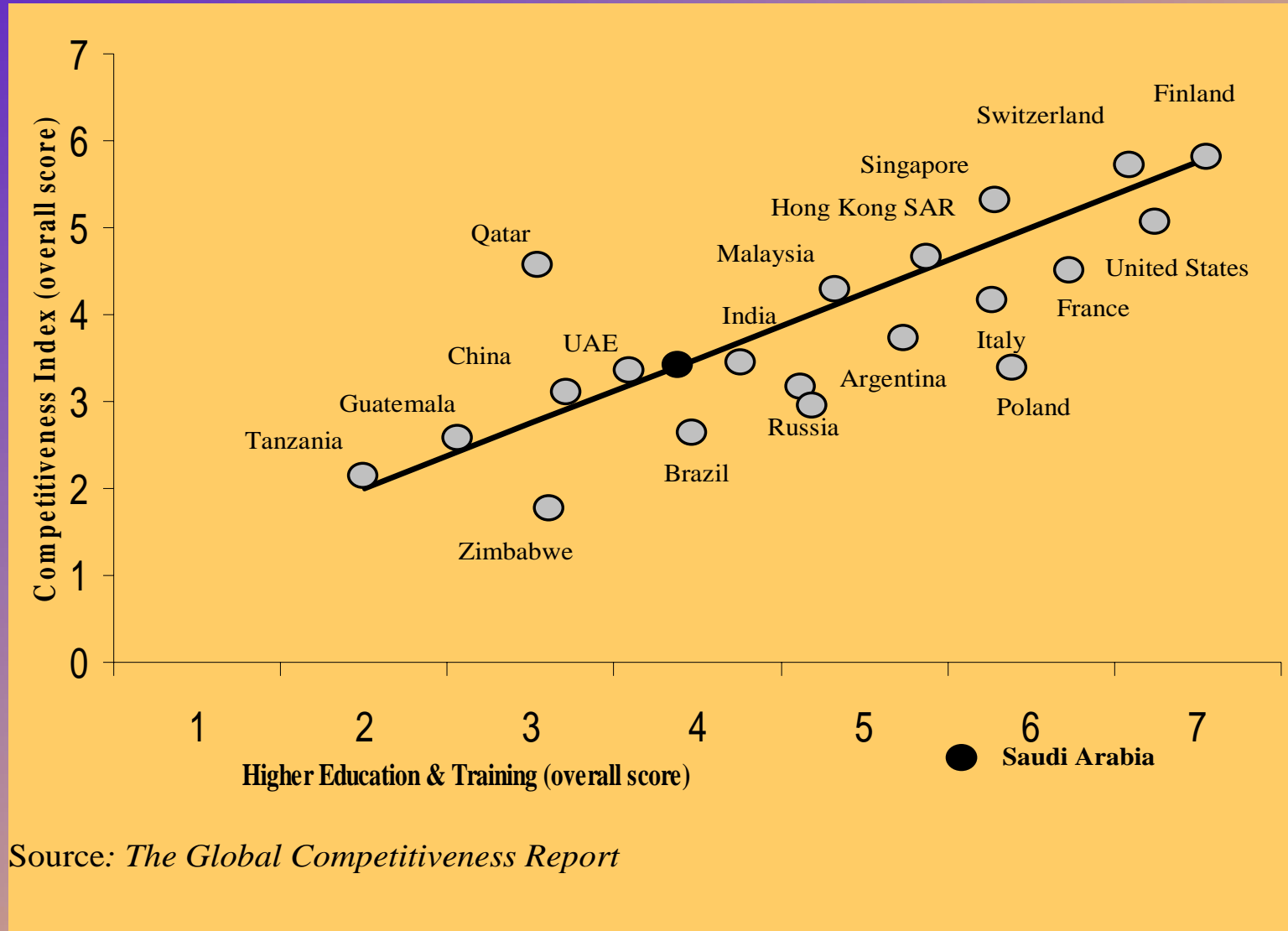


Source: World Bank (1999)

Global competitiveness and higher education

- Analysis of **global competitiveness amongst nations** indicates a high degree of correlation between the level of higher education and training, and **competitiveness indexes**.
- Saudi Arabia seems to lag behind other Middle East countries such as the UAE and Qatar.
- According to studies, there has been a gain of between 13% to 30% in productivity due to increased investment in higher education.

