

**UNEMPLOYMENT EVOLUTION IN THE GCC ECONOMIES:
ITS NATURE AND RELATIONSHIP TO OUTPUT GAPS**

**BY
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Abstract

Utilizing a combination of time series and cross section data, research conducted here investigates the evolution of unemployment in the GCC economies and its rapid increase over the past two decades. At the micro-level, the paper applies selectivity, multinomial and multivariate probit models in order to test the hypothesis that unemployment is voluntary. In its macro analysis, the paper applies Granger causality tests, panel data models and OLS regressions in order to determine unemployment persistence and to gauge the effect of output gaps and other macroeconomic variables on unemployment evolution. By and large, the findings indicate that unemployment is heterogeneous, is largely involuntary, and is correlated with output gaps. The paper derives a set of policy conclusions for reducing long-term unemployment in the GCC economies.

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1. INTRODUCTION

The last two decades have been characterized by a substantial increase in average unemployment rate in the countries of the GCC which consists of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. One of the most important features of the GCC is that its member countries possess approximately 45 percent of the world's proven oil reserves, with Saudi Arabia alone controlling over 25 percent, estimated at 250 billion barrels (IMF, 2001). The economic literature suggests that the abundance of natural resources could itself reduce growth potential and increases unemployment by reducing private and public incentives to accumulate human capital due to a high level of non-wage income, e.g. dividends, social spending and low taxes (Auty, 2001; Eifert et. al., 2003). Since the mid-1980s, economic growth has been decelerating and the increasing strains in the labor markets in the GCC economies have recently attracted scholarly attention (Fasano and Goyal, 2004; GCC Secretariat, 2003; Al-Qudsi, 1997).

While rising long-term unemployment has been observed in other Arab countries and elsewhere (Ag'enor et. al., 2003; ILO, 2003; Nickell, 2003), the vagaries of the slow economic growth combined with three regional wars have boosted unemployment in the GCC economies to record levels. Analyzing these new developments and understanding the profiles of unemployed in the GCC economies is the primary objective of this paper. A second question focuses on the nature of GCC unemployment: Is it voluntary or involuntary?

Voluntary unemployment implies that the unemployed choose the joblessness status rather than settle for lower-paying jobs. Utilizing micro-level data, this paper attempts to test the hypothesis that GCC unemployment is voluntary. A third important aspect of unemployment that merits attention is its persistence and relationship to output gaps. Unemployment can be temporary or permanent but a temporary increase in unemployment may partially persist and become permanent (Blanchard and Summers, 1987). Whenever unemployment persists, the short-run adjustment of the economy can take place over a very long period. Accordingly, the third aim of this paper is to test for unemployment persistence and relationship to output gaps in the context of GCC economies. Therefore, this paper has the following specific objectives:

1. The evolution of unemployment and characteristics of the unemployed in the GCC economies including unemployment heterogeneity over space (regions) and by age, health, education and gender cohorts.
2. The nature of unemployment at the micro level; i.e. whether unemployed GCC citizens choose joblessness rather than accept low-paying jobs.
3. Unemployment persistence and relationship to output gaps in the GCC economies, which is conventionally known in the economic literature as Okun's Law. The paper derives estimates of cyclical variations in output (output gaps) and assesses their impact on unemployment in each of the six countries. In addition to the output-unemployment relationship, the paper explores the impact on unemployment of inflation and investment rates and governments' active labor market policies.

The paper is organized in five sections as follows. The remainder of this section introduces data sources and availability. Section two focuses on the evolution of unemployment in the GCC economies and its various heterogeneity features. The nature of unemployment and the factors that influence the choice of self-employment, wage work or unemployment modes are examined in the third section. The section utilizes microeconomic data sets in order to analyze the factors that underpin the three employment choices. The macroeconomic determinants of unemployment, its persistence and relationships to output vagaries are analyzed in section four. The analysis applies panel data techniques and uses variables in absolute and differenced forms in order to estimate the effect of output gaps on long-term unemployment. It also gauges the causal effects of inflation, gross investment and government active labor market policies on unemployment. Section five summarizes the main findings and derives their policy implications.

1.1 DEFINITION, DATA AVAILABILITY AND SOURCES

Throughout the paper, unemployment rate is defined as the number of unemployed to the number in the labor force. Intuitively, unemployment represents the sum of market disequilibrium (labor supply-labor demand) and a structural mismatch component (job-seeking workers not placed in vacant jobs). Each of these components represent causes that draws our attention to some of the underlying factors that are potentially responsible for unemployment and thereby suggests a corresponding set of policy measures (Landmann, 2003). For the sake of consistency, we conform to government statistics in the GCC in defining the unemployed as those without a job who were previously employed but are currently laid-off or those that are new labor market entrants that do not have a job but have actively searched for work in the previous period, usually one week or one month prior to the field survey. While not reporting data on vacancies, pertinent GCC government publications assume that all unemployed individuals are "searching" for jobs and that none of the "previously searching" are discouraged and joined the category "out-of labor force". In this context, it is worth noting that other countries have adopted different ways of operationalizing broad concepts such as 'availability for work' and "job search". For example, Australia and the United States require "active job

search” for classification as unemployed, while Canada and most other OECD countries include both “active” and “passive” searchers among the unemployed (Riddell, 1999). The requirement of job search is attractive because it requires demonstration of attachment to the labor force, but it also sacrifices a large number of non-searchers as out of the labor force.¹

Despite the central importance of unemployment to economic and fiscal policy-making, data on unemployment in the GCC economies is very scarce. The paucity of unemployment data is not only common but has also persisted over time in all six countries. Moreover, the method of gleaning unemployment statistics leads to somewhat imprecise estimates of the unemployment incidence. For instance, unemployment statistics invariably rely on the declaration of respondents regarding their employment status and rarely, if at all, on a sequence of probing questions that validate the respondents’ declared work relation status. Likewise, data on job search methods and unemployment duration is seldom gathered and virtually no information exists on matching of vacancies with skills of the unemployed. There is also complete absence of data on subjective unemployment expectations and relationship to wages, job characteristics and job insecurity. Research elsewhere has demonstrated the usefulness of such data in predicting subsequent unemployment experience (Campbell, Carruth, Dickerson and Green, 2004).

What causes the apparent scarcity of data on unemployment in the GCC economies? Four potential causes crop up. First, similar to the case in other countries, standard confidentiality issues cause statistical institutes to be reluctant to disseminate (primarily raw) data to users (Mercy and King, 2003). Yet one of the most important findings in economics over the past decade has been that the analysis of aggregate statistics does not give policy-makers an accurate view of the functioning of the economy. In contrast, micro-data sets permit in-depth understanding of the economy. Second, the meticulous task of data collection requires the availability of capable staff in national statistical institutes who are versatile in up-to-date field surveys and data collection and computing techniques in order to ensure integrity of published data. While increased impressively over time, these capabilities were generally in short supply during the early formation years in each of the six GCC countries. Third, the very era of sudden affluence that the region experienced during the 1970s to mid-1980s may have fostered the perception that growth with full employment will always be attainable and hence unemployment data were projected as somewhat unimportant. This stress-free attitude was buttressed by the perception that GCC natives can dynamically replace the large pool of foreign workers and thus unemployment of natives was seen as only incidental. In retrospect however, the economic boom came to a halt and the conventional wisdom was challenged in later

¹ Recent research has suggested that statistical agencies should conduct tracer surveys and follow over time persons categorized as job seekers or out of the labor force to see if their transition rates to other labor market states are similar in magnitude and in the effect of covariates on the transitions (Jones and Riddell, 1999; Byrne and Strobl, 2001).

years as the process of replacing natives for foreign workers proved slower than originally anticipated. Finally, the lukewarm interest in collecting and publishing reliable data on unemployment may have also been caused by the dearth of research institutions that specialize in unemployment issues par excellence. The significance of this factor is underlined by abundant literature that suggests that there is a direct correlation between the quality of a national statistical institute and that institute's openness to external (including international) research needs and requirements (Abowd and Lane, 2003). Accordingly, the weak interactions between data providers and data users explains why statistical agencies in the GCC countries continue to turn out reports primarily consisting of tabular data that are profoundly similar in format and content to that which the agencies produced decades ago.

Collectively, these factors explain the near absence of annual (and certainly quarterly) time series data on unemployment in the GCC. Whatever is available is generally gleaned from population censuses, labor force surveys and establishment surveys and multipurpose expenditure surveys. In all, the six countries have conducted about 15 population censuses, 20 labor force surveys and family expenditure surveys and a large number of establishment and industrial enumerations². Clearly, the heterogeneity of these data sources and their underlying coverage and methodologies cast doubt on the consistency, and therefore, the comparability of information that are gleaned from them. For instance, unemployment data gleaned from household expenditure surveys are not directly comparable to information on unemployment that are derived from population census or labor force surveys. Incompatibility is largely due to coverage because expenditure surveys do not include single-person households that are very common in the GCC economies. Communal families are typical in the case of foreign workers who are unaccompanied by family members and who may or may not share common living arrangements. In view of these considerations, this paper exercises prudence in using and comparing data from various purposes and country sources.

Our strategy is to utilize available data on unemployment and labor force in order to address the objectives of this study. Specifically, we utilize government publications and databases as well as secondary data sources and employ assumptions in order to generate the unemployment series for each country and collectively for the GCC region. We note that two countries have recently published time series data on employment according to nationality (native and foreign workers). The latest issue of the Saudi Plans Achievements (MOP, 2003) contains employment series covering the period 1969-2002. Similarly, the UAE has recently published labor force and employment data stretching over the period 1975-2002 (UAE Statistical Abstract, 2003). Oman's annual statistical yearbook contains data on government and private sector employment according to nationality. We utilize these data along with the various population censuses and labor force and household expenditure surveys of Kuwait and Bahrain in order to fill-in the gaps in the unemployment data points. In a few cases, we applied the Kalman filter and non-government guesstimates in order to interpolate missing unemployment data points.

² Some GCC countries started their first census very early, for instance Bahrain in 1941, Kuwait in 1957 while Saudi Arabia's first census was in 1964 and Qatar in 1970, UAE 1975 and Oman in 1993.

In addition to these data in tabular form, we utilize micro-level data of two countries, Kuwait and Oman. Oman's data are gleaned from its 20% sample of the 1993 population census while the micro data of Kuwait is that of the family expenditure and income survey conducted in 1999-2000. The availability of these two types of micro-level data enables in-depth testing of important hypotheses about the profile of the unemployed and the nature of unemployment in the GCC economies. Specifically, we test the hypothesis that the availability of non-wage income sources at the family level render unemployment "luxury" in nature. That is, unemployed natives can work in the formal and informal activities in the private sector but refuse to do so.

As noted in the introduction, one of the objectives of this paper is to link unemployment to output variability. The data sources of output in the GCC economies are the files of the United Nations database (UN Statistical Database). All GDP data are in real terms (1970=100). Applying the Hodrick- Prescott filtering methodology (1997) to the real GDP data series, we generate estimates of the output gaps for each of the six economies. Output gap estimates are then deployed to gauging Okun's Law or the unemployment-output gap relationships in each country separately. Finally, the UN database and Arab Monetary Fund are the sources of data on consumer price indices.

2. THE EVOLUTION OF UNEMPLOYMENT

Largely due to their oil wealth, the economies of the GCC countries have passed through major economic and social changes during the past decades that include the economic boom of the 1970s and early 1980s and the bust of the late 1980s and 1990s. Following the sharp increase in global oil prices in the 1970s and early 1980s, the authorities in these countries recycled the windfall oil gains through generous welfare system, and a massive public investment program in infrastructure, utilities, and basic industries. In tandem with these policies, governments played the role of first employment resort which eventually led to overcrowding public sector and increased government expenditures on salaries. In particular, the governments of the GCC encouraged natives to join the public sector by offering benefits packages in the form of attractive pension and social allowances for spouses and children and subsidized the provision of housing, schooling and health and basic consumer products (Faour, 1989; Winker, 2003). Underlying public sector employment and pay structures is the social contract of the GCC countries which led to the clustering of more than 85% of native workers in public employment and which, de-facto, resulted in their underemployment (Al-Ebraheem and Sirageldin, 2002). In essence, wide-spread subsidies that were the catalysts of the social contract created an income effect that seem to have had a society-wide influence on leisure patterns because of social multiplier where the returns to leisure increases as more people are working shorter hours and taking longer vacations.³ In parallel, GCC governments pursued open border policies to foreign workers, ensuring sufficient supply of labor at competitive wages at all skill levels. The reservation wages of foreign workers-reflecting their

³ This argument is similar to conceptualization of the impact of transfers on the demand for leisure that recent research has focused on. The underlying assumption is that the marginal productivity of either work or leisure is increasing in the amount of leisure consumed by one's peers. This interactive social impact reflects a decreased stigma for relaxing, i.e. working less. See Alesina, Glaeser and Sacerdote, 2005.

expected earnings in their home country, adjusted for obligation to remit family support and save for investment in their home country-are much lower than the reservation wages of the nationals at comparable skills (IMF, 2001). The dual objectives of heavily subsidizing native wages and employment, as part of the social contract, and pursuing open-border labor imports policies in order to maintain competitiveness led to the creation of a *segmented labor markets* where natives cluster in the public sector whose productivity level is minute and work hours are short while the more-demanding jobs were left to foreign workers in the private sector of the economy that paid substantially lower wages and demanded discernibly longer hours (Sirageldin, 2001).

In the course of time however, it became apparent that the countries of the GCC face unique challenges that stem from the fact that oil revenue is exhaustible, volatile and uncertain and largely originate from abroad. The vagaries of the oil market and the economic slow-down of the late 1980s and 1990s together with three regional wars greatly reduced the potential growth in the GCC countries and created bottlenecks in their labor markets. Economic downturns and subsequent budget deficits together with efforts to initiate economic reforms led governments of the GCC countries to retrench several social programs that were put in place in the early 1970s. Fundamentally, the slowdowns reduced the ability of GCC governments to provide sufficient public employment opportunities commensurate with the rapidly rising national labor supply. On the other hand, the private sector continued to generate low-skill, low-wages jobs that did not appeal to native and, as a result, largely benefited foreign workers (Al-Ebraheem and Sirageldin, 2002; IMF, 2001). Table (1) considers decade averages for the GCC countries since the 1970s. It shows that in the 1990s per capita real GDP grew slowly and unemployment was never higher on average. An offsetting factor was the deceleration in consumer prices, especially in Saudi Arabia, Bahrain and Oman.

Table (1) Per capita GDP Growth, unemployment and changes in CPI, GCC 1971-2001

Country/ Period	Growth rate of real per capita GDP (%/year)				Average unemployment rate (%)				CPI inflation rate (%/year)			
	1971 - 1980	1981 - 1990	1991 - 2001	1971 - 2001	1971 - 1980	1981 - 1990	1991 - 2001	1971 - 2001	1971 - 1980	1981 - 1990	1991 - 2001	1971 - 2001
Bahr	8.2	-2.8	1.7	2.4	5.0	12.0	14.2	11.0	12.8	2.0	.6	2.3
KSA	6.7	-9.1	-1.2	-1.1	4.3	6.0	9.5	7.0	12.7	-1	.7	4.1
Kuwait	-7.4	-6.2	-2.0	-2.5	2.0	1.8	1.9	1.9	4.6	3.8	2.1	3.4
Oman	2.1	-2.5	.8	1.7	...	5.3	12.9	10.3	...	...	.4	.4*
UAE	24.4	-6.7	2.7	4.8	1.7	1.5	5.0	3.0	...	.5	3.4	3.2

Sources: GDP data from UN statistical database, unemployment from official publications, IMF country reports and author estimates, CPI data from Arab Monetary Fund database... means data are not available.

* Oman's data are for the 1990s only.

