Stuck People, Unequal Places

Revisiting the Arab Inequality Puzzle

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Abstract

In this paper, we show that while variation in development across places is a feature of development the world over, the extent of spatial disparities in the Middle East and North Africa are greater than expected for their income level. Relying on a unique database pooling more than 51 million individuals in 103 countries from harmonized surveys on a global scale over 20 years, we find that disparities between sub-national regions contribute to a 55 percent larger share of inequality in consumption in the Middle East and North Africa than in the rest of the world. We then decompose the sources of welfare gaps between individual characteristics and returns to these characteristics, de facto estimating the welfare cost of the barriers to migration. Estimates vary across countries, but for the broader region, migration from lagging areas to leading areas could enable a 32 percent increase in consumption expenditures for potential migrants. However, people are stuck in place, particularly in the Middle East and North Africa.

Keywords: Spatial inequality, Convergence, Mobility, Regional Integration, Middle East and North Africa

JEL Classification: O12 ; O18 ; R12 ; I31

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1 Introduction

The 10th Sustainable Development Goal on "Reducing inequality within and among countries" states that "greater emphasis will need to be placed on reducing inequalities in income as well as those based on other factors." Inequality within countries is rising. The rich are getting richer faster and the poor are falling behind, and geography has been a determining factor in this trend (Doran and Jordan, 2013). This has been associated with the rise at the extremes of the political spectrum in Europe and the United States, and in revolutions in the Middle East and North Africa (Rodríguez-Pose, 2018). The Arab Spring uprisings brought issues of equity and inclusion to the forefront of public attention (Ianchovichina et al, 2015). Spatial inequalities are growing in many developing countries and pose a political challenge, one that may lead to civil unrest and conflict. How can policy makers support growth while ensuring that no area is left behind?

Most research on regional inequality has focused on inequality between and within countries, but has often overlooked regional differences within countries.[1] Another (smaller) strand of the literature focuses on understanding the determinants, trend and scale of spatial inequality, how to measure it, and what can be done about it.[2]

In this paper, we focus on spatial inequality in the Middle East and North Africa and revisit the Arab Inequality puzzle. We show that despite relatively low within country inequality, the Middle East and North Africa is among the most spatially unequal regions in the world.[3] Relying on a unique database pooling harmonized surveys on a global scale, we find that disparities between sub-national regions account for 55 percent larger share (or 5 percentage points) of inequality in consumption in the Middle East and North Africa than in the rest of the world. Given high regional inequality, citizens may be expected to migrate across regions in pursuit of better opportunities. We therefore quantify how much of the consumption gap between sub-

[1] See e.g. the seminal theoretical work of Bourguignon (1979); Sen and Foster (1973) on concepts and measurements, Stiglitz (2012) on its price on growth, access to public goods and democracy and Atkinson et al (2011); Picketty (2013); Piketty and Saez (2014); Saez and Zucman (2016, 2019) complementing census and surveys with tax and national accounts statistics to document wealth concentration and highlighting implication for tax policy, Bourguignon (2015) and Milanovic (2016) wrote about the relationship between globalization and inequality, and were followed by Ravallion (2018) who provides a comprehensive overview of the evolution of the research on inequality as he further questions whether globalization has been a major driver of inequality.

[2] See Venables and Kanbur (2003); Prager and Thisse (2012).

[3] Countries included in the analysis are Tunisia, Jordan, Egypt, Iraq, Iran, Yemen, Djibouti and Yemen.

national regions can be explained by individual endowments relative to their returns. Estimates vary across countries, but for the broader region, migration from lagging areas to leading areas could enable a 36 percent increase in consumption expenditures for migrants. Yet, people are stuck in place.

The source of inequalities is typically analyzed using the Blinder-Oaxaca decomposition method.[4] Its geographic analog decomposition was pioneered by Ravallion and Wodon (1999) to highlight geographic differences in living standards in Bangladesh.

Decomposing the sources of welfare gaps between individual characteristics and returns to these characteristics elsewhere allows to approximate the difference between observed welfare and its counterfactual if migration had occurred; de facto estimating the welfare cost of the barriers to migration. This paper expands on World Bank (2012, 2014) to more countries and in-depth analyses. Results from that decomposition suggests that across all of the Middle East and North Africa, if citizens could move to places where the returns to their endowments are the highest - per capita consumption would therefore increase by 36 percent on average.[5] The paper further expands on the potential gains from migration across the consumption distribution.

Spatial inequality, be between regions or countries, reflects both people's inherited or acquired endowments and networks but also a more random source, the luck of being born in the *right* place.[6]

[4]See Fortin et al (2011) for a review of the literature on the sources of gender or race inequality and recent stock taking of the drivers of the gender wage gap. In the Middle East and North Africa, Bouassida and El Lahga (2018) recently explored the sources of in the wage distribution between the public and the private sectors in Tunisia.

[5]The estimation of welfare gaps based on the OLS version of the Blinder-Oaxaca decomposition focuses on mean effects. The effect of the covariates is limited to an average effect that remains constant across the welfare distribution. However, the effect of each covariate might in fact vary across the welfare distribution. Given these limitations, Machado and Mata (2005), Melly (2005), and Chernozhukov et al (2013) developed an estimation procedure transforming each observation into a counterfactual based on quantile regression, allowing to analyze inequalities across the welfare distribution. Applications in MENA include World Bank (2012, 2014); Skoufias and Lopez-Acevedo (2009) for an analysis on the sources of spatial disparities in welfare in Egypt, Tunisia, and Latin America, respectively; and Motellón et al (2011), Pereira and Galego (2014) and Herrera-Idárraga et al (2016) for regional wage differentials in Spain, Portugal, and Colombia respectively.

[6]A related concept is family background, which has its own strand of research focusing on factors determining intergenerational economic mobility and influences the redistributive policy debate, see Bowles and Gintis (2002) for a review.

2 Quantifying the extent of spatial inequality

Over the recent years, the World Bank harmonized household surveys from different sources to help end-users to perform computation of SDGs indicators and monitor progress towards achieving set goals in terms of poverty (SDG1) and inequality reduction (SDG10). The resulting Global Monitoring Database (GMD) allowed us to compute well-being indicators from surveys conducted in 103 countries across 5 continents since 2000. These include 51.5 million individuals from all income groups and cover all regions of the world as listed in Table 1. Harmonized indicators include the welfare aggregates used to compute poverty rates at international $US PPP levels and spatially deflated to account for available price differences between sub-national regions.

Welfare inequality can further be disaggregated between and within countries, total inequality can be further disaggregated between and within regions (within countries). The Generalized Entropy class of indicators, including the Theil indexes, can be decomposed across these partitions in an additive way (while the GINI index cannot.). We rely on the Theil T index to capture spatial inequality as the share of inequality that can be be attributed to between-regions disparities (Theil, 1967, 1972; Cowell, 2006; Shorrocks and Wan, 2005). Specifically, the Theil T Index can be written as

$$T = \frac{1}{N} \sum_{i=1}^{N} \frac{y_i}{\bar{y}} \ln \frac{y_i}{\bar{y}} \tag{1}$$

with y_i denotes the expenditure of individual i in a country, $\bar{y}$ is the average expenditure of the population, and N is the total population. The country is divided into M regions $j = 1...M$. We can rewrite as

