Informality, Employment and Economic Development in the Arab World

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Abstract

This paper studies the causes and consequences of informality and applies the analysis to Arab countries. It starts with a review of employment, labor informality and other labor market outcomes in the Arab world; and a discussion on the definition and measures of informality, as well as on the reasons why widespread informality should be of great concern. The paper also analyzes informality's main determinants, arguing that informality is not single-caused but results from the combination of poor public services, a burdensome regulatory regime, and weak monitoring and enforcement capacity by the state. This combination is especially explosive when the country suffers from low educational achievement and features demographic pressures and primary production structures. Finally, using cross-country regression analysis, the paper evaluates the empirical relevance of each determinant of informality. It then applies the estimated relationships to several Arab countries to assess the country-specific relevance of each proposed mechanism. Results suggest that informality has had negative marginal effects for Micro and Small Enterprises' (MSEs') performance in the Arab world. Moreover, informal establishments might have difficulty penetrating regional or international markets; instead, they are likely to specialize in producing for local markets.

الأنشطة الاقتصادية غير المنظمة والتنمية والتشغيل في الدول العربية

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ملخص

تدرس الورقة أسباب ونتائج ظاهرة القطاع غير الرسمي، وتطبق ذلك على الدول العربية. تستعرض الورقة مفهوم القطاع غير الرسمي والأسباب التي تدعو إلى القلق الكبير من توسعته كظاهرة تنموية، وأهم خصائص العمالة في الدول العربية بشكل عام وفي السوق غير الرسمية على وجه الخصوص والعلاقة المفترضة بين التنمية والعمالة والقطاع غير الرسمي. عالجت الورقة تعريفاً لبعض المؤشرات لقياس الطبيعة غير الرسمية للقطاعات، وقد تمت دراسة تأثير هذه المؤشرات على النمو الاقتصادي وتفشي الفقر، وقد خلصت الدراسة إلى نتيجة مفادها أن ارتفاع النشاطات غير الرسمية يؤدي إلى انخفاض النمو الاقتصادي وزيادة انتشار الفقر. كما تم تقدير نموذج لاستكشاف محددات القطاع غير الرسمي على مستوى الاقتصاد الكلي وكذلك على مستوى الاقتصاد الجزئي، خلص إلى نتائج تفيد بتفشي ظاهرة القطاع غير الرسمي في معظم الدول العربية، واعتبار ذلك ظاهرة مقلقة لما تعنيه من سوء في توزيع الموارد، واستخدام غير كفوء للخدمات الحكومية، الأمر الذي قد يضر بالنمو الاقتصادي وتخفيف الفقر.

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Introduction

> "Over the next two decades, the Middle East and North Africa (MENA) region faces an unprecedented challenge. In 2000, the labor forces of the region totaled some 104 million workers, a figure expected to reach 146 million by 2010 and 185 million by 2020… Absorbing unemployed workers in addition to the new entrants implies the need to create close to 100 million jobs by 2020, a doubling of the current level of employment in the first two decades of the 21st century." (World Bank, 2004: p. 1).

The long-term development of the Arab world and perhaps its political stability as well, hinges on the region's ability to generate massive number of jobs on a sustained basis for the next two decades. This would be required to overcome a huge 15% regional unemployment level and to absorb a high and rising working-age population. As the above quote makes clear, this is, indeed, a tall order.(1) The Arab world is comprised of a diverse group of countries in terms of their economic structures: oil-exporting and labor-importing upper middle-income economies; mixed oil-exporting, labor-abundant lower middle-income economies; diversified labor-abundant middle-income economies; and, primary-exporting labor-abundant low-income economies.(2) However, despite their diversity, the economies of the Arab world share many commonalities with regard to labor market outcomes.

Due to its delayed demographic transition, the working-age population in the Arab world grew by about 3.5% since the beginning of the 1980s, which exceeded the growth rates of all other regions. Although this rate started to decline in the 1990s, it is projected to remain high, at close to 3%, well into the second decade of the 21st century. By the 1990s, labor force growth dropped sharply in other regions, including to 2.4% in Latin America and to just 1% in East Asia (World Bank, 2008). On the other hand, the over-regulated and public sector-dominated Arab economies could not generate high enough growth to absorb the rising supply of labor, especially among youth and more educated job seekers. In turn, the failure to generate high productivity jobs in the formal private sector has led to the rapid expansion of the informal sector, which has become an important source of employment in the Arab economies.

In his classic study of informality, De Soto (1989) defines the informal sector as the collection of firms, workers, and activities that operate outside the legal and regulatory frameworks. Therefore, participating in the informal sector entails escaping the burden of taxation and regulation but, at the same time, not enjoying the protection and services that the state can provide. This definition of informality has gained remarkable popularity due to its conceptual strength, which allows it to focus on the root causes of informality rather than merely its symptoms.(3) Previous studies broadly following this concept find evidence of substantial informal labor markets in the Arab world. For example, informal employment in 1998 is estimated at 40% of the total labor force in Egypt; and about 25% and 57% in Algeria and Morocco respectively, in the 1980s.(4)

However, because the informal sector is usually organized around small scale and low capital-intensive firms that mostly employ unskilled workers, it is characterized by low productivity and low returns to education. As a consequence, wages and incomes generated in the informal sector may not be high enough to lift informal workers above the poverty line. Moreover, informal employment has several other drawbacks, including lack of social security coverage and other work-related rights, and that women are discriminated against in both hiring and earnings (Wahba, 2000). Therefore, the increasing informalization of Arab economies, it has been argued, is not likely to be part of the solution to the poor labor market outcomes that characterize these economies. Rather, it is a symptom of poor policies and inappropriate development strategies.

While this diagnosis is consistent with international evidence from other regions(5), an alternative view about the informal sector in the Arab world casts a more positive light. For example, Assaad (2002) notes that this sector promotes much needed labor-market flexibility by allowing employers to tap into an adaptable workforce during periods of expansion and lay off workers during periods of slump. Therefore, it may be argued that it is not clear why informality should lead to lower productivity growth. On the larger development and welfare issues, it has also been argued that the small and micro-enterprises which are dominated by informal activities, are not "just owned by a majority of the world's working people - these enterprises build markets, expand trade, manage natural resources, fight poverty, generate employment, strengthen communities, support

families, and feed most of the world's children," (World Bank, 2008: p. 237).(6) In other words, whether or not the informal sector has negative consequences for productivity growth, or other development outcomes for that matter, is an empirical question.

Against this backdrop, this paper analyzes the development impact of informality of the economies of the Arab world. Using a global sample of Arab and non-Arab countries, the determinants of informality in the Arab world are analyzed, where the latter is accounted for by four indirect measures of informality. The growth and poverty impact of these indicators of informality is also assessed. Additionally, the benchmark macroeconomic assessment is contrasted with micro evidence on the impact of informality on firm-level economic performance, using micro and small enterprise (MSE) survey data from three Arab countries (Egypt, Lebanon and Morocco) as well as Turkey. Turkey was a logical choice, it being a more advanced non-Arab comparator country from the region.

The presence of large informal labor markets and other problematic labor market outcomes experienced by most Arab countries, such as high youth unemployment and low returns to education, are all attributed to the public sector-dominated development strategy pursued and maintained by these countries well after it was widely believed to have hit the point of diminishing returns (World Bank, 2004). For some 25 years between 1960 and 1985, most countries of the region managed to achieve relatively high and stable growth rates - at or close to 5% per annum. It also appears that the region has effectively used the enormous resources triggered by the oil price hikes in the 1970s(7) to considerably advance its standing in terms of the social development agenda.

Compared to other regions, the people of the Arab world have realized enormous social benefits. For example, until recently, the region has been characterized by low poverty and more equal income distribution by international standards (Ali and Fan, 2007)(8). Such gains were made possible by massive investments in education and health and also through direct and generous transfers to large segments of the population (World Bank, 1995). However, these achievements were a product of substantially public-sector dominated economies, with little, if any, role for the private sector.

Unlike East Asia which arguably started off with a similar state-led development strategy, the region continued with this strategy well after it started to become counter-productive. Instead, the East Asian region achieved a timely and adequate transformation into more open, diversified and export-oriented economies, in which the modern formal private sector assumes a prominent role in the labor market and the productive economy. The failure of the region to achieve economic diversification away from the oil sector and the continued dominance of the public sector in the productive economy proved to be a rather costly development strategy.

Following the deceleration in the prices of oil since the second half of the 1980s, economic growth in the region slowed down from more than 5% per annum in the 1970s to only 2% in the 1980s, and only marginally improved to about 3% in the 1990s. This trend continues for the current decade, except for Jordan, Morocco and Tunisia, which grew by close to 4.0% (Table 1). Moreover, the 1990s earmarked the beginnings of a "demographic transition" in many countries of the region, due to the slow down in fertility relative to the 1970s and 1980s when the region experienced the highest rates of population growth in the world. As a consequence of the demographic transition, and the increasing participation of women in the labor force[9], especially educated women, the region's labor supply has grown quite rapidly. On the other hand, faltering growth since the 1980s - as educational attainments continue to expand - has resulted to a widening mismatch between labor supply and demand, especially with regards to educated labor. For example, despite the proportion of the Egyptian labor force with secondary education or above accounting for only 42%, they constitute about 80% of the unemployed. For Algeria and Morocco, this category accounts for 38 and 30% respectively, of the unemployed, which is about twice their respective shares in the labor force (World Bank, 2008).

Table 1. Growth Performance in the Arab World, 1960-2006

	1960-84		1985-94		1995-2000		2001-2006	
	Growth (%)	Growth Volatility (%)	Growth (%)	Growth Volatility (%)	Growth (%)	Growth Volatility (%)	Growth (%)	Growth Volatility (%)
Mixed Oil Economies	1.9	5.4	-2.1	1	1.6	0.9	3	0.6
Algeria	1.9	5.4	-2.1	1	1.6	0.9	3	0.6
Oil Economies	5.5	2.1	1	4	0.8	1.3	1.5	2.3
Bahrain	5.5	2.8	1.5	4	1.6	1.3	-	-
Kuwait	-6.6	1.5	4.5	9.8	-3.2	1.2	-	-
Libya	13	1.4	1.4	6.8	13.6	0.5	1.5	2.3
Oman	8.3	2	1	4	0.8	2.2	-	-
Qatar	12.4	2.4	0.6	19.3	21.6	0.4	-	-
Saudi Arabia	3.2	2.1	-1.3	3.8	-1	1.8	-	-
United Arab Emirates	-4.3	2.3	-4.4	2.1	-1.4	5.1	-	-
Diversified Economies	3.1	2	1.4	3.3	0.8	3.4	2.9	0.6
Egypt	3.6	0.9	1.6	1	3.1	0.2	2.3	0.7
Jordan	2.5	3	-2	3.9	0.3	5.1	3.8	0.4
Lebanon	-	-	1.3	24.2	1.3	1.7	2.2	1.1
Morocco	2	2	1.9	2.7	0.1	69.7	3.5	0.5
Syria	3.1	3	1.4	4.9	0.3	13.3	1.7	0.9
Tunisia	3.6	1.1	1.4	2.2	3.6	0.4	3.7	0.4
Primary Exports Economies	0.4	18	-1.3	4.4	1.2	0.8	0.8	0.6
Comoros	0.4	18	-1.3	3	-1.1	1.7	0.2	0.9
Djibouti	-	-	-7	0.3	-2.3	0.8	0.8	1.6
Mauritania	1.7	4.3	0.4	5.4	1.2	0.8	2.2	1.7
Sudan	-1.7	34.4	1.2	5.5	3.8	0.1	5.3	0.5
Yemen	-	-	-1.5	4.4	3.4	0.7	0.7	0.7
Arab World	2.5	2.3	1.1	3.9	1.2	1	2.2	0.7
East Asia	4.3	0.6	5.2	0.3	2.9	2.2	3	0.7
Sub-Saharan Africa	1.1	3.5	-1.1	1.8	0.3	2.3	1.8	1.1

Source: Author's calculations using World Development Indicators (WDI:World Bank)

In addition to the structural imbalances in the Arab labor markets, it is argued that labor market policies have also contributed immensely to the disappointing labor market outcomes in the region.

