Minimum and living wages in Jordan and Tunisia

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Abstract

Countries around the world are working to develop social protection floors to help reduce poverty. Ensuring workers can earn adequate wages is an important component of social protection floors. In this paper, we explore who receives minimum, poverty, median, and living wages in Jordan, comparing 2010 and 2016, and in Tunisia in 2014. We demonstrate that while the majority of workers do earn at least minimum and poverty wages, only a minority of workers earn a living wage. The chances of earning minimum, poverty, median, and living wages depend on the characteristics of workplaces, specific work characteristics (especially job formality and skills required), and the demographic characteristics of workers. While results are consistent with wages reflecting, in part, workers' productivity, they may also reflect rents, efficiency wages, and for

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minimum wages issues with enforceability and policy design. These findings highlight which workers are vulnerable to low earnings and where greater enforcement or redesign of minimum wage legislation might be needed.

Keywords: Minimum wages, Living wages, Poverty, Inequality, Jordan, Tunisia

JEL codes: J31, J38, D3, O15

1 Introduction

Social protection floors were a key policy and anti-poverty focus globally even before the challenges of the COVID-19 pandemic (UNDP, 2014). Yet another longstanding aspect of social protection and ensuring basic needs are met focuses on workers, specifically wage floors, namely minimum wage policies. For instance, the International Labour Organization (2022) declared the importance of 'a minimum living wage… to provide a basic income to all in need'. Two important empirical questions for minimum wage policies are thus (1) whether they effectively cover all workers and (2) ensure above-poverty or living wages.

The question of the role of minimum wages in social protection and addressing poverty is particularly pertinent in the Middle East and North Africa (MENA) region. The region has a sharp dualism between the formal labour market, covered by social insurance and minimum wages, and a large informal sector (Assaad & Salemi, 2019; Malik & Awadallah, 2013; World Bank, 2013). Although the historical social contract of public sector job guarantees and broad access to public services has broken, a new social contract has yet to emerge and is under negotiation (Assaad, 2014; Devarajan & Ianchovichina, 2018; El-Haddad, 2020). Social protection floors have the potential to be an important part of that new social contract (Loewe & Jawad, 2018).

In this paper, we explore the potential role of minimum wages and living wages in providing a social protection floor, focusing on Jordan and Tunisia. The two countries share some common labour market challenges but also have differences in context and policy that provide valuable contrasts. Using microdata on workers and wages from Jordan (2016 and 2010) and Tunisia (2014) we explore whether and which wage workers receive minimum, poverty, median, and living wages. In Jordan, where we have data from two points in time, we explore how receiving these wage benchmarks has evolved over time. While there is a substantial body of existing

research on minimum wages in both high-income countries (HICs) and LMICs (Goraus-Tańska & Lewandowski, 2019; Neumark & Corella, 2021; Rani, Belser, Oelz, & Ranjbar, 2013), research on living wages is more limited (Fabo & Belli, 2017). Such living wage research is particularly rare in LMICs, making our work an important contribution.

We find that the majority of workers in both Tunisia and Jordan (in both 2010 and 2016) earn at least a minimum wage and at least a wage that puts them above the poverty line. However, only a minority of workers earn living wages. The results highlight a variety of potential predictors of whether workers reach various wage benchmarks, including not only economic drivers (such as productivity, rents, and efficiency wages), but also social factors (including potential discrimination), and policy choices around the design and enforcement of wage floors. For instance, workers' education and the skills and education required by the position play an important role in determining whether earnings benchmarks are met. Whether firms pay wage benchmarks varies substantially across industries – in part due to industry-specific wage policies.

2 Background and context

2.1 Global evidence on minimum and living wages

The International Labour Organization (ILO)'s 2012 'Social Protection Floors Recommendation' is the first international standard for social protection floors, which incorporates standards for adequate income (Schüring & Loewe, 2021). The Sustainable Development Goal (SDG) target 1.3 includes social protection floors for all (Schüring & Loewe, 2021). Wage policies are a key target of SDGs to reduce inequality and poverty (International Labour Organization, 2020). Often, minimum wages are framed as a "transformative" part of social protection systems (Devereux & Sabates-Wheeler, 2004; UNDP, 2016). Jordan, for example, discusses minimum wage policy as part of its national social protection strategy (Hashemite Kingdom of Jordan, 2019).

Much of the literature on minimum wages in developing countries focuses on the impact of the minimum wage on earnings, employment, informality, and poverty, finding mixed effects (Campos-Vazquez & Esquivel, 2022; Gindling, 2018; Lemos, 2007; Neumark, 2018). However, some studies examine who earns the minimum wage or below, which is the focus of this paper. Studies examine a variety of economic, social, and policy drivers of whether or not workers earn a minimum wage (e.g., Cunningham, 2007; Garnero, 2018; Goraus-Tańska & Lewandowski, 2019; Kanbur, Ronconi, & Wedenoja, 2013; Rani, Belser, Oelz, & Ranjbar, 2013).

Whether workers earn a minimum wage depends in part on the economic determinants of wages. Theoretically, workers should be paid their marginal product (Hicks, 1963), and empirically workers' productivity is a key driver of wages (Hellerstein, Neumark, & Troske, 1999). Education and skills (human capital) are central to workers' productivity, their wages, and whether they earn a minimum wage (Cunningham, 2007; Goraus-Tańska & Lewandowski, 2019; Mansoor & O'Neill, 2021).