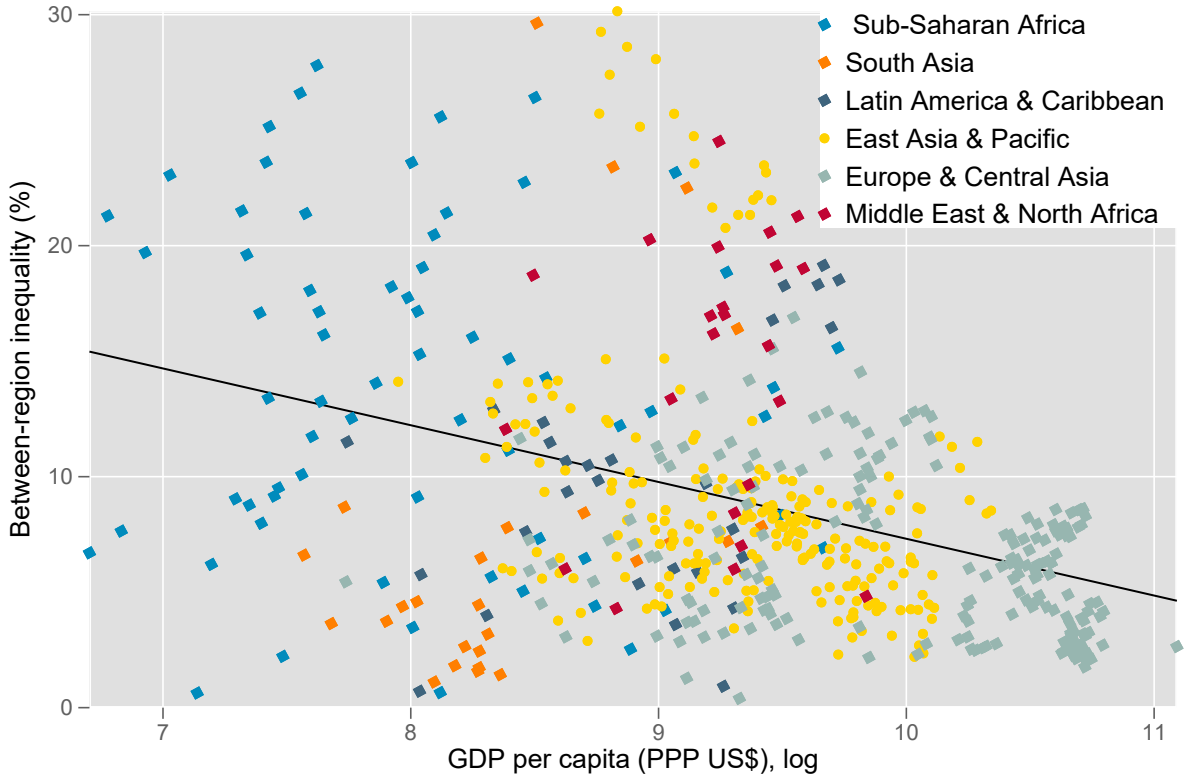
$$T = \frac{1}{N} \sum_{j=1}^{M} \sum_{i=1}^{N_j} \frac{y_{ij}}{y} \ln \frac{y_{ij}}{\bar{y}} \tag{2}$$

Following Sala-i Martin (2002), equation (2) can be rewritten as

$$T = \sum_{j=1}^{M} s_j \ln \frac{y_j}{\bar{y}} + \sum_{j=1}^{M} s_j \ln \frac{y_{ij}}{y_j} \tag{3}$$

where the first term represents the between-group inequality and the second term represents the within-group inequality. Typically, at least three-quarters of inequality in a country is due to within region inequality, and the remaining quarter to between-group differences. Globally, as countries get richer, inequalities between places are decreasing. It is not the case in the Middle East and North Africa.

Figure 1: Inequalities between sub-national regions are higher in the Middle East and North Africa than in the rest of the world

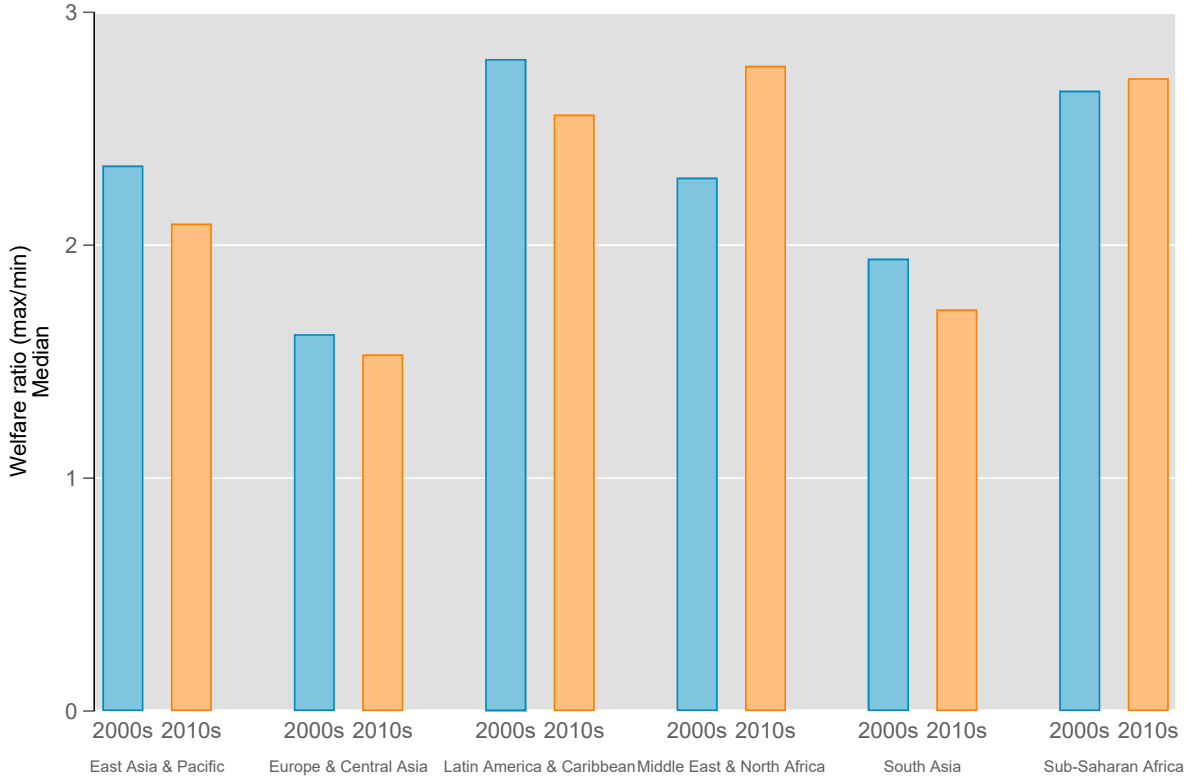


Source: Global Monitoring Database (GMD), Team for Statistical Development, World Bank. Each point corresponds to a country's data for a particular year. (For a list of countries and survey years, see Table 1 in Appendix 4.) Inequality between subnational regions was calculated based on a country's first administrative level (for example, governorates, provinces, and so on). PPP = purchasing power parity.

The MENA region shows higher spatial inequality than global peers at similar income levels. Djibouti, the Arab Republic of Egypt, the Islamic Republic of Iran, and the Republic of Yemen show the starkest regional inequalities in the region. A linear regression controlling for population, GDP per capita, the urban share of the population, and the share of the population in the largest city estimates that disparities between subnational regions account for a larger share (55 percent, or 5 percentage points) of inequality in household consumption in the Middle East and North Africa than in the rest of the world.

Figure 2 further shows a that inequality between the richest and the poorest region, measured by median welfare aggregate at regional level has increased in MENA between the 2000s and the 2010s, unlike in other regions.[7]

Figure 2: Inequality between richest and poorest region has increased in MENA



Source: Global Monitoring Database (GMD), Team for Statistical Development, World Bank. Surveys were pooled into two periods (before or after 2010). (For a list of countries and survey years, see Table 1 in Appendix 4.) Inequality between subnational regions was calculated based on a country's first administrative level (for example, governorates, provinces, and so on). PPP = purchasing power parity.

Importantly, conflict events are associated with an increase of 8 percent in spatial inequalities in MENA[8]. Instability and turmoil in the Middle East and North Africa have reached new levels in the past decade. Because flood and drought risks are also increasing, challenges surrounding economic and regional integration are piling up. Compounded violence and climate shocks result in instability, undermining existing institutions and affecting service delivery. The demand for services cannot be met when infrastructure or the provision of water, education, electricity, and transportation are disrupted by war or flooding (Brixi et al, 2015).