Firstly, the influence due to the legacy of the dominance of the public sector in the job markets of most Arab countries. For example, in Egypt, employment in the public sector doubled from 16% in 1960 to 32% by 1981. While public

employment is estimated to account for 18% for the world (excluding China), the average for the Arab world is approximately 29%. However, it varies from a low of 10% for Morocco to 93% (of nationals) for Kuwait. The share of public sector wages and salaries to current expenditure is also rather high for this region (see Table 7.6 of World Bank, 2008). Such legacy has been linked to, among other things, an inherent tendency to generate rents through stifling regulations on private sector activities, significant labor market segmentation, high job expectation and voluntary unemployment among educated youth.

Secondly, in addition to the regulatory burden associated with a bloated public sector, the private sector in the region has also been impacted by a poor record of contract enforcement and low quality of public sector administration. While the labor market regulations do not appear to be particularly stifling, the average number of required contract enforcement procedures in the region exceeds all other regions, and the quality of the administration in the region is only slightly better than that of South Asia, which is a much poorer region. Moreover, in terms of trade and macroeconomic policy, the region remains relatively closed and undiversified, in large measure because of the Dutch Disease [(10)] associated with the oil sector and the ensuing lack of real exchange rate competitiveness (e.g. Elbadawi, 2005).

Thirdly, labor informalization is also linked to poor labor market outcomes, such as sluggish job creation at various levels of training and education. Recent survey evidence, from Egypt for example, suggests that the informal sector provides a temporary "refuge" for educated workers facing high formal unemployment rather than an opportunity to achieve entrepreneurial future (Wahba, 2000). To the extent that the presence of a large informal sector reduces the pressure for meaningful reforms, widespread informality can be a drag on the region's economy (Galal, 2002).

The Measurement and Cost of Informality

Although the definition of informality - such as the one due to De Soto (1989) - can be simple and precise, its measurement is not. Given that it is identified with working outside the legal and regulatory frameworks, informality

is best described as a latent, unobserved variable. That is, a variable for which an accurate and complete measurement is not feasible but for which an approximation is possible through indicators reflecting its various aspects.

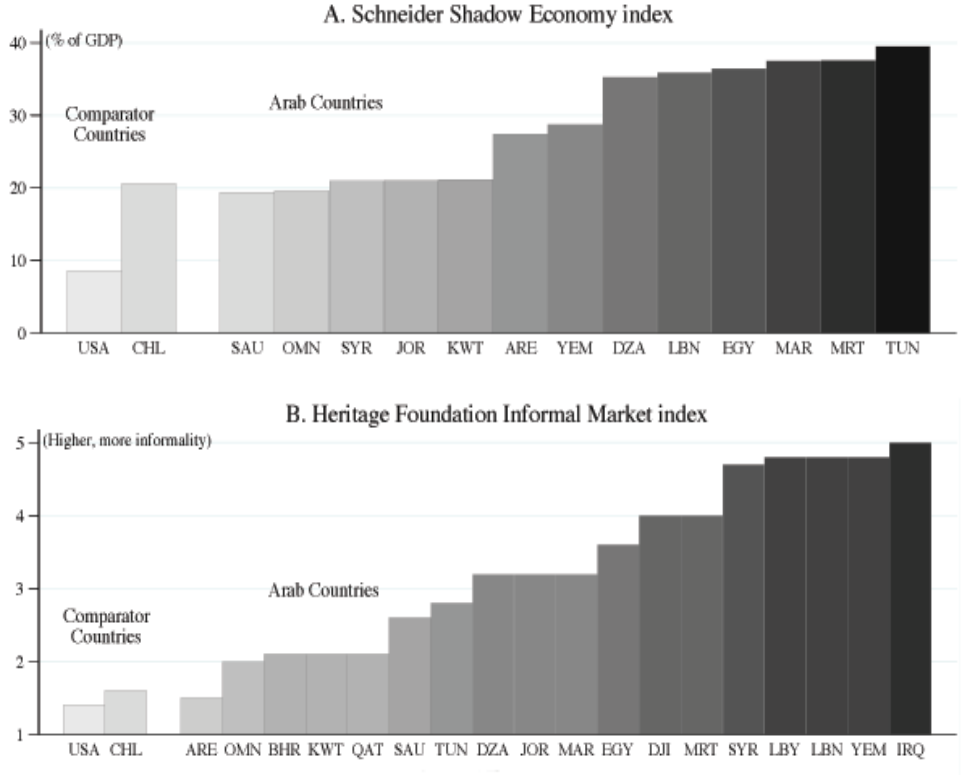
Indicators

Four of these indicators are considered, available for a relatively large collection of countries. Two of them refer to overall informal activity in the country, and the other two relate to informal employment in particular. Each indicator, on its own, has conceptual and statistical shortcomings as a proxy of informality. Taken together, however, they may provide a robust approximation to the subject.

The indicators related to overall informal activity are: the Schneider index of the shadow economy obtained from Schneider (2004); and the Heritage Foundation index of informal markets (Miles et al, 2005). Details on definitions, sources, and samples for these and other variables used are provided in Appendix 1a. The Schneider index combines the DYMIMIC (dynamic multiple-indicator-multiple-cause) method, the physical input (electricity) method, and the excess currency-demand approach for the estimation of the share of production that is not declared to tax and regulatory authorities. The Heritage Foundation index is based on subjective perceptions of general compliance to the law, with particular emphasis on the role played by official corruption. The indicators that focus on the labor aspect of informality are the prevalence of self employment and the lack of pension coverage. The former is given by the ratio of self to total employment, as reported by the International Labour Organization (ILO).[11] The latter is given by the fraction of the labor force that does not contribute to a retirement pension scheme, as given in the World Bank's World Development Indicators.

Appendix 2 presents some descriptive statistics on the four informality indicators. In particular, it shows that, as expected, they are significantly positively correlated, with correlation coefficients ranging from 0.59 to 0.90 - high enough to represent the same phenomenon but not too high to make them mutually redundant.

Using data on these four indicators, the prevalence of informality in the Arab region is assessed. Figure 1 presents data on the four informality indicators for Arab countries (as many as data availability allows), for Chile (a developing, resource-rich country that has become a reform leader), and for the United States (the developed country to which several Arab countries have close aid and trade ties). There seems to be much heterogeneity across Arab countries, with a few comparing favorably to Chile (e.g., Saudi Arabia, Oman, and Tunisia). However, for the majority of countries, the level of informality is much larger than in the US or Chile. For some countries (e.g., Iraq, Syria, Mauritania, and Sudan), it is comparable to the most informal countries in the world. This heterogeneity, which spans most of the distribution of developing countries, reflects the underlying diversity of Arab countries regarding the fundamental sources of informality.



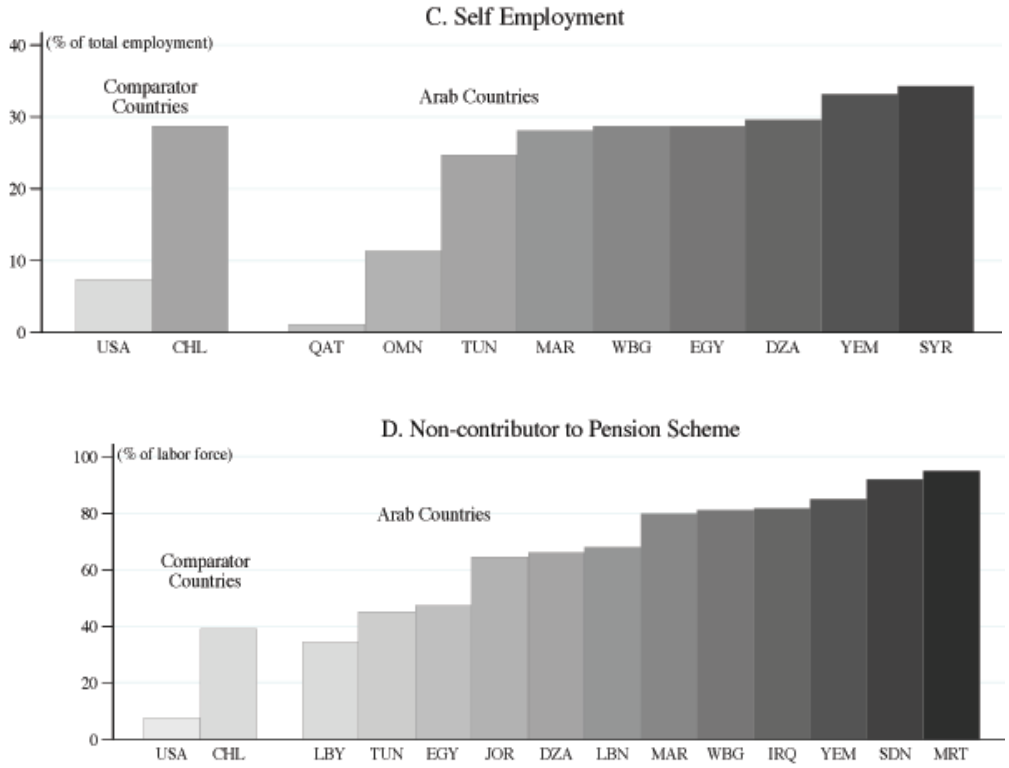


Figure 1. Size of informality, various measures.

Informality is a distorted response of an excessively regulated economy to the shocks it faces and its potential for growth. It is a distorted, second-best response because it implies misallocation of resources and entails losing, at least partially, the advantages of legality, such as police and judicial protection, access to formal credit institutions, and participation in international markets. Trying to escape the control of the state induces many informal firms to remain sub-optimally small, use irregular procurement and distribution channels, and constantly divert resources to mask their activities or bribe officials. Conversely, formal firms are induced to use more intensively the resources that are less burdened by the regulatory regime. In particular for developing countries, this means that formal firms are less labor-intensive than they should be according to the countries' endowments. In addition, the informal sector generates a negative externality that compounds its adverse effect on efficiency: informal activities use and congest public infrastructure without contributing the tax

revenue to replenish it. Since public infrastructure complements private capital in the process of production, a larger informal sector implies smaller productivity growth.(12)

Compared with a first-best response, the expansion of the informal sector often represents distorted and insufficient economic growth.(13) This statement merits further clarification. Informality is sub-optimal with respect to the first-best scenario that occurs in an economy without excessive regulations and with adequate provision of public services. Nevertheless, informality is indeed preferable to a fully formal but sclerotic economy that is unable to circumvent its regulation-induced rigidities. This brings to bear an important policy implication - the mechanism of formalization matters enormously for its consequences on employment, efficiency, and growth. If formalization is purely based on enforcement, it will likely lead to unemployment and low growth. If, on the other hand, it is based on improvements in both the regulatory framework and the quality/availability public services, it will bring about more efficient use of resources and high growth.

From an empirical perspective, the ambiguous impact of formalization highlights an important difficulty in assessing the impact of informality on economic growth. Two countries may have the same level of informality, but if this depends on different underlying causes, the countries' growth rates may also be markedly different. Countries where informality is kept at bay by drastic enforcement will fare worse than countries where informality is low because of light regulations and appropriate public services.

A simple regression analysis of the effect of informality on growth is now presented. As suggested above, this analysis must control for enforcement; and a straightforward, albeit debatable way to do so, is by including a proxy for overall state's capacity as a control variable in the regression. For this purpose, two proxies are tried: (a) the level of GDP per capita; and (b) the ratio of government expenditures to GDP. The former has the advantage of also accounting for conditional convergence. The latter has the advantage of more closely reflecting the size of the state.(14)

Table 2 presents the results of the regressions having the average growth of per capita GDP over 1985-2005 as dependent variable, initial (1985) GDP per capita or initial level (1985) of the ratio of government expenditure to GDP as control variable, and, in turn, the four informality indicators as explanatory variables.

