Female Youth Unemployment in the GCC Countries

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Abstract

This article examines the influence of labor markets flexibility and the generous social contract on the female youth unemployment rate in the resource-rich, Gulf Cooperation Council (GCC) countries. The research question is motivated by the observation that the female youth unemployment rate is more than double the male youth rate. We hypothesize that labor market flexibility reduces the female youth unemployment rate, while the generous social contract increases it. We adopt panel data model and fixed effects and an instrumental variables/ generalized method of moments estimation methodologies. Empirical evidence surprisingly shows that both labor market flexibility and the social contract improve female youth unemployment rate. Unemployment concerns about adopting flexible labor market on youth unemployment are therefore unfounded.

Keywords: Female youth unemployment; Labor markets; Social contract; Gulf Cooperation Council countries.

1. Introduction

The six oil-rich Gulf Cooperation Council (GCC) countries – Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE) - are high-income countries characterized by significant reliance on foreign labor services. The significant reliance on foreign labor services has been driven by the windfall of oil revenues, which started in the early 1970s. Oil revenues have financed the economic growth and development of the GCC countries, and were shared with nationals in the form of generous social contracts.[1]

A social contract is defined as "the sets of formal and informal agreements between societal groups and their sovereign (government or other actor in power) on rights and obligations toward each other" (Loewe et al., 2021, page 1). In the GCC countries, the social contract takes the form of subsidies, free access to public services, such as education and health, highly paid government and public sector jobs, in addition to generous pensions at retirement (World Economic Forum, 2014; Assidmi and Wolgamuth, 2017). In turn, citizens are expected to be loyal to and support the government.

The small initial population and labor force size of the GCC countries coupled with the oil revenues windfall and the generous social contract have opened the door for hiring the service of foreign labor domestically. In order not to infringe on the skills, productivity, and welfare of national labor, however, labor markets have been *de facto* segmented into two. The first segment is for government jobs, which are occupied by highly-paid nationals. Jobs in this segment are protected and the firing of employees is difficult. The other segment is for private sector jobs, filled by relatively low-paid foreign labor. This foreign labor market segment is flexible; wages are flexibly determined and hiring and firing policies are easy. The Asian and Arab labor markets have provided the GCC labor markets with an elastic and relatively cheap labor supply thanks to the proximity and labor abundance of the home countries. Asian labor originates in countries, such as Bangladesh, India, Indonesia, Pakistan, the Philippines, and Thailand. Arab labor originates in countries, such as Algeria, Egypt, Jordan, Sudan and Syria.

The reliance on foreign labor is significant and reflected in the growth and nationality composition of the labor force. Between 1990 and 2020, the labor force of Qatar, UAE, Oman, and Bahrain grew at annual growth rates of 7.1 percent, 6.6 percent, 5.4 percent, and 5.1 percent, respectively. Compared to other high-income countries, the highest labor force annual growth rate is in Singapore during the same period with a rate of 2.7 percent.[2]

The percentage of non-citizens in the total population of the GCC countries is high. In the UAE, the number of non-citizens is estimated to be more than three-fold the number of citizens. According to the GCC statistical center data, the percentage of non-citizens in the total population amount to 42 percent in Oman, 52 percent in Bahrain, 68 percent in Kuwait, and 34 percent in Saudi Arabia.[3] Official statistics on the percentage of non-citizens in Qatar are not available, however .

Despite the influx of relatively cheap foreign labor, the GCC countries have enjoyed a lower youth unemployment rate compared to the other high-income countries group. In 1990-2020, the male youth and male unemployment rates in the GCC countries amounted to 8.7 percent and 1.8 percent, respectively, as table 1 shows. In the other high-income countries group, these rates were much higher and amounted to 17 percent and 7.4 percent, respectively. The female youth and female unemployment rates amounted to 16.4 percent and 6.2 percent respectively. In the high-income countries group, these rates were slightly higher amounting to 17.8 percent and 8.4 percent, respectively.

Table 1. GCC Labor Statistics (1990-2020 Period Average)

	Labor Force Participation Rate		Unemployment Rate	
Country	Female Youth	Females	Female Youth	Females
Bahrain	25.3	39.3	11.6	3.7
Kuwait	23.0	45.2	11.7	3.3
Oman	19.4	27.0	18.9	9.1
Qatar	34.8	49.6	6.0	2.4
Saudi Arabia	7.9	18.7	40.7	13.9
UAE	27.2	39.8	9.1	4.7
Total	**22.9**	**36.6**	**16.4**	**6.2**
Memo item				
Other high-income countries	**45.2**	**63.5**	**17.8**	**8.4**
	Male Youth	Males	Male Youth	Males
Bahrain	55.3	88.0	2.6	0.5
Kuwait	37.2	84.6	6.5	0.9
Oman	50.5	82.8	12.0	2.8
Qatar	81.2	94.3	0.7	0.3
Saudi Arabia	32.3	78.2	24.8	4.2
UAE	63.3	93.0	5.7	1.9
Total	**53.3**	**86.8**	**8.7**	**1.8**
Memo item				
Other high-income countries	**51.2**	**79.5**	**17.0**	**7.4**
	Female-Male Ratios			
Bahrain	0.46	0.45	4.51	7.81
Kuwait	0.62	0.53	1.80	3.68
Oman	0.38	0.33	1.57	3.19
Qatar	0.43	0.53	8.31	9.24
Saudi Arabia	0.24	0.24	1.64	3.30
UAE	0.43	0.43	1.58	2.46
Total	**0.43**	**0.42**	**1.87**	**3.49**
Memo item				
Other high-income countries	**0.88**	**0.80**	**1.05**	**1.13**

Source: Own calculations using World Development Indicators data (World Bank, 2020).

Considering the gender ratios of youth unemployment rates in both country groups, the ratios for the GCC countries are quite alarming, however. The 1990-2020 average female youth unemployment rate was nearly twice (1.87) the average male youth unemployment rate. This ratio compares to almost unity (1.05) in the high-income countries group. In Greece, one of the other high-income countries, for example, the simple average ratio of female-male youth

unemployment rate for the period 2005-2012 amounts to 1.59 for youth ages 15-9 and 20-24.[4]

The difference in ratios between the GCC countries and the other high-income countries group is more striking when the youth age is disregarded. The 1990-2020 average female unemployment rate is more than triple (3.49) the average male unemployment rate in the GCC countries and compares to almost unity (1.13) in the high-income countries group.