[7]Both increases are statistically insignificant, but in MENA there were only 26 data points, which can explain high confidence intervals.

[8]More details on violence and climate risks, and the displacement impact they generate, can be found in World Bank (2020).

Given high regional inequality, citizens may be expected to migrate across regions in pursuit of better opportunities. Migration within countries constitutes a fundamental process of socioeconomic change. But in the Middle East and North Africa, people are not moving as much as elsewhere (except in East Asia). Data from census and surveys show that internal migration rates, defined as having moved from place of birth, is 14 percent on average within the Middle East and North Africa and compared with 28 percent elsewhere (Figure 3). People seem to be staying in the region where they were born, reducing potential gains for migrants and their families. In MENA, there are differences between countries, partly driven by the presence of a primate city. The Maghreb countries (and Syria) have regional capitals that could lead people to migrate to a city without going too far, which explains the high share of the population living in urban areas (Khawaja, 2002). Countries are "urbanizing but not metropolitanizing" (World Bank, 2011). Jordan and Lebanon's systems of cities are dominated by Amman and Beirut and push internal migrants to cross regional borders. Inter-regional migration is higher in these countries.

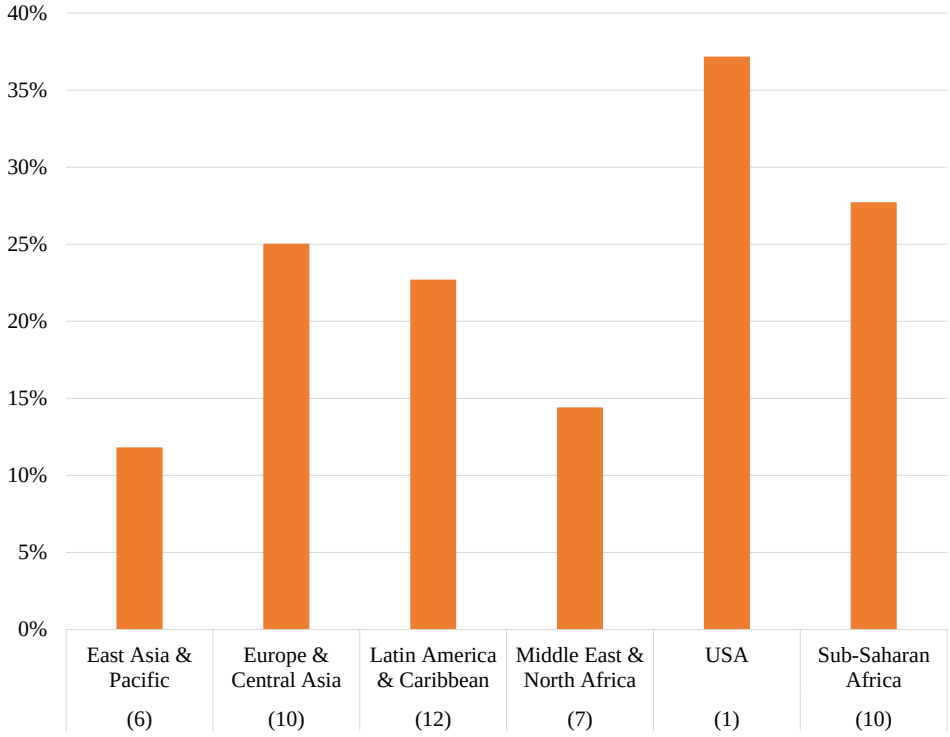
Labor mobility is key for economic integration and the reduction of spatial inequalities. Globally, inequalities in regional economic activity tend to be persistent. There is a lag in the convergence process, which does not occur at sufficient speed to offset initially faster change in leading areas. Spatial inequalities are likely to increase if there are barriers to flows between regions, and benefits do not spill over to less fortunate regions.

How much can people gain from moving where their human capital endowments have more returns?

3 Decomposing spatial inequality: Endowments or returns to endowments?

In a world where migrating is unrestricted and free, most people would move if standards of living are only determined by households non-geographic and portable attributes. If living in another location was to lead to welfare improving effects for a worker, given his or her profile, s/he would move to that location. Spatial disparities in living standards can be explained by the

Figure 3: Migration from place of birth



Source: Arab Barometer Wave 4 (2016) and IPUMS International. Migration refers to lifetime migration, which compares place of birth (within the country) with the place of current, or previous residence (at first administrative level). Based census data from 38 countries, which censuses include birthplace at the first administrative level for comparability purposes. Random respondents ages 18 and above were selected from censuses, with half men and half women to be comparable with the Arabbarometer, which is available for Algeria, Lebanon, Jordan, Morocco, Tunisia, Jordan and West Bank and Gaza. The latter is excluded given the peculiarity of Palestine. The Arab barometer was kept for Egypt as the survey was more recent (2016 vs 2006). In Egypt, the Arab barometer did not survey the Sinai Peninsula, Matruh, New Valley and Red Sea governorates where less than two percent of the population lives. List and year of censuses are in Appendix.

sorting of people with low endowments (for example, low education levels) or by differences in returns to such endowments. If there are large differences in the welfare gap that can be attributed to the returns of household endowments in a particular location, it suggests that there are labor mobility barriers across regions.

The decomposition is obtained by estimating equation (4) for both the country's metropolitan leading region and all other regions:

$$y_i = X_i\beta_i + \epsilon_i \tag{4}$$

where y_i is the log of consumption per capita in region i, leading (denoted M, metropolis) or else (denoted O, other regions), and X_i is a set of endowments including gender, age, education

level, area of residence, marital status, status in the labor force, access to electricity and water, and possession of a computer. Consumption expenditures per capita were deflated by a spatially differentiated price index to account for price differences between regions when available.[9]

The average consumption gap can be expressed as equation (5).

$$\bar{y}_M - \bar{y}_O = \bar{X}_M\hat{\beta}_M - \bar{X}_O\hat{\beta}_O \tag{5}$$

which can be rewritten as equation (6)

$$\bar{y}_M - \bar{y}_O = (\bar{X}_M - \bar{X}_O)\hat{\beta}_O + \bar{X}_M(\hat{\beta}_M - \hat{\beta}_O) \tag{6}$$

The first part $(\bar{X}_M - \bar{X}_O)\hat{\beta}_O$ measures the effect of the differential in endowments (or endowments) while the second $\bar{X}_M(\hat{\beta}_M - \hat{\beta}_O)$ captures the differential in returns to endowments (or coefficients). The share of the gap explained by returns to endowments indicates that returns to one's endowment would be higher in the metropolis.

We estimate equation (6) on a restricted sample of people aged older than 15 years old from harmonized surveys in Djibouti (2012), Egypt (2012), Iraq (2012), Islamic Republic of Iran (2014), Jordan (2010), Lebanon (2011), Morocco (2006), Tunisia (2010), and the Republic of Yemen (2014).[10] In this specification, the metropolitan areas are Great Tunis in Tunisia; Amman in Jordan; Cairo, Alexandria, Suez, and Port-Said in Egypt; the Kurdistan governorates (Duhouk, Erbil, and Suleimaniya) in Iraq; Djibouti City in Djibouti; Tehran in the Islamic Republic of Iran; the Casablanca-Settat area in Morocco; and Sana'a in the Republic of Yemen. We start with the standard OLS estimation, which explains welfare gaps based on the linear estimation of the Blinder-Oaxaca decomposition and is therefore limited to an average effect, constant across the welfare distribution.