Firms may also pay their workers higher than market clearing wages (efficiency wages) for a variety of reasons, including to induce effort, increase worker quality, and reduce turnover (Fafchamps & Söderbom, 2006; Yellen, 1984). Firms may therefore be less likely to pay minimum wages to casual workers and more likely to pay minimum wages to experienced, older workers (Mansoor & O'Neill, 2021; Strobl & Walsh, 2003). When particular sectors or firms face non-competitive conditions, they may generate rents that are shared with their workers, raising wages (Blanchflower, Oswald, & Sanfey, 1996; Ghazali, 2011). For instance, compliance with minimum wages tends to be higher in the public than private sector (Lemos, 2007).

In terms of social determinants of wages, gender, marital status, and race/ethnicity/nationality are key issues in the literature, which may reflect discrimination. Women are often less likely to receive minimum wages, along with individuals from ethnic minorities (Rani, Belser, Oelz, & Ranjbar, 2013). Migrant workers are over-represented among those who earn sub-minimum wages (International Labour Organization, 2020). Married individuals may be more likely to receive minimum wages (Mansoor & O'Neill, 2021), although this pattern may interact with gender (Strobl & Walsh, 2003).

Both policy design and enforcement can shape compliance with minimum wages. Firms and workers are more likely to comply if they are readily visible to authorities, for instance if they are formal (registered with the government) (Andalón & Pagés, 2009; Cunningham, 2007). Compliance may be higher in urban areas (Mansoor & O'Neill, 2021), where enforcement logistics are easier. Larger firms may be more likely to comply with minimum wages (Strobl & Walsh, 2003), for similar reasons of visibility. Industry or occupation-specific wage policies may shape compliance both due to complexity and differential ability to comply with different minimum wage benchmarks (Rani, Belser, Oelz, & Ranjbar, 2013). For instance, the agricultural sector may be less likely to comply with minimum wage laws (Andalón & Pagés, 2009). There are thus a wide variety of economic, social, and policy factors shaping the wages workers earn and particularly whether they earn minimum wages.

There are few studies dealing with minimum wages in Jordan or Tunisia. Alhawarin and Kreishan (2017) focus on the private sector in Jordan, where 17% of workers were paid under the minimum wage. They found that those employed in small firms, the less-educated, women, those in informal occupations, and youth disproportionately earned below minimum wages. In Tunisia, Larbi and Almi (2018) examined wages' evolution before and after the 2011 Tunisian revolution

and show that the efforts made to increase wages were based on increasing the minimum wage, specifically.

There has recently been renewed interest in a different wage metric—a living wage (Dobbins & Prowse, 2022). The concept of a living wage was recognized as early as the 1919 ILO constitution (Anker, 2011). The concept experienced a revival given recent global labour market developments, yet remains somewhat ambiguous as there is not yet a standardized definition (Anker, 2011). Some initial research on living wages and comparisons between minimum wage floors and living wages has been undertaken, but this work has primarily focused on high-income contexts (Fabo & Belli, 2017).

2.2 Country and labour market context

Historically, Jordan and Tunisia's social contracts focused on providing public services and public sector jobs in exchange for political acquiescence (Assaad, 2014; Devarajan & Ianchovichina, 2018; El-Haddad, 2020; Malik & Awadallah, 2013). Attempts at structural reform have not succeeded in generating the number or quality of private sector jobs needed (Devarajan & Ianchovichina, 2018; El-Haddad, 2020; Malik & Awadallah, 2013). Labour productivity has been stagnant in both countries (ILO & ERF, 2021; Jordan Strategy Forum, 2020). Expansions in schooling, but issues with the quality of education may have limited human capital accumulation (El-Kogali & Krafft, 2020). Barriers to competition in the private sector may also hold back job creation and productivity (Islam, Moosa, & Saliola, 2022; Rijkers, Baghdadi, & Raballand, 2017).

Labour supply, selection into employment and particularly wage work may depend on (potential) workers' characteristics. Canonical models of labour supply underscore that potential workers only accept positions meeting their reservation wage (Blundell & Macurdy, 1999).

Individuals with high reservation wages may thus remain outside employment. For instance, relatively few women are employed, particularly in Jordan (9% in 2016 versus 55% for men) compared to Tunisia (19% of women vs. 64% of men) (Assaad, Ghazouani, & Krafft, 2018; Assaad, Krafft, & Keo, 2019). Youth face protracted and difficult school-to-work transitions with high unemployment rates in both countries (Assaad & Krafft, 2023; Assaad, Krafft, & Salemi, 2023). In Jordan, non-Jordanians (particularly Syrian refugees and Egyptian migrants) play an important role in the labour market, working primarily in a limited segment of low-wage jobs (Razzaz, 2017).

Both countries have made a push to develop social protection floors and also couple these floors with earned income. Jordan's national social protection strategy (2019-2025) names the development of a social protection floor as a key component of anti-poverty efforts (Hashemite Kingdom of Jordan, 2019). Tunisia likewise placed developing a social protection floor at the centre of its 2016-2020 national plan and undertook feasibility and costing research (UNICEF, Centre de Recherches d'Etudies Sociales, & International Labour Organization, 2019).