The decision of females in the GCC countries to participate in the labor force and search for jobs is influenced by both cultural factors and the social contract. World Economic Forum (2014) points out that, "…by giving citizens an entitlement to oil wealth without promoting the productive use of national labour resources, the social contract has led to low labour force participation rates among GCC nationals…and a high proportion of non-working dependents per employed person" (page 8). Data supports this point for females: The average labor force participation rates (LFPR) for female youth and females were less than half the rates for males: The ratios of the two rates, as table 1 shows, amount to slightly more than 40 percent.

Examining female youth unemployment statistics more recently, in particular in 2007-2017, which is our empirical study period as discussed below, the ratio of female youth unemployment rate to male youth unemployment rate across the six GCC countries shows that the female youth unemployment rate was more than fourfold the male youth unemployment rate, as table 2 shows. Among the GCC countries, Qatar stands out as an outlier with a female-to-male youth unemployment rate ratio of 13.6. Even when Qatar is excluded, this ratio drops to 2.68 instead of 4.5. In the other high-income countries group, in contrast, the male and female youth unemployment rates are at about par (19 percent).

Figure 1 shows the individual GCC country performance of the female youth unemployment rate during the study period. In Bahrain, Kuwait and Oman, the rate increased over time. In Qatar and Saudi Arabia, the rate fluctuated. In the UAE, the rate declined over time but increased in 2017.

Although they are high-income, the GCC countries are different from the other high-income countries in two respects. First, their economies continue to rely heavily on government-owned natural resources. Oil resources finance the government budget and the generous social contract (Assidmi and Wolgamuth, 2017; World Economic Forum, 2014). The social contract may theoretically generate a negative income effect on labor supply attenuated by cultural factors in the case of female employment. Second, the GCC labor markets are segmented with the national labor segment being much less flexible than the foreign labor segment.

Against the backdrop of significant reliance on the foreign labor force, labor market segmentation, oil revenues that continue to finance a generous social contract and protect national labor, and high ratios of female-male youth unemployment rates, we examine the influence of labor markets flexibility and the generous social contract on the female youth unemployment rate in the GCC countries. We hypothesize that labor market flexibility reduces the female youth unemployment rate along the neoclassical labor market theory. In testing this hypothesis, and in absence of data on the degree of labor market flexibility of each labor segment, we implicitly assume that labor markets are non-segmented. We also hypothesize that the generous social contract in contrast increases the female youth unemployment rate.

Table 2. GCC Youth Unemployment Rates (**2007-2017** Period Average)

	Total (%)	Male (%)	Female (%)	Female-to-Male Ratio
Bahrain	5.2	2.6	12.7	4.6
Kuwait	11.7	10.1	15.5	1.6
Oman	14.0	12.0	25.0	2.2
Qatar	1.0	0.4	5.7	14.1
Saudi Arabia	28.9	22.1	53.2	2.4
UAE	6.6	5.6	10.4	1.8
Total	**11.3**	**8.8**	**20.4**	**4.5**
Memo item				
Other high-income countries	**19. 1**	**19.0**	**19.4**	**1.0**

Source: Own calculations using 2007-2017 data from World Development Indicators (World Bank, 2020).
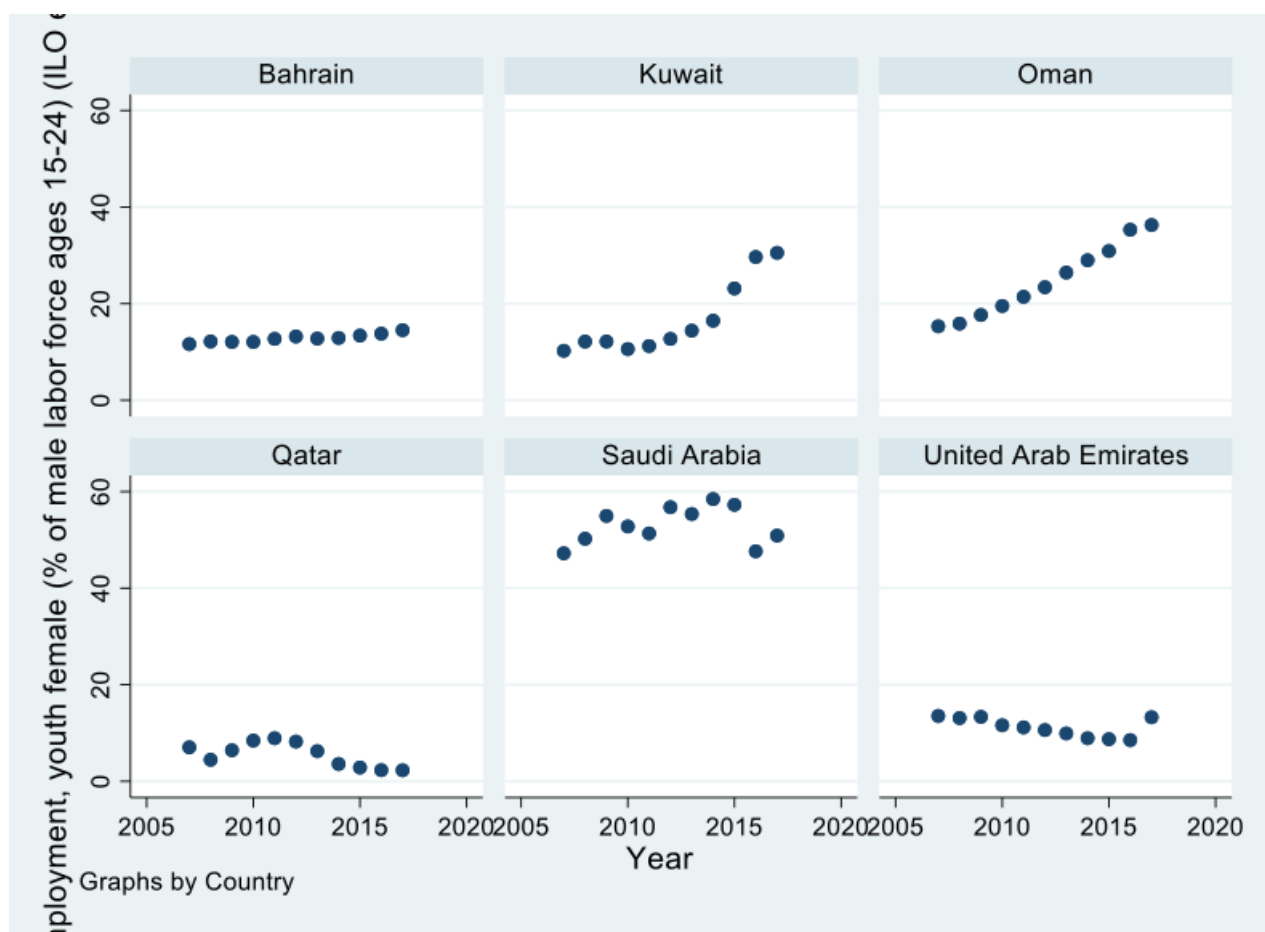
Figure 1. Female Youth Unemployment Rate (2007-2017)