The performance of the GCC economies in the 1990s regarding unemployment looks particularly bad when compared with earlier decades. The new development represents a departure from the historically low unemployment trends during the 1970s and early

1980s when the rates ranged from 1.2 percent in Kuwait to nearly 5 percent in Saudi Arabia and Bahrain. Since the mid-1980s and early 1990s however, unemployment has risen sharply in most GCC countries. For instance, Saudi Arabia's rate increased from 5.1 percent in 1974 to 13.4 in 1992. The rates declined somewhat in the latter part of 1990s, reaching 8.1 in 1999 but climbed back to 9.7 according to the latest labor force survey 2002. Similarly, the overall unemployment rate in Bahrain has increased from under 5 percent in 1971 to over 11 percent in the early 1980s and to 12.6 in 2001. Over the same period, Oman's rates climbed from under 6 percent to over 15 percent. Kuwait's unemployment rate rose from about 1 percent to nearly 4 percent in 2002 and inched up to 5 percent in 2004 (IMF, July 2005). In the UAE, unemployment rates increased from about 1.7 percent in 1975 to 8.6 percent in 2001 and increased further to 11.4 percent in 2004 (IMF, August 2005). Finally, in Qatar unemployment rates hovered around 3 percent.

Over the long run, average unemployment rates⁴ varied across the GCC countries ranging between 7 percent in Saudi Arabia and 1.8 percent in Kuwait. Bahrain and Oman registered the highest long-term means of 11.2 and 10 respectively while the UAE recorded an average of 3.0. In each country however, unemployment grew discernibly over time, suggesting that unemployment is persistent. Persistence here is time-dependent; that is the upward changes of unemployment regardless of its level that are considered as the relevant factor (Sesselmeier,2000). The long-term growth of unemployment during the period 1974 to 2002 was 2.1 percent per year in Saudi Arabia suggesting that the jobless rate exceeded real economic growth during the same period and labor supply grew at higher rates than the long-term growth of jobs. Higher unemployment growth rates occurred in Bahrain, Kuwait, Oman and the UAE, Table (2).

Table (2) Annual growth of unemployment rates in the GCC countries, 1974-2002

Period	Country	Unemployment Growth rate (percent per year)	Initial value	Ending value
1975-2001	Bahrain	5.0	3.9	14.0
1975-2004	Kuwait	6.9	1.0	5.0
1993-2002	Oman	3.0	13.0	17.0
1974-2002	Saudi Arabia	2.10	5.4	9.67
1975-2004	UAE	7.5	1.9	11.4

* Initial and final values indicate estimated unemployment rates in the starting and last years. Data are based on official country estimates and IMF country reports. Bahrain's unemployment's ending value is from the Economic Development Board (2004).

2.1 CHARACTERISTICS OF THE UNEMPLOYED

Underneath the broad time-series picture of Tables (1) and (2), the GCC economies feature a complex structure of disaggregated unemployment rates. Specifically, the GCC

⁴ This is simply the arithmetic mean value (the sum of all rates available for each country divided by the number of years in each period),

unemployment is characterized by five key dimensions of heterogeneity: an age differential, an education differential, a gender differential, a disability differential and a spatial differential.

2.1.1 Age and Unemployment

The GCC unemployment statistics feature an impressive age differential, with more than 75 percent of the unemployed appear to be young workers, under thirty years of age.

Data gleaned from Bahrain’s population census suggest that unemployment incidence among cohorts aged 15 to 29 years of age represents 76 percent of the country’s total, Table (3). In Kuwait, the unemployed in this cohort represents 86 percent of total unemployment. The corresponding proportion in Oman and Saudi Arabia are 75 and 90 respectively, Thus the heart of the unemployment problem in the GCC countries is that the new entrants into the labor force cannot be absorbed by economic activity, which entails long-term unemployment.

Table (3) Proportion of age-specific unemployed to overall unemployment (%)

Age	Bahrain 2001	Kuwait 2000	Oman 1993	Saudi Arabia 2001
15 to 19	16.0	17.0	32.0	16.6
20 to 24	38.2	49.0	37.6	45.8
25 to 29	21.7	19.7	4.8	27.3
30 to 34	11.2	5.1	2.3	6.0
35 to 39	6.2	2.3	2.1	3.0
40 to 44	3.3	2.3	1.6	1.2
45 to 49	1.8	3.4	8.5	.07
50 to 54	1.0	1.2	8.4	.04
55 to 59	.3	0	1.2	.01
60 to 64	.2	0	1.4	0
Total	100	100	100	100

Sources: Bahrain, MOP Population Census 1981 and 2001. Kuwait MOP: Family Expenditure Survey 2000, Saudi Arabia: CDS Labor Force Survey Labor Force 2001. Oman’s data are from the 20 percent sample of its 1993 population census.

2.1.2 Education and Unemployment

An important feature of labor market developments in the GCC countries has been the discernible rise of secondary and university educated workers. For instance, the proportion of university-educated Kuwaiti national workers was only 7.5% in 1980 but jumped to 24% in 2000. Likewise university-educated Saudi workers represented under 5% of all employed Saudis in 1980 but more than 21% in 2002. Concurrently however, the unemployment rate for those who completed secondary education has increased substantially in the GCC countries. During 1980-2000, it rose from (5%) to (24%) in Kuwait and the unemployment rate for those with university education the rates increased from (2%) to (42%). In Bahrain, the rise in unemployment among secondary-educated

workers was from 17% in 1981 to 51% 2001 and in Saudi Arabia from 8% in 1980 to 27% in 2002. The rise in unemployment among university-educated Bahrainis was from 3 to 8% while the corresponding rise in Saudi Arabia was from 4 to 29% during 1980-2002. Accordingly, despite the replicated evidence in the economic literature regarding the importance of education at the individual level in terms of higher lifetime earnings and to economic growth at the aggregate level; many educated in the GCC remain jobless for some time.

Therefore, average unemployment statistics hide differences across education levels. The increase was fairly small for less educated workers while it was considerable for the more educated. Accordingly, the contribution of education to unemployment has been minimal since the 1990s, due mainly to the inadequacy of the education system to prepare for a productively employable workforce, leading to high rates of youth unemployment (ESCWA, 1995).

Table (4) Unemployment by education level

Country	Less than secondary education	Secondary education	University ed
Bahrain 1981	80.0	17.0	3.0
Bahrain 2001	41.0	51.0	8.0
Kuwait 1980	93.0	5.3	1.7
Kuwait 2000	33.5	24.3	42.2
Oman 1993	22.0	63.5	14.5
Saudi Arabia 1980	88.0	7.8	4.2
Saudi Arabia 2002	45.0	27.0	29.0
UAE 1980	88.0	8.9	3.1

Sources: ESCWA, 1986 various reports. Bahrain, MOP Population Census 1981 and 2001. Kuwait MOP, Population Census 1980 and Family Expenditure Survey 2000, Oman's data are from the 20 percent sample of its 1993 population census. Saudi Arabia: CDS Labor Force Survey 1980 and Labor Force 2002.

2.1.3 Gender and Unemployment

Two features characterize unemployment according to gender. First, the overall unemployment rate is generally higher among men relative to women nationals. Second, among university-educated the incidence of unemployment falls disproportionately on females. In 2000, the unemployment rate among university educated women was 7.3% compared with 5.1% among university educated Kuwaiti men. For all men and women in all education categories, the respective rates were 3.1% and 6.7%. In Oman, only a small proportion of females are employed which causes the incidence of unemployment to be higher for males, both overall and for the educated groups as well. Thus the 1993 census indicated that for Omanis who achieved secondary-education, the rate of unemployment is less than 2 percent among females and 14 percent among male Omani. In Saudi Arabia, the labor force survey of 2000 revealed that among secondary-educated individuals, the unemployment rate was 23% for Saudi females and 10% for Saudi males. Likewise, nearly 20% of post-secondary educated Saudi females were unemployed versus 4% among males.

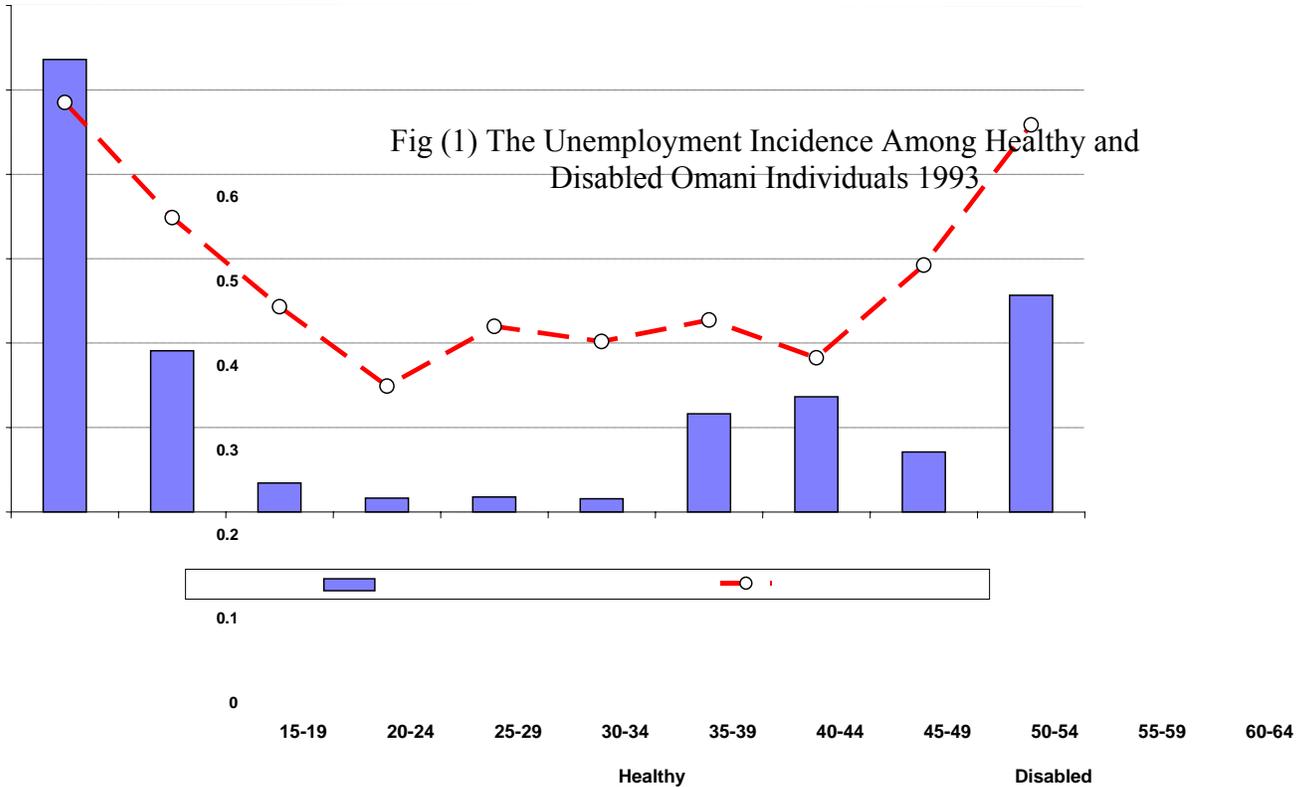
2.1.4 Disability and Unemployment

Anecdotal evidence suggests that a lot of unemployment in the GCC countries is hidden as disability. One reason for this impression is the apparently high proportion of disabled among native population of the GCC countries. Several factors account for the relatively high disability incidence including the prevalence of consanguinity among married couples, the high traffic accident rates and polygamous marriages particularly among older males, in addition to the high fertility rates and infrequent spacing of births⁵.

In our 20 percent sample of Oman's 1993 population, the percentage of disabled in the labor force was 2.3. In the UAE however, the United Nations estimated that the percentage of the disabled natives ranges between 8 and 10%. But the 1995 UAE Census enumerated 0.17 which is likely to be undercounting because of associated social stigma, that is "families do not like to state that their children have disabilities and...because of the fear that society might not accept them .." (Abedin, 2002: 1). The field survey conducted by Abedin (2002) revealed that the disabled encounter substantial difficulties in their search for jobs and that despite the fact that they apply for many job openings in many establishments, they get rejected because of their disability status.

While data required to substantiate the claim of disability-unemployment nexus is lacking for most countries of the GCC, we use the 20 percent sample of Oman's 1993 population in order to draw preliminary inference about the correlation between unemployment and physical and mental impairment in these economies. Oman's data indicates that, all else held constant, the unemployment incidence falls disproportionately on the disabled for virtually all age cohorts. For instance, in the age group 20 to 24, the unemployment rate is 19 percent for healthy natives but is almost doubled, 35 percent, in the case of disabled citizens. The divergence is more pronounced for persons aged 25-29 where the respective rates are 3.4 and 24.3 percent for healthy and impaired individuals. In the age cohort 30 to 34, the corresponding rates are 1.7 and 14.8 percent respectively. Interestingly, the unemployment rates follow a U-shaped pattern with peaks at the younger, 15 to 19 and older, aged 60 to 64 years, cohorts. In the case of older cohorts, the peak is mostly due to the higher incidence of disability because health care provision was in short supply at the times of their childhood and adulthood. For younger cohorts on the other hand, the most probable contributing factor is the transition from school to the labor market as secondary schools graduates search for their first jobs. Figure (1) illustrates these health-related variations in unemployment rates. Education contributes only partially to mitigating the adverse effect of disability on unemployment incidence. Thus while the likelihood of unemployment is 5 percent for healthy individuals who completed primary education, the corresponding rate for disabled individuals in the same education level is 22 percent. At the university level, the rate of unemployment is nearly 15 percent for healthy individuals and 26 percent for disabled cohorts. Given that educating the disabled is typically very expensive to individuals and to society, it is disquieting that disabled individuals can not neutralize the adverse effect of their disability on the prospective employment status.

⁵ For a more detailed discussion of genetic, work and car accident and war-induced disabilities see Teebi A. and T. Farag (eds.) *Genetic Disorders Among Arab Populations*: Oxford University Press, New York and London (1997).



2.1.5 Spatial Unemployment

Available data suggests that spatial unemployment disparities are even more severe within GCC countries than the overall unemployment spread across countries. This holds for small economies like Bahrain, as well as for large economies like the Saudi economy. In 1985, spatial unemployment variability was clear in Kuwait where the rate of unemployment was slightly above 1 percent in the capital governorate but reached 2.7 percent in Ahmadi. The patterns not only persists but also widens over time as findings from Kuwait's expenditure survey 2000 indicates. While the spatial range in unemployment varied between 1.1 and 2.7% in 1985; in 2000 the range widened a bit, between 4.6% and 13.5%, Table (5). A similar pattern holds in Bahrain where the census of 1991 showed marked variations in the joblessness rate according to spatial location. The more Bahraini census of 2001 affirmed the pattern as shown in Table (6). Likewise, the 1992 population census revealed that among native Saudis the unemployment rate in the administrative area of Riyadh was 14% but was 24.3% in Hail. Results from the Labor Force Survey of 2002 confirm the persistence of spatial unemployment incidence with rates ranging between 9% in Riyadh and 24% in Al-Jouf. Oman's 1993 population census indicate spatial differences in unemployment incidence shown ranging between 2.1% to 7.2% in Al-Dakhilya and Al-Wusta respectively. According to the census of 1995, the UAE spatial unemployment rates ranged between 1.4 to 5.8 percent in Abu Dhabi and Umm al-Qaiwan respectively (MOP, 1995).

Table (5) Unemployment rates by governorates and sex, native Kuwaitis 1980 and 2000

Govern	Unemployment Rates 1980			Unemployment Rates 2000		
	Male	Female	Total	Male	Female	Total
Capital	.0166	.0039	.0101	.058	.030	.046
Hawalli	.0245	.0027	.0134	.051	.047	.049
Ahmadi	.0554	.0021	.0276	.066	.067	.066
Jahra	.0508	.0026	.0263	.123	172	.135
Farwania	...	...	...	.038	.09	.054

Source: MOP, CSO, Kuwait Population census 1980 and Income and Expenditure Survey 1999/2000

Table (6) Unemployment rates by governorate and sex , native Bahrainis 1991 and 2001

Governorate	Unemployment 1991			Unemployment 2001		
	Total	Male	Female	Total	Male	Female
Capital	15.5	13.4	23.4	13.0	10.4	19.9
Muharraq	12.5	9.7	21.9	10.4	7.7	17.3
Northern	16.7	14.4	31.7	14.6	11.5	24.5
Central	14.7	12.2	24.5	13.0	10.6	19.4
Southern	10.6	7.7	21.8	7.0	4.1	18.1
Total	14.8	12.4	24.8	12.7	10.0	20.5

Source Bahrain's Statistical Yearbook 2003.