Table 2. The Effect of Informality on Economic Growth

Method of Estimation: Ordinary Least Squares with Robust Standard Errors
Dependent variable: Per Capita GDP Growth, 1985-2005, country average

	Per capita GDP Growth, 1985-2005							
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Initial GDP per capita (2000 US$, 1985, in logs)	-0.1966	-0.3519	-0.3498*	-0.6910*				
	-1.29	-1.54	-1.88	-1.98				
Initial Government Expenditure (% of GDP, 1985)					-0.0340*	-0.0513**	-0.0681***	-0.0588**
					-1.96	-2.60	-2.82	-2.59
Schneider Shadow Economy index (% of GDP)	-0.0747***				-0.0622***			
	-3.87				-4.76			
Heritage Foundation Informal Market index (ranging 1-5: higher, more informality)		-0.8009**				-0.6724***		
		-2.41				-5.52		
Self Employment (% of total employment)			-0.0657***				-0.0557***	
			-3.11				-3.84	
Non-contributor to Pension Scheme (% of labor force)				-0.0423***				-0.0183***
				-2.80				-3.58
Constant	5.4231***	6.9131**	6.6476***	9.2161**	4.1214***	4.5441***	4.6023***	3.5267***
	3.15	2.57	3.35	2.59	6.71	7.98	6.69	6.19
No. of observations	119	127	72	91	112	118	69	85
R-squared	0.20	0.08	0.13	0.11	0.20	0.18	0.18	0.11

N.B.
t-statistics are presented below the corresponding coefficients.
*, ** and *** denote significance at the 10%, 5% and 1% levels, respectively.
See Appendix 1a for definitions and sources of four informality measures.
Source: Authors' estimation

A period of approximately 20 years is appropriate for the computation of the average growth rate in order to achieve a compromise between merely cyclical, short-run growth (which would be unaffected by informality) and very long-run growth (which may actually cause informality, rather than the other way around). The maintained hypothesis for identification of the causal relationship between informality and growth is that the level of informality is related to institutional and structural factors that change little over time and influence but are not influenced by medium-term growth rates (in this case, covering the 21-year period leading to 2005).

The regression results indicate that an increase in informality leads to a decrease in economic growth. All four informality indicators carry negative and highly significant regression coefficients. This result represents a general tendency and not the influence of isolated observations.(15) The harmful effect of informality on growth is not only robust and significant, but its magnitude makes it also economically meaningful. An increase of one standard deviation in any of the informality indicators leads to a decline of 1-1.5 percentage points in the rate of per capita GDP growth, when initial level of per capita GDP is controlled for.(16)

There is also a close connection between poverty and informality, reflecting, at least in part, the negative relationship between economic growth and informality. Table 3 presents cross-country regression analysis having the headcount poverty index as dependent variable and, in turn, the four measures of informality as explanatory variables. As in the growth regressions, the level of GDP per capita or the ratio of government expenditures to GDP are included as control variables. Additionally, the Gini index is included as an explanatory variable so as to control for the effect of inequality on poverty. In order to have a close chronological match between dependent and explanatory variables, the headcount poverty index corresponds to the latest available measure per country.

Table 3. The Effect of Informality on Poverty

Method of Estimation: Ordinary Least Squares with Robust Standard Errors
Dependent variable: Poverty Headcount index, latest year

	Poverty Headcount index, latest year							
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Initial GDP per capita (2000 US$, 1985, in logs)	-0.1469***	-0.1202***	-0.1543***	-0.1129***				
	-6.24	-4.42	-3.12	-2.90				
Initial Government Expenditure (% of GDP, 1985)					0.0048	0.0091	0.0119	0.0060
					0.82	1.57	1.22	1.00
Initial Gini index (ranging 0-100, country specific year)	0.0041	0.0061*	0.0091***	0.0062	-0.0041	0.0018	0.0014	0.0012
	1.65	1.96	2.86	1.60	-1.33	0.57	0.46	0.40
Schneider Shadow Economy index (% of GDP)	0.0057**				0.0084**			
	2.12				2.23			
Heritage Foundation Informal Market index (ranging 1-5: higher, more informality)		0.0837**				0.2180***		
		2.56				4.44		
Self Employment (% of total employment)			-0.0021				0.0146**	
			-0.60				2.52	
Non-contributor to Pension Scheme (% of labor force)				0.0014				0.0064***
				0.99				4.74
Constant	0.8143***	0.4559*	0.9106**	0.5937**	0.0093	-0.7900***	-0.5538*	-0.4134*
	4.06	1.77	2.40	2.10	0.04	-2.90	-1.77	-1.95
No. of observations	51	51	33	46	48	48	31	43
R-squared	0.53	0.48	0.47	0.40	0.14	0.33	0.25	0.36

N.B.
t-statistics are presented below the corresponding coefficients.
*, ** and *** denote significance at the 10%, 5% and 1% levels, respectively.
See Appendix 1a for definitions and sources of four informality measures.
The latest year of poverty headcount index and the initial year of Gini index vary by country. For more information, refer to Loayza and Raddatz (2006).
Source: Authors' estimation

The regression results reveal a positive relationship between the prevalence of informality and the incidence of poverty. When government expenditure is controlled for, the four measures of informality carry positive and significant coefficients. Similarly, when the level of GDP per capita is controlled for, three of the four informality indicators (self-employment being the exception) carry positive coefficients and those corresponding to the Schneider and the Heritage indices are also statistically significant. The positive and mostly significant relationship between informality and poverty is remarkable because it survives the inclusion of GDP per capita, government size, and the Gini index.[17] Since these variables capture the overall effect of development on poverty, the positive link between informality and poverty suggests additional mechanisms dealing with the complex sources of informality.

Causes of Informality

Informality is a fundamental characteristic of underdevelopment, shaped both by the modes of socio-economic organization inherent to economies in the transition to modernity and by the relationship that the state establishes with private agents through regulation, monitoring, and the provision of public services. As such, informality is best understood as a complex, multi-faceted phenomenon.

Informality arises when the costs of belonging to the country's legal and regulatory framework exceed its benefits. Formality entails costs of entry - in the form of lengthy, expensive, and complicated registration procedures - and costs of permanence including payment of taxes, compliance with mandated labor benefits and remunerations, and observance of environmental, health, and other regulations. The benefits of formality potentially consist of police protection against crime and abuse, recourse to the judicial system for conflict resolution and contract enforcement, access to legal financial institutions for credit provision and risk diversification, and, more generally, the possibility of expanding markets both domestically and internationally. At least in principle, formality also voids the need to pay bribes and prevents penalties and fees, to which informal firms are continuously subject to. Therefore, informality is more prevalent when the regulatory framework is burdensome, the quality of government services to formal firms is low, and the state's monitoring and enforcement power is weak.

These benefits and costs considerations are affected by the structural characteristics of underdevelopment, dealing in particular with educational achievement, production structure, and demographic trends. A higher level of education reduces informality by increasing labor productivity and, therefore, making labor regulations less binding and formal returns potentially larger. Likewise, a production structure tilted towards primary sectors like agriculture, rather than to the more complex processes of industry, induces informality by making legal protection and contract enforcement less relevant and valuable.

Finally, a demographic composition with larger shares of youth or rural populations is likely to increase informality by making monitoring more difficult and expensive, by complicating the training and acquisition of abilities, and by making the expansion of formal public services more problematic.

Often times in popular and even academic discussions, people do not follow this comprehensive approach, emphasizing instead particular sources of informality. Thus, some people focus on insufficient enforcement and related government weaknesses such as corruption. Others prefer to emphasize the burden of taxes and regulations. Yet others concentrate on explanations dealing with social and demographic characteristics.

As suggested above, all these possibilities make sense, and there is some evidence to support them. In order to consider this evidence, measures are obtained for the proposed determinants of informality.[18] An index on the prevalence of law and order is obtained from the International Country Risk Guide (ICRG) to proxy for both the quality of formal public services and government's enforcement strength. An index of business regulatory freedom is taken from The Fraser Institute's Economic Freedom of the World Report (Gwartney et al, 2007) to represent the ease of restrictions imposed by the legal and regulatory frameworks. The average years of secondary schooling of the adult population is used to represent educational and skill achievement of the working force. The data are either directly taken from Barro and Lee (2001) or, when missing, computed based on the methodology in Barro and Lee (1993). An index of socio-demographic factors is used, constructed from the World Bank's World Development Indicators and other data sources, including the United Nations

(2005), which consider the share of youth in the population, the share of rural population, and the share of agriculture in GDP.[19]

The pairwise correlations are then computed between the informality measures and each of the informality determinants. Remarkably, all 16 correlation coefficients (four informality measures times four determinants) are highly statistically significant, with p-values below 1%, and of large magnitude, ranging approximately between 0.54 and 0.87 (Table 4). All informality measures present the same pattern of correlations, i.e. informality is negatively related to law and order, regulatory freedom, and schooling achievement; and it is positively related to factors that denote incipient socio-demographic transformation.

Table 4. Correlations between Informality and Basic Determinants

	Bivariate Correlations (country average; full sample)			
	Schneider Shadow Economy index (% of GDP)	Heritage Foundation Informal Market index (1-5: higher, more)	Self Employment (% of total employment)	Non-contributor to Pension Scheme (% of labor force)
Law and Order (ICRG, index ranging 0-6: higher, better)	-0.62***	-0.69***	-0.72***	-0.72***
	118	134	69	99
Business Regulatory Freedom (The Fraser Institute, index ranging 0-10: higher, less regulated)	-0.60***	-0.79***	-0.70***	-0.70***
	125	131	71	101
Average Years of Secondary Schooling (Barro and Lee 2001)	-0.66***	-0.80***	-0.67***	-0.84***
	94	105	65	78
Sociodemographic Factors (average of share of youth population, share of rural population, and share of agriculture in GDP)	0.54***	0.72***	0.71***	0.87***
	137	149	74	109

N.B.
Sample sizes are presented below the corresponding coefficients.
*** denotes significance at the 1% level.
See Appendix 1a for definitions and sources of variables and periods used to compute country averages.
Source: Authors' estimation

Therefore, all these explanations may hold some truth in them. Needing to be determined now is whether each of them has independent explanatory power with respect to informality. Or, more specifically, the need is to assess to what

extent each of them is relevant both in general, for the cross-section of countries and in particular, for a given country.

Following is the use of cross-country regression analysis to evaluate the general significance of each explanation on the origins of informality. Each of the four informality measures presented earlier serves as the dependent variable of its respective regression model. The set of explanatory variables is common to all informality measures and represents the major determinants of informality. They are the same variables used in the simple correlation analysis, introduced above. These estimated relationships are applied to the case of the Arab countries with available data in order to evaluate the country-specific relevance of each proposed mechanism. This is done for the countries that have complete information on dependent and explanatory variables, or at least information on the latter, with which to obtain predicted values of the dependent variable.

The countries that have complete information on all explanatory variables, the Schneider index, and the Heritage index are: Algeria, Egypt, Jordan, Kuwait, Morocco, Syria, Tunisia, and United Arab Emirates. Regarding self employment, Jordan, Kuwait, and United Arab Emirates do not have comparable data for the period under consideration. Likewise, Kuwait, Syria, and United Arab Emirates do not have data for pension coverage. In both cases, however, a predicted value based on the regression analysis may be constructed for each of these countries.

The regression results are presented in Table 5. They are remarkably robust across informality measures. Moreover, all regression coefficients have the expected sign and are highly significant. Informality decreases when law and order, business regulatory freedom, or schooling achievement rise. Similarly, informality decreases when the production structure shifts away from agriculture and demographic pressures from youth and rural populations decline. The fact that each explanatory variable retains its sign and significance after controlling for the rest indicates that no single determinant is sufficient to explain informality. All of them should be taken into account for a complete understanding of informality.