Section 2 discusses in more detail the relationship between the GCC social contract, labor market segmentation, and female youth unemployment. Section 3 evaluates the degree of flexibility of the foreign labor market segment using the World Economic Forum's Global Competitiveness Reports data. Section 4 provides a brief literature review of the relationship between labor market flexibility and youth unemployment. Section 5 specifies the empirical model, while sections 6 and 7 present and discuss the empirical results. Section 8 concludes.

This article combines and contributes to the labor market, unemployment, and the Middle East and North Africa literatures. First, it addresses the World Bank's posit that, "*youth and female unemployment remain unacceptably high… often stemming from the influence of the state in economies.*" The influence of the state in the GCC countries is reflected in its segmentation of labor markets to protect nationals and the patronage the social contract generates. Second, to the best of our knowledge, this is the first study to examine youth unemployment, and female youth unemployment in particular, in the GCC countries. Finally, modeling the gender-based youth unemployment is novel in that it considers its political economy determinants.

2. Social Contract, Labor Market Segmentation and Youth Unemployment

A social contract is defined as "*the sets of formal and informal agreements between societal groups and their sovereign (government or other actor in power) on rights and obligations toward each other*" (Loewe *et al.*, 2021, page 1). In these agreements, governments provide social and economic benefits to societal groups in return for loyalty to the government. The social contract makes the relationship between government and society predictable and peaceful, and politically stable.

Social and economic benefits may include free health and education, commodity subsidies (including energy subsidies), and government and public sector jobs for graduates.[5] For example, in the case of Saudi Arabia, Saudis are offered high public employee wages, unemployment benefits, and commodity subsidies (Assidmi and Wolgamuth, 2017). In return, citizens become loyal to and support the government and accept "limited government accountability and restricted political participation".

GCC government expenditures can indicate the extent of the social contract. Two measures we adopt to assess such extent. The first is the compensation of government employees (percent of government expense), which is a measure of the relative importance of government employees' (social) wages in government expenses. The second is the government's final consumption expenditure (percent of GDP), which is a broader indication of the government's financial capacity. Both are measures of the expenditure side. However, more observations are available on the second measure making it more amenable to adoption in the empirical model.[6]

The average compensation of government employees in Bahrain, Kuwait, Saudi Arabia and the UAE amounted to nearly 45 percent of government expenditure in 1990-2020. This figure is more than double that of the other high-income

countries, which is about 17 percent, as table 3 shows. The available figures for each of these four countries amounted to nearly 60 percent, 30 percent, 56 percent, and 35 percent, respectively.

The average GCC government final consumption expenditure is nearly 21 percent during the same period, which is also higher than the other high-income countries' average of about 19 percent. Among the GCC countries, the figures for Kuwait and Saudi Arabia are about one-quarter of the GDP compared to one-tenth for the UAE.

In the GCC countries, natural resource rents have financed expenditures on the social contract[7]. Oil rents have significantly contributed to GDP especially in the 1980s, as table 4 shows. In 1990-2019, oil rents amounted on average to more than two-fifths of the GDP in Kuwait, more than one-third of the GDP in Oman and Saudi Arabia, slightly less than one-third of the GDP in Qatar, and one-fifth of the GDP in the UAE. Oil rents have generously financed the compensation of government employees and final consumption expenditures providing an additional depth dimension to Lowe's (2021) social contract effectiveness.

The depth of the GCC social contract is believed to have shaped the reservation wages and labor supply decisions of nationals. The highly-paid government jobs have influenced youth reservation wages and shaped their preferences in favor of government employment, making private-sector jobs less attractive. The high reservation wages coupled with unemployment benefits - as a social protection instrument - may have slowed and reduced youth job search, and increased unemployment duration and youth unemployment rate.

Table 3. Social Contract Indicators (1990-2020)

Country	Compensation of Employees (% expense)	Obs.	Government Final Consumption Expenditure (% GDP)	Obs.
Bahrain	59.5	15	17.4	30
Kuwait	29.9	15	25.9	30
Oman	.	0	22.2	31
Qatar	.	0	19.2	27
Saudi Arabia	55.8	10	24.7	31
UAE	34.6	12	10.1	19
Total	**44.5**	**52**	**20.6**	**168**
Memo item				
Other high-income countries	**16.8**	**1092**	**18.7**	**1260**

Source: Own calculations using World Development Indicators data (World Bank, 2020).