**Figure 13.2. Higher education training and competitiveness index
- selected nations 2007**

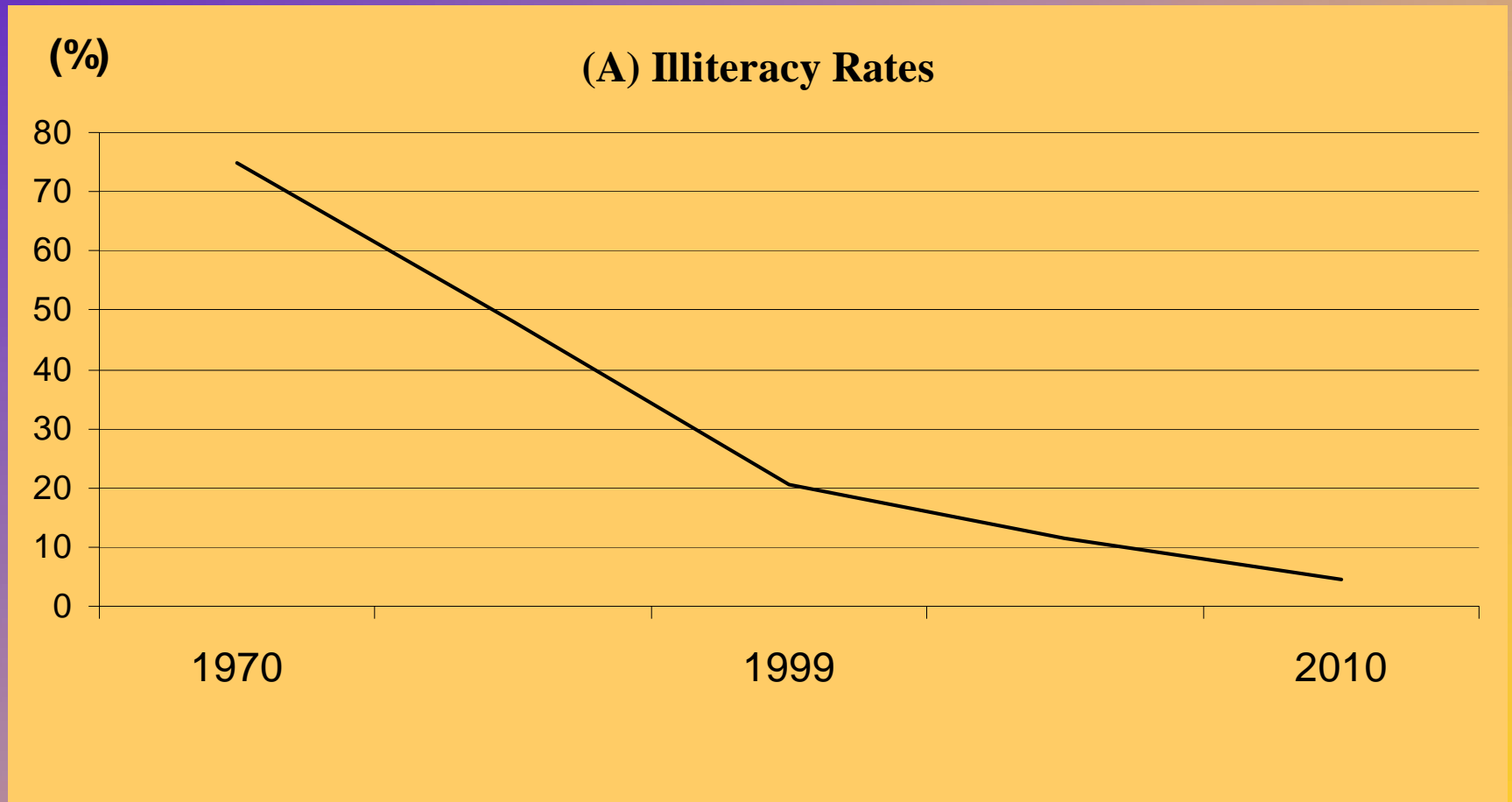


Source: *The Global Competitiveness Report*

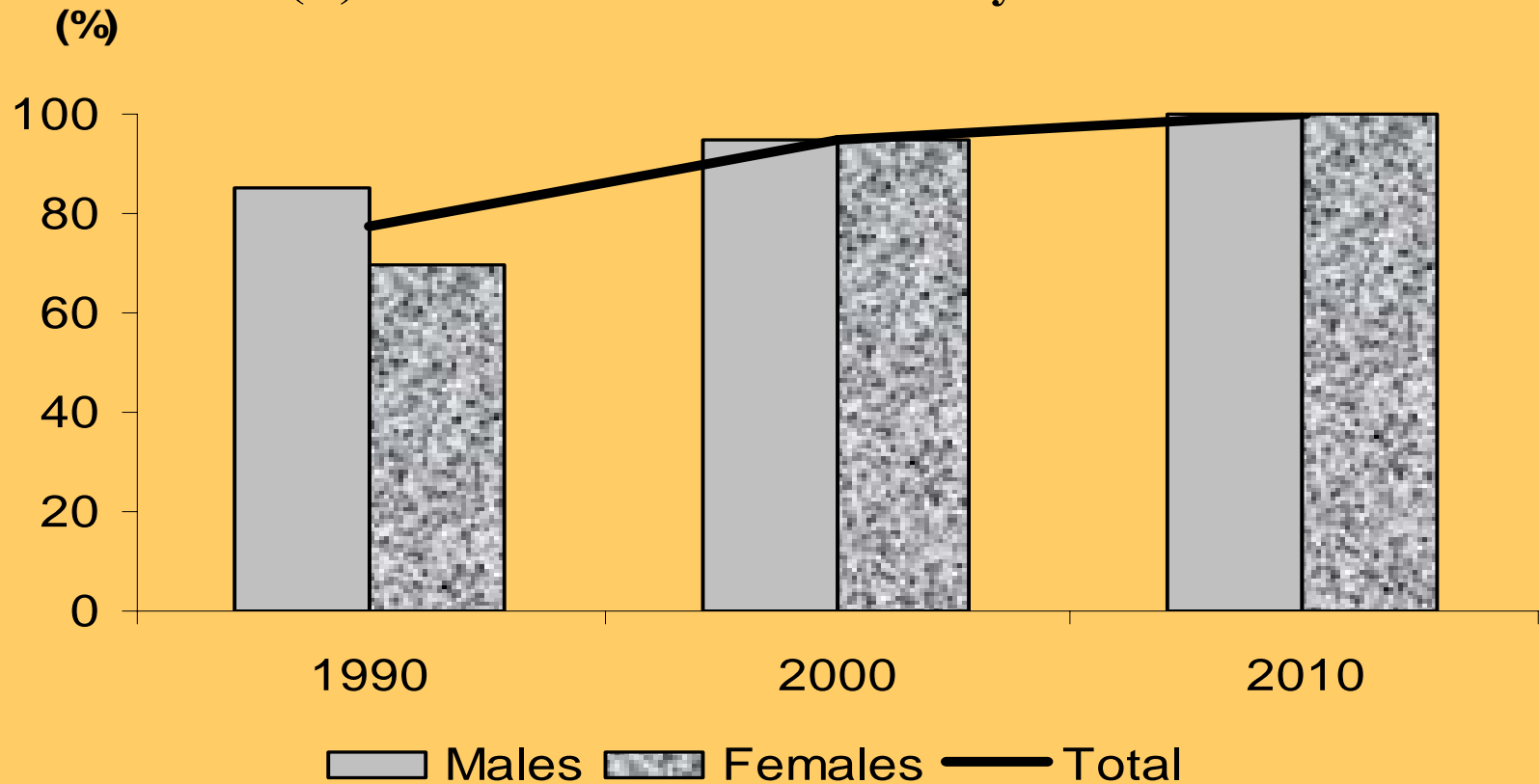
Education in Saudi Arabia

- Education has been an important **unifying and nation-building facilitator**.
- Saudi Arabia has been able to build a large educational infrastructure **within a short period of time**, investing large amounts in this sector.
- As a result of this consistent expenditure pattern, **literacy rates and enrollment ratios have increased over time**.
- Youth literacy rates are now around 87.3% in 2010, and adult literacy stood at around 79%.
- Primary school enrollment ratio registered 100% for both males and females in 2010, compared with 83% in 1990.

Figure 13.3. Illiteracy and enrolment rates: Saudi Arabia



(B) Enrolment Ratio in Primary Education



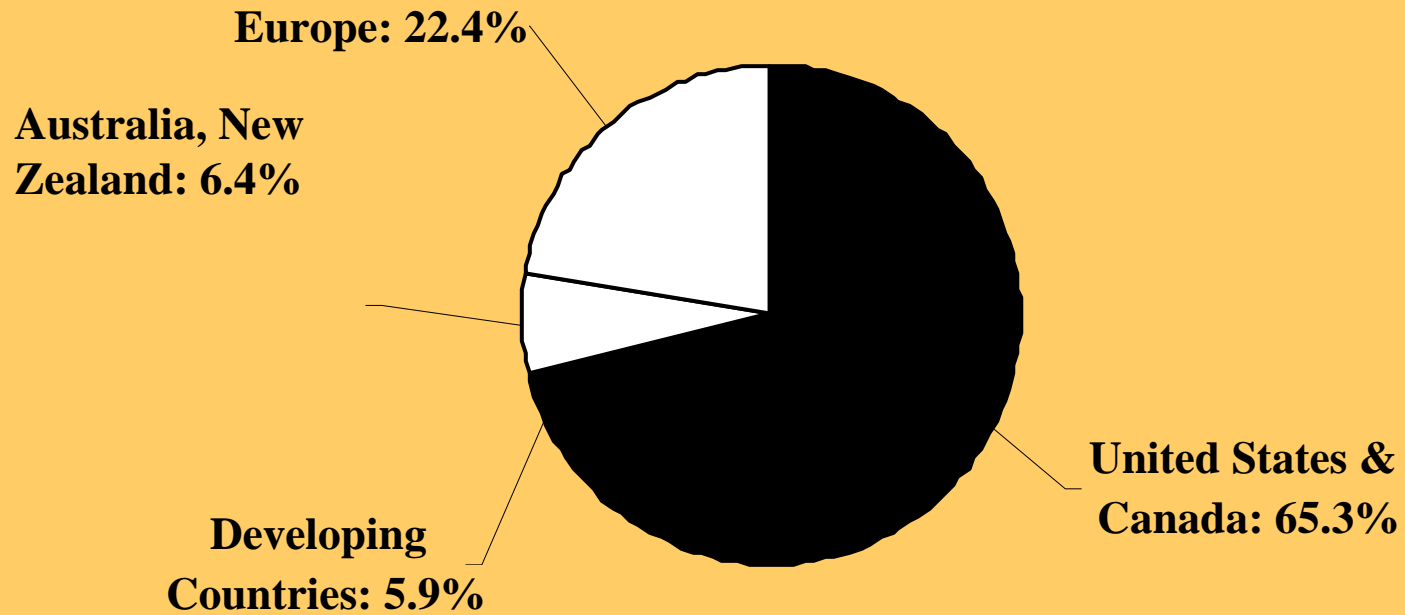
Source: Statistical Yearbook, Ministry of Planning, Eighth Development Plan

Education challenges

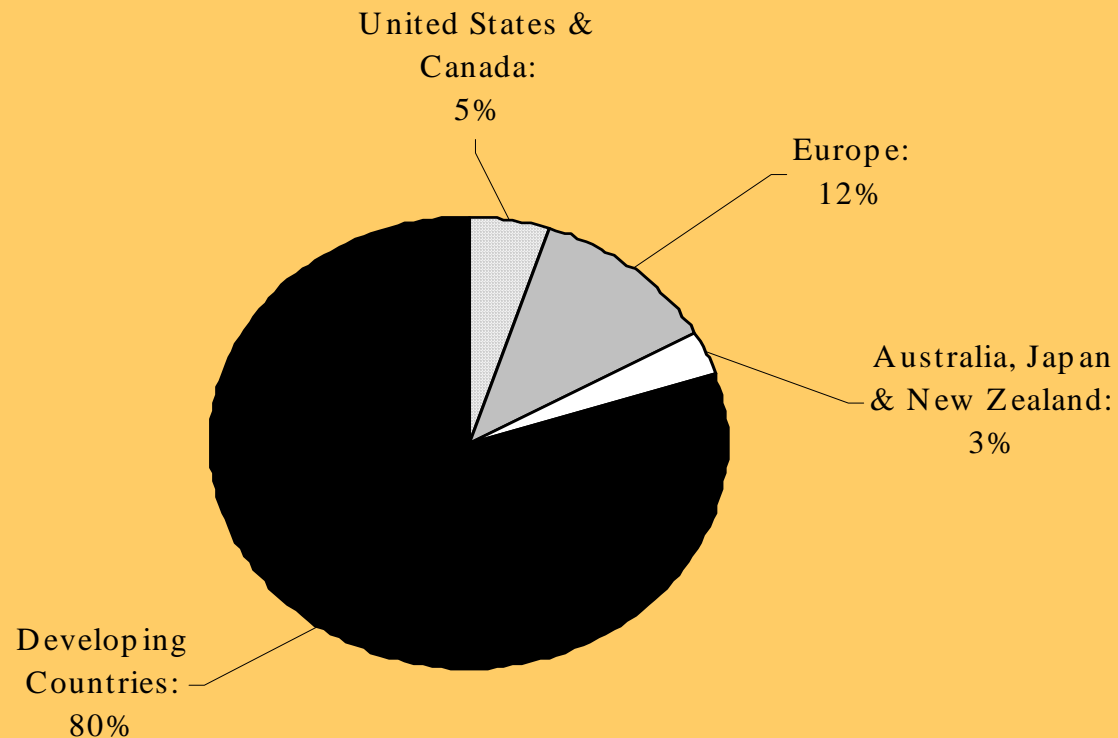
- The educational system is increasingly being **challenged** by rapid scientific, technological and other developments.
- This requires continuous review of educational curricula to stay in line with international development.
- **This call for:**
 - Continuous enhancement of educational methodologies.
 - Upgrading the educational environment.
 - Strengthening the technical capabilities of the education system.
 - Improving technical abilities of teachers.
 - Enhancing educational governance and management.
- The information and communication revolution sweeping the world is also having an effect on Saudi society, but the developing world still **lags** behind developed countries.