[9]For the Islamic Republic of Iran in 2014, the international poverty rate is slightly different from the poverty rate reported by the World Bank in World Development Indicators and PovcalNet. The difference comes from the way welfare aggregate is created. This welfare aggregate excludes expenditure on health and durables for technical reasons and is inter-temporally and spatially deflated to account for changes in prices during the survey period and spatial variation in prices. Detailed explanation of methodology to construct welfare aggregate is available in Atamanov et al (2016).

[10]The data used in the rest of the paper are extracted from the Middle East and North Africa Poverty database (MNAPOV), Team for Statistical Development, World Bank. Consumption expenditures are per capita, spatially deflated and converted in terms of US$ 2011 purchasing power parity.

Results are shown in Table 1. Assuming residents could move freely from any country in the region, migration would bring large benefits, as consumption per capita could increase by 32 percent on average if migration to leading regions was to happen (Table 1, column (1)). Residents' endowments have higher returns in leading regions. This explains two thirds of the consumption gap between leading and other regions. The other third is explained by lower endowments. Improving endowments, such as education or access to services, to reach the level of residents in leading areas would increase consumption by 17 percent, half of the benefits of migrating. In column (2), we restrict the sample to the bottom 40 percent living in leading regions against those who do not. A different picture emerges. Among the poor, endowments in the metropolis are lower on average, which supports some urbanization of poverty. Given lower average endowment, returns are also smaller.

Table 1: Regional decomposition

Dependent variable: Log Consumption Expenditure (real, PPP)

	All	Bottom 40
	(1)	(2)
overall		
Leading	2.676***	1.718***
	(0.005)	(0.005)
Other regions	2.186***	1.619***
	(0.002)	(0.002)
Difference	0.490***	0.099***
	(0.005)	(0.005)
Endowments	0.167***	-0.053***
	(0.003)	(0.004)
Returns	0.323***	0.152***
	(0.005)	(0.005)
Observations	384220	160572
Controls	Yes	Yes

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Since the effect of each covariate might in fact vary across the welfare distribution, we re-estimate equation (**??**) using quantile regression to allow for the estimation of the welfare gap and its decomposition across the welfare distribution (Chernozhukov et al, 2013). Results are shown in Tables 2 and 3. Looking at the decomposition between endowments and returns to endowments, previous conclusions hold: income differences across the consumption distribu-

tion are strongly driven by returns rather than endowments, suggesting existing barriers, and gains, to migration. The gains and implied barriers to migration are highest for richest people, which vary between a 32 and 52 percent increase in consumption, suggesting heterogeneity in the gap across the distribution, which is increasing with consumption (Table 2 and Figure 5).

Consumption gaps are lower across the bottom 40 than for the entire distribution Endowments matter more only for the bottom of the bottom 40 percent (Table 3 and Figure 5). The top of the bottom 40 percent is actually better endowed outside of the metro (e.g. unemployment in metropolitan areas are likely to have higher endowments than elsewhere) but they could gain from moving, in particular in the middle of the distribution.

Table 2: Decomposition - Quantile

	Quantile								
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Difference	0.38	0.335	0.395	0.47	0.499	0.531	0.524	0.534	0.661
	(0.007)	(0.007)	(0.01)	(0.008)	(0.009)	(0.01)	(0.011)	(0.011)	(0.029)
Endowments	0.109	0.114	0.109	0.060	0.088	0.135	0.122	0.113	0.139
	(0.005)	(0.006)	(0.01)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.009)
Returns	0.271	0.22	0.285	0.409	0.41	0.395	0.401	0.42	0.521
	(0.007)	(0.006)	(0.006)	(0.007)	(0.007)	(0.008)	(0.009)	(0.011)	(0.029)

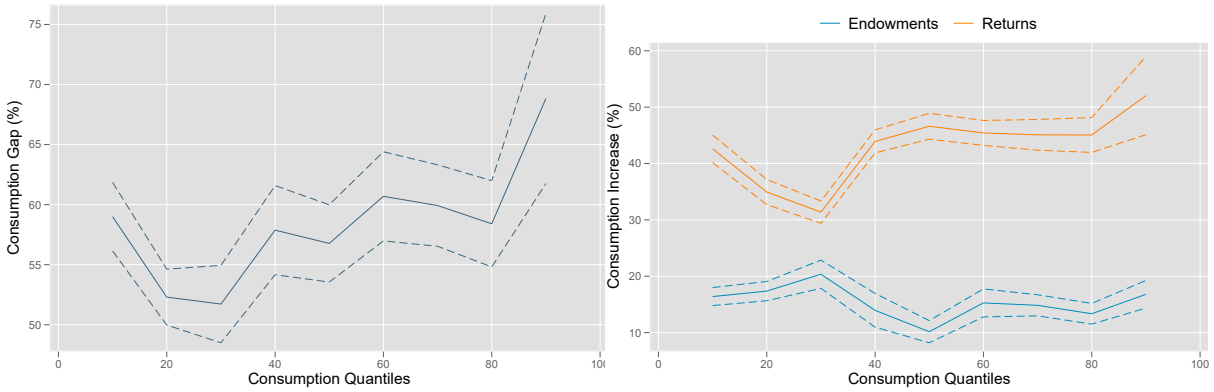
Note: Standard deviations are presented in parentheses. The variance has been estimated by bootstraping the results 100 times. No. of obs. in the reference group: 86,248; No. of obs. in the counterfactual group: 297,972.

Table 3: Decomposition bottom 40% - Quantile

	Quantile								
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Difference	0.08	0.02	0.091	-0.076	-0.064	0.102	0.065	-0.022	0.036
	(0.006)	(0.009)	(0.007)	(0.012)	(0.014)	(0.01)	(0.009)	(0.009)	(0.007)
Endowments	0.02	0.034	0.042	-0.16	-0.24	-0.04	-0.02	-0.03	-0.02
	(0.004)	(0.006)	(0.009)	(0.019)	(0.015)	(0.007)	(0.005)	(0.005)	(0.004)
Return	0.061	-0.015	0.048	0.085	0.179	0.143	0.087	0.009	0.065
	(0.004)	(0.007)	(0.005)	(0.01)	(0.009)	(0.008)	(0.008)	(0.007)	(0.005)

Note: Standard deviations are presented in parentheses. The variance has been estimated by bootstraping the results 100 times. No. of obs. in the reference group:18,713; No. of obs. in the counterfactual group: 141,859.

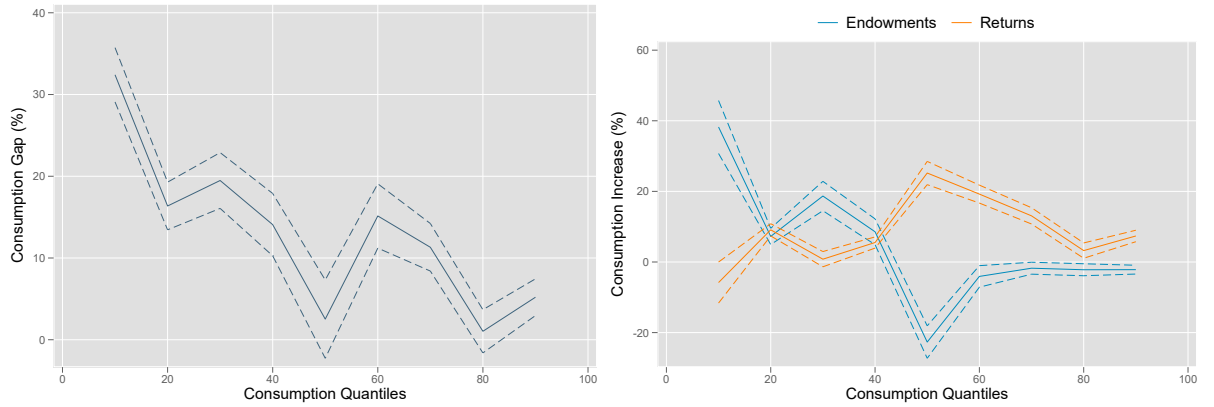
There are difference across countries, as shown in Table 6. Consumption gaps are the highest Djibouti, where residents in the capital city consume almost twice as much as in other parts of the country. In Morocco, residents outside of the region of Casablanca-Settat consume 21 percent less than in the rest of the country. Comparing the bottom 40 percent living in leading areas relative to other regions shows much smaller consumption gaps, mostly driven by highest



(a) Consumption gap (b) Endowments and returns decomposition

Figure 4: Consumption gap between leading and other regions, and its decomposition

Note: Solid lines designate point estimates; dashed lines designate 95 percent confidence intervals. "Leading regions" are Great Tunis in Tunisia; Amman in Jordan; Cairo, Alexandria, Suez, and Port-Said in Egypt; the Kurdistan governorates (Duhouk, Erbil, and Suleimaniya) in Iraq; Djibouti City in Djibouti; Tehran in the Islamic Republic of Iran; the Casablanca-Settat area in Morocco; and Sana'a in the Republic of Yemen. The total consumption gap is the sum of consumption effects from endowments and returns.