Table 4. Oil Rents in the GCC Countries (percent of GDP)

Country	1970	1980	1990	2000	2010	2019	Oil rents average (1990-2019)
Bahrain	.	18.6	8.6	3.9	3.3	2.2	3.6
Kuwait	41.0	68.6	55.3	51.3	48.8	42.1	42.7
Oman	50.2	56.5	51.6	45.5	37.2	24.9	34.6
Qatar	46.6	71.5	47.9	38.9	28.4	16.9	28.2
Saudi Arabia	27.8	71.4	47.3	41.3	41.3	24.2	36.0
UAE	.	46.5	36.2	21.1	21.7	16.2	20.2

Source: World Development Indicators (World Bank, 2020) and own calculations.

The fact that the female youth unemployment rate is at least more than twice the male youth unemployment rate is very likely due to the adverse impact of the generous social contract as well as cultural factors.[8] Culture has accentuated the traditional role of female youth as mothers in the household (Murray and Zhang-Zhang, 2018). Such a stereotype may have negatively impacted their job search and employment decisions if they have not considered dropping out of the labor force in the first place. Gender neutrality is challenged in education and the labor market. Gender segregation at public high schools and universities indicates societal values towards female education and employment (Murray and Zhang-Zhang, 2018; Rutledge et al., 2011).[9] Thus, both the social contract and culture seem to matter for female youth unemployment.[10]

3. Labor Market Flexibility of the Foreign Labor Segment

The labor efficiency pillar of the WEF's Global Competitiveness Index (GCI) assesses labor market flexibility and efficiency based on several indicators. Of these indicators, we select hiring and firing practices (HF), labor-employer cooperation (C), wage determination flexibility (WF), the link between pay and productivity (PP), and the reliance on professional management (PM). Higher scores indicate more flexible and efficient labor markets.

"HF" refers to the flexibility of these practices. Flexible (regulated) practices get the highest (lowest) score of 7 (1). The labor-employer relationship "C" can be cooperative (7) or confrontational (1). Wage determination flexibility "WF" gets a score of 7 if wages are flexibly determined at the firm level or 1 if wages are determined through a unionized bargaining process. The link between pay and productivity "PP" refers to the extent that wages are related to productivity. A strong (weak) link gets a score of 7 (1). Reliance on professional management "PM" refers to how senior management is selected. A selection based on merit and qualifications (kinship and friendship) gets a score of 7 (1).

Table 5 presents the 2007-2017 period average of the different labor market indicators for the GCC and the other high-income countries sample. On average, the GCC labor markets performed better on the ease of hiring and firing, the degree of cooperation between labor and employers, the flexibility of wage determination, and the link between pay and

productivity than the other high-income countries sample, while the latter group performed better on the reliance on professional management.

We believe that the GCI assessment of the labor efficiency pillar of the GCC labor market largely reflects the performance of the foreign labor segment for two reasons. First, foreign labor is employed mostly in the private sector. Employment in the private sector largely aligns with the free market principles supported by the absence of (foreign) labor unionization. We should emphasize though that the foreign labor segment is imperfectly flexible. In the UAE, for example, the sponsorship system and the monopsony power over foreign labor practically reduce the flexibility of the foreign labor segment nonetheless. Second, the GCC's generous social contract aims to protect national labor and provides benefits in exchange for loyalty. With generous employee compensation and benefits, as table 3 above shows, there tends to be no room for salary negotiations. Salary negotiations are indicative of not only wage bargaining but also the link between pay and productivity. Therefore, the national labor market segment tends to be largely inflexible. Given the significant presence of foreign labor in the labor force of the GCC countries and the segmented nature of the labor markets, the GCI assessment of the labor efficiency pillar indicators largely reflects the performance of the foreign labor segment.

Assuming *both* labor market segments are equally flexible, does labor market flexibility reduce female youth unemployment rates? This is a reasonable assumption to make in absence of data on the degree of labor market flexibility for each labor segment. This is the research question we empirically study in this paper

Table 5. Labor Market Performance (2007-2017 Period Average)

Variable	Obs.	Mean	Std. Dev.	Min	Max
		GCC Countries			
HF	66	4.30	0.60	2.79	5.48
C	66	4.96	0.38	4.24	5.67
WF	66	5.72	0.35	4.51	6.23
PP	66	4.54	0.52	3.35	5.53
PM	66	4.76	0.61	3.37	5.78
		High-Income Countries			
HF	484	3.75	0.91	2.10	6.11
C	484	4.78	0.79	2.99	6.32
WF	484	4.74	1.04	2.18	6.42
PP	484	4.27	0.65	2.34	6.04
PM	484	5.10	0.83	3.21	6.47

Source: Own calculations using Global Competitiveness Index Historical Dataset 2007-2017 (World Economic Forum, 2018).

4. Literature Review

The literature on the determinants of youth unemployment is large although the literature on the MENA region is scant. The focus of this review is on the recent studies.

Many studies examined the macroeconomic and structural determinants of youth unemployment. Baah-Boateng (2016) provides neoclassical and Keynesian explanations of unemployment in developed economies and applies them to developing African economies.[11] He distinguishes the microeconomic factors, such as minimum wages, efficiency wages and firm-insider information, and the macroeconomic factors, mainly Keynesian deficient demand and the business cycle. In Africa, youth unemployment is explained by factors, such as gender, race, education and skills of both individuals and families, networks, location, and demand deficiency.[12] Many studies focus on macroeconomic determinants, examples of which are Choudhry et al. (2012), Caporale and Gil-Alana (2014), Demidova and Signorelli (2012) and Ghoshray et al. (2016).

Within the large literature on youth unemployment, a few studies focused on labor markets as the main determinant of youth unemployment. A subset of these studies found that labor market flexibility reduced unemployment, such as Agnello et al. (2014) and Bernal-Verdugo et al. (2012; 2013). Other studies did not support this relationship, such as Liotti (2020, 2022).

Agnello et al. (2014) found that labor market flexibility reduced youth unemployment, especially in the long-term.[13] Bernal-Verdugo et al. (2012) found that improved labor market regulations and institutional quality had a statistically significant negative impact both on the level and change of unemployment outcomes for total, youth, and long-term unemployment. Bernal-Verdugo et al. (2013) found that flexible labor markets mitigated the negative durational impact of banking crises on both total and youth unemployment making the banking crises short-lived.