Figure 13.4. Distribution of Internet hosts and of world population, by region 2007

(i) Distribution of Internet hosts



(ii) Distribution of world population

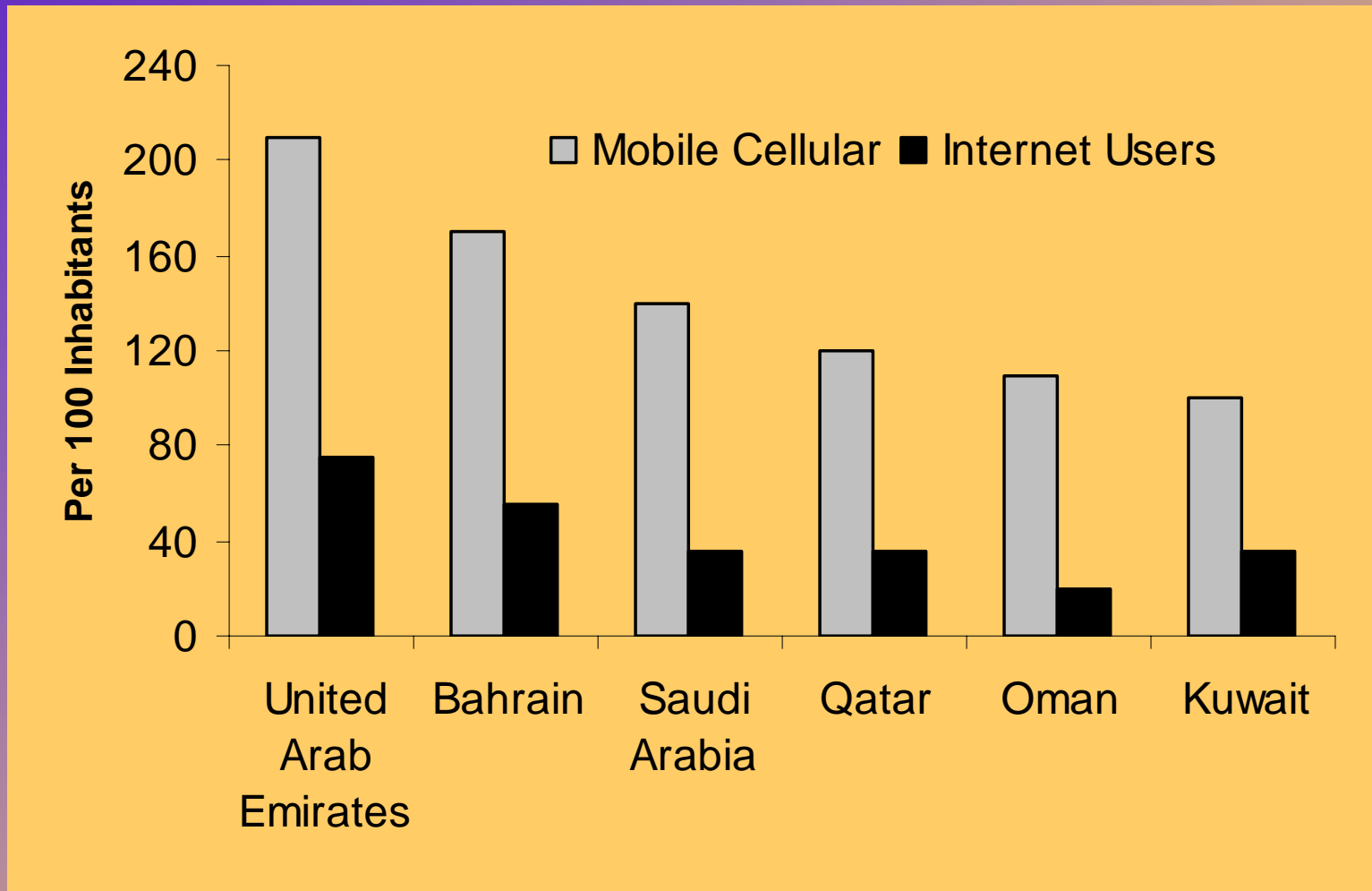


Source: Data from *International Telecommunications Union, the United Nations, World Bank, 2008*

Saudi Arabia has made some progress on Information Technology usage

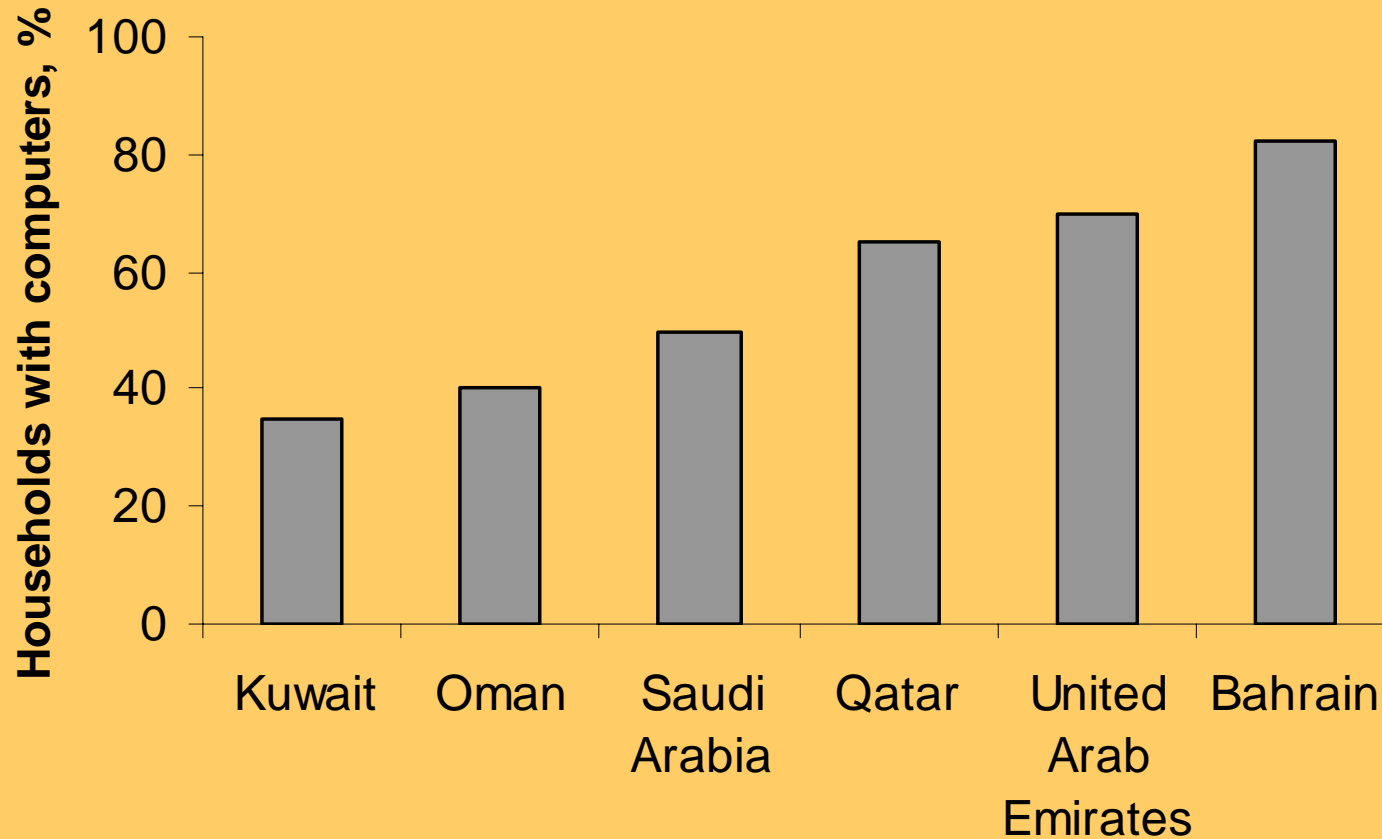
- Compared with 2002, the Kingdom has made some **significant progress on the spread of technology and information communication use.**
- Saudi Arabia **ranked third** behind the UAE and Bahrain in terms of mobile telephone and internet usage penetration for 2008, and **fourth** by personal computer ownership for the same year.
- Globalization, declining communication and transportation costs and the opening up of borders combine to facilitate increased movement of skilled people and knowledge. This will assist Saudi Arabia citizens.

Figure 13.5 (A). Mobile cellular and internet user penetration in GCC countries, 2008



Source: ITU World Telecommunication /ICT Indicators Database.

Figure 13.5 (B). Percentage of households with computers, GCC countries, 2008



Source: ITU World Telecommunication /ICT Indicators Database.

Challenges facing Saudi Arabian education

- With its relatively high population growth, and its fluctuating economic wealth due to erratic oil revenues, **Saudi Arabia faces some challenges in the educational field.**
- This has wider implications for human development and economic growth.
- These relate to the **relevance** and **quality** facing the Saudi educational system.
- **The government has instituted some changes:**
 - English language introduced from early schooling.
 - International benchmarking for accreditation at Saudi Universities.
 - Establishing International Advisory Boards.