Table 5. Determinants of Informality

Method of estimation: Ordinary Least Squares with Robust Standard Errors
Dependent variable: Four types of Informality measures, country average

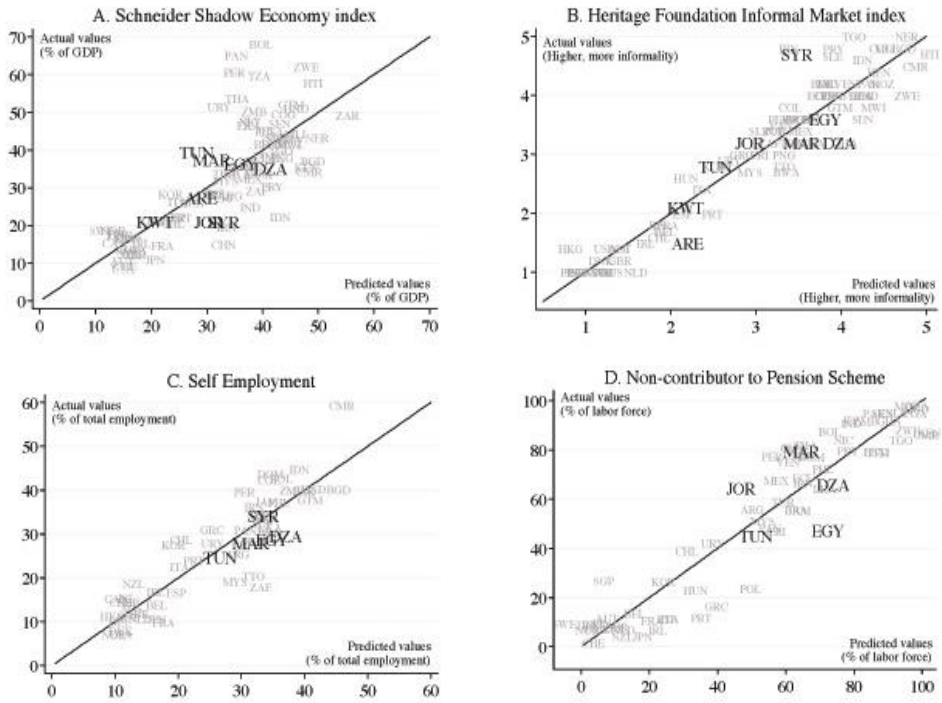
	Schneider Shadow Economy index (% of GDP)	Heritage Foundation Informal Market index (1-5: higher, more)	Self Employment (% of total employment)	Non-contributor to Pension Scheme (% of labor force)
Law and Order (ICRG, index ranging 0-6: higher, better)	-3.2360**	-0.0969*	-1.6925*	-2.9764*
	-2.57	-1.76	-1.84	-1.67
Business Regulatory Freedom (The Fraser Institute, index ranging 0-10: higher, less regulated)	-2.0074*	-0.5333***	-2.5196**	-5.8675**
	-1.80	-9.95	-2.17	-2.28
Average Years of Secondary Schooling (Barro and Lee 2001)	-1.9684*	-0.1152**	-2.1527**	-5.8114***
	-1.70	-2.00	-2.25	-3.27
Sociodemographic Factors (average of share of youth population, share of rural population, and share of agriculture in GDP)	3.8438**	0.5027***	5.9743***	21.6130***
	2.00	4.99	3.77	7.31
Constant	60.3429***	6.6326***	4.7254***	113.3110***
	10.48	31.72	14.06	11.40
No. of Observations	84	86	57	70
R-squared	0.59	0.89	0.80	0.89

N.B.
t-statistics are presented below the corresponding coefficients.
*, ** and *** denote significance at the 10%, 5% and 1% levels, respectively.
See Appendix 1a for definitions and sources of variables and periods used to compute country averages of informality measures.
Source: Authors' estimation

The four explanatory variables account jointly for a large share of the cross-country variation in informality. The R-squared coefficients are 0.59 for the Schneider shadow economy index, 0.89 for the Heritage Foundation informal market index, 0.80 for the share of self employment, and 0.89 for the share of the labor force not contributing to a pension program.

Figure 2 presents a scatter plot of the actual vs. predicted informality measures. The majority of countries have small residuals (i.e., the unpredicted portion of informality), a fact which is consistent with the large R-squared coefficients obtained in the regressions.

Is this also the case of the Arab countries under consideration? The answer is yes - the majority of Arab countries are located evenly around the 45-degree line. In fact, when an "Arab country" dummy variable is included, it turns out to be insignificant in all cases. In terms of specific countries, Algeria, Kuwait, and Morocco have predicted values of informality that are similar to their actual counterparts. Tunisia and United Arab Emirates would join this group except that the Schneider index and the Heritage index, respectively, seem to be much larger than what is predicted by regression analysis for these two countries. In the case of Egypt, the actual and predicted values of production informality (that is, the first two indices) are quite close. However, regarding labor informality (the last two indices), the predicted values are considerably larger than the actual ones. For Syria, the production informality indices have contradictory information. The Schneider index is much smaller than its predicted value, and the opposite occurs on the Heritage index.



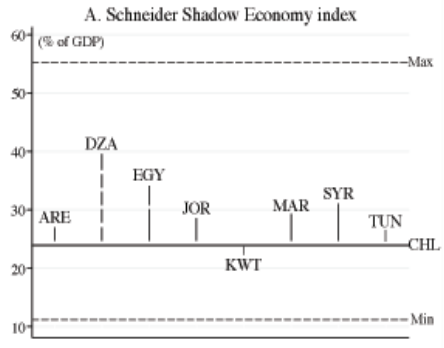
N.B.
In each graph, a 45-degree line is drawn to show the distance between predicted and actual levels.

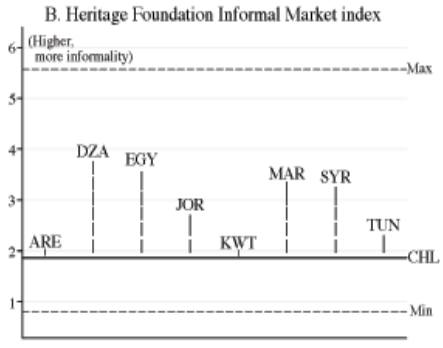
Figure 2. Predicted and actual levels of informality

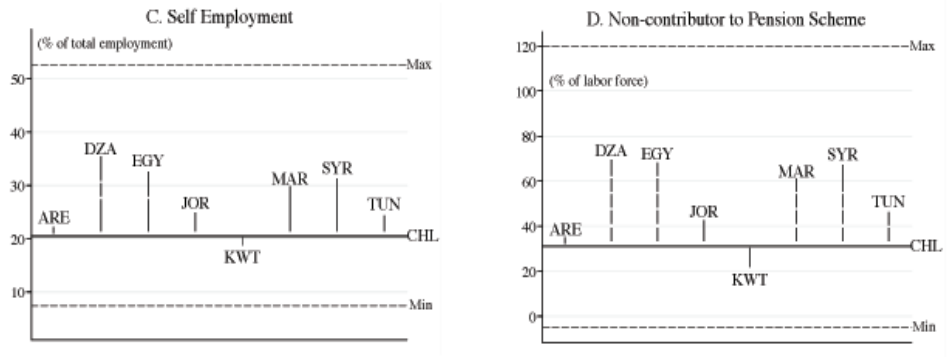
Focusing now on the portion of informality explained by the cross-country regression model, the importance of each explanatory variable for the case of the eight Arab countries with sufficient available data we can evaluate can be evaluated. In particular, it may now be assessed how each determinant contributes to the difference in informality between the Arab countries and a comparator one, for which Chile is chosen as an example of a resource-rich, successfully reforming country.

The contribution of each explanatory variable is obtained by multiplying the corresponding regression coefficient multiplied by the difference in the value of this explanatory variable between each Arab country and the comparator country (Table 5). The importance of a particular explanatory variable would, therefore, depend on the size of its effect on informality in the cross-section of countries and how far apart the two countries are with respect to the explanatory variable in question. Naturally, the sum of the contributions equals the total difference in predicted informality between each Arab country and Chile.

This difference is plotted in Figure 3. As expected, it shows that the majority of countries have larger (predicted) informality levels than Chile. The exception is Kuwait, which in three out of the four informality indicators, has lower predicted informality than Chile. Algeria, Egypt, Morocco, and Syria seem to be the most informal (and in general have the largest difference with respect to Chile). Finally, Jordan, Tunisia, and United Arab Emirates have larger informality levels than Chile, but moderately so.







N.B.
Presented are all predicted levels, which may be above/below the actual max/min values.

Figure 3. Differences in informality, Arab countries and Chile

Figures 4a – 4d present the decomposition of the difference of (predicted) informality between the eight Arab countries and Chile. The four panels correspond to each of the four informality indicators. The most remarkable observations are the following: (a) restricted regulatory freedom contributes to larger informality in all Arab countries and for all measures of informality; (b) deficient law and order also promotes informality in United Arab Emirates, Algeria, Jordan, and

Egypt. On the other hand, Kuwait, Syria, Tunisia, and Morocco have at least as good law and order as Chile; (c) except for United Arab Emirates, education does not play a role in explaining the larger informality in Arab countries than in Chile; and finally (d) socio-demographic factors contribute to explain the larger informality of Tunisia, Morocco, Syria, Egypt, Algeria and Jordan. For Tunisia, in fact, it is the overriding cause underlying informality.

For these countries, socio-demographic factors are particularly important to explain the differences in labor informality, whereas the policy variables are so in the case of production informality. As mentioned before, Kuwait has lower (predicted) informality than Chile in all but one informality measure, i.e. the Heritage index. This is explained by better education and lower socio-demographic pressures in Kuwait, which counteract the country's less propitious regulatory environment.

Schneider Shadow Economy index (% of GDP)

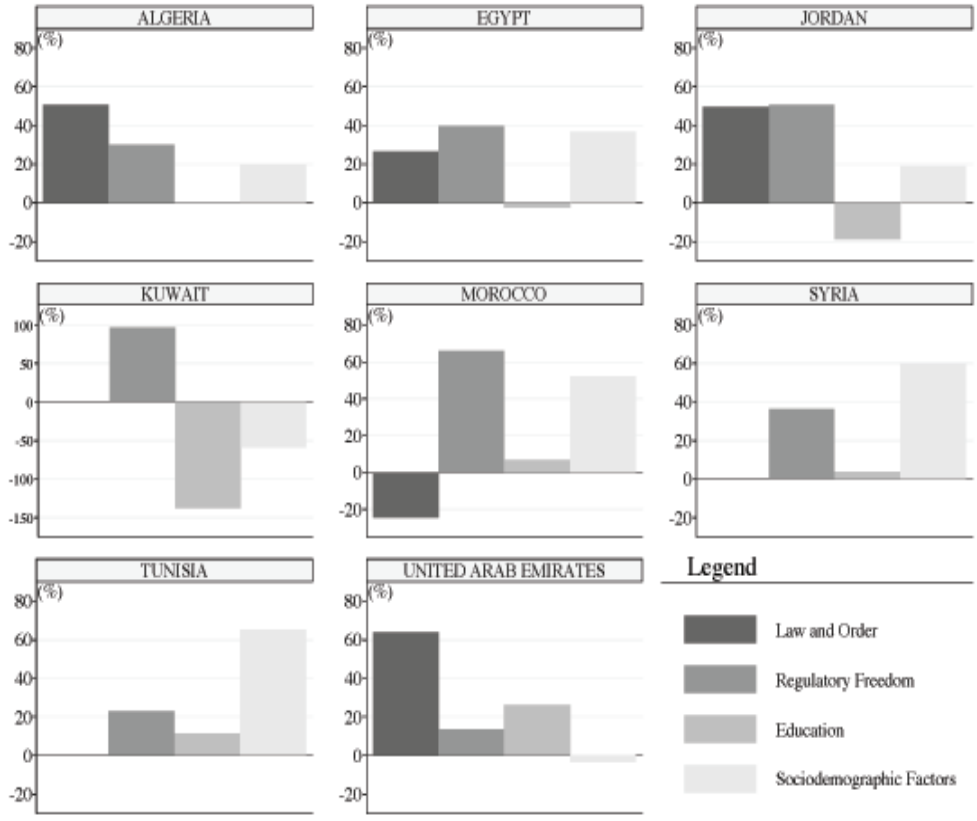


Figure 4a. Explanation of differences in informality, Arab countries and Chile

Heritage Foundation Informal Market index
(range 1-5: higher, more informality)