Using a reduced form model to examine the static effects of labor market flexibility on youth unemployment, Bernal-Verdugo et al. (2012) regressed the youth unemployment rate on labor market flexibility composite index, a time measure of demand pressure, government size, degree of trade openness, degree of urbanization, population density, a financial crisis dummy, and the lagged unemployment rate. They found that a one standard deviation improvement in the composite labor market flexibility indicator reduced the youth unemployment rate by 1.41 percentage points. A similar regression containing the hiring and firing regulations index instead showed a reduction in the youth unemployment rate by 0.78 percentage points.

Estimating the dynamic nature of the relationship between labor market flexibility and the change in the youth unemployment rate, they found that an improvement in the composite labor market indicator of one standard deviation reduced the youth unemployment rate by a half percentage point.[14] In addition, the hiring and firing regulations and the mandated costs of hiring had statistically significant negative effects.

On the other hand, the recent study by Liotti (2020) on youth unemployment in Italy found no evidence of a negative relationship between labor market flexibility and youth unemployment. Liotti (2022) found that economic growth and

investment in active labor market policies reduced youth unemployment in 28 European countries.

The present study relates and contributes to the literature in two respects. First, it relates to the sub-group of youth unemployment studies examining the role labor markets play. Second, it contributes to the scant literature on youth unemployment in the MENA region. Two studies have been identified to examine youth unemployment in the MENA region. Fakih et al. (2020) examine the probability of youth unemployment in five middle-income MENA countries – Algeria, Egypt, Lebanon, Morocco and Tunisia – using household survey data. They find that the probability of unemployment increases for a male youth graduate of a public school. Corruption and unequal rights increase the probability of unemployment. However, promoting gender equality in the labor market, education and political participation decreases the probability of employment.

Another study by Almula-Dhanoon and Ali (2021) examines the determinants of youth unemployment in ten Arab countries for the period 1990-2019. The empirical model accounted for FDI, inflation, government spending, population growth, GDP growth, degree of trade openness, and corruption. The sample Arab countries included Algeria, Egypt, Iraq, Jordan, Lebanon, Libya, Morocco, Sudan, Syria and Tunisia. They found that FDI, population growth, and trade openness worsened youth unemployment rate. On the other hand, the inflation rate, government spending and corruption control improved the youth unemployment rate. Economic growth had insignificant influence.

We distinguish our study from the scant MENA region literature. Our study is different from the most recent Almula-Dhanoon and Ali (2021) in that it focuses on female youth unemployment in the high-income GCC countries and examines the role of labor markets and the social contract. In contrast to Fakih et al. (2020), which adopts household-survey data to examine the probability of youth unemployment, our study uses country-level data to examine the female youth unemployment rate in the high-income GCC countries.

The Empirical Model

Building on Bernal-Verdugo et al. (2012), we express the empirical model as:

$$FYUR_{it} = \beta_0 + \beta_1 UR_{it-1} + \beta_2 LABOR_{it} + \beta_3 GFINANCE_{it} + \beta_4 LABOR * GFINANCE_{it} + \beta_5 RGDPCAPITA_{it} + \beta_6 OPENNESS_{it} + \beta_7 DENSITY_{it} + \varepsilon_{it}$$

where the dependent variable, *FYUR*, is the female youth (ages 15-24) unemployment rate.[15] *UR* is the total unemployment rate (lagged), which controls for the state of unemployment and the economy. *LABOR* is labor market flexibility indicators (log), as discussed in section 3 above. *GFINANCE* accounts for the extent of the social contract, as discussed in section 2 above. We use an (interpolated) compensation of government employees (as a percentage of government expense) as an indicator of the capacity of the government to finance social contract expenditures. *LABOR*GFINANCE* is an interaction term for the relationship between labor market flexibility and the extent of the social contract. *RGDPCAPITA* is the real gross domestic product (GDP) per capita in constant 2010 US$ (log).*OPENNESS* is the degree of trade openness of the economy, measured by the sum of exports and imports (as a percentage of GDP). *DENSITY* is an indicator of the degree of population density, measured by the number of people per square kilometer of

land area (log).

The error term, ε_{it} is composed of an unobservable country-specific effect, μ_i, an unobservable time-specific effect λ_t, and a disturbance term, v_{it}, as discussed below in the estimation methodology. The subscripts i and t are country and time indexes.

Given the persistence in the state of the economy and its impact on unemployment, we expect to have a positive relationship between the lagged *UR* and *FYUR*. We are inclined to expect a negative relationship between labor market flexibility and *FYUR* based on the empirical evidence of Agnello et al. (2014) and Bernal-Verdugo et al. (2012, 2013). However, in presence of segmented labor markets, which protect national labor, and a generous social contract, which shapes the preferences and reservation wages of national female youth, flexible labor markets may worsen the female youth unemployment rates. *LABOR* may therefore have a positive influence on *FYUR*. Accordingly, the influence of *LABOR* on *FYUR* is ambiguous *a priori*. *GFINANCE*, as an estimate of the extent of the social contract, is expected to worsen *FYUR* as discussed above. *LABOR*GFINANCE* is an interaction term for the relationship between labor market flexibility and the social contract.

The relationship between *RGDPCAPITA* (log) and the dependent variable is ambiguous. An increase in *RGDPCAPITA* generates an additional income effect at the household level, which reduces the urgency of job search and increases *FYUR*. On the other hand, an increase in *RGDPCAPITA* reflects growth in the economy and the expanding employment of resources, including labor, which reduces *FYUR*.

Trade openness, *OPENNESS*, increases export opportunities, which increases oil and gas revenues and the capability of the government to finance the social contract. In addition, an increase in trade imports may not be conducive to the creation of job opportunities suitable to the skills of nationals, which increases *FYUR*. Thus, we expect to have a positive relationship between *OPENNESS* and *FYUR*.

Finally, the degree of population density, *DENSITY*, tends to be associated with urbanization and infrastructure development. To live in developed urban areas, the population has to have jobs and income, which are negatively associated with the unemployment rate and possibly *FYUR*. Accordingly, we expect a positive relationship.