Table (7) Unemployment rates by Governorate, native Omani 1993

Governorate	Male	Female	Total
Muscat	5.7	2.5	4.2
Al-Batinah	5.9	0.6	3.3
Musandam	4.9	1.3	3.3
Al-Dahira	6.8	1.1	4.0
Al-Dakhilya	4.4	0.5	2.4
Al-Sharqiya	6.0	1.0	3.5
Al-Wusta	11.4	2.3	7.2
Dhofar	4.8	1.1	3.1

Source Sultanate of Oman MOD (1994) Statistical Yearbook Tables 9/2 and 10.2

Table (8) Regional unemployment of Saudis by sex , 1992-2002

Adm. Area	Saudis 1992			Saudis 2002		
	Male	Female	Total	Male	Female	Total
RIYADH	12.3	10.2	10.4	6.38	19.83	8.67
MAKKAH	12.48	10.3	12.28	5.90	16.89	7.44
JAZAAN	21.80	14.46	21.36	12.19	30.0	15.84
E PROV	12.86	14.79	13.01	7.10	25.58	9.27
ASEER	13.64	6.92	13.16	4.68	12.03	5.54
QASSIM	12.93	7.72	12.38	8.91	16.56	10.43
HAIL	25.1	13.93	24.25	9.52	11.82	9.97
MADINAH	17.75	12.58	17.34	11.16	26.32	13.11
BAHA	16.50	11.61	15.96	11.10	40.58	17.20
N BORDER	19.95	18.26	19.84	19.41	29.88	21.11
TABOUK	11.67	11.61	11.66	5.52	20.45	6.91
NAJRAN	18.21	10.44	17.88	7.71	17.09	8.74
JOUF	18.73	20.1	18.87	19.26	37.80	23.77
OVERALL	13.59	11.82	13.44	7.57	21.69	9.66

Sources: CDS, MOP, (1992) Population Census and CDS Labor Force Survey (2002), Riyadh.

2.1.6 Unemployment Duration

Little is known about the time duration of unemployment in the GCC economies because such data are rarely collected to start with. But the increasing labor strains are inducing interest in the duration and impact of unemployment. For instance, the 2001 population census of Bahrain collected information on the protraction of unemployment among the jobless segment of the labor force. These data reveal that by and large, a significant portion of the unemployed remains idle for extended periods of time that could span for years, Table (9).

Defining unemployment persistence as the “effect of unemployment felt for a minimum period of two years”(Mikhail, Elberwein and Handa, 2003), makes more than 50 percent of persistently unemployed --remain jobless for more than two years. Another 21 percent of Bahrainis are unemployed between one and two years.

When unemployment persists over time, the laid-off workers suffer significant and durable wage reductions. It is also possible that the employability of jobless persons deteriorates as their joblessness persists. Moreover, some laid-off workers may become discouraged and withdraw completely from the labor market. Accordingly, extended unemployment leads to permanent scars. That is, loss of job leads to loss of current earnings and that employers tend to “look down” on the unemployed as “unproductive”

and would tend to hire them, if at all, at lower wages. This perception about the unemployed thus tends to perpetuate their unfortunate conditions in the long-hall.

Table (9) Distribution of Bahraini unemployed according to duration in years, 2001

Duration/Year	Total	Females	Males
Less than one Year	28.4	27.7	29.0
One to less than two years	21.0	21.0	21.0
Two to less than three years	14.9	15.2	14.6
Three to less than four years	8.5	9.2	8.0
Four to less than five years	6.1	6.5	5.9
Five to less than six years	3.7	3.5	3.8
Six to less than seven years	2.9	2.9	2.9
Seven to less than eight years	1.8	1.6	1.9
Eight years or more	12.7	12.4	12.9
All	100	100	100

Source Bahrain's Statistical Yearbook 2003.

Economic literature has suggested two broad mechanisms that explain the irreversibility of certain rises in unemployment. The first is built around the bargaining power of the insiders, who are supposedly able to impede the process of competitive wage adjustment. The other two focus on the low employability of some categories of worker. For instance, the depreciation of specific human capital is considered an important source of protracted unemployment in the case of workers who lose their jobs and suffer an irreversible depreciation of their human capital to the point where it becomes very costly for them to build up new human capital to compensate for lost skills. While micro-level data paucity prevents assessing these alternative mechanism in the GCC environment, Topel (1990) suggests that this phenomenon was significant in the United States in the 1970s and 1980s. After losing a job, workers suffer, on average, a wage reduction between 15% and 4% when they do find a new job.

3. IS UNEMPLOYMENT VOLUNTARY?

The proposition is often put that unemployment in the GCC is voluntary in nature because of two reasons. The first is the high non-wage income of Gulf households which enables job-seekers to live-off their own families. The second is related to the structure of the labor market which provides a persistent disadvantage to low-wage Gulf nationals who are competing for jobs. Thus Bolbol (2002) remarks that the argument of voluntary unemployment "could be true for nationals in the Gulf countries--the so-called "bourgeois or luxury unemployment...". Similarly, in their study of Saudi private sector productivity, AL-Qudsi and Abu-Dahesh (2004) remark that the entrenched welfare economy and rising aspirations of new Saudi labor market entrants have caused dramatic

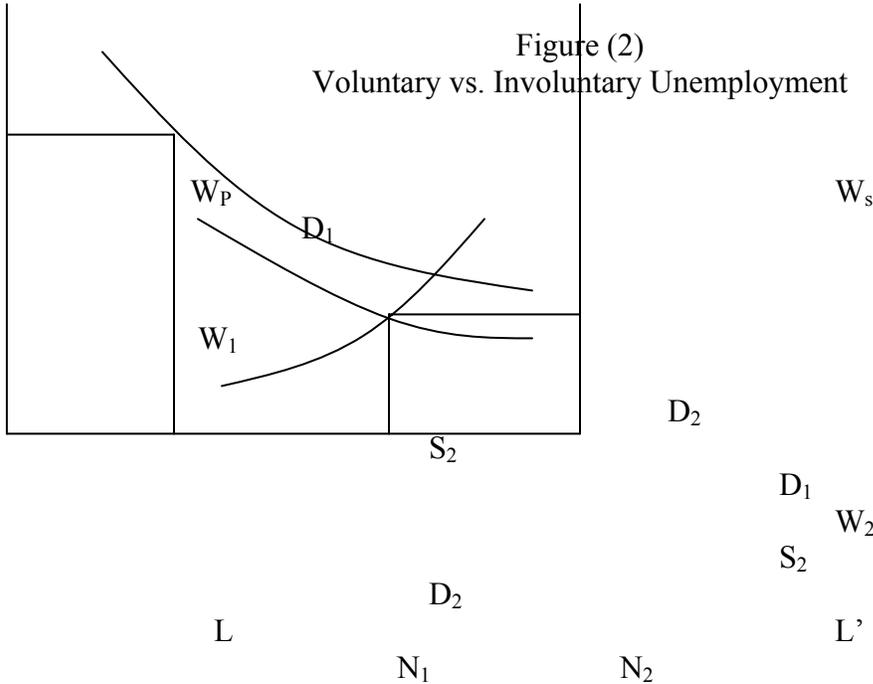
changes in job preferences reflected in the refusal of new entrants to accept dead-end jobs that are dirty, dangerous and difficult. Accordingly, these jobs are left to foreigners.⁶ Empirically, a recent field study covering UAE nationals in micro, small and medium enterprises found that by far the most difficult issue in employing nationals is seen to be the higher salary demands (37% of all reasons given). The study also found out that less than twenty percent of business owners who try to were successful in attracting UAE nationals in their business (Haan, 2002). The findings of this study suggest that GCC nationals get discouraged if not offered relatively high salaries and when their salary demands are not met they choose to remain searching, i.e., unemployed. The perception that their probability of finding work at high salaries is low depresses the perceived benefit-cost ratio of job hunting. In other words, given the low wage offers in the private sector which is saturated with semi-skilled and low-skilled cheap foreign workers, unemployment may be endogenous in that the number of actively seeking work itself strongly depends on the wage offer itself. The study also finds that a major reason why nationals shun away from setting up small businesses for their own employment are: inadequate capital and apprehension that incomes will be lower than their present income. Yet again, the findings buttress the hypothesis that GCC nationals prefer the guaranteed wage in public employment for fear that income from self employment will be lower. Another study of the work conditions in the UAE found that private enterprises are not really attractive to nationals and the primary reason nationals are employed in the private enterprise sector is: “Only job I can find” (Morada, 2002). Besides these arguments and empirical evidence, our analysis in section (2) above showed that the incidence of unemployment is particularly high among the educated youth. One probable way to interpret this pattern is that the educated youth hold out on any employment while living off their families in the hope of having a job in the public sector or formal private sectors where wages and benefits are higher and labor markets are not very competitive.

In order to test the hypothesis that unemployment is voluntary, we utilize a simple theoretical framework⁷. Figure (2), derived from Layard et. al. (1991), explains why unemployment can be simultaneously voluntary and involuntary. For simplicity, the total labor force- the employed plus the unemployed- is assumed to be constant and equal to LL' on the horizontal axis. All workers are willing to work in the primary sector. The demand D_1 for primary sector employment is a function of the primary sector wage, set at W_1 by efficiency wages or union bargaining. Thus primary sector employment is shown by LN_1 . This leaves N_1L workers available for the secondary sector. The curve D_2 shows the demand for labor in the secondary sector as a function of the wage in that sector. The secondary sector labor market is competitive, so that the wage adjusts to clear the market: N_2L' workers are employed at wage W_2 . This leaves $N_1 - N_2$ workers unemployed. These people are willing to work in the primary sector at the going wage W_1 but cannot find work there, but they are unwilling to work in the secondary sector at the going wage W_2 .

⁶ The idea of luxury unemployment is related to the conventional distinction between voluntary and involuntary unemployment. Involuntary unemployment is said to occur when job seekers are willing to work at the “going wage” and cannot find work. Voluntary unemployment, by contrast, is the unwillingness to work at jobs below the skill levels (and hence expected wage offer). In practice, it is difficult to discern the line between voluntary and involuntary unemployment (Reeds, 2004).

⁷ This section draws heavily on the exposition of Kingdon and Knight (2003) and Rissman (2003).

They are thus both involuntarily and voluntarily unemployed in this segmented labor market. All workers not employed in the formal sector are involuntarily excluded from it. Among this group, those who choose not to enter the informal sector do so either for leisure or search reasons, i.e. they are voluntarily unemployed.



Barriers to entry may exclude unemployed workers from the informal sector. However, provided the informal sector contains at least some free-entry activities, the decision not to enter these activities- based on the derisory income that they offer- is nevertheless voluntary. In a sense, economic behavior is always voluntary: economic agents invariably have at least some room for maneuver and choice. The real question is whether the available set of options is so limited as to render unemployment involuntary for the purpose of forming value judgments and making policies. Workers can be found in three different states: wage employment ($L N_1$ in Figure 2), self-employment ($N_2 N'$), and unemployment ($N_1 N_2$). How do workers choose among them?

Consider first the choice between wage employment and unemployment. Given the possibility of redistribution within the household, the distribution of household income according to need creates an incentive for a member to remain needy and thus a disincentive to work. Higher household income, by raising within household transfers, further encourages the consumption of leisure. Thus there is both a disincentive effect (dependent on the extent of redistribution) and an income effect (dependent on the amount of income available for redistribution). If this 'luxury unemployment' hypothesis is correct, unemployment may be regarded as voluntary. There is a second possible reason why workers might choose unemployment rather than wage-employment. It is that the unemployed lack information. In an imperfectly competitive labor market the unemployed face a distribution of wage offers with probabilities attached. They are

willing to remain unemployed until a sufficiently high wage offer arrives: at the margin, the expected return from continued search no longer exceeds the cost of search (Stigler,1962). These forms of unemployment are voluntarily chosen. By contrast, if wage employment is tightly rationed and the probability of securing wage employment is extremely low, workers may be involuntarily unemployed at the going wages.

Secondly, consider the choice between self-employment and unemployment. Why do unemployed workers in the GCC choose to remain unemployed and to search, or to wait, rather than join the free-entry informal self-employment sector? The informal sector might be an end in itself or a means to wage-employment, i.e. a base from which to search, or wait, for wage-employment. We shall examine evidence and test if income from wage-employment exceeds income from self-employment. If so, this suggests that wage-employment is the preferred state. However, income from self-employment may exceed income while unemployed. Why then do the unemployed not choose to search from the self-employed state? One possible explanation is that job-search is more efficient if undertaken while unemployed. In that case, unemployment might properly be regarded as voluntary. However, for many unemployed workers access to those informal sector activities that offer higher income may be prevented by barriers to entry. In that case, unemployment may be the least bad activity for such people.

3.1 EMPIRICAL MODELS

Empirically, we estimated two types of models. In the first, we applied Heckman’s selectivity model in order to simulate the expected wages of the unemployed and inactive. The estimation of the wage equations involves a system of two correlated equations, the first of which determines selection (employment) using a probit equation, while the second determines wage rates, conditional on employment. The correlation between the two equations accounts for the possible selection into work of those with higher wage rates. The wages of workers may therefore not represent the wages of non-workers. Specifically, we apply Heckman’s selection model (Heckman 1976) which assumes that the underlying wage regression relationship is of the following form.

$$w_i = \mathbf{x}_j\beta + u_{1j} \tag{3.1}$$

The dependent variable connoting wages is not always observed however. Rather, the dependent variable for observation j is observed if a person chooses to participate in the labor force. Therefore, the selection equation is:

$$\mathbf{z}_j\gamma + u_{2j} > 0 \tag{3.2}$$

where $u_1 \sim N(0, \sigma)$
 $u_2 \sim N(0, 1)$

and the model assumes that the correlation between the errors of the two equations is

$$\text{correlation } (u_1, u_2) = \rho \quad (3.3)$$

When $\rho \neq 0$, standard regression techniques applied to the first equation yield biased results, Heckman provides consistent, asymptotically efficient estimates for all the parameters in such models.

Once Heckman's selectivity model is estimated, we derive predicted wages that are used in the second set of models where we estimate a multinomial probit model in order to examine the factors that induce workers to select one of these alternative states of activity. These activity states are unemployment, self-employment, waged employment and inactivity. Relevant literature typically focuses on three employment choices (wage work, self employment and unemployment), but we include a fourth choice, inactivity. The inclusion of a separate choice for inactivity (persons outside the labor force) aims to assess the relative magnitude of factors that influence inactivity and the especially the effect of wages on the choice of individuals to become inactive, i.e. exit from the labor market. Our objective is to examine the economic, demographic and personal factors that induce individuals to choose one of these alternatives or the other. The self-employed may be different from others because he has some kind of ability or entrepreneurial capital that confers greater returns in self-employment than in wage work and certainly than unemployment. However, one should also consider the possibility that not all workers are able to locate acceptable work in the wage sector, so that self-employment may be the best alternative available at the time. A worker may for instance choose self employment as a way to supplement his income or self-insure until a better paying job opportunity becomes available in the wage sector (Rissman, 2003).