(a) Consumption gap (b) Endowments and returns decomposition

Figure 5: Consumption gap between leading and other regions, and its decomposition among the bottom 40%

Solid lines designate point estimates; dashed lines designate 95 percent confidence intervals. "Leading regions" are Great Tunis in Tunisia; Amman in Jordan; Cairo, Alexandria, Suez, and Port-Said in Egypt; the Kurdistan governorates (Duhouk, Erbil, and Suleimaniya) in Iraq; Djibouti City in Djibouti; Tehran in the Islamic Republic of Iran; the Casablanca-Settat area in Morocco; and Sana'a in the Republic of Yemen. The total consumption gap is the sum of consumption effects from endowments and returns.

returns in the capital or leading region. This means that the poorest residents' endowments (education, gender, age, etc.) would yield higher returns in leading regions and mobility friction may be the main source of the income gaps. Given that this is a static exercise, and a counterfactual, it only looks at the current returns in leading regions. If low-skilled workers were to migrate to leading regions, they might contribute to congestion without improving overall income and productivity (Grover et al, 2022).

Table 4: Country decompositions - All residents

Dependent variable: Log Consumption Expenditure (real, PPP)

	DJI	EGY	IRN	IRQ	JOR	MAR	TUN	YEM
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
overall								
Leading	1.635***	1.926***	3.104***	2.095***	2.463***	2.083***	2.397***	2.610***
	(0.006)	(0.008)	(0.010)	(0.005)	(0.005)	(0.011)	(0.008)	(0.006)
Other regions	0.661***	1.513***	2.487***	1.626***	2.193***	1.873***	1.983***	2.062***
	(0.008)	(0.003)	(0.003)	(0.003)	(0.005)	(0.005)	(0.004)	(0.002)
Difference	0.974***	0.413***	0.616***	0.469***	0.270***	0.210***	0.414***	0.548***
	(0.010)	(0.008)	(0.010)	(0.006)	(0.007)	(0.012)	(0.009)	(0.006)
Endowments	0.518***	0.194***	0.258***	0.062***	0.146***	0.093***	0.260***	0.305***
	(0.017)	(0.008)	(0.007)	(0.004)	(0.006)	(0.017)	(0.010)	(0.004)
Returns	0.456***	0.219***	0.358***	0.408***	0.124***	0.116***	0.154***	0.243***
	(0.019)	(0.009)	(0.008)	(0.006)	(0.008)	(0.018)	(0.011)	(0.005)
Observations	38400	39527	105867	99800	40143	22258	38225	423686
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Country decompositions - Bottom 40 percent

Dependent variable: Log Consumption Expenditure (real, PPP)

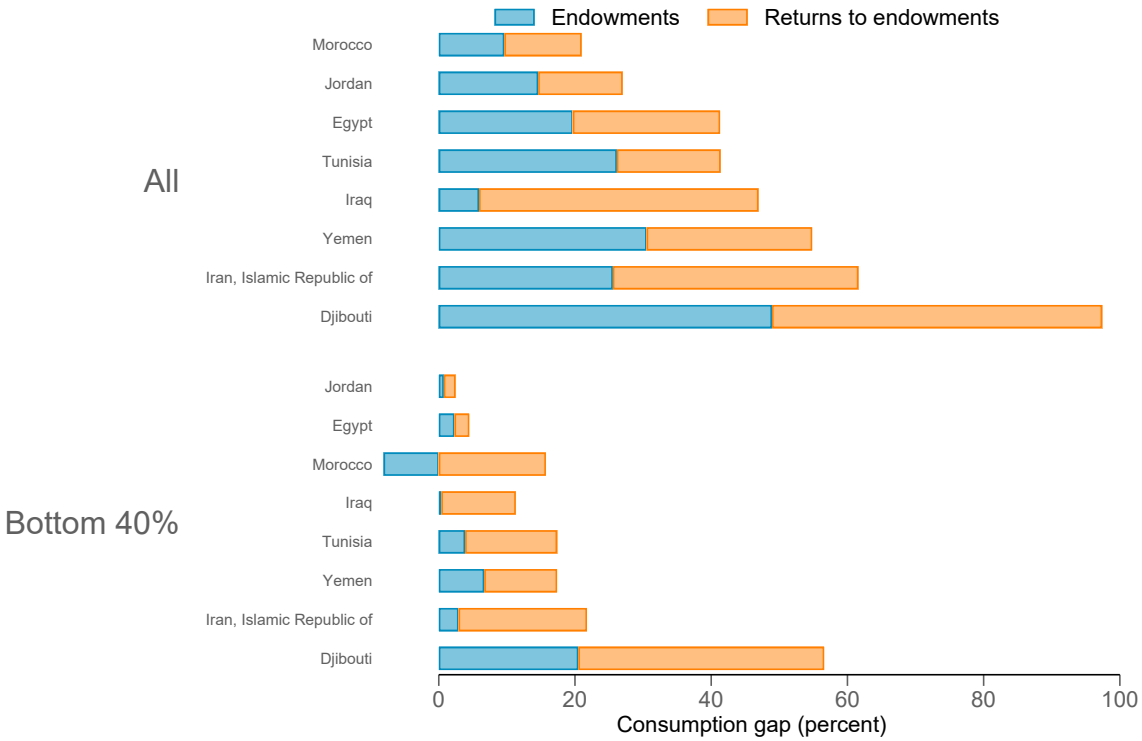
	DJI	EGY	IRN	IRQ	JOR	MAR	TUN	YEM
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
overall								
Leading	0.744***	1.127***	2.108***	1.259***	1.717***	1.288***	1.582***	0.689***
	(0.007)	(0.006)	(0.008)	(0.004)	(0.003)	(0.011)	(0.006)	(0.013)
Other regions	0.178***	1.082***	1.891***	1.146***	1.693***	1.212***	1.408***	0.616***
	(0.008)	(0.002)	(0.002)	(0.002)	(0.004)	(0.004)	(0.003)	(0.004)
Difference	0.566***	0.045***	0.218***	0.113***	0.025***	0.076***	0.174***	0.073***
	(0.011)	(0.007)	(0.008)	(0.005)	(0.005)	(0.011)	(0.007)	(0.014)
Endowments	0.205***	0.023***	0.029***	0.004	0.007***	-0.081***	0.039***	0.099
	(0.021)	(0.003)	(0.005)	(0.002)	(0.003)	(0.017)	(0.010)	(0.065)
Returns	0.361***	0.022***	0.189***	0.109***	0.017***	0.157***	0.135***	-0.025
	(0.025)	(0.007)	(0.008)	(0.005)	(0.006)	(0.017)	(0.012)	(0.068)
Observations	16442	13609	52351	40045	14633	7391	16101	10963
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Overall patterns also hide differences across consumption groups in different regions. Welfare gaps vary across and within countries (Figure 7). In Djibouti, for example, 26 percent of the gap in welfare between regions is explained by barriers to migration, the elimination of which which would translate to a 51 percent increase in consumption on average. Djibouti shows one of the highest gaps between metropolitan areas and other regions. It is a low-income

Figure 6: Consumption gaps, and decomposition between endowments and returns



Note: The consumption gap is the difference in log expenditures between each region and the leading region, disaggregated to distinguish the share explained by endowments versus returns to endowments.

country that has yet to improve convergence in access to basic services. As such, differences in endowments (education, health, and so on) are substantial, and they matter significantly in explaining regional differences, explaining on average 74 percent of the gap—the highest among all Middle East and North Africa countries.