2.3 Minimum and living wages and poverty lines in Jordan and Tunisia

2.3.1 Minimum wages in Tunisia

In Tunisia, the minimum wage is fixed and readjusted under governmental decree by the National Committee for Social Dialogue (Ben Chaabane, 2014). Economic indicators are supposed to be considered to adjust the minimum wage (Ben Chaabane, 2014). However, wage adjustments are not set by formula and so may diverge from economic fundamentals (Angel-Urdinola, Nucifora, & Robalino, 2015). There tend to be annual adjustments to minimum wages, but their timing is not set by law (Angel-Urdinola, Nucifora, & Robalino, 2015). After the Tunisian 2011

revolution, more consideration has been given by authorities to social justice demands with a focus on employment and income (Ben Chaabane, 2014).

In Tunisia, there are two types of minimum wages: the interprofessional guaranteed minimum wage (SMIG, with 40 and 48 hour work week versions) for non-agricultural sectors and the guaranteed minimum agricultural wage (SMAG) for the agricultural sector (Ben Chaabane, 2014).[1] Figure 1 shows the evolution of the minimum wage, in nominal and real (2020) terms.[2] The SMAG was below the SMIG historically, but recently has converged with the 40-hour SMIG. In real terms, minimum wages had been stable or very slightly rising over time, but then rose more substantially following the revolution (in 2012-14), before falling and plateauing in real terms through 2016-2020, a period of higher inflation (Tunisia Central Bank, 2021; World Bank, 2022).

2.3.2 Minimum wages in Jordan

The minimum wage in Jordan started in 1999 (Qandah, 2020) and is adjusted by a committee with representatives of the government, employers, and workers (Alhawarin & Kreishan, 2017). Originally, the law excluded the agricultural and clothing sectors from the minimum wage. Moreover, the law did not cover non-wage family and domestic workers. These groups were added over time. Jordanians have a different minimum wage, a higher one, than non-Jordanians. The minimum wage has not built in cost of living adjustments to account for inflation and is updated irregularly as the result of a political process (Ministry of Labor (Jordan), 2021; Qandah, 2020).

Figure 1 shows the evolution of nominal minimum wages in Jordanian Dinar (JD). The minimum wage in Jordan (for Jordanians) was fairly flat in real terms from 1999 to 2007 and then jumped in 2008. The minimum wage was next adjusted in 2012, and then 2017 and 2021, such

that real wages fell between adjustments, which then substantially increased real wages (Ministry of Labor (Jordan), 2021; Qandah, 2020). A 2020 decision led to a plan to increase the minimum wage annually in line with inflation, starting in 2022. However, the 2022 planned increase was postponed until 2023 given difficult economic conditions during the COVID-19 pandemic (Mustafa, 2022). The minimum wage regulations have some carve-outs. For instance, the clothing production sector has been covered by the minimum wage since 2006 at 110 JD and domestic workers in 2009 with the same minimum wage, but these were not adjusted over time.

Non-Jordanians have been covered by the Jordanian labour law since 2012 with a minimum wage below that of Jordanians. The same level of minimum wage for non-Jordanians was maintained until 2021 when it was raised (but still below Jordanians) (Alhawarin & Kreishan, 2017; Ministry of Labor (Jordan), 2021; Qandah, 2020). The minimum wage for non-Jordanian workers is planned to converge with Jordanians' wages by 2023 (Mustafa, 2022).

2.3.3 Minimum wages in Tunisia and Jordan in comparative perspective

Globally, 19% of all wage earners are paid at or below the minimum wage (International Labour Organization, 2020). Past estimates show a wide range of non-compliance rates across countries, from 5% in Vietnam to 68% in India (Rani, Belser, Oelz, & Ranjbar, 2013). As we show below, in Jordan 10% of wage earners learn less than a minimum wage and in Tunisia 27% earn less than a minimum wage. Jordan and Tunisia are thus helpful case studies in that they have relatively similar labour markets and levels of development, but different minimum wage regimes and compliance.

In the low-income and lower-middle income countries with data available,[3] shown in Figure 2, the minimum wage is, on average, 40% of the mean wage. Tunisia's minimum wage was

59% of the mean in 2014, while the minimum wage in Jordan was 34% of the mean in 2010 and 37% of the mean in 2016. The minimum wage as a percentage of the mean wage varies from 3% in Uganda to 80% in Pakistan. The low ratios (less than 30%) correspond to either low-income countries such as Uganda or lower-middle income economies such as Bangladesh. Higher ratios (more than 60%) mainly are in lower-middle income economies, many from the East Asia and Pacific, such as Indonesia. Tunisia's minimum wage is thus relatively high and Jordan's slightly below average (although slightly rising) in comparison to other countries, further enhancing our comparative case study's value in comparing across policy contexts.

2.3.4 Living wages in Tunisia

As of 2021, there was one estimate of living wages in Tunisia. The Global Living Wage Coalition estimated a living wage for rural Tunisia in 2020 (Global Living Wage Coalition, 2020). They did so relying on a definition of a living wage as "The remuneration received for a standard workweek by a worker in a particular place sufficient to afford a decent standard of living for the worker and her or his family." (Global Living Wage Coalition, 2021a). This is part of their effort to create a standardized definition and method for measuring living wages around the world, with 30 countries to date (Global Living Wage Coalition, 2021b).