Let the letters **E**, **S**, **U** and **N** and stand for the respective cases of waged employment, self-employment, unemployment and inactivity, all contingent on personal characteristics and the wage levels. Then, equations 3.4 to 3.7 below represent the form of the four mathematical probabilities to be estimated (Bicakova, 2005):

$$\text{Prob}(\mathbf{E}|\mathbf{X}_i, \mathbf{W}_i) = \frac{\exp(\mathbf{X}_i\beta^{\sim\mathbf{E}} + \alpha^{\sim\mathbf{E}}\mathbf{W}_i)}{\exp(\mathbf{X}_i\beta^{\sim\mathbf{E}} + \alpha^{\sim\mathbf{E}}\mathbf{W}_i) + \exp(\mathbf{X}_i\beta^{\sim\mathbf{S}} + \alpha^{\sim\mathbf{S}}\mathbf{W}_i) + \exp(\mathbf{X}_i\beta^{\sim\mathbf{U}} + \alpha^{\sim\mathbf{U}}\mathbf{W}_i) + \exp(\mathbf{X}_i\beta^{\sim\mathbf{N}} + \alpha^{\sim\mathbf{N}}\mathbf{W}_i)} \quad (3.4)$$

$$\text{Prob}(\mathbf{S}|\mathbf{X}_i, \mathbf{W}_i) = \frac{\exp(\mathbf{X}_i\beta^{\sim\mathbf{S}} + \alpha^{\sim\mathbf{S}}\mathbf{W}_i)}{\exp(\mathbf{X}_i\beta^{\sim\mathbf{E}} + \alpha^{\sim\mathbf{E}}\mathbf{W}_i) + \exp(\mathbf{X}_i\beta^{\sim\mathbf{S}} + \alpha^{\sim\mathbf{S}}\mathbf{W}_i) + \exp(\mathbf{X}_i\beta^{\sim\mathbf{U}} + \alpha^{\sim\mathbf{U}}\mathbf{W}_i) + \exp(\mathbf{X}_i\beta^{\sim\mathbf{N}} + \alpha^{\sim\mathbf{N}}\mathbf{W}_i)} \quad (3.5)$$

$$\text{Prob}(\mathbf{U}|\mathbf{X}_i, \mathbf{W}_i) = \frac{\exp(\mathbf{X}_i\beta^{\sim\mathbf{U}} + \alpha^{\sim\mathbf{U}}\mathbf{W}_i)}{\exp(\mathbf{X}_i\beta^{\sim\mathbf{E}} + \alpha^{\sim\mathbf{E}}\mathbf{W}_i) + \exp(\mathbf{X}_i\beta^{\sim\mathbf{S}} + \alpha^{\sim\mathbf{S}}\mathbf{W}_i) + \exp(\mathbf{X}_i\beta^{\sim\mathbf{U}} + \alpha^{\sim\mathbf{U}}\mathbf{W}_i) + \exp(\mathbf{X}_i\beta^{\sim\mathbf{N}} + \alpha^{\sim\mathbf{N}}\mathbf{W}_i)} \quad (3.6)$$

$$\text{Prob}(\mathbf{N}|\mathbf{X}_i, \mathbf{W}_i) = \frac{\exp(\mathbf{X}_i\beta^{\sim\mathbf{N}} + \alpha^{\sim\mathbf{N}}\mathbf{W}_i)}{\exp(\mathbf{X}_i\beta^{\sim\mathbf{E}} + \alpha^{\sim\mathbf{E}}\mathbf{W}_i) + \exp(\mathbf{X}_i\beta^{\sim\mathbf{S}} + \alpha^{\sim\mathbf{S}}\mathbf{W}_i) + \exp(\mathbf{X}_i\beta^{\sim\mathbf{U}} + \alpha^{\sim\mathbf{U}}\mathbf{W}_i) + \exp(\mathbf{X}_i\beta^{\sim\mathbf{N}} + \alpha^{\sim\mathbf{N}}\mathbf{W}_i)} \quad (3.7)$$

The vector of personal characteristics is directly observable from the sample while the vector of expected wages is derived from Heckman's selectivity model above. Because they cover wage and income variables, we utilize Kuwait's 2000 income and budget survey data in order to estimate the Heckman and multinomial sets of model. However, we also applied the multivariate probit model to Oman's rich 20 percent sample from its 1993 population census data in order to gauge the impact of poor health on the employment status. Thus in the case of Kuwait we estimate a multinomial probit model containing the four choices while the in the case of Oman we apply five-equation multivariate probit model. The five equations correspond to the five categories of disabled, secondary/university education, unemployment, waged employment and self-employment. It is known that the multinomial probit (MNP) model is used with discrete dependent variables that take on more than two outcomes that do not have a natural ordering. The stochastic error terms for this implementation of the model are assumed to have independent, standard normal distributions. The model assumes that the data has a single observation for each individual decision maker in the sample. This is exactly the case for Kuwait's household expenditure and income survey data.

On the other hand, in the case of Oman, individual decision makers encounter more than one observation, rendering the application of the third modeling type, the multivariate probit model, suitable for the sample. For instance, a disabled person may choose to be inactive or in the labor force. Likewise, the choice to continue education is affected by personal characteristics as well as by the labor market status, so an individuals may be disabled and at the same time choose to be inactive, pursue education, or in the labor market as waged or self employed worker. While Oman's much larger data set allows the estimation of the impact of disability on the categories of education, employment, inactivity and unemployment, it does not contain information on wages and incomes and hence does not allow simulating the potential impact of wages on the unemployment or inactivity or other labor market status.

Econometrically, we apply the following five equations multivariate model to Oman's data set:

$$y_{im}^* = \beta_m' x_{im} + \varepsilon_{im}, m = 1, \dots, M \quad (3.8)$$

$$y_{im} = 1 \text{ if } y_{im}^* > 0, \text{ and } 0 \text{ otherwise.} \quad (3.9)$$

Where ε_{im} , $m = 1, \dots, M$ are distributed as multivariate normal with mean vector 0 and covariance matrix R with diagonal elements equal to 1.0 and each individual equation is a standard probit model and the number of equations to be estimated ($1, \dots, M$) is five.

In estimating the marginal effects for this model, notice that the expected value of y_1 given that all other y s equal one is

$$E[y_1 | y_2 = 1, \dots, y_M = 1] = \text{Prob}(y_1 = 1, \dots, y_M = 1) / \text{Prob}(y_2 = 1, \dots, y_M = 1) = P_{1\dots M} / P_{2\dots M} = E_1. \quad (3.10)$$

The derivatives of this function are constructed as (Greene, 2003):

$$\partial E_1 / \partial X = \sum_{m=1, \dots, M} (1/P_{2 \dots M}) [\partial P_{1 \dots M} / \partial z_m] \gamma_m - E_1 \times \sum_{m=2, \dots, M} (1/P_{2 \dots M}) [\partial P_{2 \dots M} / \partial z_m] \gamma_m \quad (3.11)$$

We believe that the two sets of estimation will complement each other and help us derive a more precise assessment of the employment choices that GCC individuals make and the factors that constrain their economic behavior.

3.2 EMPIRICAL FINDINGS

Our empirical findings in the case of Kuwait are summarized in Table (10). The predictions of the models, with some exceptions, bear up well to confrontation by data. The results of Heckman's selectivity model accord well with existing evidence on cross section studies of labor supply. For instance, the returns to education by level fall within the range in the literature. The marginal rates of returns to education are (about 20% point increase) as one moves from no education to the elementary education category. The returns are smaller for intermediate and secondary levels, ranging from approximately three percent for the elementary to primary to about 4% for the move from primary to secondary. The returns increase substantially however, by 26%, as individuals achieve university education. The earnings function peaks at the age of 61, which signifies a rise in the age at which earnings are maximized relative to the age-earnings profile of the early 1980s (Al-Qudsi, 1985). Noteworthy too is the positive sign of the coefficient connoting public sector, which corroborates a stylized fact about the earnings premium that Kuwait's public sector workers enjoy (Al-Qudsi, 1989; El-Qaisi, 2001). With the exception of the coefficient of one of the governorates, the other variables of the selectivity equation are robust at the one percent level of significance. The number of earners in the household is positively associated with earnings reflecting the existence of positive information externalities with respect to family networks, connections and exchange of insiders' information pertinent to wages and promotions. Validating earlier empirical findings (Hosni and Al-Qudsi, 1988), the model's estimated parameters indicate that the expected earnings of men are higher than women's in the context of Kuwait's labor market. Finally, the coefficient of the selectivity variables (λ) is significant suggesting that the equations of earnings and selectivity are highly dependent and therefore the application of Heckman's selectivity model to Kuwait's sample is satisfactory.

The above model was used to predict wages of all individuals according to labor market status. The vector of predicted wages was then included as a repressor in the multinomial regression below.

The four probabilities of being in waged employment, self-employment, unemployment and inactivity, estimated by the multinomial probit model are presented in Table 11. The results suggest that wages and household non-wage incomes exert an import influence on the four labor market categories. Wages are positively related to employment (waged and self) and inversely related to unemployment and inactivity. Coefficients of non-wage income indicate that family resources are inversely related to unemployment and

therefore, rising household non-wage income reduces the probability of unemployment. That is, wealthier families do not seem to encourage their members to remain unemployed because they can afford to redistribute resources to the inactive members. The high unemployment rate, (11%) for the poorest 20 percent of households is five times the corresponding rate (2.2%) in the case of households on the top of income strata (data not shown).

Table (10) Heckman Selectivity Model, Kuwait 2000

Equation/variable	Coefficient	Standard Error	Variable Mean
1. Log wages			6.4799
Elem. ed=1	.1994*	.0792	.0400
Prim. Ed=1	.2309*	.0694	.2795
Secondary ed=1	.2709*	.0697	.2601
Univ. ed.=1	.5354*	.0692	.2978
Age	.0636*	.0055	34.871
Age sq	-.0005*	.0001	1355.3
Public sector=1	.2102*	.0437	.9585
Constant	5.0695*	.1169	
2. Selectivity			
Male=1	1.0069*	.0284	.4737
Bread winners	.1176*	.0080	3.246
Apartment=1	-.0939*	.0349	.6146
Villa=1	.6874*	.0499	.1794
Capital=1√	.2044*	.0497	.1512
Hawalli =1	.1151*	.0402	.3899
Ahmadi=1	.3049*	.0539	.1079
Farwania=1	.0183	.0461	.1916
Constant	-1.094*	.0546	
Lambda	-.3608*	.0146	
N	7375		
Wald χ^2 (7)	1821.47		

*=significant at the 1% level. √=The benchmark governorate is Jahra.

The overall fit of the model, gauged by Wald's χ^2 is satisfactory. Moreover, in the case of most variables the derived standard errors of individual coefficients are highly robust. Since we are interested in assessing the direction of causality and marginal effects of wages on each of the four labor categories, Table (12) shows the marginal effects in the case of waged employment (E), self-employment (S), unemployment (U) and inactivity (N). The results indicate that there is significant negative effect of the wage on unemployment in Kuwait. Since the marginal effects add up to one, the marginal effect of wage on the probability of being self-employed is the residual effect, which is always positive. The marginal effect of wages on the probability of being employed is highest at (1.46 percentage point increase). On the other hand, the marginal effect of wages on the probability of being unemployed is negative (-0.38 percentage point decrease relative to the base case of self employed).

Table (11) Regression Results of the Multnomial Probit Model, Kuwait 1999-2000

Variable/ Equation	Waged Workers (E)		Unemployment (U)		Self Employment (S)	
	COEFF	SE	COEFF	SE	COEFF	SE
Wage	2.071*	.534	-4.55*	.597	-2.596	-4.89
Other Income	-.315*	.041	-.231*	.0427	-.1733	-4.24
Age	.189*	.0498	.164*	.0577	-.1635*	.0489
Age squared	-.003*5	.001	-.0023*	.0007	.0019*	.0006
Family size	-.0033	.018	.0257	.0198	.0309**	.018
Single=1	-.302**	.176	-.685**	.426	1.61*	.394
Married=1	.123*	.042	-1.49*	.361	1.17*	.531
Constant	-9.965*	2.94	27.39*	3.25	23.19*	2.91
N	10970					
Wald χ^2	3397.7					

*=significant at 5% or less **=significant at 10%.

Note: the model is estimated for Kuwaiti individuals between the ages of 18 and 64 .

Table (12) Marginal Effects of the Multinomial Probit model, Kuwait 2000

Marginal Effects	Waged Workers (E)	Unemployment (U)	Self Employment (S)	Inactive(N)
Wage	1.464 (32.2)	-.376 (-13.8)	.001 (1.06)	-1.089 (-24.7)
Other Income	-.0393 (-12.1)	.0014 (1.18)	.0003 (1.85)	.0375 (19.04)
Age	.0892 (18.38)	.0120 (4.34)	-.0001 (-.70)	-.1012 (-21.5)
Age squared	-.0014 (-21.9)	-.0001 (-3.26)	1.4 Exp-06 (1.1)	.0015 (24.8)
Family size	-.0099 (-7.87)	.0011 (1.42)	-.0002 (-1.76)	-.0089 (7.2)
Single=1	.273 (11.9)	.029 (3.16)	.0001 (1.45)	-.303 (-12.7)
Married=1	.281 (15.4)	-.044 (-9.04)	.002 (2.9)	-.235 (-13.6)

Note: lower figures in parentheses are Z-values. The base category is a single male Kuwaiti individual who is between 20 and 29 years of age and who belongs to the median income class.

These results lead to the unambiguous conclusion regarding the adverse effect of low wages on unemployment. The negative effect of wage is also shown in the case of

inactivity where the marginal effect of wages is (-1.09 percentage point decrease relative to the base case of self-employment).

Figure (3) shows the effect of wages on three labor market categories: employment, unemployment and inactivity. Clearly, wages exert positive effect on employment as the probability of waged employment becomes basically 100% as wage increase. In reality however, in order for wages to rise, labor productivity of the national workforce must rise as well, thereby enabling the economy to achieve higher sustainable economic growth rates. On the other hand, inducing more nationals into the category of the “employed” by merely increasing wages without sufficient regards to productivity does not make good economic sense because it will exacerbate the already high governments’ wage bills. In reality, such policy would echo historical employment and wage policies that have already nurtured hard-to-reverse expectations among nationals and contributed to segmenting the labor markets.

Figure (3) also supports the conclusion that wages also matter for the inactive. That is, when wages reach a certain threshold level, some of the inactive will move from the state of inactivity into the state of active employment. The significance of this conclusion is seen when one recalls that along with increased reliance on foreign workers and the declining average wages, the participation rate of the national working age population has declined in the GCC countries in spite of the growing number of women actively engaged in labor market activities. The declining participation rate helped reduce somewhat the unemployment pressure. Unequivocally therefore, our empirical findings do not support the argument that the status of unemployment is a matter of personal choice or preference i.e., Gulf jobless individuals do not deliberately choose to be unemployed⁸.

I further illustrate the effects of the household income on unemployment for Kuwaiti men aged 18 to 29 and for prime-aged men (24-54) by graphing unemployment as a function of household income deciles in Figure (4). Clearly, non-wage incomes matter for the unemployed Kuwaitis. The curve of being unemployed is steeper for younger Kuwaitis than for prime-aged individuals. In both cases however, there is a strong effect of non-wage household income on unemployment.

Despite statistical robustness, the finding is provisional and must be qualified because Kuwait’s income and expenditure data does not cover information on “job search” and unemployment duration; elements that are needed in order to conduct a more rigorous and robust assessment of the “luxury” hypothesis.