In Egypt, living standards are highest in urban Lower Egypt governorates, which are in the fertile Nile Delta and closest to the urban agglomerations of Alexandria, Cairo, Port-Said, and Suez. In the poor region of Upper Egypt, urban residents are expected to consume on average 25 percent more if they relocate to major urban agglomerations, and rural residents are expected to consume 36 percent more. The potentially high return to endowments for people from Upper Egypt's who move to major cities elsewhere suggests that barriers to mobility are the highest in Upper Egypt.

In the Islamic Republic of Iran, people's consumption in southernmost provinces would increase by 75 percent if they moved to Tehran. In general, the farther from Tehran, the starker

the drop in consumption, meaning that in the south of the country, the average consumption is less than half consumption in the capital. Apart from the two southern provinces of Kerman and Sistan, endowments explain a minimal share of the consumption difference.

In Iraq, consumption levels and returns to endowments are better than in Baghdad. Endowments are similar. Located at the border of Kuwait, Basra governorate consumption levels are lower than in Baghdad but better than its northern neighbors. These are governorates where consumption is 35–50 percent what it is in Baghdad, largely explained by low returns to endowments. Kirkuk likely benefits from links with Kurdistan, and Najaf is well connected to Baghdad.

In Jordan, barriers to migration explain a large share of the welfare difference across regions. Outcomes are best in the capital, Amman, and the top-performing regions are those along the connected desert highway—Amman, Karak, and Jerash. Only Jerash offers similar returns to endowments as Amman. People in other regions would gain from moving toward Amman, especially those in governorates far from the desert highway corridor. Residents of Ma'an, in southeast Jordan, could increase household consumption by more than 30 percent if they were to move to Amman. Ma'an is the furthest from Amman on the consumption distribution and is one of Jordan's disconnected and sparsely populated lagging regions. Migrants from Aljoun, in north Jordan, would realize similar potential gains, although Aljoun is much closer and better connected to Amman.

In Morocco, convergence is slowly happening. The country's living standards have shown convergence between 2001 and 2014, but the pace of convergence in consumption remains slow. In 2006, there was no difference in consumption expenditures between Grand Casablanca (Morocco's largest region) and the regions of Rabat-Salé-Zemmour-Zaër (hosting the Moroccan administration) and Tanger-Tétouan (hosting the Tanger-Med port, Morocco's logistics gateway on the Strait of Gibraltar). The government estimated that, at current conditions, it would take 24 years for the process of convergence to reduce the disparity in regional consumption by half (HCP et al, 2017). The large share of the gaps explained by the returns that people would have had in Casablanca signals barriers to mobility in locations where the starker gaps exist. Where the gaps are lower, improving endowments should be enough to accelerate

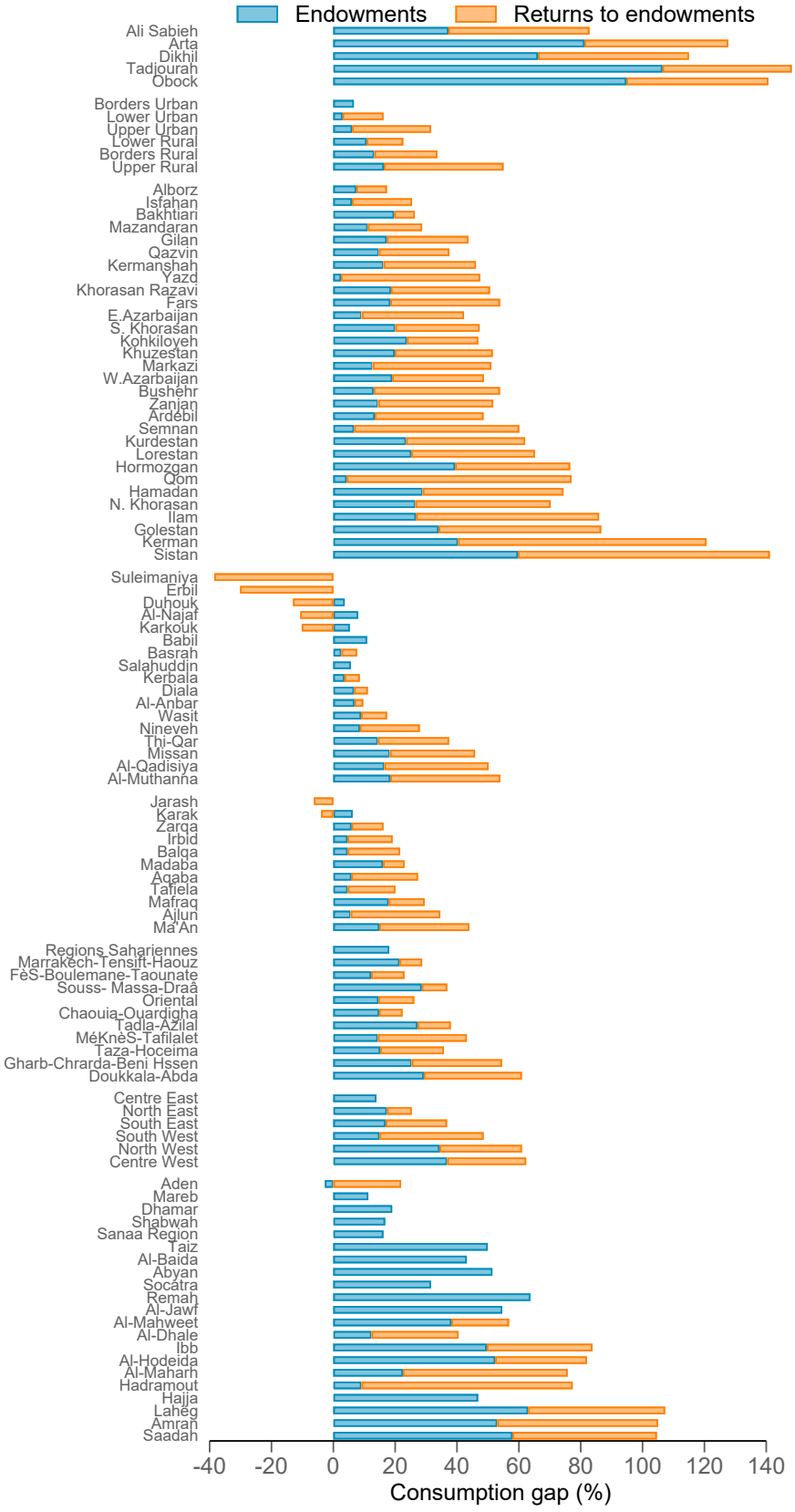
convergence.

In Tunisia, the leading East region contrasts with the West region, which lags behind. The Center-East subregion—grouping the Mahdia, Monastir, Sfax, and Sousse governorates—has standards of living similar to Greater Tunis. The gap is a bit larger in the country's North-East region, largely explained by endowments. (Improving education, which is lower there than in the Center-East and Greater Tunis, would translate to an increase of consumption by 11 percent and bridge 43 percent of the gap.) Migrating from the North-East subregion to Greater Tunis would lead to a 10 percent increase in consumption. In the West and North-West regions, the largest share of the consumption gap is explained by households' endowments, contrasting with the the South-East and South-West subregions where returns explain the largest share of the divergence in living standards (above 60 percent). On average, migrating in Tunisia would translate to an increase of 22 percent in consumption.