Table 13.2 Summary of challenges facing Saudi Arabian education

<i>Economic</i>	<i>Access</i>
<ul style="list-style-type: none"> • Education spending comprises 29 percent of the national budget • High percent of Saudi males are unemployed while only 6 percent of Saudi females are in employment 	<ul style="list-style-type: none"> • Population growth of 2.2 percent per annum • 50 percent of the population is under 18 years of age • The higher education sector cannot accommodate over 30 percent of the high school graduates • An estimated 636,000 students in higher education in 2010
<i>Relevance</i>	<i>Quality</i>
<ul style="list-style-type: none"> • New teaching methodology, materials and syllabi needed to meet the needs of the knowledge economy. • There is a mismatch between skill development and labour market requirements • English language instruction from primary school level is important 	<ul style="list-style-type: none"> • High, though reducing, drop-out and repetition rates • Wide variation in the ability of entrants at each education level • Lack of national capacity to assess educational quality and trends against comparable international data. • Adaptability to worldwide information base

Perceptions of education benefit between Saudi and U.S. college students: a survey

- Saudi and U.S. college students have **different** perceptions on the benefit of higher education.
- **Saudi students** placed higher emphasis on **social** and non-economic issues while **U.S.** students gave a lower priority to issues of status but **higher** for productivity, reduced reliance on government financial support ,and evidenced a stronger drive for autonomy and “working by self”.
- Saudi students are now being encouraged to acquire such **self-motivation skills**.

Table 13.3 Potential benefits from higher education: Saudi Arabian and U.S. college students' perceptions

<i>Benefits</i>	<i>Private issues</i>	<i>Public spill-over</i>	<i>Saudi students</i>	<i>U.S. students</i>
<i>Economic</i>	• Higher salaries	Greater productivity	<i>M</i>	<i>H</i>
	• Employment security	National and regional development	<i>H</i>	<i>H</i>
	• Higher savings	Reduced reliance on government financial support	<i>L</i>	<i>H</i>
	• Improved working conditions	Increased consumption	<i>M</i>	<i>H</i>
	• Personal and professional mobility and advancement	Increased potential for transformation from low-skill industrial to knowledge-based economy	<i>M</i>	<i>H</i>
	• Leadership	Nation-building and development of leadership	<i>H</i>	<i>L</i>
	• Being a decision -maker	Affecting society's future	<i>H</i>	<i>L</i>
	• Improved personal status	Public standing and status	<i>H</i>	<i>L</i>
<i>Social</i>	• Conventionality	Rigid social customs	<i>M</i>	<i>L</i>
	• Healthier lifestyle and higher life expectancy	Improved health	<i>M</i>	<i>H</i>
	• Autonomy	Initiative culture	<i>L</i>	<i>H</i>
	• Working by self	Initiative culture	<i>L</i>	<i>H</i>

Note: H = High Importance M = Moderate Importance L = Low Importance

Source: Survey of KFUPM students and U.S. college students conducted during 2001/2002, Lawrence Shatkin.

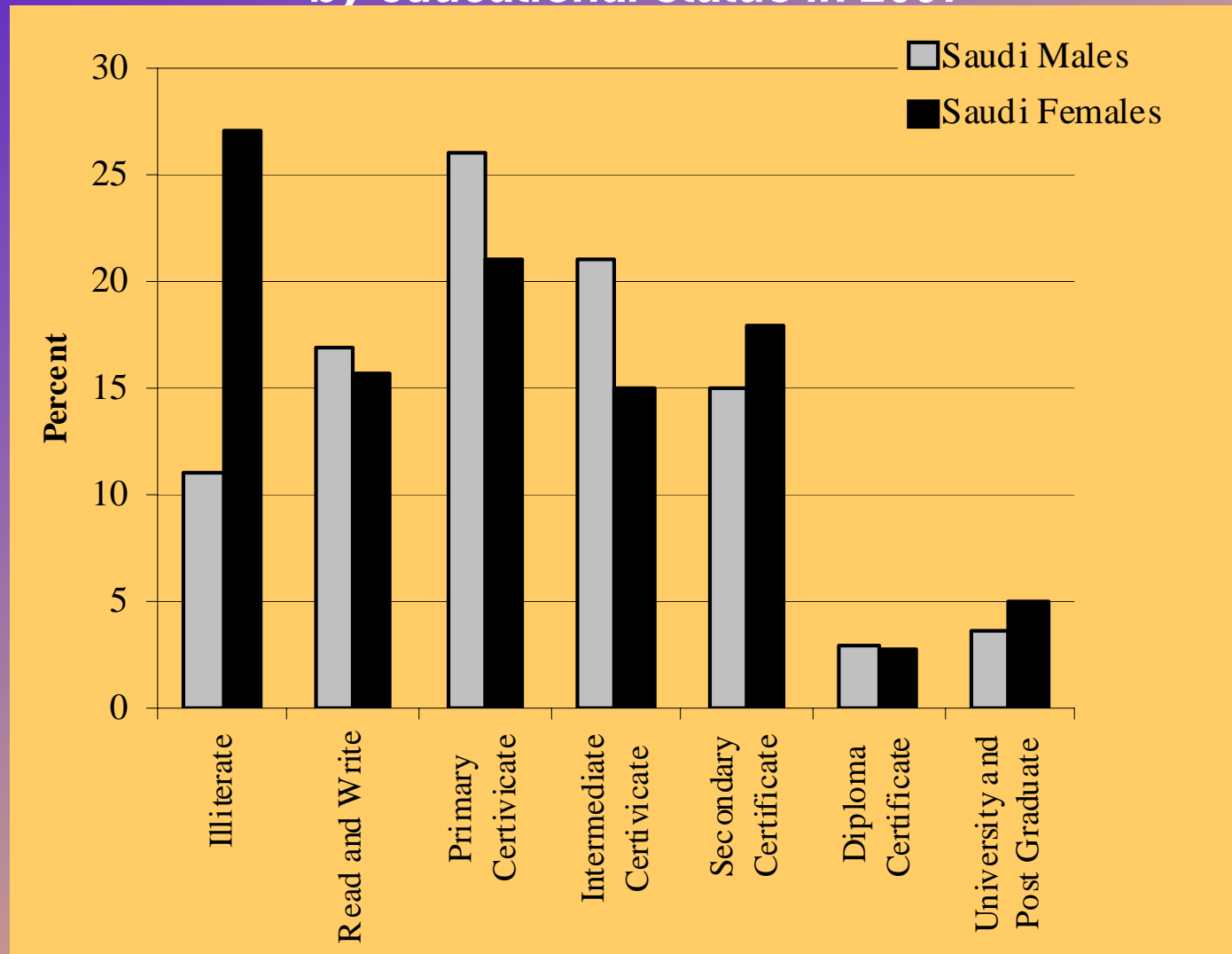
The Saudi educational structure

- In **quantitative** terms, the growth in educational level of both males and females has been impressive, with the average education level increasing by 27% to 6.6 years on average.
- This is a positive development, as World Bank research has indicated that a **one year** rise in a nation's education level generates a 10% increase in GDP.

(Contd....)

- In Saudi Arabia, male illiteracy stood at 8% and female illiteracy rates at 18%, with most illiterates found in the older age groups.
- In term of **University level education**, females **outnumber** males in Saudi Arabia, and also at Secondary school certificate levels.
- Saudi males are **just ahead** of females at Masters and Ph.D. levels, but Saudi females are making strong headway in these areas.

Figure 13.6 Breakdown of Saudi population (ten years old and above) by educational status in 2007



Source: Ministry of Planning, UNDP

Table 13.4. Saudi Arabia education enrolment and graduate levels by gender (2000-2007

<i>Educational level</i>	<i>('000)</i>			
	<i>2000</i>		<i>2007</i>	
	Male	Female	Male	Female
Primary	1,117.5	1,108.4	1,125.5	1,118.7
Intermediate	564.4	471.7	609.3	535.2
Secondary	366.7	338.4	541.9	471.2
Intermediate Diploma	25.6	28.1	124.9	38.0
Bachelor Degree	201.9	227.3	275.2	488.1
Masters	6.4	3.2	8.2	6.2
Ph.D.	1.3	0.7	1.7	1.6
TOTAL	2,283.8	2,177.8	2,686.7	2,659.0

Source: SAMA

Teaching resources in Saudi Arabia

- Saudi pupil/teacher and pupil/school ratios are, on average, **better than for many developing countries** and better than for some developed countries.
- The average ratios for both indicators **has been improving from 2000**, especially for female students ,and such improvements corroborate the significant budgetary allocations made for new schools and education.
- However, there are some **criticism** of the general education system:
 - **Lack of teacher expertise.**
 - **Poor commitment to teaching profession,**
 - **Lack of teacher participation in setting curriculum.**
 - **Low esteem of teachers in eyes of society.**
 - **Teachers “moon-lighting” for additional income.**

Table 13.5 Saudi pupil/teacher and pupil/school ratios 2000/2007

	2000	2001	2003	2007
Pupil/Teacher Ratio				
• Male	13.7	13.1	13.3	11.2
• Female	11.2	11.1	11.4	9.74
Pupil/School Ratio				
• Male	190.9	189.8	186.1	176.9
• Female	186.1	184.5	179.4	168.5

Source: *Ministry of Education, SAMA.*

An outdated curriculum system is being revamped

- The **major criticism** of the Saudi curriculum system is that it was based on:
 - **Repetition and duplication** of information from year to year.
 - Too much material, forcing **memorization** rather than absorbing and arguing contents **intellectually**.
 - Unrelated to the modern age.
 - **Outdated information**, often relying on translation and copying other sources.
 - Not much attention to **special students** (whether gifted, talented or with disabilities).
 - **Weak English language and science** curriculum.
 - **Students taught to obey authority** and discouraged from showing initiative and creativity.