⁸ The choice could be induced by the desire to have more leisure which is a normal good

Figure (3)

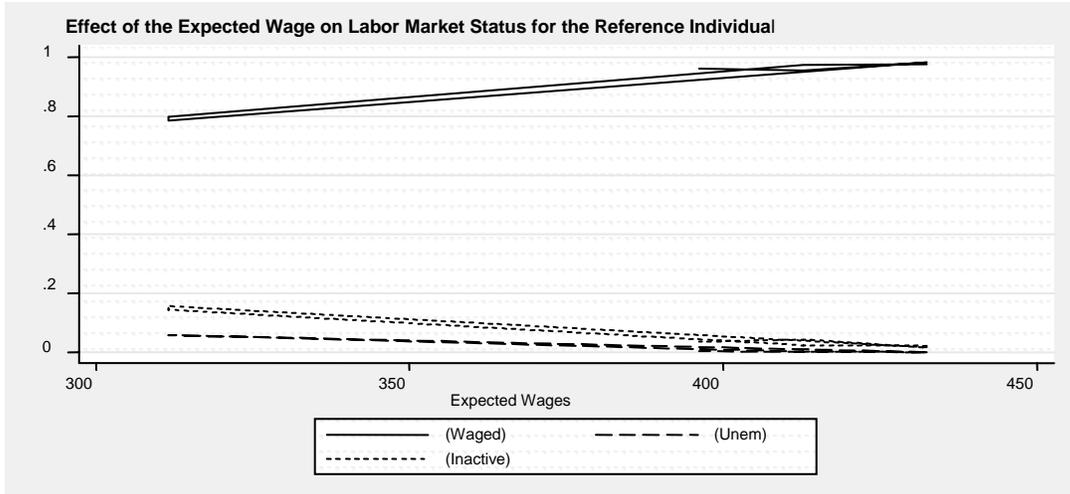
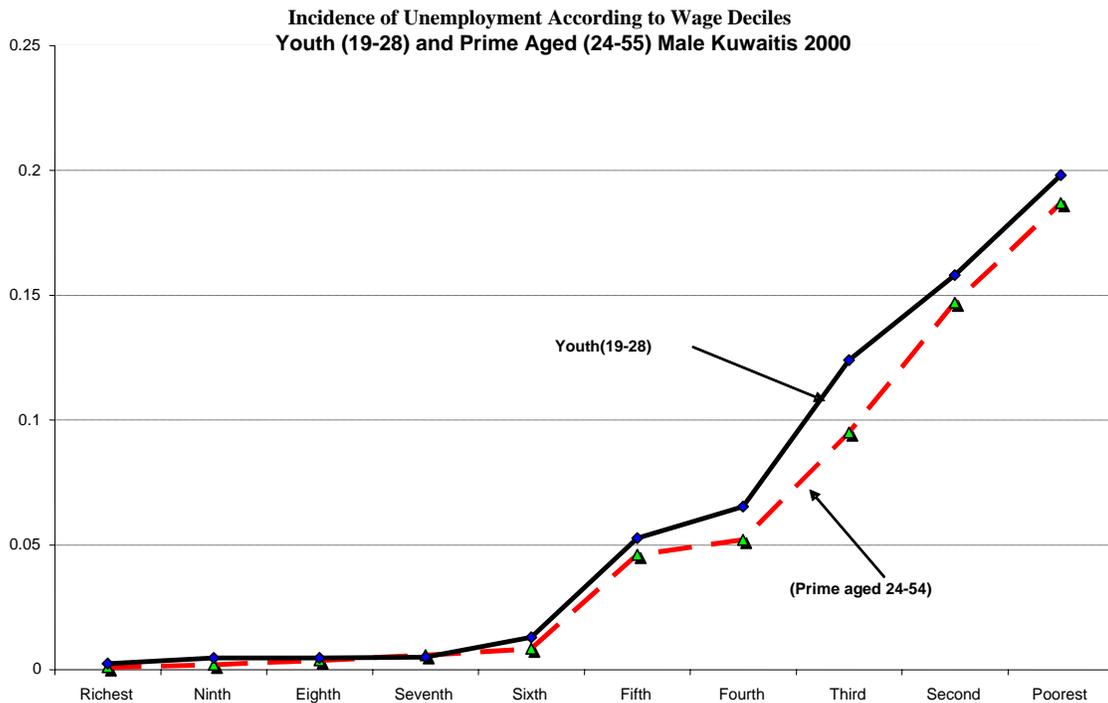


Figure (4)



The results also validate the findings that the incidence of unemployment is higher among secondary and university educated individuals as shown in Table (13) which depicts the distribution of labor force status according to two educational levels, secondary school and university education categories. The Table shows that the

proportion of secondary school is 23% among the self-employed, 19% among waged employment, 29% among the unemployed and nearly 41% among the inactive. Likewise, among the self-employed category, the proportion of university-educated is 48%, 29% among waged employment, 32% among the unemployed and about 10% among the inactive Kuwaitis. Therefore, individuals with secondary education or more are more represented among the categories of “unemployed” and “inactive” than among the “wage-employed” category, corroborating the hypothesis that unemployment is more prevalent among fresh graduates.

Table (13) Labor Force Status By Education, Kuwaitis 18-64 Years Old

Employment Status	Secondary (%)	University (%)
Self employed (S)	23	48
Waged employment (W)	19	29
Unemployed (U)	29	32
Inactive (N)	41	10

Source: author computations based on Kuwait’s FBS, 2000

So why are they unemployed? Theoretically, an individual prefers employment when the current wage offer is relatively high, non-participation (leisure) when the realized value of non-market time is relatively high and unemployment when both are relatively low (Kiefer and Neumann, 1989). As expected, our empirical findings confirm that the reservation wage is higher than offered wage. Estimates from Heckman’s selectivity model indicate that the expected wages for the sub-sample of unemployed is substantially lower than expected wages for the self employment and wage work alternatives. The expected wage of unemployed Kuwaiti natives is less than 37 percent the corresponding expected wage of Kuwaitis employed as wage workers. It is also less than 49 percent the expected earnings of self-employed Kuwaitis. So from the pure economic perspective the status of unemployment is inferior to wage employment and to self employment activities⁹. Apparently, GCC natives who are fresh graduates do not engage immediately in active employment because of relatively low wage offers. The culprit is more likely the open-door labor importation policies that led to the influx of a large reservoir of foreign workers who completed secondary education or less and whose ample and elastic supply depresses wages for natives in those skill categories; i.e. the exact category of fresh native graduates or school leavers that is trying to compete for jobs but at higher remuneration rate. Specifically, data from Kuwait’s income and expenditure survey indicate that average wages of natives in the age groups 20 to 29 who have completed high school is more than 135 percent higher than the corresponding wages of foreign workers in that same education and age cohort. Notice however that foreigners in that cohort have slightly more experience, 8 years relative to 7 years for employed Kuwaitis. Moreover, more than 80 percent of the native unemployed are first-time job seekers who are basically fresh graduates from the secondary school system and hence do not have

⁹ The ranking may differ however if a broader index of welfare or happiness is considered. The obvious reason is that by definition the unemployment state entails availability of more time for leisurely activities. Kuwait’s micro-data did not cover information on own welfare or happiness assessment.

any prior experience. Therefore, natives with no experience whatsoever have to compete with foreign workers with 8 years of experience on average and whose actual salary is 135 per percent less than the level that native entrants expect to receive; a very tough call indeed.

The large wage and experience differentials between native and foreign workers suggest that GCC governments may wish to focus on orchestrating friendly labor market policies, comprising effective training programs that can help the natives bridge the experience gap in a relatively short period of time. These policies must be activated along with measures that reform the education system by making it more sensitive to the fast-changing job requirements of modern labor markets. It may be useful in this regard to consider Germany's approach to vocational education and training system commonly known as "the dual system" of education. The system is called "dual" because its vocational education and training are provided simultaneously (i.e. during a single program of work/study) to participants by schools and employers respectively. Together with academic classes taught in public schools, large companies and small companies provide practical training during one or two days per week. The dual system is also believed to deliver relatively low youth unemployment rates because it facilitates an orderly school-to-work transition evidenced by the fact that companies that do training employ 70 percent of Germany's workforce (Petrosky, 1998; Fersterer, Pischke and Winter-Ember, 2004; European Employment Observatory, 2004).

Beyond the recommendation that GCC countries initiate training and education policy reform that emulates and adapts the German system, our findings suggest that the GCC economies should initiate simultaneous reform of the labor importation policy in a way that introduces much more selectivity towards the more skilled and educated migrants. Parallel policy reforms should target the labor market by removing rigidities introduced by the Kafil system and enhancing mobility of foreign and native workers (Al-Qudsi and Abu-Dahesh, 2004).

The equation of self-employment suggests that self-employed individuals tend to be older cohorts and that the likelihood of self-employment increase with education and peaks for persons who have secondary education. Household resources contribute positively to the chances of self-employment suggesting that entry into this mode of employment may be constrained by liquidity considerations. Parents' education does not appear to bear at all on the likelihood that an individual will be self-employed. In the equation of waged individuals, the age and education variables are statistically significant and have the expected signs. Likewise, household resources are firmly associated with waged employment. Therefore, the policy inference here is that GCC governments could facilitate the transition of the unemployed to self-employment by availing credit and job information and by training schemes in such areas as small crafts and small businesses.

3.2.1 OMAN'S EMPIRICAL FINDINGS

We move next to discuss Oman's empirical findings, Table (14). Notice first that most of the variables in the five-equations are robustly significant and have the correct signs.

Table (14) Regression Results of the Multivariate Probit Model, Oman 1993

Equation/Variable	Disabled	Second/university	Unemployed	Self employ	Wage work
Age	.0092 (1.07)	-.0546 (-9.53)	-.0437 (-3.74)	.0918 (4.93)	.0699 (17.22)
Age sq	.0002 (2.87)	-.0003 (-4.20)	.0005 (2.92)	-.0008 (-3.87)	-.0008 (-16.47)
Urban=1	.3243 (12.78)	-.4197 (-29.60)	-.4256 (-8.24)	-.0064 (-0.12)	-.4280 (-32.69)
H. size	.0014 (3.08)	-.0191 (-28.43)	.0015 (2.12)	-.0005 (-0.36)	-.0105 (-17.99)
Disabled=1	...	-.6764 (-3.81)	.085 (1.87)	.0372 (2.16)	-.3206 (-3.24)
Own Education level					
Elementary	-.1428 (-1.36)	...	.5411 (6.42)	.2996 (2.04)	.9641 (33.86)
Intermediate	-.4720 (-4.57)	...	.1883 (2.44)	.2228 (2.09)	.9852 (46.20)
Secondary	-.3383 (-4.64)	...	.4294 (6.56)	.3322 (3.60)	1.036 (50.81)
University	-.3228 (-3.42)	...	.1664 (1.60)	-.3893 (-1.46)	1.291 (63.76)
Mother's Education level					
Intermediate	.1233 (1.47)	-.3427 (-7.79)	.2828 (3.55)	.3172 (2.86)	.4105 (14.60)
Secondary	-.0420 (-.048)	2.571 (84.63)	.5005 (7.70)	.3017 (3.01)	1.103 (46.18)
University	-.1820 (-0.95)	2.942 (49.07)	.2566 (2.17)	.1552 (0.92)	1.657 (37.15)
Father's Education level					
Intermediate	.0059 (0.09)	-.5496 (-14.25)	.2319 (3.18)	.1273 (1.16)	-.1118 (-4.14)
Secondary	-.1506 (-2.28)	-.1457 (-5.13)	.1619 (2.52)	0.080 (0.82)	-.0436 (-1.94)
University	-.0879 (-1.08)	.0441 (1.35)	.0857 (1.16)	.2681 (2.68)	-.2782 (-10.07)
Mother's age \diamond	.0076 (7.26)	...	.0150 (8.44)	...	...
Intercept	-3.518 (-18.86)	.8236 (8.98)	-2.447 (-9.91)	-5.318 (-13.31)	-2.936 (-37.88)
Log likelihood	-54812.4				
Wald χ^2 (72)	26859.2				
N	101726				

Parenthesized lower figures are the z-values of estimated coefficients. The likelihood ratio test that $\rho_{21}=\rho_{31}=\rho_{41}=\rho_{51}=\rho_{32}=\rho_{42}=\rho_{52}=\rho_{43}=\rho_{53}=\rho_{54}=0$ is $\chi^2(10)=7250.3$. Therefore, parameter efficiency considerations justify the use of multivariate estimation technique. \diamond = when child was born.

For example, in the equation of handicapped individuals, the coefficient connoting age and its squared terms are both strongly positive indicating that older individuals are strictly more likely to be handicapped than younger cohorts. The findings reveal that the

larger the family size, the higher is the probability that the person will be handicapped; implying that competition for household resources causes the health status of members to deteriorate. Educated parents are less likely to have handicapped children but not all the coefficients of parents' education are statistically significant. The older the mother is at the birth of the child, the higher the likelihood of mental and or physical impairment. Persons that live in urban areas are more likely to be handicapped than individuals in rural areas. This finding may mask declaration response bias, increased awareness of "disability" and/or increased willingness to state true health status as health facilities become more available in urban areas. On the other hand, urban areas may cause higher disability rates as a result of heavy industrial clusters and traffic accidents.

In the equation "achieving secondary schooling or better", the coefficient of age and its squared term are strictly negative which is in line with the expectation that older cohorts are less educated relative to young individuals. In the third equation connoting "unemployment", the probability of unemployment is higher if the person is physically and/or mentally impaired. The switched signs for age and its squared term indicate that the prospects of unemployment decrease with age reaching a global minimum at around 44 years. However, past that age it starts to rise somewhat slowly. The prospects of unemployment decline with education but increases significantly for graduates of the secondary schooling system. While unemployment is positively associated with university education, the size of the coefficient is nearly one-third its corresponding size for secondary-educated persons. It is interesting however that the education of parents does not necessarily mitigate the unemployment prospects of offspring. The likelihood of self-employment increases with education up to the secondary schooling.

However unlike the results for Kuwait, Oman's university education appears inversely related to the prospects of self-employment. This suggests that the university-educated queue for government jobs and that the risk-taking and entrepreneurial spirit that are typically associated with self-employment are somewhat lower for university educated relative to persons with secondary education or less. This is also seen from the robustly positive coefficients of university education in the equation gauging wage employment. Waged employment is less prevalent in urban areas and increased household size is associated with reduced prospects for waged employment. The coefficient of the variable connoting "disability" in the wage employment equation strongly suggests that handicapped persons are less likely to work in waged jobs, which corroborates the findings of Abedin (2002) discussed above.

4. MACROECONOMIC DETERMINANTS OF UNEMPLOYMENT

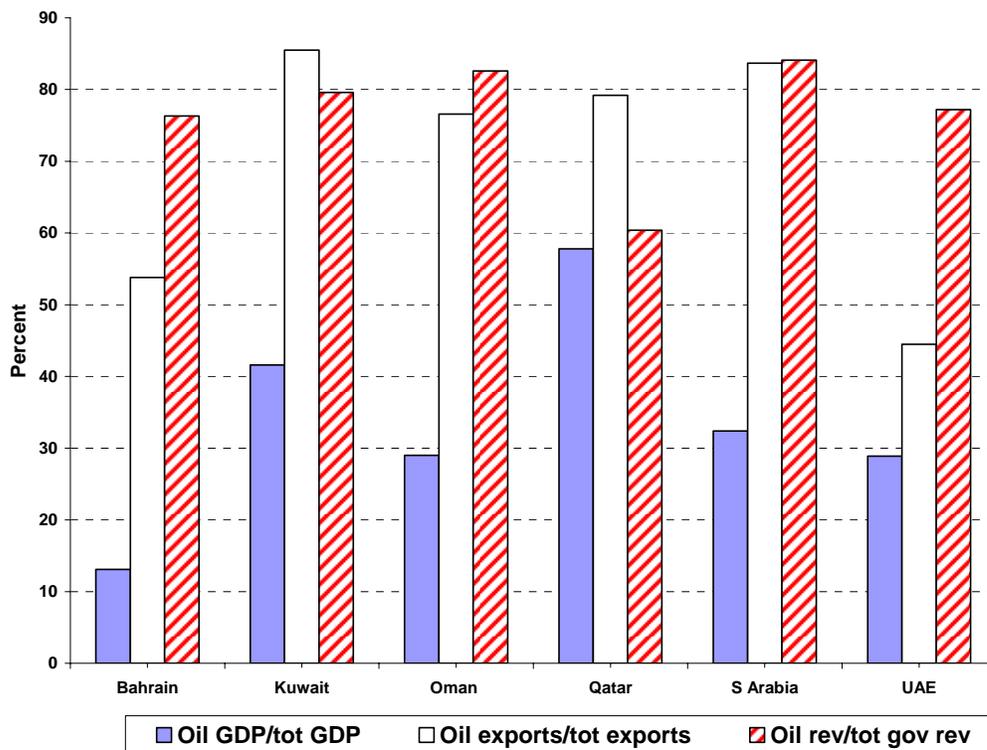
The focus of the remainder of this paper is on the macro determinates of unemployment. A thumbnail sketch of the literature indicates that research on unemployment over the past decades has identified a number of plausible determinants of equilibrium or long term unemployment. The factors include economic growth, inflation rates, unemployment insurance, active labor market policies, taxes, and unions and system of wage setting (Calmfors and Holmlund, 2000). However, in the context of the GCC economies, oil prices may also be influential in explaining the evolution of

unemployment and, therefore, tests are performed below to (in)validate the hypothesis that they cause unemployment variations.