The Anker method used in Tunisia relies on (Global Living Wage Coalition, 2021b):

- Food costs for a low-cost nutritious diet using typical local foods
- Housing costs based on UN-Habitat standards for decent housing
- Cost of other essential needs (extrapolated)
- Small margin for unforeseen events

Data are collected based on local worker and stakeholder inputs (typically including trade unions and employer organizations). Visits to workers' housing and food shops act as inputs to the estimation of the living wage (Global Living Wage Coalition, 2021b). This cost of a basic but decent life for a typical-sized family is divided by the typical number of workers per family to estimate the (net) living wage for a country (Global Living Wage Coalition, 2021b).

2.3.5 Living wages in Jordan

Although there is not an Anker estimate in Jordan, WageIndicator has estimated living wages for Jordan (WageIndicator Foundation, 2020). The WageIndicator foundation aims to produce a globally comparable living wage indicator (Fabo & Belli, 2017; Guzi, Kahanec, & Kabina, 2016). Data on the cost of living are collected online, continuously through surveys of prices (Guzi, Kahanec, & Kabina, 2016). The living wage is calculated for a typical family, based on the following expenses: food, housing, transport, healthcare, education, water, clothing, phone, and a 5% extra margin (WageIndicator Foundation, 2020). As in Tunisia, this total cost of living for a family is divided by the typical earners per family to estimate a net living wage.

2.3.6 Poverty lines in Tunisia

Poverty lines in Tunisia are computed on the basis of food basket and non-food expenditure components (Institut National de la Statistique (INS), 2017). This method allows defining a high poverty line (vulnerability line) and a low line (extreme poverty). In Tunisia, poverty lines are also computed according to a regional classification based on the size of the city (large cities, small and medium-size cities, and non-communal areas) (Institut National de la Statistique (INS), 2017). As shown in Figure 1, the poverty line has increased somewhat in real terms over time.

2.3.7 Poverty lines in Jordan

Poverty lines in Jordan are based on expenditure (Department of Statistics (Jordan), 2021). The abject poverty line is based only on the required minimum food expenditure. The absolute poverty line adds the level of expenditure necessary to afford non-monetary needs such as housing and education. As shown in Figure 1, the various poverty lines have been mostly stable in real terms but increased somewhat in 2010 (Department of Statistics (Jordan), 2021).

3 Data

3.1 Surveys

For our research, microdata are required on wages. We rely on the two recent microdata sources with wages for each country, namely the Jordan Labor Market Panel Survey (JLMPS) with waves in 2010 and 2016 and the Tunisia Labor Market Panel Survey (TLMPS) 2014 (Assaad, Ghazouani, Krafft, & Rolando, 2016; Krafft & Assaad, 2021; OAMDI, 2016, 2018).[4] Each survey is nationally representative after the application of weights, which are used throughout.

The JLMPS 2010 sampled 5,102 households, 25,952 individuals, and includes 4,891 wage workers with reported wage information The JLMPS 2016 sampled 7,229 households, 33,450 individuals, and includes 5,351 wage workers with reported wage information. The TLMPS 2014 sampled 4,521 households, 16,430 individuals, and includes 1,610 wage workers with reported wage information. The JLMPS 2016 was the second wave of the JLMPS, with the first in 2010, following 2010 wave households, split households, and adding a 2,000 household refresher sample. The TLMPS 2014 was the base wave of a planned panel. Our analysis sample consists of wage workers aged 15 and older.

3.2 Outcomes

Our key outcomes are whether a worker receives (at least) a minimum, poverty, median, or living wage. We focus on the basic wage, since other components (e.g., bonuses) are variable and not guaranteed. Wages were initially reported in whatever period the respondent received/recalled them (for regular wage workers; daily for irregular (casual or seasonal) wage workers). Since irregular workers only report daily wages, we assume these daily wages are basic wages. We transform reported wages into monthly wages, since minimum wage laws are primarily about monthly wages and other metrics (e.g., poverty wages) can be transformed into monthly terms.

The JLMPS began fielding in 2016 but continued into 2017, so we use the date of the interview to determine whether the 2016 or 2017 minimum wage applies.[5] Wages likewise changed during fielding in Tunisia, and we use the date of the survey to determine which wage to apply.[6] In Tunisia, we use data on whether someone worked fewer than 48 hours to apply the 40 or 48 hours per week minimum. For those in agriculture, we use data on how many hours they worked in the past three months and the typical hours per day to calculate days per month and multiply this by the SMAG to get a monthly wage equivalent.

For living wages and sometimes for poverty wages,[7] benchmarks are from different years than our survey. We therefore use inflation rates to adjust into 2016 or 2010 (for Jordan) or 2014 (for Tunisia) prices, based on the consumer price index. In Tunisia, where we only have a rural living wage, we use the ratios of poverty lines in rural to small and medium cities and large cities to map the living wage across areas. In Jordan we use the 50th percentile estimate for the living wage.[8]

We use the typical family size noted in living wage creation (5.1 in Jordan; 4.5 in Tunisia) and the typical number of earners per household (1.5 in Jordan; 1.46 in Tunisia) for adjusting per capita poverty lines into poverty wages, in order to be consistent with living wage estimates.[9] Our final metric is median wages (50% of wage earners are below and 50% above this benchmark).[10] Median wages are included based on a relative concept of poverty (Ravallion, 2020).[11]

3.3 Covariates

To understand who receives different wage benchmarks, we consider a number of primary job, employer, and worker characteristics. These cover the economic, social, and regulatory drivers of wage setting and minimum wage policy discussed above. In terms of the characteristics of workers, we consider nationality, age group, sex, marital status (interacted with sex), education level (interacted with sex), work experience[12] (and its square),[13] and the location of residence (in terms of urban/rural and region). In terms of the characteristics of jobs, we consider the occupation (categorically); whether the job has social insurance (or if other workers in the firm but not the respondent have social insurance);[14] whether the job has a contract and if so the type (definite versus indefinite duration); the regularity of the job, whether the job is inside or outside a fixed establishment;[15] and the required education level and skills (basic literacy, mathematics, physical fitness, computer, or technical skills) of the job.[16] In terms of the characteristics of employers, we consider the economic activity (industry); firm size (categorically);[17] the percentage of female workers in the firm (categorically);[18] and whether the firm is public or private sector.