In the Republic of Yemen, households in Aden (where the port and international airport are located) have slightly better endowments but greater differences in returns than in Sana'a. In the rest of the country, lower endowments explain a large share of the difference.

From an economic perspective, the low internal migration rate is surprising given the high disparities between regions and the potential returns to migration. Why do so few people in the Middle East and North Africa migrate to pursue better standards of living? The literature advances different explanations, which are difficult to disentangle. Social, ethno-linguistic, regulatory, and economic barriers can prevent people from migrating despite economic gains. Structural community factors, social capital, and cultural attachment to a particular region affect people's likelihood of migrating (Zelinsky, 1971). Government policy (such as land use management and valuation information systems) or migration costs (whether driven by transport, discrimination, risk, or relocation costs) can also impede migration (Ravallion and Wodon, 1999; World Bank, 2014; Lall and Mahgoub, 2019; El-Kogali and Krafft, 2019). Overcoming these barriers should therefore promote mobility. Better educational achievement, incomes, access to information, and transport and communication infrastructure have been shown to give people the ability to migrate. These factors often increase migration not only directly but also through accompanying processes of social and cultural change. Most people tend to migrate

Figure 7: Consumption gaps between the metropolitan region and others vary across countries and are largely explained by differences in returns to endowments



Note: The consumption gap is the difference in log expenditures between each region and the leading region, disaggregated to distinguish the share explained by endowments versus returns to endowments.

domestically first, and then, in later stages, they cross borders (Sabadie et al, 2010).

4 Conclusion

While variation in development across space is a feature of development the world over, the extent of spatial disparities in MENA is greater than expected. Despite relatively low within country inequality in the region, the Middle East and North Africa (MENA) is among the most spatially unequal regions in the world. Inequality, measured by the GINI coefficient, remained low to moderate relative to the world distribution before the Arab Spring (Ianchovichina et al, 2015). But spatial inequality did not. Spatial inequality remains high within MENA countries compared to other countries, and has increased over the last two decades. Cities and regions' living standards vary within countries, but as per capita GDP increases, spatial disparities tend to decline. MENA countries are outliers to this trend, displaying some of the highest between region inequality relative to comparator countries of similar per capita GDP. Spatial variables consistently account for at least half of all the reported variation in economic opportunities in most MENA countries (World Bank, 2011). And while the dimensions across which MENA countries exhibit spatial disparities vary, virtually all MENA countries stand to benefit from greater convergence across all dimensions (consumption expenditure, access to basic services and infrastructure, and so on).

Spatial inequality is not desirable, and not inevitable. Distinguishing between the geography of production and inequalities in living standards can be the starting point of improving policies aimed at inclusive growth. Economic concentration is efficient from an economic point of view (the emergence of cities as drivers of growth proves it; consumers and producers see many benefits of being close from each other). But for places that have not been picked by markets, investing in endowments (through improving quantity and quality of basic services such as health and education) are likely to have the biggest impact on spatial equity.

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APPENDIX

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Table 1: Household Surveys

Country	Year	Number of surveys	Sample
Albania	2005	5	16387
	2012		25335
	2014		25088
	2015		27579
	2016		26525
Angola	2008	2	45398
	2018		60504
Argentina	2003	15	93028
	2004		94575
	2005		94673
	2006		129252
	2007		61706
	2008		124107
	2009		120549
	2010		118721
	2011		115052
	2012		110785
	2013		112031
	2014		122385
	2016		117651
	2017		116846
	2018		114242
Armenia	2017	2	28505
	2018		18496
Azerbaijan	2002	3	33643
	2003		33731
	2005		32875
Bangladesh	2000	4	38518
	2005		48965
	2010		55580
	2016		186048
Belarus	2000	19	13190
	2001		27576
	2002		13867
	2003		13367
	2004		13470
	2005		13694
	2006		14333
	2007		14754
	2008		14275
	2009		13471
	2010		14546
	2011		14255
	2012		13524
	2013		13095
	2014		13689
	2015		13985
	2016		14083
	2017		13988
	2018		14308
Benin	2015	1	88608
Bhutan	2003	4	19248
	2007		49165
	2012		40212

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Table 1 – continued from previous page

Country	Year	Number of surveys	Sample
	2017		48876
Bolivia	2001	12	24267
	2002		24033
	2005		16895
	2006		15960
	2007		16458
	2011		33714
	2012		31773
	2013		35490
	2014		36439
	2015		36905
	2016		38247
	2017		37522
Botswana	2009	2	27211
	2015		24714
Brazil	2001	13	372635
	2002		379802
	2003		379160
	2004		393419
	2005		403243
	2006		404589
	2007		394174
	2008		385364
	2009		392432
	2011		346474
	2016		459213
	2017		457781
	2018		452358
Burkina Faso	2009	2	57155
	2014		77037
Burundi	2006	2	36193
	2013		32647
Cabo Verde	2007	2	33756
	2015		24395
Cameroon	2007	2	51190
	2014		46560
Chad	2011	1	49985
Chile	2000	2	241095
	2017		213369
Colombia	2001	16	109425
	2002		534821
	2003		136653
	2004		152512
	2005		148349
	2008		794322
	2009		810628
	2010		816971
	2011		823506
	2012		808527
	2013		793693
	2014		783317
	2015		781558
	2016		773585
	2017		767696
	2018		759621

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Country	Year	Number of surveys	Sample
Comoros	2013	1	10671
Congo, Dem Rep	2012	1	110529
Congo, Rep	2011	1	44736
Costa Rica	2000	19	35888
	2001		35140
	2002		37540
	2003		38785
	2004		39195
	2005		40670
	2006		41616
	2007		43809
	2008		42033
	2009		45792
	2010		41098
	2011		40785
	2012		39340
	2013		38733
	2014		38334
	2015		37200
	2016		36899
	2017		34767
	2018		35022
Cote d'Ivoire	2008	2	59083
	2015		47635
Czech Republic	2005	14	10333
	2006		17830
	2007		23059
	2008		26933
	2009		23300
	2010		21375
	2011		20628
	2012		20236
	2013		19101
	2014		18208
	2015		17701
	2016		18958
	2017		19198
	2018		18933
Djibouti	2012	2	31683
	2017		21489
Dominican Republic	2000	19	22465
	2001		22249
	2002		22144
	2003		29771
	2004		29289
	2005		30038
	2006		28655
	2007		28469
	2008		30672
	2009		30430
	2010		29901
	2011		29532
	2012		29130
	2013		29255
	2014		27635

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Country	Year	Number of surveys	Sample
	2015		26730
	2016		26326
	2017		20866
	2018		20221
Ecuador	2004	15	82057
	2005		76386
	2006		77713
	2007		75767
	2008		78468
	2009		77997
	2010		82356
	2011		69282
	2012		72754
	2013		81282
	2014		116213
	2015		112397
	2016		113807
	2017		110077
	2018		59159
Egypt, Arab Rep	2010	4	34069
	2012		65411
	2015		52254
	2017		52928
El Salvador	2000	18	71644
	2001		52986
	2002		72022
	2003		71642
	2004		70544
	2005		70052
	2006		68312
	2007		69138
	2008		68457
	2009		83194
	2010		85159
	2011		85291
	2013		81865
	2014		80164
	2015		88184
	2016		76264
	2017		75133
	2018		75012
Eswatini	2016	2	14410
Ethiopia	2010	2	118991
	2015		125149
Finland	2004	14	29055
	2005		29096
	2006		28029
	2007		27448
	2008		26477
	2009		25151
	2010		27002
	2012		25364
	2013		27904
	2014		27141
	2015		26431