4.1 UNEMPLOYMENT AND OIL PRICES

As commonly known, the GCC countries are heavily dependent on oil as a source of income and revenue for the governments. As the first part of the study indicated, the GCC countries have the largest oil reserves in the world. Oil dependency can be seen from several indicators. In 2004 for instance, oil GDP represented 42% of total GDP in Kuwait, 57% in Qatar 33% in Saudi Arabia and about 29% in Oman and the UAE. Its share was lowest in Bahrain, 13%, because Bahrain’s oil reserves and production capability rank lowest among the six GCC economies. Oil exports represent a large share of total exports in the GCC, ranging from 54% in Bahrain to 84% in Saudi Arabia and 86% in Kuwait. Lastly, oil revenues represent 76% of total government revenues in Bahrain, 80% in Kuwait and 84% in Saudi Arabia, Figure (5).

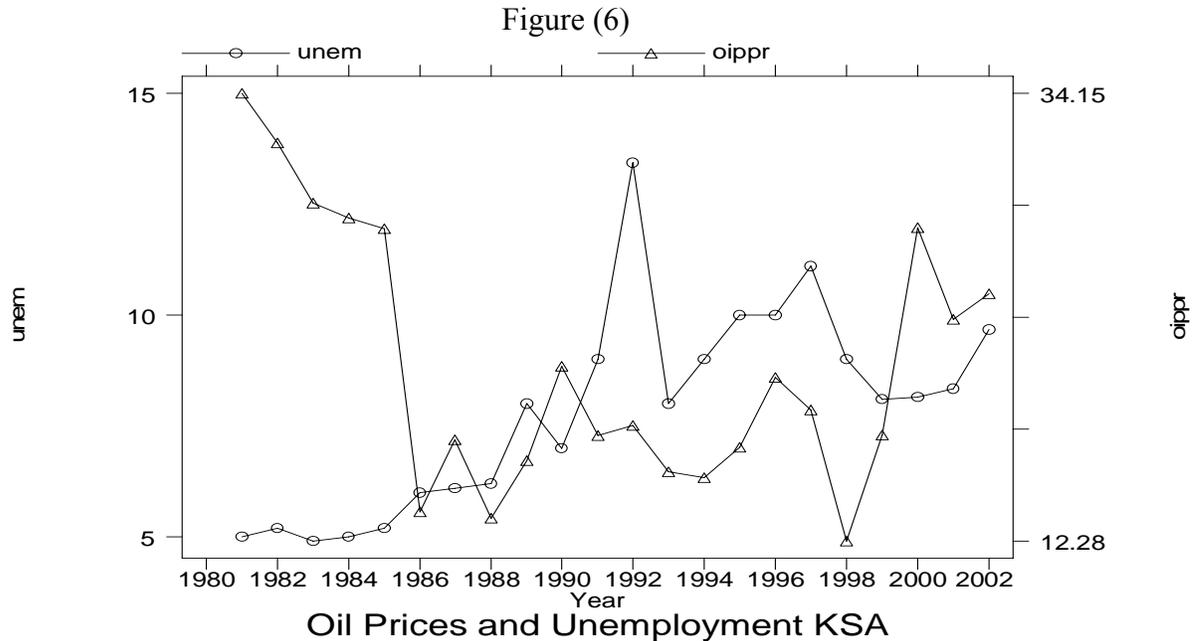
Figure (5)
The share of oil in GDP, exports and government revenues GCC 2004.



Source: International Monetary Fund (2005): “Regional Economic Outlook: Middle East and Central Asia Development” : IMF September, Washington D.C.

Therefore, this section tests for probable direct impact of oil prices on unemployment. The hypothesis is that the level of oil prices are inversely associated with unemployment in the GCC economies. That is, we attempt to gauge if there is direct causal relationship

between oil prices, summarized by OPEC's oil basket price¹⁰, and unemployment in the GCC economies. Figure (6) portrays the relationship between the two variables, unemployment on the left-scale and oil price on the right scale, in the largest GCC economy, Saudi Arabia¹¹.



Visually, with the exception of some reversed turning points, there appears to be a negative relationship between unemployment and oil prices and the simple correlation coefficient between the two variables is (-.47). However, the two series appear non-stationary so we took first differences which produced stationary series. In order to determine whether there exist any long-run equilibrium relationships, we follow Engle-Granger (1987) and fit the co-integrating regressions:

$$O_t = \beta_0 + \beta_1 u_t + e_{ty} \quad \text{and} \quad (2a)$$

$$U_t = \alpha_0 + \alpha_1 o_t + e_{tu} \quad (2b)$$

Where O_t is the logarithmic level of real oil prices and U_t is the size of the unemployment rates in the individual countries.

The results of the Granger causality tests, Table 15, are somewhat mixed. First, the test results lead us to reject the null hypothesis that oil prices do not Granger cause unemployment in the case of Saudi Arabia, UAE and Bahrain. That is, the hypothesis that past oil prices do not affect future unemployment rates is rejected in the three countries.

¹⁰ Organization of Arab Petroleum Exporting Countries, *Annual Report*, 2004 and Ministry of Petroleum and Mineral Resources, KSA Crude oil Facts 1981-2003 www.mopm.gov.sa.

¹¹ An anonymous referee suggested testing this relationship in the context of GCC oil economies.

Table (15) Granger Causality Tests: Unemployment versus Oil Prices

Hypothesis/ Country	ΔO_t does not Granger cause ΔU_t		ΔU_t does not Granger cause ΔO_t	
	COEFF	PROB	COEFF	PROB
Bahrain	1.92	.141	35.67	0.00
Kuwait	2.57	.068	25.83	00
Oman	38.01	0.00	38.01	00
S. Arabia	1.07	0.38	10.78	00
UAE	0.86	0.47	29.13	00
Qatar	..	..	..	..

... Indicates insufficient data points to conduct the test

Findings from the statistical test imply that higher oil prices increase government revenues which in turn enable governments to place more nationals in public sector jobs and thereby reduce unemployment. However, the hypothesis that oil prices do not Granger-cause unemployment is accepted in the case of Oman and Kuwait and so the results are mixed here. Expectedly, the reverse hypothesis that unemployment does not Granger cause oil price changes is accepted in all five countries whose data allow causality testing. Therefore, while there is thus somewhat strong evidence of causality in only one direction, we are not able to confirm that oil prices strongly Granger cause unemployment in all GCC economies. Our inability to derive robust causality stems from conceptual and data sources. As noted in the first section, there are no quarterly data on unemployment in the GCC economies. Hence, we do not have long-enough data series to properly test the monthly or quarterly variations in unemployment that might be caused by monthly or quarterly variations in oil prices. Conceptually however, the net effect of oil prices might not be determined a priori. That is, oil prices might have two differential effects at the individual and policy levels. From the perspective of policy makers, higher oil prices lead to higher government revenues which can be utilized to employ individuals who are actively seeking jobs and hence its effect, at the macro level, is positive. The last section of this paper offers preliminary tests the effectiveness of government policies in reducing unemployment. From the micro, or individual perspective however, higher oil revenues may produce adverse labor supply effect. That is, individuals who correctly anticipate that oil prices will lead the government to increase its spending on social and welfare programs might choose to consume more leisure and continue their search efforts rather than accept existing wage offers. The next section deals with other unemployment determinants.

4.2 UNEMPLOYMENT AND OUTPUT GAPS

The fundamental relationship between the unemployment rate and the growth of real output has been known to economists for a very long time. In his seminal work, Okun (1962) proposed a coefficient which gives the rate of change of real output for a given

change in unemployment rate. The change in real output is defined with respect the trend output growth rate and, accordingly the focus was on estimation of potential GDP. He formalized this relationship into a statistical one, indicating the extent to which the unemployment rate is negatively related to real output growth. Okun's relationship is driven by underlying factors, for instance, a drop in the unemployment rate is expected to induce an increase in the labor participation rate, hours worked and productivity, thus resulting in an increase in output (Adanu, 2002; Lee, 2000; Schnabel, 2002). Therefore, the focus here is on estimating the basic long-run relationship between unemployment, its lagged values and the deviations of actual from potential output, the output gap. Lagged unemployment are incorporated as explanatory variables in order to test the unemployment persistence hypothesis. We also test the hypothesis that unemployment depends on the output gaps measured by annual deviations of actual from potential output. Testing for the impact of output gaps on unemployment allows inference about the presence of Okun's law in the context of GCC countries.

Our estimation strategy proceeds at two levels. In the first, we apply a panel data model in order to estimate Okun's law for five of the six GCC countries. The second level applies OLS estimation method to five of the six GCC economies. For each country, potential output and the output gap is derived using the Hodrick-Prescott filter. The gap estimates are then incorporated into regression functions that also include lagged values of unemployment in an attempt to capture the dynamics involved, including persistence of unemployment.

To ensure robust causality, the model below is estimated using variables in differenced form. The findings shown in Table (16) suggest that there is a measurable amount of persistence in the unemployment rate as differenced unemployment rates are influenced by higher-order differences of unemployment rates which prevailed in earlier periods. Estimates are statistically robust and the relevant statistics of individual coefficients indicate strong causality at the one percent level.

Table (16) The Relationship Between Unemployment, Lagged Unemployment and Output Gaps, GCC Economies 1975-200

Variable	Coefficient	T-value
Δ_{t-2} Log unemployment	.9312*	8.26
Δ_{t-3} Log unemployment	-.316*	5.10
Δ_{t-1} Output gap	.5510**	1.72
Intercept	.0427	2.59
R ²		
Within	0.617	
Between	0.453	
Overall	0.588	
F (4, 52)	5.99	
N	60	

Note: The above is a Panel data model with variables estimated in differenced forms.
 * Coefficient is significant at 1%. ** Coefficient is significant at 10%.

Differences between actual and potential output, output gaps, also influence unemployment; that is when actual output falls below potential output, unemployment increases in the GCC economies and the relationship is significant at the ten percent level. The results indicate that the long-term differenced unemployment rate in the GCC countries is: $2.65+1.65*g$ where g is the output gap. This implies that if output falls by 5 percent below its potential, unemployment in the GCC economies would rise on average by 8.25 percent over and above its long-term trend of 2.65 percent. In addition to the level of significance of individual variables, the overall fit of the regression equation is satisfactory as judged by the coefficients of determination.

Estimates above validate the hypothesis of a robust relationship between unemployment, its lags and output gaps, all in difference forms. This paves the way to conduct tests of the same relationship at the country level. However, available country-level time series data cover short periods only and thus it is not possible to difference the variables and conduct country regressions in difference forms. Therefore, country-level data paucity mandates estimating the relationship in absolute variable forms. Formally, the equation takes the following form (Gylfason, 1997):

$$U = \alpha + \beta (G) + \gamma_1 (U_{-1}) + \gamma_2 (U_{-2}) \quad (4.1)$$

where U stands for unemployment rate, U_{-1} and U_{-2} stand for lagged unemployment rates lagged one and two years respectively and G is the GDP gap derived from the H_P filter¹². Table (17) shows the estimated regression results for the five GCC countries.

Table (17) Unemployment persistence and Okun's law, GCC countries

Country	G	U ₋₁	U ₋₂	Intercept	R ²	DW	Wald Test	N
Bahrain	1.12	0.69	-.091	1.07	0.64	1.63	3.15	19
	1.66	2.0	.363	2.13				
Kuwait	.611	0.60	-.133	1.014	0.46	2.31	25.8	15
	1.73	3.98	0.773	0.625				
Oman	.441	.87	.049	0.381	0.895	2.22	258.8	13
	1.99	6.48	0.432	2.324				
S. Arabia	.549	0.50	0.261	.792	0.76	1.99	7.83	19
	2.14	1.84	1.615	2.62				
UAE	.126	.842	.102	.106	.919	1.98	146.6	20

¹² Several methods are used in the literature. Salient among these is the H-P filter, the multivariate extension of the H-P filter, the production function approach and the structural VAR approach. A recent review concluded that there is no single best gap measure across countries, See Andrew Billmieur (2004) "Ghost-busting: Which Output Gap Measure Really Matters?": IMF Working Paper 04/146, Washington, D.C.

	2.52	2.58	0.33	2.07				
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Note: Lower figure are the t-values.

The significance of the lagged independent variables in equation (4.1) validates the proposition of unemployment persistence, which probably reflects labor market rigidity. The long-run relationships between unemployment and the output gap implied by equation (4.1) are found by setting $U=U_1=U_2$ and then solving for U, gives the following relationships between unemployment and output gap, (Table 18):

Table (18) Long-run relationships between unemployment rates and output gaps

Country	Long-run relationships
Bahrain	2.67+2.79g
Kuwait	1.89+1.15g
Oman	4.69+5.41g
Saudi Arabia	3.29+2.29g
UAE	1.88+2.26g

Note: the letter “g” stands for output gap. Estimates are based on equation (4.1). Scarcity of unemployment data precluded deriving similar estimates for Qatar.

The set of figures that are to the left of the plus (+) symbol in the above table indicate the estimated long-term unemployment rates for each country. Thus, the long term unemployment rate for Bahrain is 2.67 percent and for Oman it is 4.69 percent. However these long-term unemployment rates are subject to cyclical shocks that are induced by deviations of actual country outputs from their potential levels. In other words, the equations can be interpreted as follows. Assuming output gap were zero, that is, actual output=potential output, the long-run unemployment rate in Bahrain would then be 2.67 percent of the labor force during the estimation period 1979-2001. Assume however that during a particular year, actual output decreased by about 2.5 percent below its potential level, unemployment would accordingly increased in that year by nearly 7 percent above Bahrain’s long-run rate of unemployment. Unemployment increase in that particular year would be the product of the assumed deviation of output (2.5%) multiplied by the estimated coefficient of 2.79, or $(2.5 * 2.67=6.73)$, which is roughly about 7 percent above the long-term level. The total unemployment rate during that particular year would then hover around 10 percent, which is simply the sum of 2.67 percent and 7 percent.

Similarly, in the case of Kuwait, the long-run unemployment rate for the period was about 1.9 percent but when actual output declined by 2.5 percent below potential output (an output gap of 2.5%) unemployment increased by nearly 3.0 percent above the long-run rate of unemployment. Therefore, from the policy perspective unemployment in Bahrain is more responsive to cyclical variations (changes in the output gaps) than unemployment in Kuwait.