4 Methods

We provide descriptive statistics on the distribution of monthly wages. We then model whether or not an individual wage worker receives the minimum, poverty, median, or living wage that applies to them, using a logit model (presenting odds ratios). Our standard errors are clustered

on the PSU level. To test the sensitivity of our results to selection into employment and wage work, we analyse information on reservation wages for the unemployed (not available for 2010 in Jordan). Individuals who were unemployed were asked the minimum wage they would accept in the public, private formal, and private informal sectors. Furthermore, we present statistics on whether or not unemployed individuals would receive various wages if they received their reservation wage.

5 Results

5.1 Distribution of wages relative to minimum, living, and poverty wage cut-offs

Figure 3 shows the cumulative distribution functions for monthly wages, relative to the various minimum, poverty, and living wage cut-offs. Given the many different cut-offs (e.g., for the clothing sector in Jordan or by location in Tunisia), we only show some (common) cut-offs. The figure also shows the distribution overall, for the public sector, and for the private sector. Results by sector are discussed in the next section.

In Jordan, in 2010, 90% of workers earn the minimum wage, 64% the poverty wage, 50% the median wage, and 13% a living wage. In Jordan, in 2016, 90% of wage workers earn the minimum wage, 68% the poverty wage, 50% the median wage, and 10% a living wage. There has thus been relatively little change in the share earning various wage benchmarks over time.

In Tunisia, 73% of wage workers earn the minimum wage, 78% earn a poverty wage, 51% the median wage, and 29% earn a living wage. Comparing across countries, it is notable that Jordan had the highest coverage of the minimum wage, but that the minimum wage was below the poverty wage, while in Tunisia, the minimum wage was received by slightly fewer wage workers than the

poverty wage. In neither country did a majority of workers earn a living wage, although more did in Tunisia than Jordan.

In the appendix, as a sensitivity analysis, Figure 4 compares the different reservation wages for the unemployed and the wages earned by wage workers. Table 3, in the appendix, shows the percentage of individuals earning the various benchmarks if the unemployed received their reservation wages. It could be that the unemployed would accept low-wage jobs but due to minimum wage regulations cannot obtain such jobs, leading to an under-estimate of the coverage of wage benchmarks in our main results. It could also be the case that the unemployed have very high reservation wages, which is why they remain unemployed. The results show that neither of these is the case, as reservation wages are similar to earned wages, and coverage rates of various benchmarks similar for the unemployed as for wage workers. For instance, in Tunisia, 73% of wage workers earn a minimum wage, and 76% of the unemployed have reservation wages that are at least the minimum wage.

5.2 Who receives minimum, poverty and living wages?

In terms of who receives minimum, poverty, median, and living wages, Table 1 presents the percentage of wage workers earning each benchmark. Table 2 shows the odds ratios from logit models of receiving at least a wage of each benchmark.

Table 4, in the appendix, shows minimum wage models solely for the private sector (since minimum wages theoretically should be universally applied in the public sector). We discuss the descriptive and multivariate results together in terms of the characteristics of workers, their work, and workplaces that predict earning the various wage benchmarks.

5.2.1 Wages and characteristics of workers

In both Jordan and Tunisia, the percentage of workers earning a minimum, poverty, median, or living wage rises with age, particularly from 15-29, before stabilizing for much of ages 30-59. This age pattern carries over in the multivariate model in terms of the odds of earning various wage benchmarks rising with age, particularly for Tunisia and Jordan in 2010 (minimum, poverty, and median wages), and for living wages in Jordan in 2016. In Jordan in 2016, descriptively, Syrians are less likely to earn a minimum wage, and non-Jordanians are less likely to earn poverty and median wages. In 2010, minimum wage laws did not apply to non-Jordanians and the (very different – economic migrant not refugee) Syrians were slightly more likely to earn poverty, median, or living wages than Jordanians, while other nationalities less so, but these differences are not significant in the multivariate models. In the multivariate models, after accounting for other characteristics non-Jordanians are more likely to earn a minimum wage (which is statutorily lower for this group).

In Jordan, descriptively, men and women have similar chances of earning a minimum, poverty, median, or living wage, but in Tunisia women are less likely to do so than men (78% of men earn a minimum wage and 59% of women). The Tunisia result is driven by unmarried young women earning less (per the multivariate model). Although married individuals, descriptively, are more likely to earn a minimum, poverty, median, or living wage, in the multivariate model there

are complex patterns and interactions, suggesting the descriptive result may be driven by other related characteristics (e.g., age).

While descriptively education differences in earning various benchmarks are substantial, only for some of the outcomes do results persist in the multivariate model (for all outcomes in Jordan in 2010, for minimum wages in Jordan for men in 2016, for minimum, median, and living wages in Tunisia). After accounting for other characteristics, work experience is significant in Jordan (except for minimum wages in 2016) and in Tunisia for a poverty wage.