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Country	Year	Number of surveys	Sample
	2016		25983
	2017		24813
	2018		23877
France	2004	14	24968
	2005		24231
	2006		24919
	2007		25868
	2008		25504
	2009		25600
	2011		27053
	2012		28524
	2013		26333
	2014		26779
	2015		26630
	2016		26625
	2017		25375
	2018		24669
Gabon	2005	1	37601
Gambia, The	2010	2	37224
	2015		104830
Georgia	2002	17	40072
	2003		44167
	2004		43631
	2005		42938
	2006		41339
	2007		40405
	2008		72147
	2009		82008
	2010		79471
	2011		40796
	2012		40942
	2013		39926
	2014		39527
	2015		38130
	2016		38161
	2017		40104
	2018		38840
Ghana	2005	3	36500
	2012		72372
	2016		59864
Greece	2004	15	16734
	2005		14826
	2006		15142
	2007		14742
	2008		16798
	2009		17901
	2010		17539
	2011		14995
	2012		13732
	2013		17910
	2014		20966
	2015		34247
	2016		43796
	2017		53612
	2018		56447

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Country	Year	Number of surveys	Sample
Guinea	2012	1	49572
Guinea-Bissau	2010	1	26134
Haiti	2012	1	23398
Honduras	2001	18	34520
	2002		100565
	2003		104570
	2004		35247
	2005		34044
	2006		96502
	2007		99632
	2008		100131
	2009		96395
	2010		31847
	2011		32154
	2012		32791
	2013		32541
	2014		23988
	2015		26458
	2016		27112
	2017		23589
	2018		25839
India	2004	3	609736
	2009		468551
	2011		464960
Indonesia	2005	6	42518
	2011		284539
	2014		274673
	2016		1109749
	2017		1132739
	2018		1131817
Iran, Islamic Rep	2009	6	150462
	2014		135615
	2015		133894
	2016		132073
	2017		134389
Iran, Islamic Rep.	2013	6	136908
Iraq	2006	2	125647
	2012		174863
Italy	2004	15	61381
	2005		55957
	2006		54368
	2007		52617
	2008		52290
	2009		51124
	2010		47450
	2011		47778
	2012		47317
	2013		44509
	2014		47050
	2015		42860
	2016		48152
	2017		48771
	2018		45709
Jordan	2006	3	67593
	2008		61684

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Country	Year	Number of surveys	Sample
	2010		61051
Kazakhstan	2001	17	175995
	2002		169368
	2003		166565
	2004		164884
	2005		161186
	2006		40117
	2007		39569
	2008		40178
	2009		161509
	2010		167313
	2011		170174
	2012		167113
	2013		165777
	2014		165047
	2015		164763
	2016		165594
	2017		166591
Kenya	2005	2	66429
	2015		92846
Kosovo	2009	6	14128
	2012		13036
	2013		12793
	2014		12781
	2015		12166
	2016		11761
Kyrgyz Republic	2013	3	77782
	2015		77031
	2017		77408
Lao PDR	2002	2	49791
	2007		48021
Lebanon	2011	1	11535
Lesotho	2017	1	17288
Liberia	2007	2	20034
	2014		18079
Madagascar	2010	2	59374
	2012		77560
Mali	2009	1	86936
Mauritania	2008	2	74801
	2014		53715
Mexico	2000	10	41716
	2002		70873
	2004		90429
	2005		92793
	2008		117000
	2010		105290
	2012		32725
	2014		72550
	2016		253593
	2018		265216
Moldova	2007	6	16589
	2013		12354
	2014		12688
	2015		12318
	2016		12496

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Table 1 – continued from previous page

Country	Year	Number of surveys	Sample
	2017		11772
Mongolia	2010	4	43355
	2011		42538
	2012		47908
	2014		58852
Montenegro	2015	2	13843
	2016		13719
Morocco	2000	3	85412
	2006		36333
	2013		75691
Myanmar	2017	1	60357
Namibia	2009	2	44614
	2015		41581
Nepal	2003	2	21531
	2010		28670
Nicaragua	2001	4	22620
	2005		36520
	2009		30240
	2014		29090
Niger	2011	2	24791
	2014		22670
Nigeria	2009	1	149261
North Macedonia	2008	1	15848
Pakistan	2001	8	106619
	2004		101918
	2005		110908
	2007		107139
	2010		108933
	2011		106492
	2013		119017
	2015		157636
Panama	2000	19	39562
	2001		55891
	2002		54500
	2003		53834
	2004		52957
	2005		48596
	2006		48762
	2007		49399
	2008		48900
	2009		49569
	2010		48867
	2011		46605
	2012		45636
	2013		44237
	2014		43719
	2015		42396
	2016		42233
	2017		40136
	2018		39161
Paraguay	2001	17	37435
	2002		17567
	2003		43161
	2004		34636
	2005		19576

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Table 1 – continued from previous page

Country	Year	Number of surveys	Sample
	2006		22733
	2007		21045
	2008		19395
	2009		18405
	2010		20463
	2011		19695
	2012		21054
	2013		21107
	2014		20202
	2015		30829
	2016		37708
	2018		18371
Peru	2000	19	16637
	2001		73326
	2002		82612
	2003		56140
	2004		86237
	2005		86154
	2006		88654
	2007		92939
	2008		89322
	2009		89830
	2010		87598
	2011		99307
	2012		98316
	2013		117386
	2014		116538
	2015		119489
	2016		131217
	2017		124831
	2018		132229
Philippines	2006	3	189079
	2009		186826
	2012		192537
Poland	2005	3	48987
	2017		34797
	2018		39881
Romania	2006	5	81595
	2014		17304
	2015		17375
	2017		17155
	2018		17068
Rwanda	2010	3	67415
	2013		65133
	2016		63439
Sao Tome and Principe	2010	1	13757
Senegal	2011	1	55017
Sierra Leone	2011	2	37921
	2018		40462
South Africa	2010	2	95042
	2014		88906
Spain	2004	15	44601
	2005		37448
	2006		34670
	2007		34567

Continued on next page

Table 1 – continued from previous page

Country	Year	Number of surveys	Sample
	2008		35902
	2009		36728
	2010		36870
	2011		34602
	2012		33444
	2013		32041
	2014		31508
	2015		32293
	2016		36308
	2017		34859
	2018		33678
Sri Lanka	2002	5	71293
	2006		76749
	2009		80872
	2012		80534
	2016		82961
Sudan	2009	2	48822
	2014		69828
Swaziland	2009	2	14145
Switzerland	2007	1	15914
Tajikistan	2009	1	10069
Tanzania	2011	2	46593
	2018		46568
Thailand	2006	7	146513
	2009		139590
	2012		132877
	2013		126261
	2015		125346
	2016		127172
	2017		123499
Timor-Leste	2007	1	25000
Togo	2011	2	29676
	2015		10781
Tunisia	2005	3	56953
	2010		50371
	2015		105057
Uganda	2012	2	32929
	2016		70601
Ukraine	2007	5	25903
	2013		24358
	2014		20483
	2016		18255
	2018		17478
United Kingdom	2010	8	18631
	2011		18584
	2012		23328
	2013		23183
	2014		22395
	2015		21143
	2016		22091
	2017		28073
Uruguay	2000	19	52962
	2001		57394
	2002		56337
	2003		55369

Continued on next page

Table 1 – continued from previous page

Country	Year	Number of surveys	Sample
	2004		55587
	2005		54330
	2006		256861
	2007		143185
	2008		144582
	2009		132599
	2010		132010
	2011		130804
	2012		120462
	2013		127925
	2014		131857
	2015		121461
	2016		118591
	2017		118238
	2018		108582
Vanuatu	2010	1	20337
Vietnam	2006	4	39071
	2010		36999
	2012		36655
	2014		36081
Yemen, Rep	2005	2	98780
	2014		67178
Zambia	2010	2	102835
	2015		62402
Zimbabwe	2017	1	130073
105 countries		582 surveys	51,506,575

Source: Global Monitoring Database (GMD), World Bank Team for Statistical Development, using the Datalibweb Stata Package.