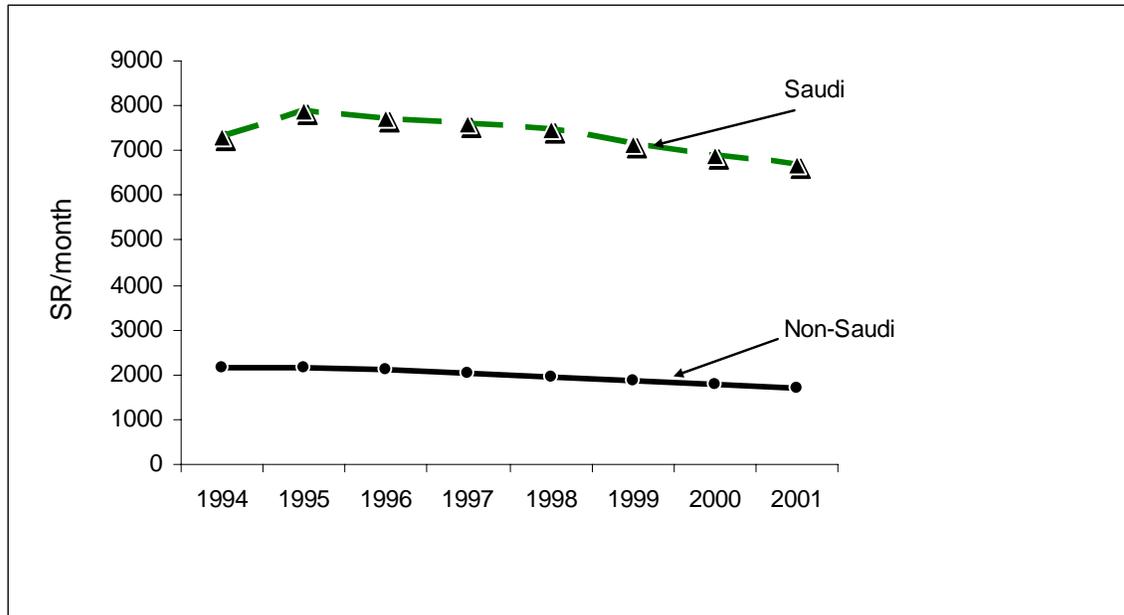
Oman's long-run unemployment rate is 4.7 percent but when actual output decreased by about 2.5 percent below potential output, unemployment increase to about 14 percent. In the case of Saudi Arabia, the long-run unemployment rate is 3.3 percent but when actual output decreased by about 2.5 percent below potential output, the unemployment rate rises by 5.7 percent above the long-run rate. Finally, the long-run unemployment rate in the UAE is 1.9 percent but if actual output decreased by about 2.5 percent below potential output, unemployment rises to 5.6 percent above the long-run natural rate. Therefore, as long as actual output coincides with potential output (i.e., the output gap "g" is zero), these estimates suggest that Kuwait and the UAE would have the lowest long-run unemployment rates. From the policy perspective, unemployment is most responsive to changes in the output gap in the Oman and is least responsive in Kuwait¹³.

4.3 UNEMPLOYMENT AND STREUCTURAL FACTORS

Considering the unemployment-effect of output gap in isolation from other pertinent variables may not provide a comprehensive explanation of unemployment growth in the GCC countries. Economic literature suggests several additional explanatory variables. Two critical variables are real wages and the marginal product of labor. Data on real wages in the GCC are scarce but what is available suggests that they have been declining over time. For instance, newly-released official Saudi wage data covering the period 1994-2001, shown in Figure (7), clearly indicate that average wages have declined which reflects the central role played by wages in maintaining competitiveness in the context of fixed exchange rates.

Figure (7)
Monthly wages of Saudi and Non-Saudi Males, 1994-2001

¹³ Undoubtedly, estimates derived from the above equations can be criticized because the time series properties (I (1) or I(0)) of the variables are not explicitly taken into consideration, and a common trend of the variables of interest may lead to spurious correlations. Data limitations prevent testing for spurious correlation at the country-level.



Source: Saudi Arabian Monetary Agency, SAMA (2002): “Thirty-Eighth Annual Report” Riyadh KSA.

However, such downward wage trend is consistent with expansion of employment in the low-skill, low-wage sectors. In essence, downward trended wages reflect long-term labor productivity declines that are due to employment subsidies to nationals concurrent with the use of low-skilled foreign workers in highly labor-intensive production techniques in the private sector of the economy (IMF, 2001; Al-Qudsi and Abu-Dahesh, 2004).

Likewise, in Bahrain, wages declined by about 1.5 percent annually from 1990 to 2003 (EBD, 2004). Labor productivity declines in the UAE were attributed to immigration policies that led to the importation of considerable number of foreign workers whose presence “did not bring any progress to the economy, it actually caused pure economic losses; as every worker costs the government a considerable amount of subsidized services” (Abdelkarim and Ibrahim, 2001:5). In the absence of time series data on wages, the analysis below utilizes consumer price index instead.

We also follow more recent economic literature, by examining the potential effects of structural factors, mainly inflexible labor market conditions, on unemployment. There are several causes of labor market rigidities including the high cost of establishing business, the pension system and the so-called Kafil system. In addition, we consider the effect of active labor market policies (ALMP) gauged by the size of government in the GCC economies. Finally, we postulate variations in unemployment among the countries of the GCC may be to differences in gross capital formation. The latter variable captures differences in capital formation in machinery and equipment and in the construction activities sector as well as inventory changes.

Therefore, in addition to testing the effect of output gap on unemployment and its persistence, our analysis below includes additional variables and applies instrumental variable technique in order to test the effect of structural factors on unemployment in the

GCC countries. Specifically, we apply the instrumental variable two-stage least squares model that handles exogenously unbalanced data which takes the following form (Greene, 2003):

$$\ln u_{it} = \mathbf{Y}_{it} \gamma + \mathbf{X}_{1it} \beta + \mu_i + v_{it} = \mathbf{Z}_{it} \delta + \mu_i + v_{it} \quad (4.2)$$

$\ln u_{it}$ is the logarithm of unemployment rate in the i th country in period t . \mathbf{Y}_{it} is an $1 * g_2$ vector of observations on g_2 endogenous variables included as covariates, and these variables are allowed to be correlated with the v_{it} . \mathbf{X}_{1it} is an $1 * k_1$ vector of observations on the exogenous variables included as covariates,

$$\mathbf{Z}_{it} = [\mathbf{Y}_{it} \ \mathbf{X}_{1it}]$$

γ is the $g_2 * 1$ vector of coefficients

β is the $k_1 * 1$ vector of coefficients

δ is the $K * 1$ vector of coefficients, and $K = g_2 + k_1$

The model was estimated using two alternative specifications. The first lags variables one period while the second uses the second lag for the independent variables. Table (19) reports the empirical finding. The findings suggest that there is considerable persistence in unemployment in the GCC countries, that is unemployment rates tend to persist over time, which is expected to lead in turn to unemployment scaring. The variable gauging GDP growth in negatively correlated with unemployment, corroborating the empirical results above regarding the existence of Okun’s law in the context of GCC economies. A one-percent increase in GDP growth rate induces a reduction in unemployment whose magnitude varies between 1.4 and 1.7 according to models 1 and 2 respectively. Unemployment is inversely associated with consumer price index, implying that economies of the GCC that have higher unemployment tend to have lower consumer price changes. Hence, the findings give a weak credence to the existence of “short-term” policy trade-offs between unemployment and consumer prices.

Gross fixed capital formation has the expected negative effect on unemployment implying that new jobs that are associated with increased investments activities mitigate unemployment. Finally, active labor market policies, surrogated by the log of government size, indicate that active labor market policy tends to lower unemployment in the GCC countries. The finding is agreement with the literature: Multi-country studies basically using cross section information indicate that active labor market policies have a negative impact on unemployment (Nickell, 1997). Microeconomic studies also provide similar evidence on the positive effect of active labor market policies on reducing unemployment (Katz, 1998). In particular, job search assistance tends to have consistently positive outcomes. Other types of policies such as employment subsidies and labor market training must be well designed if they are to have a significant impact.

Table (19) Unemployment determinants in the GCC (model: random effect instrumental variable two-stage least squares model for panel data)

Variable	Model 1 §	Model 2 §§
Logarithm Lagged unemployment	.959* (23.56)	0.937* (19.72)

GDP growth rates	-1.350** (2.140)	-1.726* (2.39)
Logarithm Consumer price index	-.1856*** (1.71)	-.237*** (1.85)
Logarithm Gross fixed capital formation	-.1459** (2.19)	-.1451** (1.66)
Logarithm Active labor market policies (ALMP)	...	-.154*** (1.75)
Intercept	.2067 (0.39)	1.83 (1.62)
R ² :		
Within	0.655	0.565
Between	0.996	0.997
Overall	0.918	0.899
N	108	108

Asterisks *, ** and *** indicate estimated parameters are significant at the 1%, 5% and 10% respectively.
 § Independent variables are lagged one period. §§ Independent variables are lagged two periods.

5. CONCLUSIONS AND POLICY IMPLICATIONS

Utilizing micro and macro level data and analysis, the focus of the research conducted in this paper has been on the causes of the long-term unemployment in the GCC economies, the relationship between unemployment evolution and oil prices and output gaps and other indicators of macroeconomic performance, and the lessons learnt from policies that have been implemented in the GCC and in other economies. The salient empirical findings suggest the following. First, an anti unemployment strategy that the GCC economies follow can promise sustainable results only to the extent that it tackles the causes of increasing unemployment. The roots of the unemployment problem in the GCC economies are entrenched in the social contract that has created dual labor market structures in which natives cluster in the public sector while foreign workers engage in private sector jobs. The ability of government to continue providing employment for nationals in the public sector has been curtailed by receding oil revenues and by the high built-in expectations of nationals. Most of the temporal job creation has occurred in the private sector in low-skilled, low-wages occupations that do not attract nationals. Therefore, in the presence of a large pool of semi and low-skilled foreign workers and the inability of the government to create public sector jobs at rates commensurate with the growth of native labor force, unemployment of GCC citizens has been rising rapidly.

Underneath the rising long-term unemployment, the GCC economies feature a complex structure of disaggregated unemployment rates across gender, age, education, space and health status. The paper showed that the majority of unemployed citizens of the GCC are those that become jobless for the first time and the transition from school to first job embeds the influence of mismatch between education qualifications and labor market

requirements. Our empirical findings based on applying the multinomial probit model to Kuwait's expenditure and income survey data showed that foreigners aged 20 to 29 years who are secondary school graduates have, on average, 8 more years of experience and cost 135 percent less than unemployed natives that belong to the same age and education cohort. The findings revealed also that low wages adversely affect unemployment (-.38 percentage point decrease relative to the base case of self-employment). Hence, they suggest that there is a robust inverse elasticity between wages and unemployment in the context of GCC economies. From the policy perspective, the findings suggest that policy makers in the GCC countries could ameliorate the social contract in a way that would dynamically and effectively attract nationals into active employment by following policy measures that lead to sustainable growth in both productivity and wages.

Second, our findings reveal interesting dynamics between wages, inactivity and unemployment rates. That is, when wages reach a certain threshold level, some of the inactive will move from the state of inactivity into the state of active employment. The significance of this finding is appreciated by recalling that along with increased reliance on foreign workers and the declining average wages, the participation rate of the national working age population has declined in the GCC countries in spite of the growing number of women actively engaged in the labor markets. The declining participation rates helped reduce somewhat the unemployment pressure. But clearly however, this represents an inefficient way of reducing unemployment because it deprives the economy of otherwise potentially productive individuals that switch into the state of inactivity. Beyond that, low participation rates could present serious intergenerational problem because of the burdens imposed on future generations by the transfers which the current inactive generation receives.

Third, by and large, the empirical tests conducted here do not support the claim that unemployed natives deliberately and willingly choose the joblessness status. The unemployment rate is higher among natives who come from poorer income strata given that the high unemployment rate, (11%) for the poorest 20 percent of households is five times the corresponding rate (2.2%) in the case of households on the top of income strata. The expected wages of self employment and of waged employment are all higher than the expected wage of the unemployed. Findings of the multinomial probit and multivariate probit models suggest that household resources are significant contributor to members' engagement in self-employment. This finding suggests that, as part of basic macroeconomic, fiscal and labor markets reforms, GCC governments could facilitate the transition of some of the unemployed to self employment by innovating an integrated set of policy measures that includes availing credit for and information about successful small businesses and by designing training schemes in a wide range of small business enterprises.

Fourth, disability status seems to have a substantial effect on the high unemployment: Findings based on Oman's census sample suggest that the probability of unemployment is higher if the person is physically and/or mentally impaired. The dual hardships of disability and joblessness signify the importance of targeting active labor market policies towards the disadvantaged. There is also weak evidence that persons living in urban

areas are more likely to be disabled than individuals in rural areas and that educated parents are less likely to have handicapped children. Finally, the incidence of unemployment declines with education but increases significantly for graduates of the secondary schooling system.

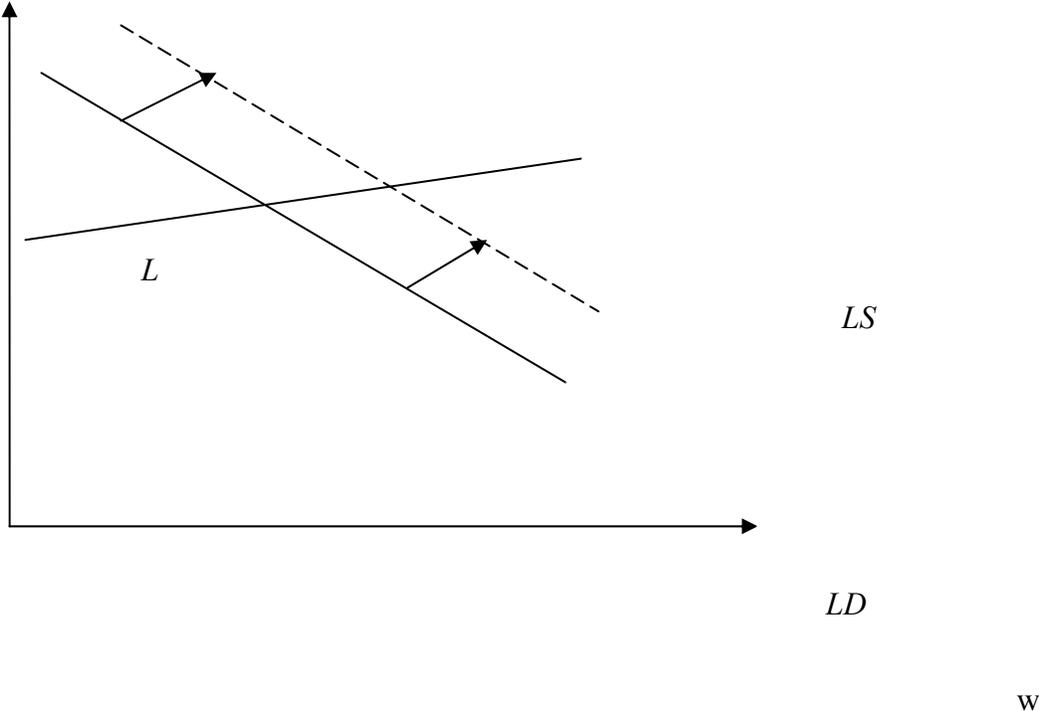
At the aggregate level, the paper found that there is tendency for unemployment to persist in the economies of the GCC. Short run adjustments that result from output gaps lead to significant increases in long-term unemployment levels. For instance, Oman's long-run unemployment rate is estimated at 4.7 percent but when actual output decreased by about 2.5 percent below potential output, unemployment increase to about 14 percent. In the case of Saudi Arabia, the long-run unemployment rate is 3.3 percent but when actual output decreased by about 2.5 percent below potential output, the unemployment rate rises by 5.7 percent above the long-run rate. While these estimates are quite rudimentary in view of data paucity, they nonetheless point to the critical importance of resilient economic growth in the GCC countries. Therefore, the findings imply that at a minimum, GCC governments steadily pursue fiscal and macroeconomic management policies that could reduce the exposure of their economies to shocks and avert actual output from dipping below potential levels.

Our findings also reveal that the proxy for active labor market policies, size of government, is generally conducive to mitigating unemployment. But the proxy that we utilized is deficient because it is aggregated and therefore masks underpinning policy measures. Besides, a proper evaluation of active labor market policy must rely on sufficiently detailed micro data that recognizes the issue of participant selectivity¹⁴. But such data are not available and instead we must rely on generalities here by posing the question: How did GCC governments actually deal with unemployment? The record indicates that the GCC countries have invariably put in place an assortment of passive wage and income support benefits system together with active labor market policies in order to enhance employment and achieve higher standards of living for their national workforce. Salient among these policies is employment of nationals in public sector and demand subsidies-- measures that increase government size and attendant fiscal burden.

As public employment sectors became saturated, governments attempted to stimulate the employment of natives in the private sector of the economy and hiring subsidies became common tools in the GCC. The immediate impact of such policy is to increase employment as shown in Figure (8).

Figure (8) Effect of employment subsidies

¹⁴ The issue of participant selectivity is critical in assessing the effectiveness of programs that active labor market policies encompass. See for instance, Forslund, Johansson and Lindquist (2004) "Employment subsidies-A fast lane from unemployment to work? *IFAU –Institute for Labor Market Policy Evaluation Working Paper 18*.