In terms of location of residence, there are some descriptive differences in Jordan, but the only significant multivariate differences are lower probability of some wage benchmarks in the North and higher in urban areas, but only in 2010. There are substantial descriptive differences between the coastal regions of Tunisia (North and West) versus the interior (East). Only some regional disparities persist and are statistically significant in the multivariate model in Tunisia. Tunisian rural-urban disparities that favour earning wage benchmarks in urban areas, descriptively, also disappear or reverse in the multivariate model.

5.2.2 Wages and characteristics of work

While white-collar (particularly professional and managerial) occupations are more likely to earn minimum, poverty, median, or living wages, there is substantial variation across other occupations. In the multivariate model, relative to professional and managerial workers, those in other occupations are often significantly less likely to earn the various wages, although in Jordan in 2010 other occupations are more likely to be earning minimum wages than professional and managerial workers.

When the respondent has social insurance (formal employment) in their job, they are more likely to earn various wage benchmarks (results are significant for Tunisia and Jordan in 2010 in multivariate models). Indefinite (but not necessarily definite) duration contracts are often associated with significantly higher probabilities of earning the various wages. Those with regular work are more likely to earn various benchmarks descriptively, except in Jordan in 2016 when they are less likely to earn living wages, a change from 2010. In Tunisia, regular workers are less likely to earn various wages in the multivariate models, sometimes significantly so. Those whose work is in an establishment are much more likely to earn the various wages, although this is only significant for minimum wages in Jordan.

Compared to workers whose jobs require no education, workers whose jobs require a university, or sometimes even a preparatory or secondary education are significantly more likely to earn various wage benchmarks (variable not available in 2010). Odds ratios are large, particularly for university being required (e.g., 5.036 for Jordan 2016 minimum wages, 9.782 for Tunisia minimum wages). Almost all, 90-96%, of workers whose jobs require a university education earn at least a minimum or poverty wage.

In comparison to those whose jobs do not require specific skills, those whose jobs require basic literacy skills have higher probabilities to earn at least minimum wages in both Jordan (in 2016, most skills were not asked in 2010) and Tunisia. Moreover, those whose jobs require fitness skills seem to have higher chances to earn at least a minimum wage in Jordan in 2016. This is also the case for those whose jobs require computer skills for earning a living wage in Tunisia and Jordan in 2016. For those whose jobs require math skills, there are not statistically significant differences in the models, and only in Tunisia do technical skills predict a significantly higher median or living wage. In Jordan in 2010, when only technical skills are available, these skills

predict consistently higher probabilities of earning various wage benchmarks (but may be correlated with other, omitted skills).

5.2.3 Wages and characteristics of firms

In terms of the firm's economic activity, there are substantial descriptive differences but only some carry over into the multivariate model (and only for Tunisia); for instance, those who work in the construction, transportation, or accommodation and services sectors are more likely to earn at least a poverty wage in Tunisia, compared to the agriculture sector.

The size of the firm has a significant pattern primarily in Jordan (but not for the minimum wage) and in Tunisia (but not for living wages), whereby those who work for larger firms are more likely to earn the various wage benchmarks in comparison to firms with less than five workers. In Jordan, in 2016, those working in majority-female firms are less likely to earn at least a minimum, poverty, or median wage. Women may be willing to accept lower wages to work in majority-woman settings.

When distinguishing between public and private sector, descriptively, we find that in Jordan, although 98% (in 2010) or 97% (in 2016) of workers earn the minimum wage in the public sector, only 83% (in 2010) or 86% (in 2016) do in the private sector. In Tunisia, 79% of wage workers earn the minimum wage in the public sector and 70% in the private sector. The patterns of public-private disparities generally follow through other wage metrics, except for private sector workers being more likely to earn living wages in Jordan (in both 2010 and 2016). However, in the multivariate models, public sector workers are significantly more likely to earn a minimum, poverty, or median (2016 only) wage in Jordan than private sector workers, but less likely to earn minimum or poverty wages in Tunisia or a living wage in Jordan. The models of earning minimum wages in the private sector (

Table 4, in the appendix) are generally consistent with the overall results.

6 Discussion and conclusions

Countries around the world, and particularly in MENA, are working to write new social contracts and redesign social protection systems. Minimum wages and social protection floors are key "transformative" social protection policy instruments to meet global and MENA goals around reducing poverty and inequality during this shift (Devereux & Sabates-Wheeler, 2004; UNDP, 2016). Minimum wages and social protection floors are already pressing social protection policy topics in Tunisia and Jordan (Hashemite Kingdom of Jordan, 2019; UNICEF, Centre de Recherches d'Etudies Sociales, & International Labour Organization, 2019).

6.1 Summary

This paper investigated the predictors of earning a minimum, poverty, median, or living wage in Jordan and Tunisia in order to better design public policies that aim to reduce poverty and inequalities globally. Comparing minimum wages across contexts, we demonstrated that Jordan had above-average coverage of minimum wages and Tunisia below-average (International Labour Organization, 2020). Jordan's minimum wage was slightly below the global minimum to mean ratio, but Tunisia's appreciably higher (Figure 2), which makes for an interesting comparative case study and may have shaped differences in compliance.