Data and Estimation Methodology

Data on the empirical model variables with the exception of *LABOR* are obtained online from the World Bank's World Development Indicators (World Bank, 2020). Data on *LABOR* are obtained from the World Economic Forum's Global Competitiveness Index Historical Dataset 2007-2017 (World Economic Forum, 2018).

In estimation, we adopt a fixed effects panel data model to account for the unobserved country and time effects. As discussed above, culture is one example of the time-invariant unobserved-country effects that characterize the GCC countries. We also account for country-invariant unobserved time effects; global oil crises to which the GCC countries were exposed are one example.

Potential endogeneity arises from reverse causality between *FYUR* and *RGDPCAP*. We therefore also adopt an IV estimation methodology.

5. Empirical Results

Table 6 presents the empirical model variable means for the GCC countries[16] The average *FYUR* is highest in Saudi Arabia at 53 percent, suggesting that more than half of the female youth labor force is unemployed. The rate is second highest in Oman with nearly one-quarter of the female youth labor force unemployed. The lowest rate is in Qatar. Similar to *FYUR*, the unemployment rate is highest in Saudi Arabia and Oman and lowest in Qatar.

The labor markets of the UAE and Qatar are the best performers in the region. Real GDP per capita is the highest in Qatar, which is about 70 percent higher than the UAE's, the second highest. Interestingly, Saudi Arabia and Oman, which have the highest *FYUR*, also have the highest government consumption expenditures, *GFINANCE*. Saudi Arabia and Bahrain have the highest share of compensation of government employees in government expenses. The UAE and Bahrain are the most open to trade in the region.

Fixed Effects Estimation Results

Tables 7 and 8 present the country-specific and both country- and time-specific fixed effects estimation results, respectively. Estimation results of table 7 show that linking pay to productivity, wage flexibility, and the ease of hiring and firing policies have negative and statistically significant coefficients at least at the 5 percent level. When accounting for both country and time effects, estimation results of table 8 show that linking pay to productivity and the ease of hiring and firing policies have negative and statistically significant coefficients at least at the 5 percent level. These specific labor market flexibility indicators reduce *FYUR* in the GCC countries. For example, an improvement in the link between pay and productivity by 1 percent reduces FYUR by about 1.2 percentage points in table 7 and 1.4 percentage points in table 8.

Table 6. Variable Statistics (Period Average)

	Bahrain	Kuwait	Oman	Qatar	Saudi Arabia	UAE
FYUR	12.84	16.66	24.65	5.53	52.99	11.16
UR	1.24	2.10	3.53	0.32	5.59	2.24
LABOR						
HF	3.98	3.90	3.74	4.85	4.37	4.96
C	4.85	4.64	4.89	5.26	4.76	5.36
WF	5.86	5.48	5.29	6.00	5.65	6.05
PP	4.53	3.84	4.19	5.09	4.57	5.03
PM	4.71	3.72	4.81	5.43	4.66	5.21
GFINANCE						
Consumption†	14.79	18.31	21.96	14.81	22.63	10.37
Compensation‡	34.02	24.97	33.84	26.51	52.37	31.68
RGDPCAPITA	21,587.12	39,933.11	17,829	65,740.83	20,373.37	38,834.03
OPENNESS	153.24	96.43	106.21	93.56	80.81	160.27
DENSITY	1,667.28	186.49	11.54	182.03	13.57	120.76
Memo items						
FYUR	11.94	23.60	33.90	5.05	52.77	13.51
Observations	2	3	1	10	9	1
UR	4.33	2.00	3.71	0.32	5.59	2.05
Observations	4	7	2	11	11	2

Source: Own calculations using Global Competitiveness Index Historical Dataset 2007-2017 and World Development Indicators (World Economic Forum, 2018; World Bank, 2020). † General government final consumption expenditure (percent of GDP). ‡ Compensation of government employees (percent of government expense).

The social contract that GCC countries adopt, as measured by the share of compensation of government employees in government expenses, also reduces *FYUR*. This influence is significant both economically and statistically in the fourth specification containing the link between pay and productivity. An increase in the compensation share by one percentage point reduces *FYUR* by nearly 4 percentage points.

The interaction term for the labor market and the social contract carries a positive coefficient. This suggests the presence of *both* labor and social institutions together weakens the influence of the *individual* institution on improving *FYUR*. We will discuss this result in the following section.

Instrumental Variables Estimation Results

Tables 9 and 10 present the instrumental variables (two-step GMM) estimation of the FE model. Table 9 accounts for the

country-specific effects, while table 10 accounts for both country- and time-specific effects. We instrument for *RGDPCAP* using the first two lags. *LABOR* coefficients are negative and statistically significant at least at the 5 percent level confirming the improving influence of labor market flexibility on *FYUR* we obtained in the above two tables.

Table 7. FE Estimation Results
(Country-specific Effects)(Social Contract measured using Compensation of Government Employees % Expense)

	HF	C	WF	PP	PM
L.*UR*	**2.617***	1.605	0.085	-1.590	0.130
	(1.230)	(1.590)	(2.532)	(1.928)	(2.566)
LABOR	**-51.891****	**-102.315***	**-158.300****	**-123.493*****	**-79.952***
	(13.484)	(48.860)	(54.034)	(11.443)	(35.279)
RGDPCAPITA	-11.923	-8.839	-18.146	2.277	-12.559
	(12.932)	(10.477)	(11.374)	(7.020)	(13.675)
GFINANCE	**-1.679*****	-3.513	-6.080	**-3.884*****	**-2.841***
	(0.319)	(2.042)	(3.211)	(0.687)	(1.238)
*LABOR*GFINANCE*	**0.977*****	2.013	3.406	**2.369*****	**1.699***
	(0.219)	(1.264)	(1.840)	(0.402)	(0.762)
OPENNESS	0.030	0.036	0.016	-0.034	0.027
	(0.029)	(0.034)	(0.015)	(0.025)	(0.024)
DENSITY	**14.561***	**16.670***	6.287	9.272	10.390
	(6.920)	(6.898)	(9.231)	(4.828)	(8.559)
Constant	150.748	200.700	457.864***	158.872	229.844
	(131.742)	(110.437)	(91.689)	(86.925)	(123.324)
Observations	60	60	60	60	60
R-squared	0.488	0.505	0.511	0.631	0.449
Number of countries	6	6	6	6	6
F test	6.40***	6.84***	7.01***	11.49***	5.48***

Notes: Robust standard error is in parentheses. * $0.05 < p \leq 0.10$. ** $0.01 < p \leq 0.05$. *** $p \leq 0.01$.