The main limitation on the efficiency of employment subsidies lies in the upward pressure they exert on wages, which has a tendency to bid up the cost of labor and reduce labor demand. The policy may also lead to crowding-out or displacement of workers. This happens when, for example, firms that employ subsidized workers increase their production and their market share at the expense of firms that are unable to use that category of workers, and so reduce their workforce. The policy has the added impact of generating gains to firms and not only to workers which are part of the wider problem of fiscal incidence of taxes and transfers by the governments of the GCC countries.

Since the early 1970s, a critical anchor of the social contract has been labor market policies that actively sought to employ nationals in the public sector, making it possible actually to create jobs within a short period of time frame. For this reason they were often adopted either as a remedy for unemployment or as a springboard to regular jobs for persons who have difficulty entering the labor force, mainly fresh graduates from secondary schools and university graduates. On the downside however, the creation of public sector jobs is liable to crowd out private sector ones through the same mechanism as employment subsidies: the increase in labor demand provokes a wage rise that may, over time, completely cancel out the impact of public sector jobs created, if the labor supply is insensitive to wages. In the long-run however, such policies exhausted their potentially favorable effects as the public sector became saturated and as governments' wage bill soared especially during periods of exogenous shocks that retrenched oil revenues.

GCC countries have also relied on mandatory measures. These include quantitative targets or quotas on the proportion of nationals employed by private companies in specific professions or sectors. Most employers find the policy of targets and quotas as a burden and resorted to the use of “ghost workers” creating employment only on paper that is understood as simply an added cost of doing business. Such response by the private sector reflects practical difficulties to enforce the targets for each and every firm (EDB, 2004; Fasano and Goyal, 2004).

Instead of such policies, our empirical findings strongly speak for policy packages that comprehensively reform the labor market by gradually eliminating segmentation, improving mobility, especially of foreign workers, and by enhancing productivity and strengthening the linkages between the education system and the labor market. The growth-impact of such reforms is likely to be both significant and sustainable. With respect to the unemployed, the policy reform focus on enhancing the productivity of nationals. That is, since the unemployed of GCC economies have to keep-up with foreign workers that are more experienced, cheaper and that are known to be docile, policy makers must design packages that help the unemployed to become more productive and more docile as well. Specifically, governments of the GCC countries should innovate policy packages that would attract natives away from the unemployment state and lure them into productive employment. Empirical evidence elsewhere supports the view that taking a bad job is better than being unemployed for two reasons: first the loss of income and; second the loss of self-respect and sense of significance (Layard, 2004). Therefore, native entrants into the GCC labor markets must be taught to appreciate that global competitiveness in products and services implies a more disciplined perspective towards the market and job requirements. Upward mobility and associated higher wages can be attained by personal productive attributes that, besides education and dexterity, include patience and dedication, and positive attitudes towards the firms that hire the workers as well as towards the customer base that firms cater to. In the case of the unemployed who were previously employed, policy should also focus on re-training and finding jobs momentarily.

In their efforts to strengthen the links between education and employment, GCC policy makers may wish to consider Germany's dual system of partnership between firms and schools at the secondary education and beyond. Through its apprenticeship system, the German model focuses on ensuring that young people have a training place and a suitable employment. In addition to private companies, the system relies on the support of many organizations such as employer associations, industrial and commercial chambers, and unions as well as state and federal governments. The system offers participants great opportunities to learn, get a degree and find a job in the companies that trained them and concurrently enjoy job security and possibilities for advancement.

Finally, a key recommendation arising from this research is that a common framework for monitoring labor market statistics and especially for accurately measuring unemployment and labor market conditions is critically needed in the GCC countries. As much as possible, the GCC countries should adopt common definitions and measurement approaches. High-quality and accurate labor market statistics become all the more important given the rapid structural changes that economies of the world are undergoing (Bluestone and Sharpe, 2004). To ensure robustness of various data sets on unemployment and other measures of labor market tightness, statistical agencies in the GCC countries should also open up their books and create partnerships with research institutes in academia, the private sector and government agencies.

Likewise, detailed micro-level data from specialized field surveys must also be commissioned on a regular (quarterly or monthly) basis and data integrity should be enhanced. Coverage of such surveys should be expanded to include information on schools that surveyed cohorts attended, (their types, subjects of study and quality as well as grades received). More information should also be gathered on firms and experience in economic establishments that cohorts worked at. Following the recent experience of Arab statistical agencies in Egypt, Jordan and Yemen, the socio-economic background of surveyed GCC households should be expounded too. Is the exercise worth the efforts and resources? The answer is categorically in the affirmative. Evidence: advanced country experiences amply demonstrate that data banks and their integrity are critical for research and development that is proven to be a strong determinant of economic growth and of job creation as well.

References

- Abdelkarim A., and S., Ibrahim (2001) "Productivity Problems in the UAE: The Role of Productivity Organization" *Center for Labor Market Research & Information Policy* Research Report No.4, Dubai.
- Abedin, L. (2002): "Enabling The Disabled In The UAE Labor Market" *The Center for Labor Research & Information*, Policy Research Paper No. 7, Dubai.
- Abowd John. M. And Land, Julia I (2003): "The Economics of Data Confidentiality" *NSF Workshop on Data Confidentiality*, May 11-12, Switzerland.
- Adanu, K. (2002): "A Cross-Province Comparison of Okun's Coefficient for Canada" *University of Victoria, Department of Economics Working Paper EWP 0204*.
- Ag'enor P.M. Nabli, T. Yousef and H. Jensen (2003): "Unemployment in Labor-Exporting MENA Countries", *World Bank Washington D.C.*
- Al-Ebraheem Y. and Sirageldin I. (2002): "Budget Deficit, Renewable Resource Gap, and Human Resource Development in Oil Economies" in Sirageldin I. (ed.) *Human Capital and Population Dynamics in the Middle East*: Taurus, London and AUC, Cairo.
- Alesina A., Glaeser E. and Sacerdote, B. (2005) "Work and Leisure in the US and Europe Why So Different?", *Harvard Institute of Economic Research Discussion Paper No. 2068*, Harvard Cambridge Massachusetts.

- Al-Qudsi S. and A., Abudahesh (2004): "Potential Output, Total Factor Productivity and Institutions in the Private Sector of Saudi Arabia" *Journal of Development and Economic Policies*: Vol. 6, No.2.
- Al-Qudsi S., (1997) "Labor Market Policies and Development in the GCC: Does Internal Policy Consequences Matter?" in Devlin J., (ed.) *Gulf Economies: Strategies for Growth in the 21st Century*: Center for Contemporary Arab Studies Georgetown University, Washington D.C.
- Al-Qudsi, S. (1989): "Returns to Education, Sectoral Pay Differentials and Determinants in Kuwait" *Economics of Education Review*, Vol. 8 (3) Pp 263-276.
- Al-Qudsi, S. (1985): "Earnings Differences in the Labor Markets of Oil-Rich Economies: The Case of Kuwait", *Journal of Development Economics*, Vol. 18, No-2.
- Auty, R. M. 2001: *Resource Abundance and Economic Development*: Oxford University Press.
- Bicakova A. (2005): "Unemployment Versus Inactivity: An Analysis of the Earnings and Labor Force Status of Prime Age Men in France, the UK, and the US at the Turn of the Century" *Department of Economics, Johns Hopkins University* Baltimore MD.
- Billmieur A., (2004) "Ghostbusting: Which Output Gap Measure Really Matters?" *IMF Working Paper 04/146*, International Monetary Fund, Washington D.C.
- Blanchard O., and L., Summers (1987): "Hysteresis in Unemployment" *European Economic Review*, Vol. 61 (3).
- Bluestone B., and A., Sharpe (2004) "Construction of a New Architecture for Labor Market Statistics: A Synthesis of the Results from a Rockefeller-Ford Foundation-funded International Project" *Annual Meeting of the American Economic Association*, San Diego California.
- Bolbol A., "Growth and Unemployment in the Arab Countries" The 14th Annual Symposium on *Labor Markets and Unemployment Problems in Arab Countries*, Abu Dhabi- November 2002.
- Byrne, D., and E., Strobl (2001) "Defining Unemployment in Developing Countries: The Case of Trinidad and Tobago" Center for Research in Economic Development and International Trade, University of Nottingham *CREDIT Research Paper No 01/09*.
- Cahuc, P. and A. Zylberberg (2004) *Labor Economics*: The MIT Press, Cambridge and London.
- Calmfors L. and Holmlund B. (2000) "Unemployment and Economic Growth: A Partial Survey" *Swedish Economic Policy Review* 7: 107-153.
- Campbell, D., Carruth A., Dickerson A., and Green F., (2004): "Job Insecurity and Wages" *Working Paper, University of Kent, U.K.*
- Economic Development Board, (2004): "Reforming Bahrain's Labor Market" *Summary of Workshop Presentations* September 23, 24. (EDB): Bahrain.

- Eifert B., A., Gelb and A., Tallroth (2003): "Managing Oil Wealth" *Finance and Development* Vol. 40 (1).
- El-Qaisi, E. (2001): "Economic Rent of Public Sector Workers" *Journal of Social Sciences* 49 (4), 43-61.
- ESCWA (1986): "Native Labor Force in the GCC Countries" in *Employment and Mobility in the Arab World* Arab Planning Institute and ESCWA Experts Meeting, Kuwait.
- ESCWA (1995): *Economic Situation in the ESCWA Region*.
- European Employment Observatory (2004) "Quality of Work through Investing in Human Resources: The Situation in the EU 25, candidate countries and Norway" *MISEP Meeting Dublin*.
- Faour M. (1989) "Fertility policy and family planning in the Arab countries", *Studies in Family Planning*, Vol. 2 No. 5, September/October: 254-263.
- Fasano U., and R., Goyal (2004): "Emerging Strains in GCC Labor Markets" IMF WP/04/71, *International Monetary Fund* Washington D.C.
- Feresterer J., J., Pischke and R., Winter-Ember (2004) "Returns to Apprenticeship Training in Austria: Evidence from Failed Firms" *University of Linz and Institute for Advanced Studies*, Vienna.
- Forslund, A, Johansson P., and Lindquist L. (2004): "Employment subsidies-A fast lane from unemployment to work? *IFAU –Institute for Labor Market Policy Evaluation Working Paper 18*.
- GCC General Secretariat (2004) "Remittances of Foreign Workers in the GCC: Determinants and Impact" Riyadh, (Arabic).
- Green W., (2003): *Econometric Analysis*, (fifth edition). Prentice Hall, New Jersey.
- Gylfason T., (1997) "Okun's Law and Labor-Market Rigidity: The Case of Sweden" *Department of Economics, University of Iceland Working Paper Series*.
- Haan H., (2002) "Report on a Survey of UAE Nationals in Micro, Small and Medium Enterprises" *Center for Labor Market Research and Information (Tanmia) Policy Research Report No. 6*. Dubai.
- Heij, Christian, de Boer Paul, Hans Franses, Philip, Kloek Teun and van Dijk Herman (2004) *Econometric Methods with Applications in Business and Economics* Oxford University Press.
- Hodrick R., and E., Prescott (1997) "Postwar US Business Cycles: An empirical investigation" *Journal of Money, Credit and Banking* Vol. 29 (1).
- Hosni D. and Al-Qudsi, S.(1988): "Sex Discrimination in the Labor Market of Kuwait" *International Journal of Manpower*, Vol. 9, No. 3, 1988.
- International Labor Office (2003) *Global Employment Trends* ILO, Geneva.

International Monetary Fund (2001) “The Cooperation Council of the Arab States of the Gulf (GCC): Strategy for Sustainable Growth with Macroeconomic Stability” *IMF Washington DC*.

International Monetary Fund (2005) “Kuwait: Selected Issues and Statistical Appendix” *IMF Country Report No 05/234, July*. IMF Washington. D.C.

International Monetary Fund (2005): “*Regional Economic Outlook: Middle East and Central Asia Development*” : IMF September, Washington D.C

International Monetary Fund (2005): “United Arab Emirates: Selected Issues and Statistical Appendix” *IMF Country Report 05/268*, August. IMF: Washington D.C.

Katz L., (1998) “Wage Subsidies for the Disadvantaged” in Freeman R., and Gottschalk (eds.) *Generating Jobs*. New York: Russell Stage Foundation.

Kiefer, N., and Neuman, G., (1989) *Search Models and Applied Labor Economics*, Cambridge University Press Cambridge & New York.

Kingdon G., and Knight J., (2003) “Unemployment in South Africa: The Nature of the Beast” *Center for the Study of South African Economies*, Oxford University, UK.

Landmann O. (2003): “How to Fight Unemployment: Insights From Recent Research” Background Paper for the *World Employment Report University of Freiburg*.

Layard R., (2004): “Good Jobs and Bad Jobs” *London School of Economics, CEP Occasional Paper N0 19*.

Layard, R., Nickell, S. & Jackman, R. (1991) *Unemployment: Macroeconomic Performance and the Labor Market*. Oxford: Oxford University Press.

Lee J. (2000): “The Robustness of Okun’s Law: Evidence from OECD Countries” *Journal of Macroeconomics* Vol. 22: 331-356.

Mercy, Jean-Louis, and King, John (2003) :“Developments At Eurostat Access To Confidential Data” *Joint ECE/Eurostat work session on Statistical data confidentiality*, Luxembourg 7-9 April.

Mikhail, O., Elberwein and J., Handa (2003)“Hysteresis and Persistence in Unemployment: a definition” Economics Department, University of Central Florida.

Ministry of Planning and National Economy (2003):, *Achievements of Development Plans*, Riyadh Kingdom of Saudi Arabia.

Ministry of Planning, UAE: 1995 Census.

Morada H B. (2002) “Work and Work Conditions of the UAE Nationals: A Four-Sector Comparison” *Center for Labor Market Research and Information (Tanmia)*, Dubai.

Murphy K and Topel R.H (1997)“Unemployment and Non-employment”, *American Economic Review*, 87 (2): 295-3

- Nickell S., (2003): “Labor Market Institutions and unemployment in OECD Countries” *CESifo DICE Report* 2/2003.
- Nickell, S., (1997): “Unemployment and Labor Market Rigidities: Europe versus North America”, *Journal of Economic Perspective* 11 (3).
- Petrsoy, J. (1998) “The German Dual Education System: Evolving Needs for a Skilled Workforce” www.lehigh.edu.
- Riddell, W., (1999): “Measurement Unemployment and Structural Unemployment” Working Paper *Department of Economics University of British Columbia, Canada*.
- Rissman E., (2003) Self-Employment as an Alternative to Unemployment, Working Paper 23-34 *Federal Reserve Bank of Chicago*.
- Saudi Arabian Monetary Agency, SAMA (2002): “Thirty-Eighth Annual Report” Riyadh KSA.
- Schnabel G. (2002): “Output Trends and Okun’s Law” *Bank of International Settlements Working Papers No 111*.
- Sesselmeier W., (2000): “Would the Creation of Low-wage Sector Help to Reduce German Unemployment?” in Silvia S (ed.) *Unemployment Ebbs in Germany: Explanations and Expectations*. Economic Studies Program Series Volume 7 American Institute for Contemporary German Studies The John Hopkins University.
- Sirageldin, I. “Population and Labor Market in Abu Dhabi” in Al-Faris, A. (ed.) *The Economy of Abu Dhabi*, United Arab Emirates.
- Stigler G., (1962) “Information in the Labor Market” *Journal of Political Economy*, 70 (supplement).
- Teebi A., and T., Farag (eds.) *Genetic Disorders among Arab Populations*: Oxford University Press, New York and London (1997).
- Topel R., (1990) “Specific Capital and Unemployment: Measuring the Costs and Consequences of Job Loss” *Carnegie-Rochester Conference Series on Public Policy* 33.
- UN Statistical Database: [www.un.statistical database](http://www.un.statisticaldatabase).
- Winker O., (2003) “Rapid Population Growth and Fertility Policies in the Arab Countries of the Middle East and North Africa”, *Yale F&ES Bulletin*:: 444-466