The first key finding of this paper is that only a minority of workers earn a living wage (fewer in Jordan than Tunisia) while the majority of workers do earn at least minimum and poverty wages in both Tunisia and Jordan (more so in Jordan). This finding demonstrates that minimum wage policies do not guarantee living wages. The large gap between living and minimum wages in these LMIC contexts contrasts with other settings. In Europe, countries in the "core" of Europe

have minimum wages that are above living wages (Fabo & Belli, 2017). Indeed, in Jordan, the minimum wage was appreciably less than even the poverty wage. The analyses comparing Jordan over time show relatively little progress from 2010 to 2016 in increasing the coverage of various wage benchmarks.

Past literature highlights a wide variety of economic, social, and policy factors as shaping wage-setting and whether workers earn a minimum wage. We find workers with more education and whose jobs require higher educational levels or specific skills are more likely to earn various wage benchmarks, consistent with fundamental productivity drivers of wages and other research (Cunningham, 2007; Goraus-Tańska & Lewandowski, 2019; Mansoor & O'Neill, 2021). We also find that younger (and less experienced) workers are vulnerable to falling below these benchmarks, as with other studies (Mansoor & O'Neill, 2021; Strobl & Walsh, 2003).

Our results on social drivers are context-specific and in some ways contrast with the literature showing lower wages for women and migrants (International Labour Organization, 2020; Rani, Belser, Oelz, & Ranjbar, 2013). Men and women have similar chances of earning various wages in Jordan, while in Tunisia women, especially unmarried young women, are less likely to do so than men. Migrant workers are actually more likely to earn minimum wages – because of statutorily lower minimum wages for this group in Jordan.

Furthermore, social insurance, regularity of work, indefinite contracts, working in the public sector, industry, and the firm size play a role in earning various wage benchmarks in our results. These factors may particularly shape whether firms and workers are visible to policy enforcement. Similar results have been found in other contexts for work formality and firm size (Andalón & Pagés, 2009; Cunningham, 2007; Strobl & Walsh, 2003). Some of these results may

also have economic, as well as policy and enforcement components. For instance, firms may pay higher wages to regular or indefinite contract workers to retain them, in line with efficiency wage hypotheses (Yellen, 1984). Certain sectors and industries may share rents with their workers (Blanchflower, Oswald, & Sanfey, 1996; Ghazali, 2011).

6.2 Limitations

It is important to keep in mind that these analyses focused on wage earners. The majority of the employed (73%-85%) are wage earners across countries and over time in Jordan. There is, however, selection into both employment and wage work, particularly for women (Assaad, Ghazouani, & Krafft, 2018; Assaad, Krafft, & Keo, 2019), which could bias our estimates. For instance, if women with unobservably higher earning potential engage in wage work, the relationship between gender and earning wage benchmarks would be biased. However, past research in MENA shows that earnings in wage and non-wage work for the same individual are similar (Krafft & Rizk, 2021), suggesting that selection into wage work is not driving our findings. Furthermore, as demonstrated in the appendix, using reservation wages of the unemployed, selection into employment is unlikely to be driving our results. Omitted variable bias is a concern, particularly since we do not observe key wage determinants of ability or productivity, although we do capture education and skills. Relationships between covariates and earning various wage benchmarks should therefore be interpreted as associations and not causal. While we do make comparisons over time in Jordan, some covariates (e.g., certain skills) are not available in 2010.

Concerns about whether poverty lines adequately measure whether individuals can meet their basic needs contributed to a new emphasis on living wages (Anker, 2011). Yet the methods for living wages are not well established. This paper used two different approaches, the Global Living Wage Coalition for Tunisia, and the WageIndicator Foundation for Jordan. Some

differences between the two institutions in their calculations may be small (e.g., one relies on FAO for nutritious food information, the other the WHO (Global Living Wage Coalition, 2021b; Guzi, Kahanec, & Kabina, 2016)). Other issues are more substantial, such as the use of an online survey (Guzi, Kahanec, & Kabina, 2016) and local stakeholder participation that may not necessarily be representative (Global Living Wage Coalition, 2021b). These limitations underscore the need for nationally representative and standardized data collection to measure living wages.

6.3 Policy implications

In this section we discuss the implications of our findings for minimum wage policies. However, any changes in policy would have to be carefully designed, consider countries' economic context, and be rigorously evaluated. A key determinant of wages is a worker's productivity (Hellerstein, Neumark, & Troske, 1999; Hicks, 1963). Labour productivity has not been increasing in Jordan (2016-2019) (Jordan Strategy Forum, 2020), and labour productivity increases in Tunisia have been small (0.7% over 2011-2018) (ILO & ERF, 2021). Increasing productivity depends in part on structural change and removing barriers to competition (Islam, Moosa, & Saliola, 2022; Rijkers, Baghdadi, & Raballand, 2017). Improvements to human capital are also quite important. While both Jordan and Tunisia have substantially expanded schooling, education quality and thus acquisition of skills and human capital remain substantial issues (El-Kogali & Krafft, 2020).

Higher coverage in Jordan than in Tunisia or in numerous other developing countries (Bhorat, Kanbur, & Stanwix, 2017; Cunningham, 2007) underscores potential for increasing compliance. Increasing compliance is challenging; a study from South Africa, for example, shows that additional local labour inspectors do not lead to increased compliance with minimum wages

(Bhorat, Kanbur, & Mayet, 2012). Increases in enforcement, if effective, may also have trade-offs if they lead to reductions in employment more so than increases in wages.