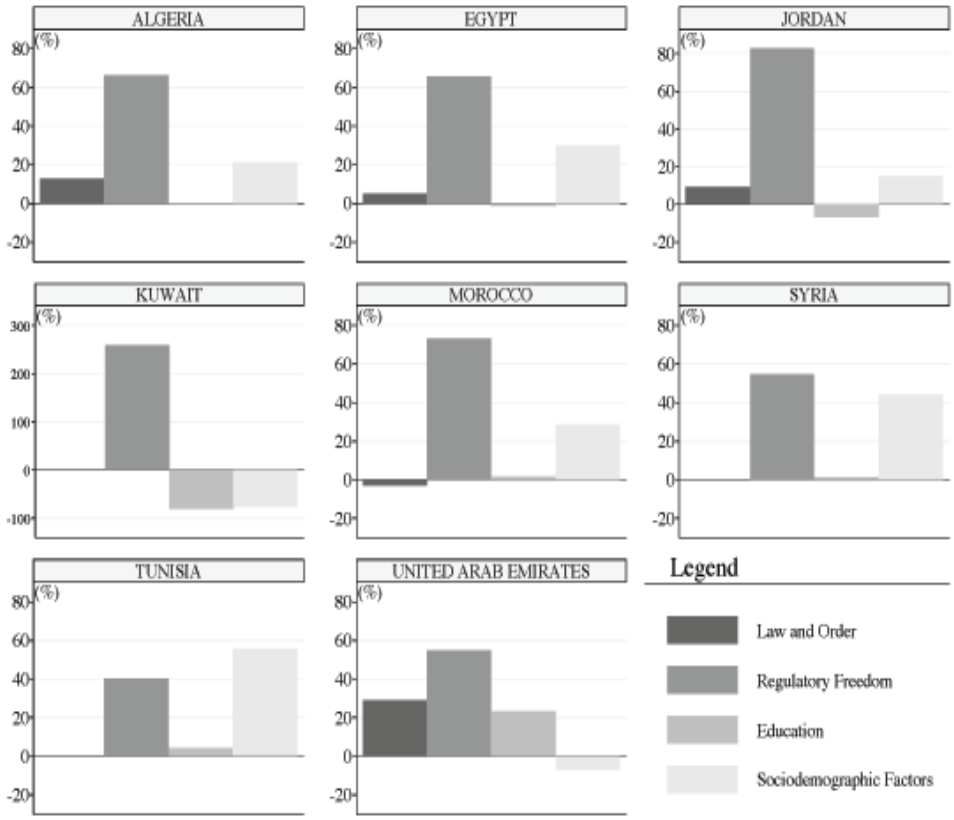


Figure 4b. Explanation of differences in informality, Arab countries and Chile

Self Employment (% of total employment)

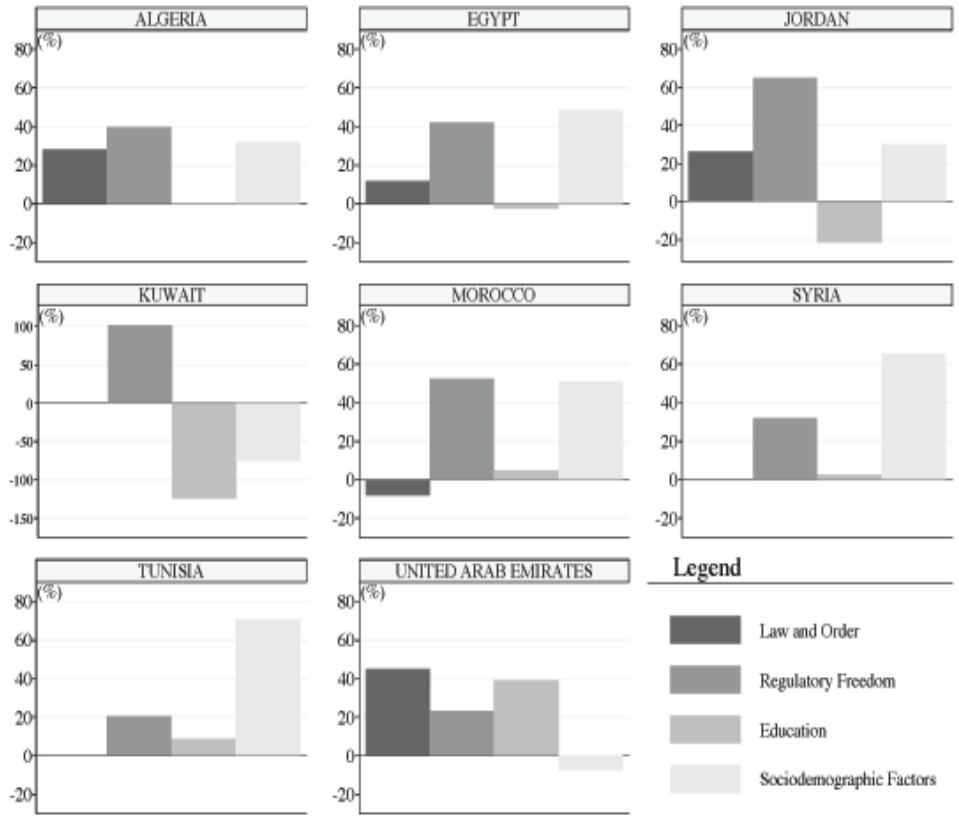


Figure 4c. Explanation of differences in informality, Arab countries and Chile

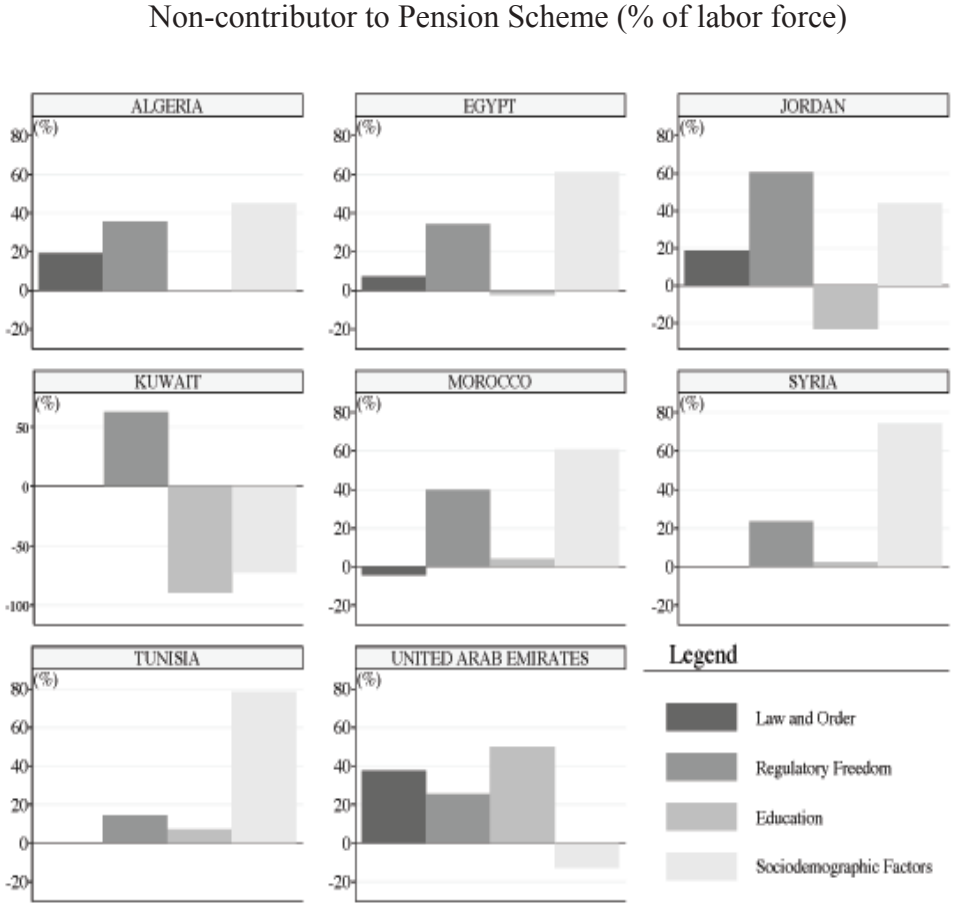


Figure 4d. Explanation of differences in informality, Arab countries and Chile

Microeconomic Evidence on Informality

The micro analysis of informality is based on recent Micro and Small Enterprises (MSEs) surveys, sponsored by the Economic Research Forum network.[20] An enterprise with less than 10 workers is defined as micro, while a small enterprise is one employing 10-49 workers. The surveys cover four countries in the MENA, including three representative Arab countries with diversified economies and substantial informal sectors: Egypt (2003 and 2004),

Lebanon (2004) and Morocco (2002 and 2003). The fourth is non-Arab Turkey (2001 and 2002), which is a perfect comparator because of its historic, economic and geographic connections with the Arab countries of our present interest. The MSE surveys sampled 4,958 firms for the case of Egypt, 2,948 for Lebanon, 5,210 for Morocco and 5,000 for Turkey. These surveys have generated substantial data and several studies, including El-Mahdi et al (2004) for Egypt; Ozar (2004) for Turkey; and Hamdan (2004) for Lebanon.

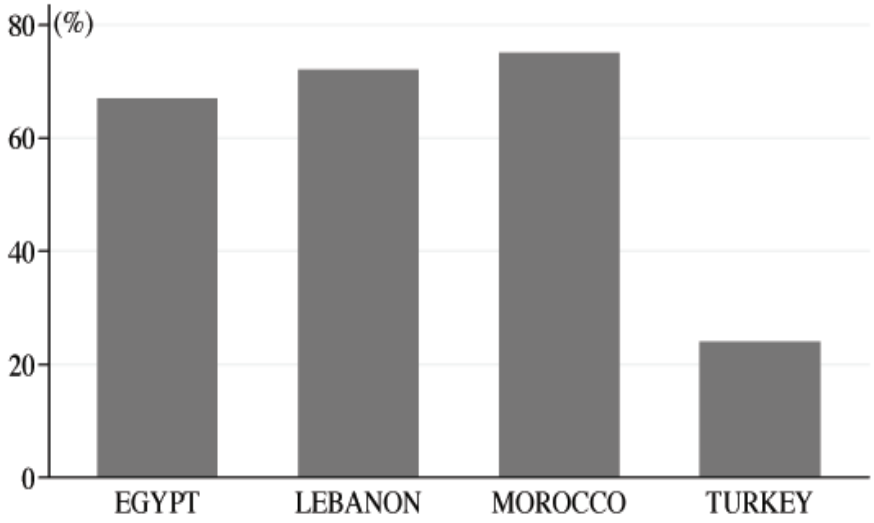
The MSE sector basically dominates the non-agricultural private economic activities in these countries. For example, it accounts for 97% of the enterprises in Egypt, of which 81% are informal; and 62% of total non-agricultural private employment, of which 88% are informal workers. Also, according to the 1996 census, the Lebanese MSE sector accounts for 96% of the enterprises and employ 51% of the total working population. Even in relatively more advanced Turkey, this sector accounts for over 75% of employment, although it represents only 27% of value-added. The aforementioned studies of El-Mahdi et al (2004) for Egypt; Ozar (2004) for Turkey; and Hamdan (2004) for Lebanon contain very extensive analyses of MSE characteristics and performance indicators.