Educational attainment brings monetary rewards.

- Surveys of **average** monthly compensation for both Saudis and non-Saudis shows a **positive correlation** between higher compensation and level of education.
- University Saudi graduates average monthly compensation rose from SR 10,893 to SR 12,900 from 2000 to 2007.
- The **difference between Saudi and non-Saudi average monthly compensation levels** gradually decreases as the level of education achieved increases.

Table 13.6 Average monthly compensation (Saudi Riyals) of Saudis and non-Saudis by educational levels.

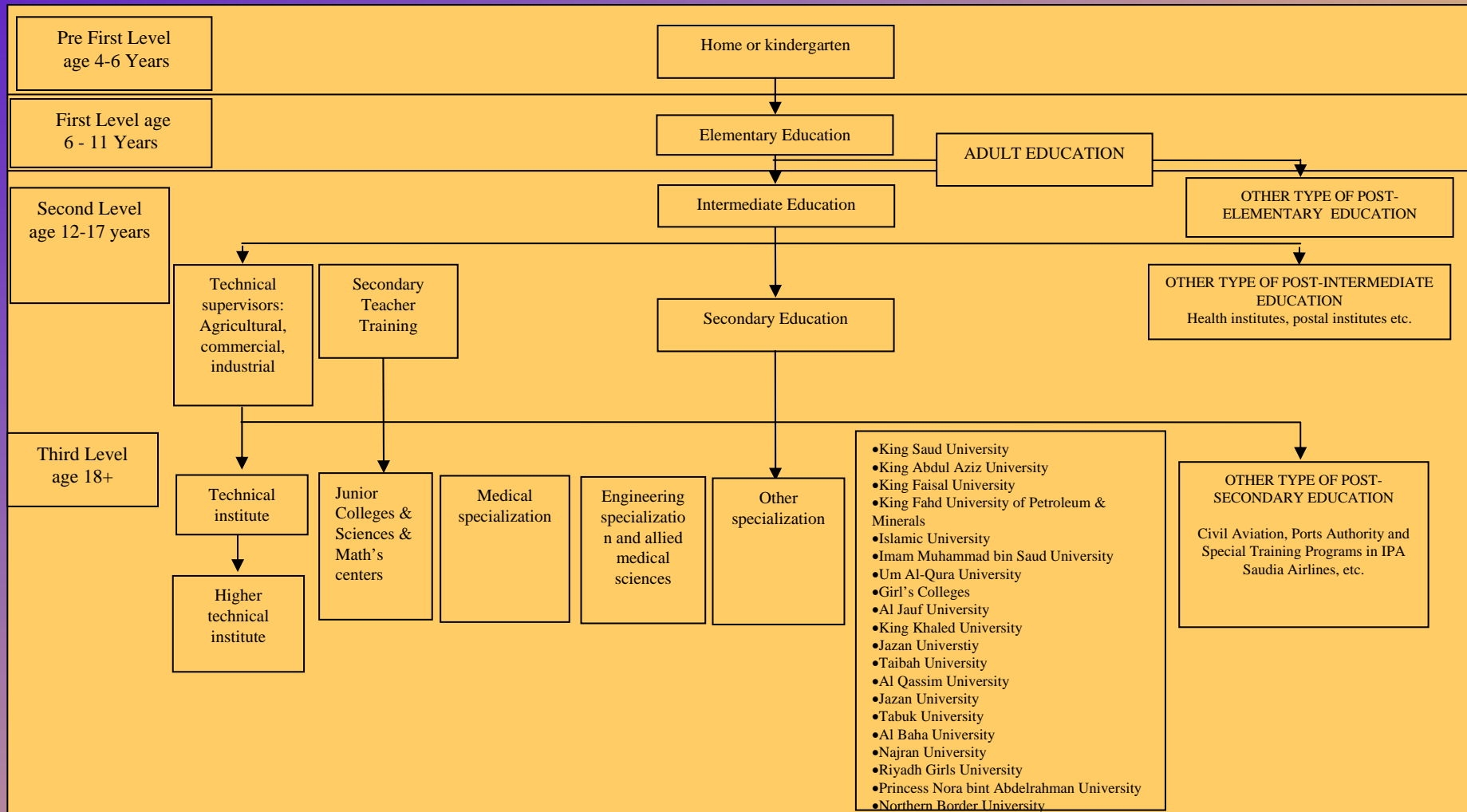
<i>Educational level</i>	<i>2000</i>		<i>2007</i>	
	<i>Saudi</i>	<i>Non-Saudi</i>	<i>Saudi</i>	<i>Non-Saudi</i>
Illiterate	3,155	1,136	3,100	1,150
Read and Write	3,450	1,260	3,580	1,310
Primary School	4,600	1,378	4,750	1,390
Intermediate School	5,437	1,587	5,640	1,650
Secondary School	7,200	2,580	7,450	2,600
Intermediate School	6,810	2,880	6,970	3,100
University Graduate	10,893	10,856	12,900	11,100
Average (SR)	5,935	3,096	6,341	3,185

Source: *Central Department of Statistics, SAMA.*

Structure of the Saudi education system

- The educational system's output in Saudi Arabia has to be geared towards the **economy's current and future needs**.
- The flow of education starts from the pre-school Kindergarten level to the University degree level.
- In Saudi Arabia there is also a **post-Secondary School educational specialization level**, in technical and vocational training, medical specialization, civil aviation, etc.
- After a period of slowdown in new University opening, there are **now 20 Government universities** and private colleges and universities such as: **Effat University and Dar Al Hikma College (for females), Al Yamamah University, Prince Sultan University, Prince Mohammed University and Jeddah Business College**.

Figure 13.7. Saudi Arabia: flow chart of education and training



Phenomenon of female higher education advances

- The phenomenon of **female higher education enrollment and education is not only particular to Saudi Arabia.**
- The rest of the GCC countries have high female enrollment rates, with the exception of Oman.
- However, GCC and Arab female enrollment rates are still **below** many of the developed countries with Canada registering around 95% compared with 21% for Saudi Arabia in 1998.
- Since 1998, the Kingdom has witnessed a remarkable rise in female higher education enrollment, as endorsed by the fact that there were **488,000 females studying at the Bachelor level in 2007 compared with 202,000 males.**

Table 13.7. Gross higher education enrolment rates (%) – selected years 1980-1998 and by gender 1998

Country	1980	1985	1990	1995	1998		
					<i>Total</i>	<i>Male</i>	<i>Female</i>
Middle East:							
Bahrain	5.0	12.8	17.7	20.0	25.0	19.0	30.0
Egypt	16.1	18.1	15.8	20.2	21.0	24.2	15.9
Jordan	13.4	13.1	16.1	16.0	17.9	26.3	29.4
Kuwait	11.3	16.6	12.5	19.2	19.3	14.6	24.0
Lebanon	30.0	27.8	28.9	27.0	27.0	27.2	26.8
Oman	0.5	0.8	4.1	5.3	8.0	9.0	7.0
Qatar	10.4	20.7	27.0	27.5	26.6	13.6	40.9
Saudi Arabia	7.1	10.6	11.6	15.8	19.0	16.0	21.0
UAE	3.1	6.8	9.2	11.0	13.0	15.2	19.8
Others:							
Belgium	26.0	32.2	40.2	56.3	56.0	53.0	59.0
Canada	57.1	69.6	94.7	87.8	87.3	80.7	95.3
Ireland	18.1	22.3	29.3	39.6	48.0	44.0	52.0
Norway	25.5	29.6	42.3	58.6	65.0	55.0	77.0
UK	19.1	21.7	30.2	49.6	58.0	53.0	64.0
USA	55.5	60.2	75.2	80.9	81.0	70.6	91.8

Source: *World Bank, Salmi (2002).*

Saudi education and employment

- Changes in any education system cannot be “**QUICK-FIX**” solutions, as they must be responsive to social, economic and international labor pressures.
- As such, Saudi Arabia needs to be aware of **current international educational developments** to cope with the demands of the labor market place.
- Sometimes the educational system needs to be either “**loosened**” or “**tightened**” and Saudi Arabia has sought advice from international institutions such as the World Bank to realign its core education system.

Table 13.8. A new regulatory approach for Saudi school education

<i>Issue</i>	<i>Current approach to regulating education</i>	<i>Degree of control by government</i>	<i>Proposed approach to regulating education</i>
<i>Stakeholders expectation</i>	<ul style="list-style-type: none"> • Few expectation from stakeholders • Limited performance specifications 	<i>From loose to tight</i>	<ul style="list-style-type: none"> • High expectations from stakeholders • Clear sector performance specifications
<i>Teaching autonomy</i>	<ul style="list-style-type: none"> • Prescriptive and input-based • Minimal autonomy for private schools 	<i>From tight to loose</i>	<ul style="list-style-type: none"> • Output-based and freedom to innovate • Greater institutional autonomy
<i>Accountability and performance assessment</i>	<ul style="list-style-type: none"> • Weak accountability for results • Little performance measurement • Few sanctions for failures 	<i>From loose to tight</i>	<ul style="list-style-type: none"> • Strong accountability for results • Information on academic results disclosed • Annual national assessment performance for all schools/ students

Source: Based on a World Bank Study for Saudi Arabia, 2000.

Education output and matching labor market needs.