Table 8. FE Estimation Results
(Country- and time-specific effects)(Social Contract measured using Compensation of Government Employees % Expense)

	HF	C	WF	PP	PM
L.*UR*	3.537	2.128	0.150	-1.396	0.087
	(1.802)	(1.962)	(3.341)	(2.189)	(3.151)
LABOR	**-54.313****	-64.748	**-152.825***	**-135.664*****	-73.084
	(18.297)	(56.953)	(59.895)	(22.690)	(49.491)
RGDPCAPITA	-14.010	-14.641	-21.034	1.798	-19.307
	(12.077)	(10.749)	(13.479)	(7.954)	(13.391)
GFINANCE	**-1.690***	-1.577	-6.085	**-4.371*****	-2.726
	(0.824)	(2.217)	(4.035)	(1.015)	(2.145)
LABOR*GFINANCE	0.976	0.779	3.390	**2.693*****	1.603
	(0.505)	(1.407)	(2.281)	(0.658)	(1.333)
OPENNESS	0.078	**0.088***	0.021	0.001	0.028
	(0.042)	(0.040)	(0.039)	(0.030)	(0.039)
DENSITY	4.877	3.305	2.656	6.657	4.529
	(8.389)	(9.963)	(18.220)	(7.763)	(17.660)
Constant	211.260	253.945**	494.630**	189.710*	317.095*
	(115.004)	(83.534)	(136.252)	(91.462)	(128.862)
Observations	60	60	60	60	60
R-squared	0.546	0.561	0.520	0.680	0.484
Number of countries	6	6	6	6	6
F test	12.54***	13.61***	18.10***	19.92***	12.97***

Notes: Robust standard error is in parentheses. * $0.05 < p \leq 0.10$. ** $0.01 < p \leq 0.05$. *** $p \leq 0.01$.

Table 9. FE/IV (Two-step GMM) Estimation Results (Country-specific effects)

	HF	C	WF	PP	PM
L.*UR*	**3.103***	**2.835****	0.904	-1.742	0.439
	(1.634)	(1.388)	(1.557)	(1.786)	(1.620)
LABOR	**-51.709****	**-138.333*****	**-188.023*****	**-139.835*****	**-103.837****
	(20.395)	(39.863)	(37.871)	(31.118)	(50.047)
RGDPCAPITA	-9.993	**-15.757***	**-29.231*****	5.519	-12.359
	(12.581)	(9.371)	(9.584)	(12.484)	(12.914)
GFINANCE	**-1.656****	**-5.083*****	**-7.213*****	**-4.525*****	**-3.804***
	(0.833)	(1.844)	(1.950)	(1.322)	(2.114)
*LABOR*GFINANCE*	**0.976***	**3.026*****	**4.110*****	**2.787*****	**2.315***
	(0.534)	(1.139)	(1.121)	(0.830)	(1.317)
OPENNESS	0.040	0.045	0.035	**-0.044***	0.038
	(0.025)	(0.029)	(0.023)	(0.026)	(0.036)
DENSITY	**14.412****	**17.596*****	2.858	**9.792****	**12.842****
	(5.766)	(5.270)	(5.509)	(4.708)	(5.656)
Observations	54	54	54	54	54
R-squared	0.470	0.541	0.575	0.602	0.457
Number of countries	6	6	6	6	6
F test	7.41***	10.04***	10.04***	6.72***	4.37***
	Identification tests				
Underidentification	12.824***	14.184***	17.202***	10.228***	15.171***
Weak identification					
Cragg-Donald	30.647	37.452	45.253	24.022	31.867
Kleibergen-Paap rk	25.528	36.977	44.727	20.594	26.255
Overidentification	0.922	0.241	0.135	0.948	1.105

*Notes: Robust standard error is in parentheses. * $0.05 < p \leq 0.10$. ** $0.01 < p \leq 0.05$. *** $p \leq 0.01$. Cragg-Donald and Kleibergen-Paap rk are Wald F statistics.*

Table 10. FE/IV (Two-step GMM) Estimation Results (Country- and time-specific effects)

	HF	C	WF	PP	PM
L.*UR*	**4.151***	**2.955**	0.262	-1.221	-0.063
	(1.322)	(1.327)	(1.880)	(1.668)	(1.847)
LABOR	**-68.531***	**-116.015***	**-177.803***	**-143.708***	**-97.131**
	(21.172)	(44.129)	(38.660)	(24.917)	(45.063)
RGDPCAPITA	**-38.735***	**-45.014***	**-46.743***	-6.099	**-40.122**
	(13.521)	(12.949)	(15.645)	(14.270)	(16.543)
GFINANCE	**-2.157**	**-3.681***	**-7.088***	**-4.826***	**-3.403***
	(0.908)	(2.074)	(1.957)	(1.164)	(1.946)
*LABOR*GFINANCE*	**1.314**	**2.120***	**3.995***	**2.984***	**2.054***
	(0.581)	(1.266)	(1.113)	(0.712)	(1.201)
OPENNESS	**0.075***	**0.077**	0.013	-0.004	0.023
	(0.029)	(0.036)	(0.033)	(0.033)	(0.039)
URBAN	**-22.735***	**-23.860***	-21.778	0.642	-22.191
	(12.228)	(12.395)	(14.620)	(12.812)	(14.856)
Observations	54	54	54	54	54
R-squared	0.624	0.661	0.612	0.681	0.553
Number of countries	6	6	6	6	6
F test	6.84***	5.91***	5.05***	5.49***	2.84***
	Identification tests				
Underidentification	5.993**	5.784*	4.854*	5.024*	6.24**
Weak identification					
Cragg-Donald	26.403	28.25	27.375	18.135	25.096
Kleibergen-Paap rk	12.196	12.828	10.149	8.49	11.277
Overidentification test	0.258	0.03	0.00	1.926	0.13

Notes: Robust standard error is in parentheses. * 0.05<p≤0.10. ** 0.01<p≤0.05. *** p ≤ 0.01. Cragg-Donald and Kleibergen-Paap rk are Wald F statistics.