This study focuses on the informality dimensions of the MSE, where two types of informality are distinguished. Firstly, an enterprise unit (EU) is coded as informal if it fails any one of the following three requirements: (a) that it is registered; (b) licensed; and (c) it keeps financial accounts. Secondly, a worker is coded as informal if he/she does not enjoy social security coverage[21]. An informal worker could be employed by informal as well as formal EU alike.

Compared to Turkey, as a more advanced comparator country from the region, evidence suggests that informality is an Arab phenomenon. For example, informal EUs accounts for more than 70% of MSE in Lebanon and Morocco and about 76% in Egypt, but only 24% for Turkey (Figure 5). Similarly, the share of informal labor (to total MSE employment) ranges from 47% for Egypt to 67% and 69% for Morocco and Lebanon, respectively, compared to a meager 8% for Turkey.

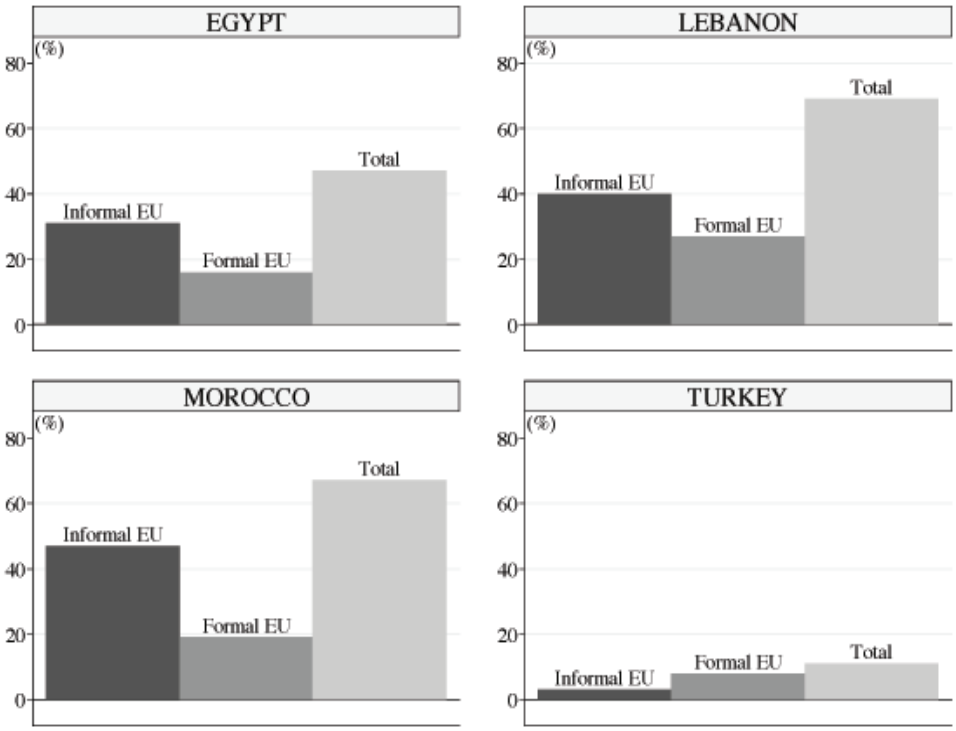
Moreover, although most of the informal labor tends to be hired by informal EUs in the three Arab countries, the share hired by formal EUs is, nevertheless,

fairly substantial (Figure 6). In terms of the size of employment, informal micro enterprises (less than five workers) virtually account for the entire informal sector for the case of Egypt, Morocco and to a lesser extent Turkey (97%, 93% and 84%, respectively). However, surprisingly, in the case of Lebanon, informal EUs hiring 10 or more workers account for 60% of the informal MSE sub-sector (Figure 7).



N.B.
Out of 4,958, 2,948, 5,210 and 5,000 firms surveyed, 3,360 (67%), 2,110 (72%), 3,898 (75%) and 1,198 (24%) firms are found to be informal in Egypt, Lebanon, Morocco and Turkey, respectively.

Figure 5. Share of informal firms.



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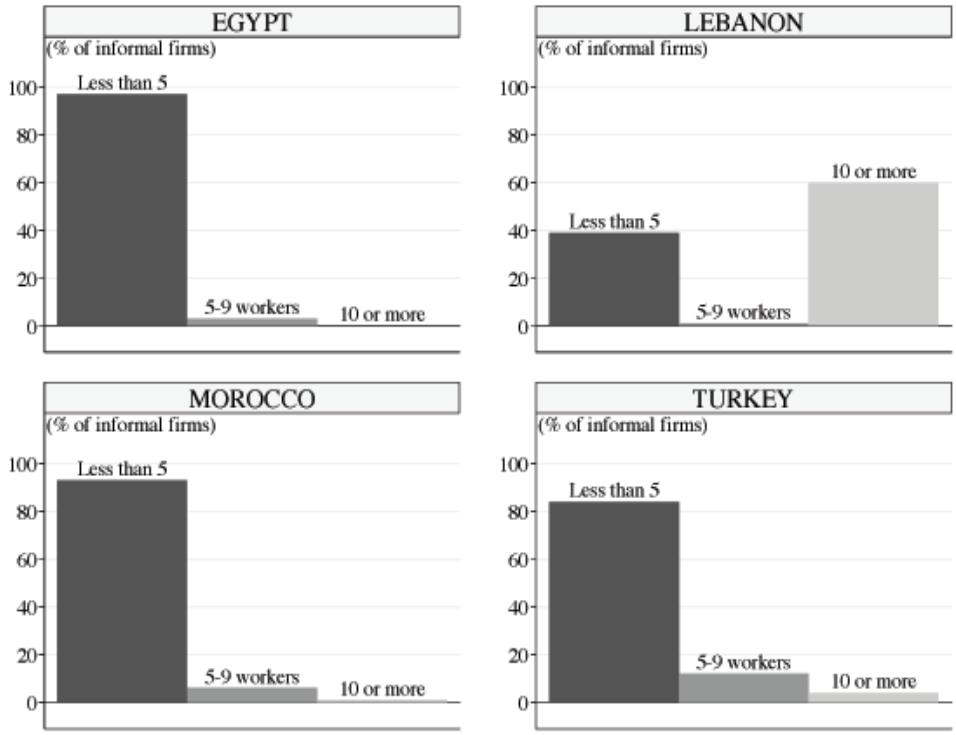
"Informal (Formal) EU" indicates the percentage of informal labor hired by informal (formal) EUs relative to total labor hired by all EUs.

"Total" means the percentage of informal labor hired by all EUs relative to total labor hired by all EUs, which is essentially the sum of "Informal EU" and "Formal EU."

See also Appendix 1b for the definition of informality.

Figure 6. Informality by share of informal labor.



N.B.
Details are presented in Table 6 on: Size of Establishment.

Figure 7. Informality by number of workers in EUs.

Table 6 shows characteristics of EUs, workers and entrepreneurs. Not surprisingly, most informal EUs are of the sole proprietorship type, which is the simplest and most common form of business, conducted by a single individual owner (the "sole proprietor")[22]. However, for the case of Turkey, and to a lesser extent Egypt, other types of informal MSE are also found. With regard to ownership, informal EUs tend to be "private domestic", although in the cases of Egypt and Lebanon, more than 10% have different types of ownership.

The legal and ownership types of MSE naturally reflect their small and basic nature of their employment, outputs, and production relation. The skill distribution of informal workers is dominated by unskilled and semi-skilled, whether employed by formal or informal EUs. In terms of gender, informal female workers account for only 15% of informal employment in Egypt and

Morocco but for Lebanon, female participation is double that rate, and is also higher for Turkey (at 23%). However, except for Turkey, the rate of female labor force participation is much higher in the formal labor market, especially for Lebanon (at 48%). Finally, the entrepreneurs of informal EUs tend to be mostly men, in the 25-60 age groups, and have primary or secondary school education. On the latter, Lebanon has a larger share of entrepreneurs with university degree or above (at 28%), while in the case of Morocco, 25% are illiterate.

Table 6. EU Characteristics (Informal Firms, %)

EU Characteristics	Turkey	Egypt	Lebanon	Morocco
Type of Establishment				
Sole Proprietorship	69	80	97	92
Other	31	20	3	8
Size of Establishement				
Less than 5 workers	84	97	39	93
5-9 workers	12	3	1	6
10 or more	4	0	60	1
Sector of Enterprise Ownership				
Private domestic	99	88	89	98
Other	1	12	11	2
Distribution of Informal Workers by Skill Level Hired by Informal EUs (%)				
Unskilled	23	-	-	14
Semi-Skilled	13	-	-	25
Skilled	64	-	-	61
Distribution of Informal Workers by Skill Level Hired by Formal EUs (%)				
Unskilled	27	-	-	12
Semi-Skilled	20	-	-	37
Skilled	53	-	-	51
Informal Workers Hired by Informal EUs	23	15	31	15
Female Workers Hired by Formal EUs	20	22	48	28
Age of Entrepreneur				
14-24	13	11	7	11
25-60	83	80	84	85
>60	4	9	9	4
Gender of Entrepreneur				
Male	89	89	93	84
Female	11	11	7	16
Education of Entrepreneur				
Illiterate	3	28	0	25
Primary	45	18	19	33
Secondary	41	40	53	34
University & Above	11	14	28	8

Source: Authors' calculations based on MSE surveys

Analyses of Determinants and Consequences of Informality

It is assumed that the probability of an informal establishment unit (EU) or an informal worker is a linear function of a vector of various socio-economic variables (Z). For the case of EU, informality is given by a dummy variable, which takes a value of 1 for informal EU and 0 for formal EU. Workers' informality is given by the share of informal workers to total employment per establishment. The Z vector contains establishment characteristics, such as number of workers, legal type, age and education of entrepreneur; and two worker attributes, namely, gender and skill [(23)]. In addition, country and time effects are controlled. Definitions of variables used in this section are presented in Appendix 1b.

To test the marginal effect of informality on establishment performance, the following simple panel regression with time- and country-specific effects is estimated:

$$y_{ict} = \delta_1 Z_{ict} + \delta_2 I_{ic} + \mu_c + \eta_t + \varepsilon_{ict}, \quad (1)$$

where i stands for establishment, c for country and t for time; I is a dummy for informal workers (or informal EU); and μ_c , η_t , ε_{ict} are, respectively, country- and time-specific effects and random disturbances. Equation 1 is estimated for three performance indicators (y): relative monthly wage; output per worker; and, share of local market sales.

Determinants of Informality

The results of the linear probability regressions are contained in Table 7. Compared to Turkey, a typical MSE establishment in the three Arab countries is more likely to be informal, and the same applies for the workers in the cases of Lebanon and Morocco. However, Egypt presents an implausible result because a typical MSE in this country is less likely to be informal (in terms of percentage of its workforce) than its counterpart in Turkey. Moreover, the likelihood of both establishment and labor informality has risen in the post-2000 period. Also, these country- and time- specific effects are robust against additional controls, albeit their quantitative impact is weakened.