- Saudi education expenditure must be allocated in an **efficient manner** in order to produce an output compatible with the economy's **future** needs.
- Breakdown of new entrants to the Saudi labor market by educational attainment and **education specialization**, reveals that the overwhelming graduate entrants are in the **social sciences and humanities**.
- Engineering graduates accounted for just under 3% over the period 1995-2000, out of a total 33% university graduates, with nearly 17% in the social sciences.
- **There has been more emphasis on technical and vocational training**, including girls' higher technological institutes, over the past few years.

Table 13.9. Saudi Arabia: New entrants to the labour force by level of education (1990-2000)

<i>Highest level of Education Completed</i>	<i>1990 – 1995</i>				<i>1995 - 2000</i>			
	<i>Male</i>	<i>Female</i>	<i>Total</i>	<i>%</i>	<i>Male</i>	<i>Female</i>	<i>Total</i>	<i>%</i>
University (Total)	38,300	30,300	68,600	30.5%	73,800	40,900	114,700	32.9%
➤ Engineering	4,700	0	4,700	2.0%	10,100	0	10,100	2.9%
➤ Natural Sciences	4,100	4,700	8,800	3.9%	10,000	5,500	15,500	4.4%
➤ Medical Sciences & Health	2,300	1,000	3,300	1.4%	5,500	2,600	8,100	2.3%
➤ Statistics, Math, Computer Sciences	3,000	2,100	5,100	2.3%	12,700	4,100	16,800	4.8%
➤ Economics and Business	3,700	1,600	5,300	2.4%	2,600	700	3,300	0.9%
➤ Social Sciences	8,600	10,400	19,000	8.5%	9,000	12,800	21,800	6.3%
➤ Teacher Education	5,400	5,200	10,600	4.7%	8,000	4,500	12,500	3.6%
➤ Religious Study	6,500	5,300	11,800	5.3%	15,900	10,700	26,600	7.6%
Junior Colleges: Technical (Total)	7,400	0	7,400	3.3%	12,800	0	12,800	3.7%
➤ Industrial	5,700	0	0		N/A			
➤ Commercial	1,700	0	0		N/A			
Secondary School (Total)	139,500	9,000	148,500	66.2%	209,600	11,500	221,100	63.4%
➤ General Education	103,100	7,500	110,600	49.1%	172,000	8,900	180,900	51.9%
➤ Technical and Vocational	36,400	1,500	37,900	17.1%	37,600	2,600	40,200	11.6%
Total	185,200	39,300	224,500	100%	296,200	52,400	348,600	100%

Source: Ministry of Planning, Seventh Development Plan.

Table 13.10. Technical education at institutions of the General Organization for Technical Education and Vocational Training (2008)

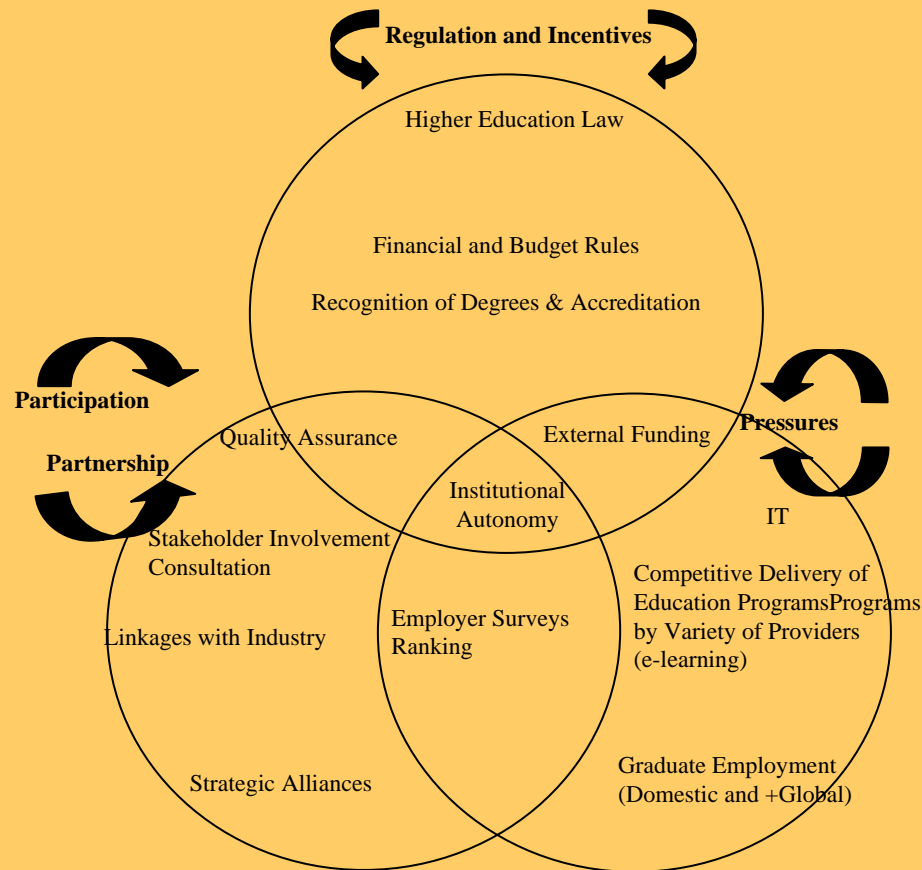
	<i>No. of new Students</i>	<i>Total No. of Students</i>	<i>No. of Graduates* (2007)</i>	<i>No. of Institutes</i>
• Technological colleges				
- Diploma level	38,048	61,549	12,426	35
- Bachelor level	724	1,337	**	**
• Girls Higher Technological Institutes	2111	3,031	**	9
• Vocational training centers	11,663	17,430	10,707	57
Total	52,546	83,347	23,133	101

Source: SAMA

Restructuring the Saudi education system

- Changes are affecting the scope and direction of higher education throughout the world.
- Higher education faces the necessity to competitively deliver **competent** and **relevant** educational programs that meet society's needs and achieve international accreditation.
- Forging **links with industry** and **sourcing external independent financing** are also key factors.
- In Saudi Arabia, the private sector educational institutes have been more successful in this regard, but all major Saudi Universities are now establishing so-called **“endowment funds”** and forging industry relations.

Figure 13.8 Forces for change in higher education



ADAPTED FROM THE WORLD BANK 2000.

Table 13.11. Saudi government education development plan recommendations and outcomes

<i>Recommendations</i>	<i>Outcomes</i>
<ul style="list-style-type: none"> • Establishing new channels and patterns of higher education such as Open Universities and distance learning. 	<ul style="list-style-type: none"> • Achieved in both areas
<ul style="list-style-type: none"> • Improving the internal efficiency of the universities by reducing number of years for students to graduation 	<ul style="list-style-type: none"> • Process is underway with universities reporting on achievements to the Ministry of Higher Education.
<ul style="list-style-type: none"> • Encouraging the private sector to establish private universities and colleges. 	<ul style="list-style-type: none"> • Achieved - new colleges and universities opened such as Prince Sultan University, Prince Mohammed University, Institute of College of Business Administration, Dar Al-Faisal University.
<ul style="list-style-type: none"> • Establishing more effective co-ordination between research centres and development centres, so that the producers and users of national technological solutions are linked. 	<ul style="list-style-type: none"> • Several initiatives to establish Technology Cities and Science Parks e.g Jeddah Bio-Technology, Dhahran Techno Valley at KFUPM, Science parks at King Saud University and King Abdulaziz University.
External efficiency:	
<ul style="list-style-type: none"> • Matching the output of the education system with the requirements of economic and social development to meet needs of the labour market. 	<ul style="list-style-type: none"> • Partially achieved as there is still mismatch between graduate specialization and market needs.
<ul style="list-style-type: none"> • Sending 5,000 students on scholarships abroad 	<ul style="list-style-type: none"> • Target exceeded as 70,000 Saudi students have gone overseas under the King Abdullah scholarship starting from 2006.
<ul style="list-style-type: none"> • Establish National Authority for Academic Evaluation and Accreditation and ensure Saudi universities obtain international accreditation. 	<ul style="list-style-type: none"> • Achieved and many Saudi universities have obtained international accreditation, such as AACSB and ABET.

In pursuit of academic excellence – establishing world class universities

- According to the World Bank, there are **four complementary roles** of strategic dimension that can guide countries to the transition of a **knowledge-based** economy:
 1. *An appropriate economic and institutional regime.*
 2. *A strong human capital base.*
 3. *A dynamic information structure.*
 4. *An efficient national innovation system and culture.*
- As such, there is strong interest to establish “**centers of academic excellence**” and that these operate at the cutting edge of intellectual and scientific development.

- In Saudi Arabia some significant steps have been taken in this direction through the establishment of the *King Abdullah University of Science and Technology (KAUST)*.
- Establishing a “world class” university poses many questions:
 - Might countries be better served by developing the most *locally relevant* system possible, without concern for its relative merits in a global competition tables?
 - Is the definition of “world-class” universities synonymous with “*elite Western*” models and therefore inherently biased against the cultural traditions of higher education of non-Western countries? (KAUST is co-educational while Saudi universities are not).

World class universities and global ranking

- There are commonly agreed measures to **rank** “**world-class**” **universities**, but the following are common benchmarks:
 - Training of graduates.
 - Research output.
 - Technology transfer and commercialization.
 - Employability and salary levels of graduates.

(Contd....)