The social contract improves *FYUR* in the specifications containing labor-employer cooperation, wage flexibility, and the pay-productivity link. Coefficients are negative and statistically significant at least at the 5 percent level. They reduce *FYUR* in the range of about 4-7 percentage points.

The interaction term for the labor market and the social contract carries a positive coefficient. This confirms what we obtained above.

6. Discussion

This article highlights the importance of considering labor markets and the social contract when modeling the female youth unemployment rate in the GCC countries. Despite its segmented nature, enhancing the flexibility of non-segmented labor markets in the GCC countries has been shown to improve the female youth unemployment rate. The fear of adopting liberal policies for worsening (female) youth unemployment rates is unfounded.

The GCC social contract is generous and known for the relatively high level of salaries provided to nationals (compared to expatriates). The results however show that attracting youth to government employment helped in reducing *FYUR* in the study period 2007-2017 refuting a possible income effect.

Empirical evidence shows that liberalizing labor markets and yet maintaining the social contract reduces the effectiveness of either policy. This is what the positive coefficient of the interaction term shows.

To examine the robustness of this result, we accounted in additional regressions for a) *either* of the labor market institutions or the social contract in the empirical model, and b) *both* of institutions but ignored the interaction between them in the empirical model. The obtained empirical evidence showed that the magnitude and statistical significance of coefficients of *either* or *both* institutions are reduced.[17]

7. Conclusion

In this article we examined the influence of labor markets flexibility and the generous social contract on the female youth unemployment rate in the resource-rich GCC countries. The research question is motivated by the observation that the female youth unemployment rate is more than double the male youth rate. The article hypothesized that labor market flexibility and the social contract would influence *FYUR* differently. Having the same degree of flexibility in the national and foreign labor segments was hypothesized to improve (reduce) the female youth unemployment rate, while the social contract was hypothesized to worsen (increase) it. To test these hypotheses, we used panel data model for the period 2007-2017 in which GCI data on labor market institutions are available. We adopted fixed effects and instrumental variables/ generalized method of moments estimation methodologies. Empirical evidence surprisingly showed that both labor market flexibility and the social contract improved the female youth unemployment rate.

The results suggest that reforming labor market institutions does not constitute a threat to the female youth unemployment problem in the GCC countries. Similarly, the generous social contract helps improve the female youth unemployment problem. Labor market reforms are not expected to trigger unemployment-related social instability, and concerns about increasing unemployment are to be dissipated based on the empirical evidence.

The research addresses the World Bank's posit for the MENA countries that, "*youth and female unemployment remain unacceptably high… often stemming from the influence of the state in economies.*" The influence of the social contract and reformed, non-segmented and flexible labor markets is shown to disperse this postulate in the case of the

GCC countries.

Footnotes

1. See Assidmi and Wolgamuth (2017) on the Saudi Arabian experience.

2. The sample of high-income countries include Australia, Austria, Barbados, Belgium, Brunei Darussalam, Canada, Chile, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Lithuania, Luxembourg, Malta, Netherlands, New Zealand, Norway, Panama, Poland, Portugal, Singapore, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Trinidad and Tobago, UK, US, and Uruguay.

3. These numbers are based on author calculations. The GCC statistical center data is available at https://gccstat.org/en/?msclkid=9e9ad3d7b44711ec8af881af76463383

4. Author calculations are based on Bell and Blanchflower (2015) data.

5. See Al-Saidi (2020) on the role that energy subsidies play as a part of the social contract in the GCC countries.

6. Due to the importance of the compensation of government employees, we interpolate the missing observations using the current GDP measured in US$.

7. Loewe et al. (2021) point out that the effectiveness of social contracts depends on a) the substance or the exchanged deliverables, presumably the benefits to the societal groups, b) the scope or coverage of actors involved and the geographic range of influence, and c) the evolution and duration of the social contract over time.

8. The restrictions on female employment in certain sectors in some GCC countries and the higher graduation rates of females compared to males are factors that very likely increases the female youth unemployment rates.

9. In neighboring Iran, where society culture and norms are close, discrimination in the workplace is rampant (Hedayat et al., 2013).

10. The nationals of the Maldives and the GCC countries face similar labor issues. For an interesting study, see Salvini et al. (2016).

11. The African economies are characterized by large informal sector. He explains youth unemployment rate in terms of supply factors (the share of youth in total population and gross enrolment rate), demand factors (real GDP growth rate and the share of agriculture and manufacturing in GDP) and labour market variables (ratio of employment to population and the vulnerable employment rate).

12. Marelli and Vakulenko (2015), Mendolia and Walker (2015) and Mursa et al. (2018) highlight the importance of personal and family characteristics to youth employment.

13. Among the dependent variables was youth unemployment rate, which was explained in terms of the lagged dependent variable, a vector of control variables, a vector of labor market flexibility variables, and a vector of fiscal consolidation variables. The control and labor market flexibility variables were similar to Bernal-Verdugo et al. (2012). They used fixed effects and Arellano-Bond GMM estimator.

14. They used a two-step system generalized method of moments (GMM) estimation methodology to account for the lagged dependent variable and potential simultaneity. In doing so, they considered all explanatory variables as endogenous and instrumented them using up to two lags.

15. Because of the paucity of statistical data in some GCC countries, we use the available ILO-modeled female youth unemployment rate, which defines youth in terms of ages 15-24.

16. The memo items in the table show the national estimates. The estimates for Saudi Arabia and Qatar are close to the International Labor Organization (ILO) estimates. For other GCC countries, insufficient observations are available.

17. Results are available from the author.

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