Table 7. Determinants of Informality

Method of estimation: Ordinary Least Squares with Robust Standard Errors
Dependent variables: informality by establishment and informality by labor

	Informality by Establishment			Informality by Worker		
	Base	Extended	Marg. Effect	Base	Extended	Marg. Effect
Egypt dummy	0.4342***	0.3198***		-0.3778***	-0.3220***	
	33.03	14.88		-38.41	-21.89	
Lebanon dummy	0.5767***	0.9293***		0.3918***	0.3792**	
	34.79	9.20		22.32	2.16	
Morocco dummy	0.5158***	0.4861***		0.5287***	0.4820***	
	65.04	51.70		73.53	59.93	
Year after 2000	0.0034	0.0055		0.0032	0.0050	
	0.60	0.71		0.81	0.75	
Age (Entrep.)		-0.0034***	-4.1894		-0.0038***	-4.6823
		-10.56			-14.47	
Education (Entrep.)		-0.0194***	-9.3480		-0.0112***	-5.3968
		-22.50			-16.64	
Size (Total Workers)		-0.0123***	-5.0275		-0.0154***	-6.2945
		-19.59			-22.98	
Female (Share of Labor)		0.0003***	0.9082		0.0003***	0.9082
		2.84			3.59	
Sole Proprietorship		0.0534***	5.3400		0.0955***	9.5500
		5.70			12.12	
Semi-skilled Share of Labor		-0.0007***	-1.9385		-0.0013***	-3.6000
		-4.34			-8.92	
Skilled Share of Labor		-0.0001	-0.4018		-0.0021***	-8.4382
		-1.16			-21.94	
Constant	0.2344***	0.5204***		0.3664***	0.7397***	
	24.32	22.78		44.23	37.49	
No. of observations	29,183	13,781		23,717	13,776	
R-squared	0.23	0.33		0.62	0.51	

N.B.

t-statistics are presented below the corresponding coefficients.

** and *** denote significance at the 5% and 1% levels, respectively.

The marginal effect is calculated as the change in the dependent variable due to a change of a standard deviation of the corresponding independent variable.

See Appendix 1b for definitions and sources of variables.

Source: Authors' estimation

For the substantive controls, it is found that age and education of entrepreneurs, size of establishments as well as the skill levels of workers are associated with lower probability of informality (for both establishments and workers alike). On the other hand, larger share of female workers in the labor force or establishments of sole proprietorship are associated with higher probability of informality. Compatible orders of magnitudes of this effects can be analyzed in terms of marginal coefficients, which give the percentage change in the linear probability due to a one-standard-deviation shock in the variable in question (age, education, size, share of female labor force, semi-skilled and skilled). For example, one-standard-deviation shocks to age, education, size and share of skill workers would reduce the probability of workers and establishment informality by 4.7 and 4.2%; 5.4 and 9.3%; 6.3 and 5.0%; and 8.4 and 0.4% respectively.

Informality and MSE Performance

Table 8a presents the core regression results of Equation 1, which estimates the marginal contribution of informality on EU performance with only country and time effects as additional controls. The first three regressions account for informality via the status of the EU, while the remaining three control for informality in terms of the percentage of informal workers. The results are similar regardless of the type of informality. It is found that the marginal effect of informality (of labor or EU) is highly significant. In particular, informality is associated with lower wages, lower output per worker and smaller share of output sold in regional and international markets.

The results for the fixed effects are also interesting. For example, relative to Turkey, the typical MSE in the three Arab countries offers lower wages; produce lower output per worker; and, for the cases of Egypt and Morocco, it also produces a lower share of their output for regional and international markets. However, establishments in Lebanon produce a larger share of their output to regional and international markets than their Turkish counterpart. Moreover, during the period following the year 2000, output per worker, relative wages and to a lesser extent, the share of output produced for local markets increased at higher rates in the three Arab countries than in Turkey.

The estimated coefficients of these country- and time-specific effects remain robust, albeit with smaller orders of magnitudes, in the more encompassing regressions that also account for controls pertaining to characteristics of EUs, workers attributes as well as dummies for EU (or labor) informality (Table 8b). As before, the results for these additional controls are broadly similar regardless of the type of informality.

Table 8a. The Effect of Informality on Micro and Small MENA Enterprises
Core Regressions [1] to [6]

Method of estimation: Ordinary Least Squares with Robust Standard Errors
Dependent variables: relative wage, relative output per worker, and share of local market

	[1]	[2]	[3]	[4]	[5]	[6]
	Scaled Relative Wage	Scaled Relative Output per Worker	Share of Local Market	Scaled Relative Wage	Scaled Relative Output per Worker	Share of Local Market
Egypt dummy	-11.8680***	-3.0293***	3.3391***	-13.5402***	-3.3415***	8.5606***
	-47.85	-22.67	7.45	-50.92	-22.76	15.46
Lebanon dummy	-16.7647***	-4.2186***	-17.1325***	-16.3907***	-4.1158***	-23.6321***
	-47.42	-19.73	-23.67	-40.70	-16.79	-21.70
Morocco dummy	-9.4071***	-1.9372***	0.9395***	-8.6779***	-1.8817***	1.1673**
	-53.20	-21.76	2.78	-50.64	-24.77	2.46
Year after 2000	4.5694***	1.7901***	0.1260	4.5785***	1.7920***	0.1405***
	45.52	31.79	0.66	45.46	31.77	0.67
Age (Entrep.)						
Education (Entrep.)						
Size (Total Workers)						
Female (Share of Labor)						
Sole Proprietorship						
Informality by Establishment	-1.3412***	-0.3107***	2.2633***			
	-13.29	-5.29	9.98			
Informality by Worker				-0.0277***	-0.0043***	0.0568***
				-16.94	-5.49	10.82
Semi-skilled Share of Labor						
Skilled Share of Labor						
Constant	2.0744***	-1.5789***	93.0121***	2.8047***	-1.4845***	89.2830***
	13.24	-21.84	263.35	16.16	-18.10	189.34
No. of observations	20,150	22,113	28,041	19,746	21,834	22,868
R-squared	0.20	0.08	0.11	0.20	0.08	0.13

N.B.
See the end of Table 8b for notes.

Table 8b. The Effect of Informality on Micro and Small MENA Enterprises
Extended-Form Regressions [7] to [12]

Method of estimation: Ordinary Least Squares with Robust Standard Errors
Dependent variables: relative wage, relative output per worker, and share of local market

	[7]	[8]	[9]	[10]	[11]	[12]
	Scaled Relative Wage	Scaled Relative Output per Worker	Share of Local Market	Scaled Relative Wage	Scaled Relative Output per Worker	Share of Local Market
Egypt dummy	-6.2605***	-1.9385***	6.5619***	-7.2363***	-2.0479***	7.2805***
	-14.75	-9.74	8.48	-16.20	-9.90	9.35
Lebanon dummy	-8.2645***	-2.6178***	-4.4178	-8.9283***	-2.9265***	-4.3496
	-11.26	-6.63	-0.62	-11.19	-8.58	-0.54
Morocco dummy	-5.7156***	-1.3217***	1.6684***	-5.4705***	-1.3015***	1.8794***
	-24.71	-11.93	3.64	-25.84	-14.22	3.84
Year after 2000	1.7555***	1.0428***	0.2417	1.7558***	1.0436***	0.2439
	11.26	14.10	0.74	11.17	14.10	0.74
Age (Entrep.)	0.0219***	0.0031	-0.0645***	0.0213***	0.0029	-0.0655***
	4.13	1.61	-4.46	3.84	1.44	-4.56
Education (Entrep.)	0.1070***	0.0345***	-0.3127***	0.1178***	0.0355***	-0.3284***
	8.78	4.42	-8.17	8.95	4.26	-8.82
Size (Total Workers)	0.0078	-0.0062	-0.9075***	-0.0049	-0.0074	-0.9091***
	0.55	-0.72	-14.84	-0.34	-0.87	-14.63
Female (Share of Labor)	0.0072***	0.0024*	0.0155***	0.0073***	0.0024*	0.0156***
	3.54	1.74	3.99	3.59	1.74	4.00
Sole Proprietorship	-1.5502***	-0.4735***	5.2549***	-1.4924***	-0.4635***	5.2508***
	-8.40	-4.97	11.40	-7.70	-4.77	11.36
Informality by Establishment	-1.2504***	-0.1428**	1.3266***			
	-8.92	-2.10	3.58			
Informality by Worker				-0.0172***	-0.0019**	0.0090*
				-9.21	-1.94	1.78
Semi-skilled Share of Labor	0.0094***	0.0019	-0.0170***	0.0084***	0.0018	-0.0167***
	3.54	1.20	-2.69	3.22	1.10	-2.66
Skilled Share of Labor	0.0122***	0.0009	-0.0141***	0.0095***	0.0006	-0.0123***
	7.03	0.96	-3.50	5.42	0.53	-2.95
Constant	3.1632***	-0.7404***	96.4179***	3.6503***	-0.6804***	96.4245***
	8.51	-4.21	93.21	9.27	-3.37	91.70
No. of observations	10,344	12,546	12,999	10,339	12,544	12,996
R-squared	0.21	0.05	0.13	0.21	0.05	0.13

N.B.
t-statistics are presented below the corresponding coefficients.
*, ** and *** denote significance at the 10%, 5% and 1% levels, respectively.
See Appendix 1b for definitions and sources of variables.
Source: Authors' estimation

EUs led by older and better educated entrepreneurs or those that employ a larger share of skilled and semi-skilled workers tend to perform better in terms of output per worker and relative wages as well as produce a larger share of their output to regional and international markets. Surprisingly, however, the size of establishment, as given by the number of workers is not found to be significant as a determinant of output and wage. However, it is significant in the case of local market share, where, as expected, the results suggest that larger establishments tend to produce smaller shares of their outputs for local markets. On the other hand, not surprisingly, establishments of the sole proprietorship type tend to pay lower wages, produce smaller output per worker and specialize in producing for local markets. Finally, establishments with higher share of female workers tend to perform better in terms of wage and output per worker, though they also tend to produce a larger share of their output for local markets.

Even after controlling for all of the above variables, the marginal impact of informality remains very strong, despite that, relative to the core estimates of Table 8a, the estimated effects are smaller. Again, robust and significantly negative marginal effects for informality on wages and output per labor for both types of informality are found. However, while both measures of informality were associated with local market specialization, the effect for the labor market informality appears to be slightly weaker (significant at 10% level).

The above findings, however, may be affected by the possibility of selection bias associated with informality. This is because, establishments choosing to be informal or, more generally, formal, or informal establishments choosing to hire all or part of their labor force informally, may have characteristics that make them under-perform and/or specialize in producing for local markets regardless of their informality attributes. In other words, the performance of these establishments as well as their informality status or hiring decisions, may be driven by similar but unobserved determinants.

The authors attempted to correct this potential selection bias by undertaking a two-step estimation process, where the two informality variables of Tables 8a and 8b are replaced with their respective residuals from the linear regressions of Table 7. These residuals are orthogonal to the other right hand side variables and may be interpreted as the component of informality that is not explained by

EU characteristics, worker attributes or fixed effects. The results are broadly similar. However, this is not within the framework of this particular study. Therefore, this issue will be revisited in a future version of the research report.

Conclusion

Informality is quite prevalent in most Arab countries. This is worrisome because it denotes misallocation of resources (labor in particular) and inefficient utilization of government services. This may jeopardize the countries' growth and poverty-alleviation prospects. Cross-country evidence suggests that informality is heterogeneous across Arab countries and that this heterogeneity is the result of the diversity of informality's underlying causes. In most Arab countries, informality is related to a burdensome regulatory environment for formal firms. In some countries – notably the United Arab Emirates, Algeria, Jordan and Egypt - this is compounded by poor public services, particularly related to the provision of law and order. Informality is exacerbated when the modes of production are still primary and demographic pressures are strong – as it seems to be the case of Egypt, Syria, and Tunisia.

Formal analyses of MSE surveys on four countries from the region suggest that informality (for both establishment and labor alike) have had negative marginal effects on MSE performance, even after controlling for establishment characteristics and labor attributes. Moreover, informal MSEs have difficulty tapping regional or international markets. Instead, they are likely to specialize in producing for local markets.

The fundamental conclusion of this study is that informality has been associated with lower growth, limited export potential and wider spread of poverty. However, the question arises: Does this evidence, as compelling as it may be, suggest that policy makers should intervene to eliminate, or at least substantially curtail, informal economic activities?