- **The Times Higher Education Supplement (THES) and Shanghai Jiao Tong University (SJTU)** are often cited as the sources for global university ranking.
- In 2008, the Top 20 global universities were all from Europe, USA, Japan, and Australia. *There was not a single Middle East Institution in the Top 50.*
- In 2009, King Saud University was ranked 247, and King Fahd University of Petroleum and Minerals at 266, the highest ranked Arab Universities in the top 500.

Table 13.12. Top 20 Universities in THES and SJTU world rankings 2008

Rank	THES	Rank	SJTU
1	Harvard University	1	Harvard University
2	Yale University	2	Stanford University
3	University of Cambridge	3	University of California, Berkeley
4	University of Oxford	4	University of Cambridge Massachusetts Institute of Technology (MIT)
5	California Institute of Technology	5	California Institute of Technology
6	Imperial College London	6	Columbia University
7	University College London	7	Princeton University
8	University of Chicago	8	University of Chicago
9	Massachusetts Institute of Tech. (MIT)	9	University of Oxford
10	Columbia University	10	Yale University
11	University of Pennsylvania	11	Cornell University
12	Princeton University	12	University of California, Los Angeles
13	Duke University	13	University of California, San Diego
14	Johns Hopkins University	14	University of Pennsylvania
15	Cornell University	15	University of Washington, Seattle
16	Australian National University	16	University of Wisconsin, Madison
17	Stanford University	17	University of California, San Francisco
18	University of Michigan	18	University of Tokyo
19	University of Tokyo	19	Johns Hopkins University
20	McGill University	20	

Source: THES 2008; SJTU 2008.

**Figure 13.9. Geographical distribution of world-class universities
(Top 50 in 2008)**

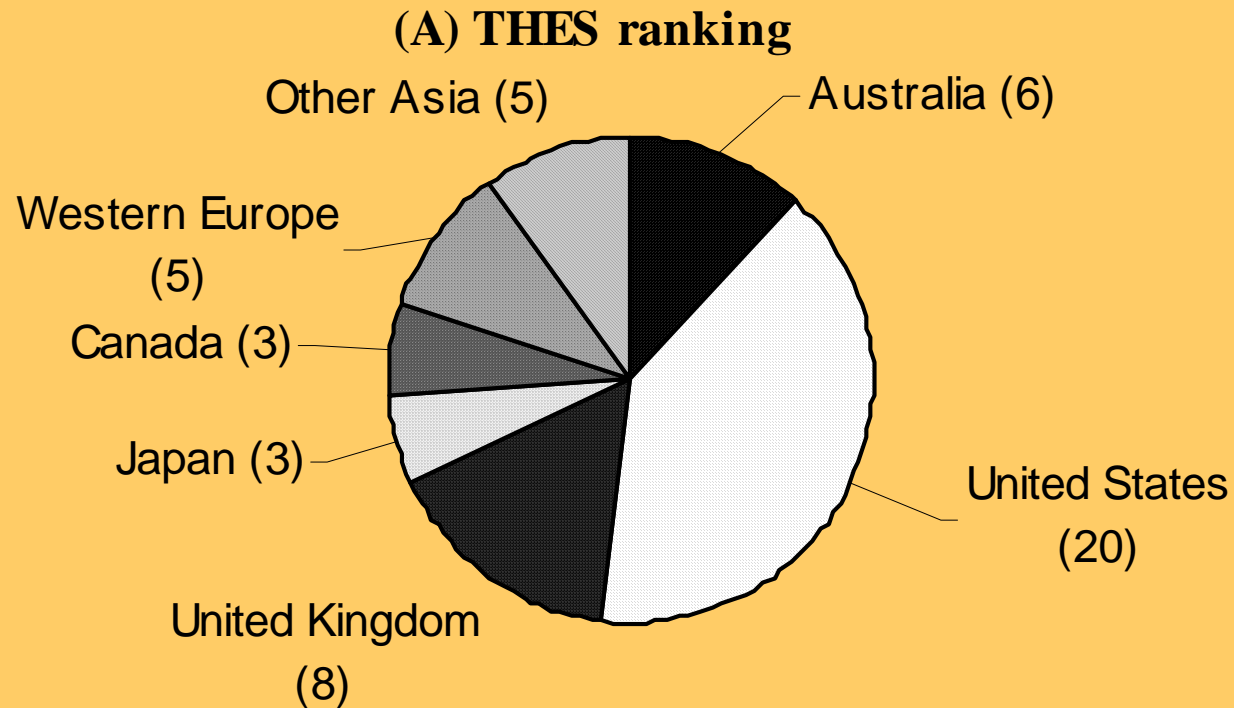
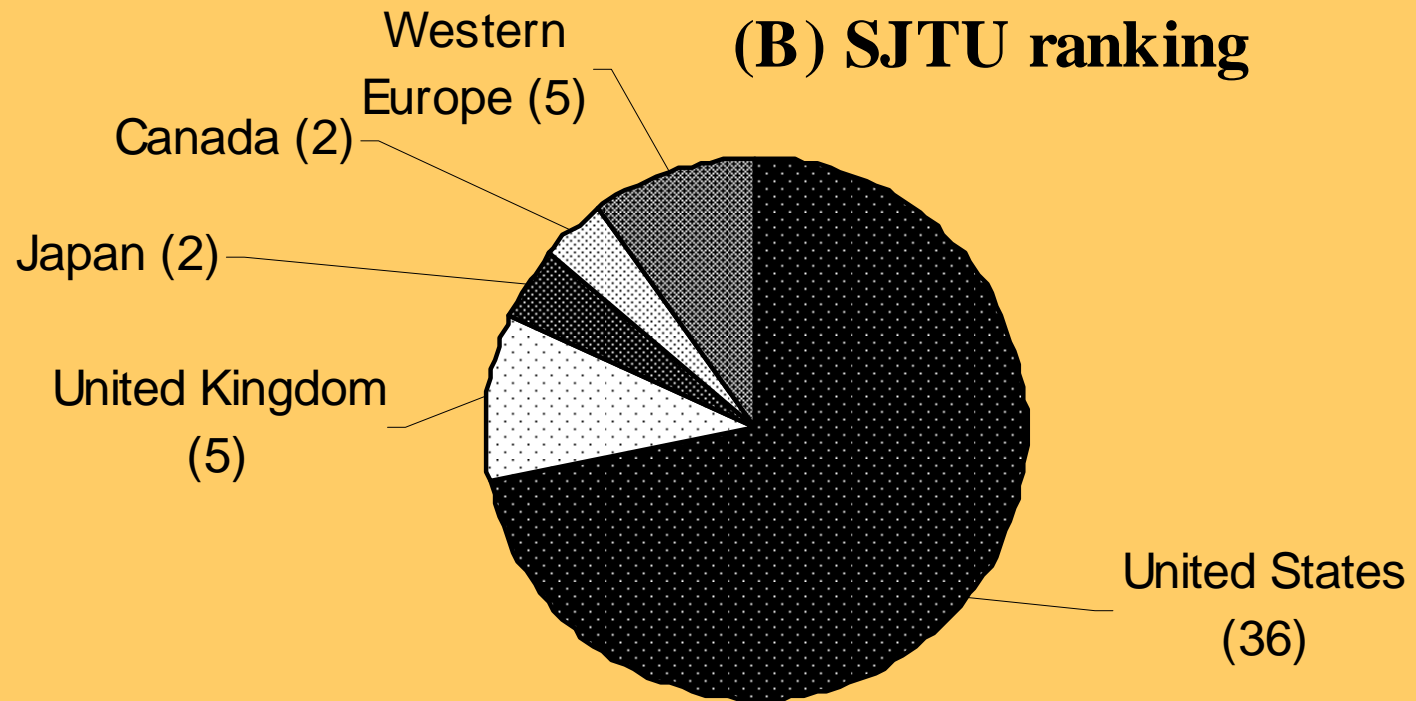