The answer is a conditional yes, where the condition resides on the mechanism of formalization. That is, the benefits of the policy intervention - in terms of employment, efficiency, and growth - would reside on how informality is reduced. Informality is sub-optimal with respect to the first-best case of an

economy without excessive regulations and with adequate provision of public services. However, informality is preferable to a fully formal but inflexible economy that cannot bypass the distortions and rigidities induced by a burdensome regulatory system. If policy makers in the Arab world resort to a formalization strategy purely based on enforcement, it will likely lead to unemployment and low growth. If, on the other hand, they base their strategy on improvements in both the regulatory framework and the quality/availability of public services, Arab economies will use their resources more efficiently, generate more formal and diverse employment opportunities, and, consequently, grow faster.

Footnotes

(1) According to the definition of the World Bank, the MENA region is comprised by 18 of the 22 Arab countries plus Iran (and Malta). The remaining four Arab countries are classified as Sub-Saharan African countries.

(2) The above four groups, respectively include: (a) the six member countries of the Gulf Cooperation Council (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates) and Libya; (b) Algeria and Iraq; (c) Egypt, Jordan, Lebanon, Morocco, Tunisia; and the West Bank and Gaza; and (d) Comoros, Djibouti, Mauritania, Somalia, Sudan, and Yemen.

(3) For an excellent review of the causes and consequences of the informal sector, see Schneider and Enste (2000). Drawing from a public-choice approach, Gerxhani (2004) provides an interesting discussion of the differences of the informal sector in developed and developing countries. The World Bank Latin American and Caribbean 2007 flagship report Informality: Exit and Exclusion by Perry et al (2007), is the most comprehensive and in-depth study on informality in the region.

(4) The above evidence is due to Avirgan, Bivens, and Gammage (2004) and the Economic Research Forum (1998).

(5) See, for example, a recent analysis by Loayza (2007) for the case of the informal sector in Peru.

(6) This assessment is attributed to the International Labour Organization SEAPAT Programme on the Informal Sector.

(7) The oil windfall directly benefited the oil-producing economies and indirectly the labor-exporting countries of the region.

(8) These authors argue that the region as a whole, has seen little decrease in absolute poverty measures since the early 1990s, and that the least developed countries in the region witnessed large increases in poverty during this period, while some, like Yemen and Sudan, are among the poorest in the world. Moreover, because the region experienced the lowest growth rates among all developing region during the 1990s and part of this decade, progress in overall human development has also slowed down.

(9) Although the female labor force participation in the region is still lower than in other regions, it has risen rapidly from just over 18% in 1980 to more than 26% in 2004 (World Bank, 2008).

(10) Dutch disease is an economic concept that tries to explain the seeming relationship between the exploitation of natural resources and the fall of the manufacturing sector. The theory states that an increase in revenues generated from natural resources will eventually de-industrialize a nation's economy by increasing the exchange rate, thereby, reducing the competitiveness of the manufacturing sector.

(11) The data are retrieved from ILO's LABORSTA Internet, http://laborsta.ilo.org. As in Loayza and Rigorini (2006), countries in Europe and Central Asia (ECA) are excluded from the sample.

(12) See Loayza (1996) for an endogenous-growth model highlighting the negative effect of informality through the congestion of public services.

(13) This does not necessarily mean that informal firms are not dynamic or lagging behind their formal counterparts. In fact, in equilibrium, the risk-adjusted returns in both sectors should be similar at the margin. See Maloney (2004) for evidence on the dynamism of Latin American informal firms. The arguments presented in the text apply to the comparison between an excessively regulated economy and one that is not.

(14) Also considered as proxy is the ratio of tax revenues to GDP. Despite the fact that the number of observations drops considerably, the results were the same on the negative effect of informality.

(15) This is clearly shown in partial regression plots. They are not included here but are available upon request.

(16) To be precise, a one-standard-deviation increase of the Schneider index, the Heritage Foundation index, the share of self-employment, and the share of labor force not contributing a pension scheme leads to a decline of 1.0, 1.0, 0.8, and 1.4 percentage points, respectively, of per capita GDP growth. In the case of government expenditure, a decline is 0.6-0.9 percentage point.

(17) The informality indicators and the control variables, particularly the Gini index and GDP per capita, are clearly interrelated. Thus, they compete for significance in their relationship with poverty. The informality indicators that may be most affected by this issue of multicollinearity are those related to the labor force: self-employment and lack of pension coverage. This may be the reason why their corresponding coefficients are not statistically significant in the regression that includes GDP per capita. When the ratio of government expenditures takes the place of GDP per capita, all informality indicators (including the labor-related ones) carry highly significant coefficients, while the Gini index loses its significance.

(18) Details on definitions and sources of variables used are presented in Appendix 1a.

(19) This is constructed by first standardizing each component (to a mean of zero and a standard deviation of 1) and then taking a simple arithmetic average. A composite index is used, rather than the components separately, given the very high correlation among them.

(20) See homepage: http://www.erf.org.eg/cms.php?id=home_page.

(21) Authors follow the definition adopted in El-Mahdi et al. (2004), whom the authors would like to thank, along with Assaad, for this suggestion.

(22) Another very critical feature of this type is that any income that is earned from the business is considered the owner's income. Therefore, sole proprietorship itself is not separately taxed on its income.

(23) Unfortunately, the data set does not contain consistent data on educational attainment but skills levels (unskilled, semi-skilled & skilled) are assumed to be closely correlated with educational levels. The survey also contains data on age distribution of workers.

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Appendices

Appendix 1a. Definitions and Sources of Variables, Cross-Country Regression

Variable	Definition and Construction [Source]
Schneider Shadow Economy index	Estimated shadow economy as the percentage of official GDP. Average of 2001-2002 by country. [Schneider 2004]
Heritage Foundation Informal Market index	An index ranging 1 to 5 with higher values indicating more informal market activity. The scores and criteria are: (i) Very Low: Country has a free-market economy with informal market in such things as drugs and weapons (score is 1); (ii) Low: Country may have some informal market involvement in labor or pirating of intellectual property (score is 2); (iii) Moderate: Country may have some informal market activities in labor, agriculture, and transportation, and moderate levels of intellectual property piracy (score is 3); (iv) High: Country may have substantial levels of informal market activity in such areas as labor, pirated intellectual property, and smuggled consumer goods, and in such services as transportation, electricity, and telecommunications (score is 4); and (v) Very High: Country's informal market is larger than its formal economy (score is 5). Average of 2000-2005 by country.[Miles et al 2005]
Self Employment	Self employed workers as the percentage of total employment. Country averages but periods to compute the averages vary by country. Average of 1999-2006 by country, but countries in Europe and Central Asia (ECA) are excluded (Loayza and Rigolini 2006).[LABORSTA Internet. Data retrieved from laborsta.ilo.org]
Per Capita GDP Growth	Log difference of real GDP per capita (2000 US$). [World Development Indicators]
Initial GDP per capita	Real GDP per capita (2000 US$) in 1985, in logs. [World Development Indicators]
Initial Government Expenditure	Ratio of general government final consumption expenditure to GDP in 1985.[World Development Indicators]
Poverty Headcount index	The fraction of the population with income below a given poverty line. The poverty line is $1 per person a day, converted into local currency using a PPP-adjusted exchange rate. The latest/final year of each country's poverty spell is used.[Loayza and Raddatz 2006]
Initial Gini index	A measure of income inequality ranging 0 to 100 with higher values indicating more inequal income distribution. The initial year of each country's poverty spell is used.[Loayza and Raddatz 2006]
Law and Order	An index ranging 0 to 6 with higher values indicating better governance. Law and Order are assessed separately, with each sub-component comprising 0 to 3 points. Assessment of Law focuses on the legal system, while Order is rated by popular observance of the law. Average of 2000-2005 by country.[ICRG. Data retrieved from www.icrgonline.com]
Business Regulatory Freedom	An index ranging 0 to 10 with higher values indicating less regulated. It is composed of following indicators: (i) Price controls: extent to which businesses are free to set their own prices; (ii) Burden of regulation / Administrative Conditions/Entry of New Business; (iii) Time with government bureaucracy: senior management spends a substantial amount of time dealing with government bureaucracy; (iv) Starting a new business: starting a new business is generally easy; and (v) Irregular payments: irregular, additional payments connected with import and export permits, business licenses, exchange controls, tax assessments, police protection, or loan applications are very rare. Average of 2000-2005 by country.[Gwartney et al 2007. Data retrieved from www.freetheworld.com]
Average Years of Secondary Schooling	Average years of secondary schooling in the population aged 15 and over. The most recent score in each country is used, while figures are computed for countries data are not available.[Barro and Lee 1993 and 2001, and authors' calculations]
Sociodemographic Factors	Simple average of following three variables: (i) Youth (aged 10-24) population as the percentage of total population; (ii) Rural population as the percentage of total population; and (iii) Agriculture as the percentage of GDP. All three variables are standardized before the average is taken. Average of 2000-2005 by country.[Authors' calculations with data from World Development Indicators, LABORSTA Internet, and United Nations 2005]

Appendix 1b. Definitions and Sources of Variables, Micro-Level Regression

Variable	Definition and Construction
Year after 2000	Number of years since 2000.
Age (Entrep.)	Age of owner/manager.
Education (Entrep.)	Educational achievement of owner/manager (number of grades completed in all types of formal education).
Size (Total Workers)	Enterprise's total number of workers.
Female (Share of Labor)	Share of women in the enterprise's workforce.
Sole Proprietorship	Dummy variable indicating whether the enterprise is conducted by a single individual owner.
Semi-skilled Share of Labor	Share of semi-skilled workers in the enterprise's workforce.
Skilled Share of Labor	Share of skilled workers in the enterprise's workforce.
Informality by Establishment (Not Registered, etc.)	Dummy variable indicating informality by establishment (=1 if an enterprise fails any one of the following three requirements: that it is registered; licensed; and has kept financial accounts).
Informality by Worker (% of Workers without Social Security)	Share of the enterprise's workforce that does not enjoy social security coverage.
Scaled Relative Wage	Enterprise's average wage, scaled by maximum in the country-year.
Scaled Relative Output per Worker	Enterprise's average output per worker, scaled by maximum in the country-year.
Share of Local Market	Share of the local market's revenues that accrue to the enterprise.

N.B. Source: MSE surveys.

Appendix 2. Descriptive Statistics of Four Informality Indicators
Data in country averages; periods vary by informality measure.

Univariate (regression sample)					
Variable	Obs.	Mean	Std. Dev.	Minimum	Maximum
Schneider Shadow Economy index (% of GDP)	84	32.960	14.7358.5	50.000	68.200
Heritage Foundation Informal Market index (range 1-5: higher, more informality)	86	3.055	1.251	1.000	5.000
Self Employment (% of total employment)	57	26.204	12.0287.1	32	59.335
Non-contributor to Pension Scheme (% of labor force)	70	53.198	33.4821.4	50	98.000
Univariate (full sample)					
Variable	Obs.	Mean	Std. Dev.	Minimum	Maximum
Schneider Shadow Economy index (% of GDP)	145	34.838	13.2148.5	50.000	68.200
Heritage Foundation Informal Market index (range 1-5: higher, more informality)	159	3.409	1.201	1.000	5.000
Self Employment (% of total employment)	86	25.158	12.1181.1	19	59.335
Non-contributor to Pension Scheme (% of labor force)	110	55.999	31.9051.4	50	98.500

Bivariate Correlations between Informality Measures Upper traingle for regression sample (in italics); Lower triangle for full sample			
Variable	Schneider Shadow Economy	Heritage Fndn. Informal Market	Self Employment
Schneider Shadow Economy index (% of GDP)	1.00	0.68***	0.71***
	145 | 84	83	55
Heritage Foundation Informal Market index (range 1-5: higher, more informality)	0.65***	1.00	0.88***
	132	159 | 86	57
Self Employment (% of total employment)	0.65***	0.79***	1.00
	69	76	86 | 57
Non-contributor to Pension Scheme (% of labor force)	0.59***	0.77***	0.88***
	104	107	57

N.B.
Sample sizes are presented below the corresponding coefficients.
*** denotes significance at the 1% level.