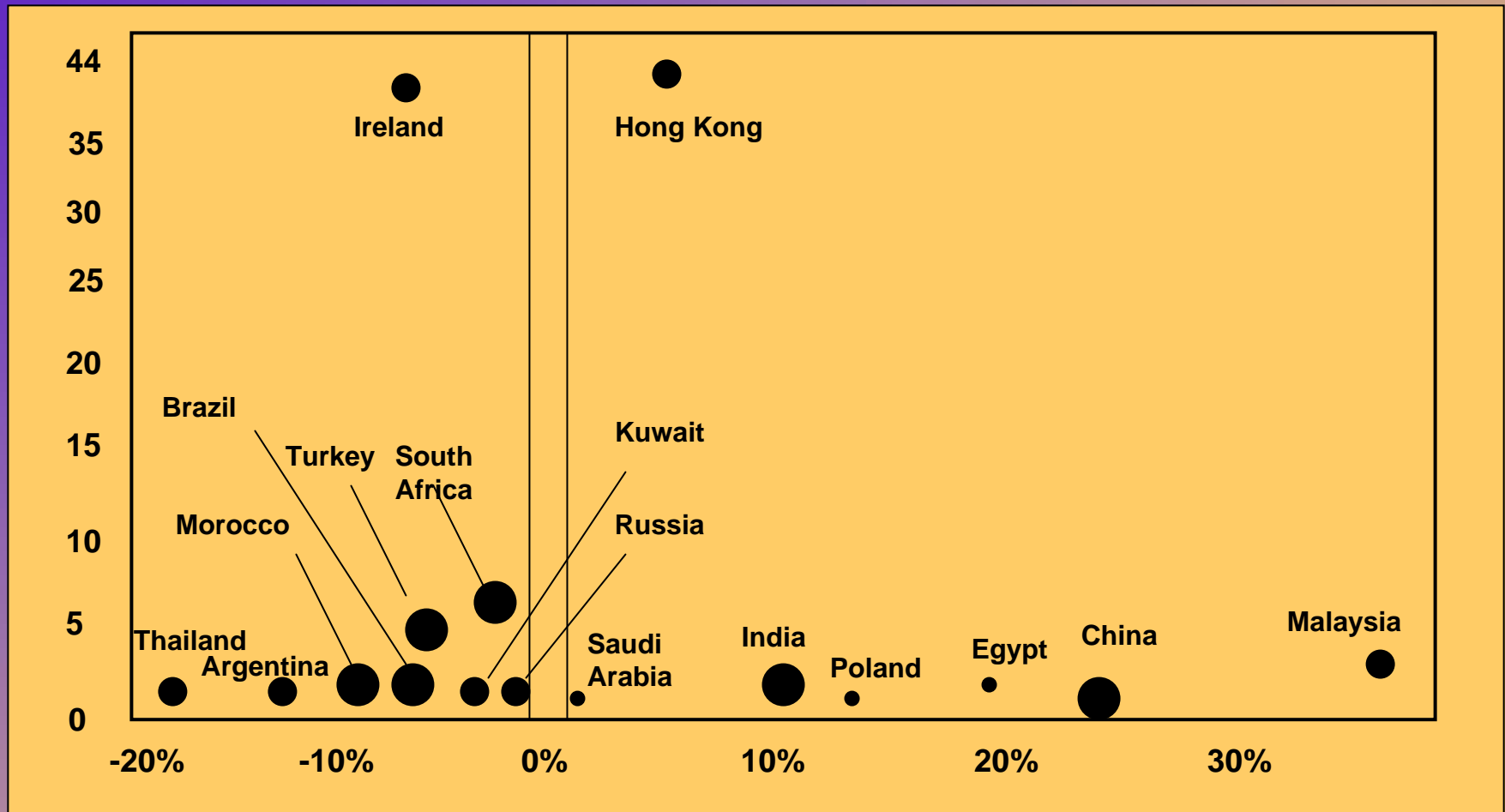
Figure 13.9. (Contd...)



Consequences of lower global ranking

- Although Saudi Arabia did better than **any other** Arab country in terms of the global university ranking, the reasons for poor ranking in the region and the Kingdom are due to several factors.
- These include low innovation output, and **quality** as opposed to **quantity** of research output. In this regard, countries such as Ireland and Hong Kong, with few national resources, outrank the resource rich Middle East in terms of patents per 1 million of population.

Figure 13.10. Innovation output of selected countries average U.S. patents per 1 million populations (2003-2007)

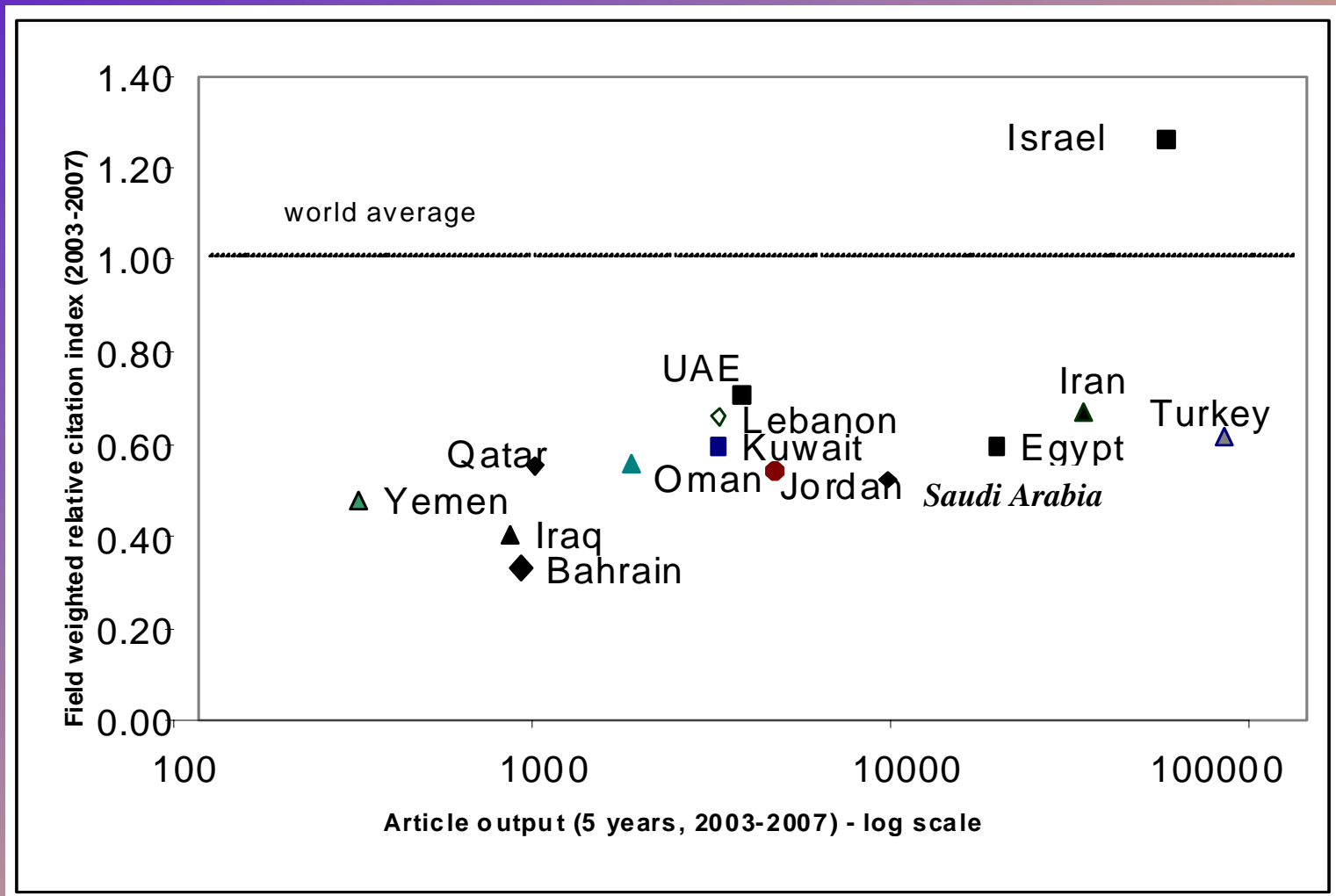


Compounded average gross rate of US-registered patents, 2003-2007.

Source: USPTO (2008, EIU (2008).

525 patents = ●

Figure 13.11. Middle East: research article outputs – quantity vs. quality*



***Note: citations shown as field weighted relative index**

Source: Higher Education Policy Institute, UK, 2009.

KAUST and cost-benefit of establishing Saudi World class universities

- Establishing a brand-new “world-class” university such as KAUST could theoretically “**jump-start**” the process to establish a knowledge-based economy.
- **However, there are costs and benefits of different approaches for establishing such universities in terms of Saudi Arabia applicability:**
 - **Upgrading** existing institutions
 - **Merging** existing institutions.
 - Creating **new** institutions
- The Saudi policy concentrates on **both** upgrading existing institutions and creation of new ones such as KAUST.

Table 13.13. Costs and benefits of strategic approaches for establishing world-class universities and Saudi Arabia applicability

Conditions	(A) Upgrading existing institutions	(B) Merging existing institutions	(C) Creating new institutions	Saudi applicability
Ability to attract talent	Difficult to renew staff and change the brand to attract top students	Opportunity to change the leadership and to attract new staff; existing staff may resist	Opportunity to select the best (staff and students); difficulties in recruiting top students to 'unknown institution; need to build up research and teaching traditions	A) Salary scales are fixed and difficult to adjust for prominent hiring. B) Not common as such institution is established by Royal decree. C) Viable option: KAUST model
Costs	Less expensive	Neutral	More expensive	Government funding not an issue
Governance	Difficult to change mode of operation within same regulatory framework	More likely to work with legal status different from that of existing institutions	Opportunity to create appropriate regulatory and incentives framework	A) Difficult to change mode of operation B) Same regulations could apply C) New model and policy
Institutional culture	Difficult to transform from within	May be difficult to create a new identity out of distinct institutional cultures	Opportunity to create culture of excellence	A) Has been tried but results are patchy B) Not tried C) KAUST model applicable
Change management	Major consultation and communication campaign with all stakeholders	Normative, approach to educate all stake- holders about expected norms and institutional culture	"Environmentally adaptive" approach communicate and socially market the new institution	A) Slow process with internal resistance B) Not tried C) New approach and procedures are at core of KAUST model.

Source:*Aadapted from Jamil, 2009.*

Conclusion

- The emphasis on **qualitative** education is now recognized by Saudi Arabia, but it will be a hard transition for many young Saudis to make.
- **Without change**, Saudi youth will be competing in a highly sophisticated market, both domestic and international, with **underdeveloped skills, causing frustration and resentment**.
- The emphasis on a knowledge-based economy is receiving greater attention, but such long term vision should be **closely correlated** with the country's overall economic and social development, as well as reforms at the **lower** level of schooling in the Kingdom.