Given the gap between minimum and living wages, policymakers may want to consider raising minimum wages, but such increases have important trade-offs. Compliance is likely to depend on how the minimum wage is set relative to market wages (Rani, Belser, Oelz, & Ranjbar, 2013). In developing countries, an estimated 18% of firms have worker productivity that is below minimum wage levels (Badaoui & Walsh, 2022); such firms may not be able to afford to continue operations if minimum wages are enforced. However, increases in minimum wages can also lead to increases in efficiency and productivity (Mayneris, Poncet, & Zhang, 2018; Riley & Rosazza Bondibene, 2017).

Beyond the level of minimum wages, there are a number of aspects of minimum wage policy design to consider. One option is to tie minimum wages to inflation, as is done in some countries in Latin America (Cunningham, 2007). Rather than waiting for political processes to determine increases in minimum wages, regular (annual) minimum wage increases could occur based on inflation. However, indexed minimum wages may then diverge from other fundamentals, such as labour productivity (Cunningham, 2007).[19]

One important policy design issue to consider is whether minimum wages should be monthly or hourly. While Jordan has a single monthly minimum wage, Tunisia has hourly wages for agriculture and different monthly minimum wages for 40-hour and 48-hour work weeks. Women globally face difficulties in reconciling unpaid domestic labour and paid work outside the home, but these challenges are particularly acute in MENA (International Labour Organization, 2018). Part-time work can potentially help address difficulties reconciling unpaid domestic work

and paid employment. However, minimum monthly wages disincentivize the creation of part-time jobs (Ozturk, 2009); minimum wage policies that focus on hourly wages could be helpful. The downside of minimum hourly wages is that employers may more frequently adjust employment on the intensive (hours) margin, such that monthly income becomes more variable.

Both Jordan and Tunisia have industry-specific wages. These wages may be designed to keep exports competitive in some industries but workers in these sectors have the same basic needs. Simplification of minimum wages could, potentially, increase their effectiveness and enforcement (Bhorat, Kanbur, & Stanwix, 2017; Rani, Belser, Oelz, & Ranjbar, 2013). The different patterns by public versus private sector in Jordan for lower wage benchmarks than higher benchmarks may reflect compressed and set salary schedules in the public sector. In Tunisia, the high share of workers earning less than the minimum wage in the public sector as well as the private sector may be related to active labour market programs (ALMPs). A variety of such ALMPSs provided by the National Employment Agency pay less than the minimum wage (Angel-Urdinola, Nucifora, & Robalino, 2015), a decision that may need to be revisited.

In Jordan, lower non-Jordanian wages are a disincentive to hire Jordanians (Assaad & Salemi, 2019; Hashemite Kingdom of Jordan, 2019). Plans are in place for non-Jordanians and Jordanians minimum wages to eventually converge (Mustafa, 2022). Unintended consequences of ending the nationality-specific wages could be lower employment for already-struggling Syrian refugees and higher prices for goods and services. Hourly wages might also help make Jordanians and Syrians more competitive with Egyptian workers who tend to work substantially longer hours per week.[20]

A further issue for minimum wages is whether they should be region-specific (Arango & Flórez, 2021). Poverty lines in Jordan are national, but in Tunisia poverty lines vary for rural, suburban, and urban areas, reflecting variation in cost of living. Designing minimum wages to reflect local cost of living has trade-offs; higher minimum wages in more costly areas may help ensure basic needs are met. However, they may also disincentivize hiring these locations, while incentivizing hiring (but at lower wages) in areas with lower cost of living. In Tunisia this could, potentially, help the struggling inland region relative to the better-off coast (Assaad, Ghazouani, & Krafft, 2018), but there are distinct trade-offs with this, and all, minimum wage design decisions. Future research will need to carefully assess these aspects of wage policy design.

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Competing interests

None.

Availability of data and material

The Tunisia Labor Market Panel Survey and Jordan Labor Market Panel Survey are available from the Economic Research Forum at www.erfdataportal.com. Do files for replication will be provided at the corresponding author's website.

[1] The SMIG amounts to 429 Tunisian Dinars (TD) per month in 2020 for a work week of 48 hours per week and 366 TD for a work week of 40 hours per week (Tunisia Central Bank, 2021). The SMAG is fixed per day and amounts to 16.5 TD as of 2020 (Tunisia Central Bank, 2021).

[2] For comparative purposes, we show the SMAG for a five-day work week in monthly terms.

[3] Includes the most recent available year for each country for all countries with data.

[4] Data are publicly available from the Economic Research Forum at www.erfdataportal.com. Replication files (Stata .do files) will be made available on the corresponding author's website.

[5] The minimum wage in 2010 was 150 JD for Jordanians. Non-Jordanians do not have a minimum wage in 2010, so are excluded from minimum wage analyses. The minimum wage in 2016 in Jordan was 190 JD for Jordanians and 150 JD for non-Jordanians. The 2017 minimum wage, which was increased to 220 JD for Jordanians and remained 150 JD for non-Jordanians, was passed on February 8, 2017 (Malkawi, 2017). We therefore apply the 2016 minimum wage for visit dates on or before February 8, 2017, and the 2017 minimum wage for visit dates after February 8, 2017. We also use the 110 JD minimum wage for clothing and domestic work industries, which applied throughout the period.

[6] The minimum wage at the start of 2014 for Tunisia was 275.6 TD for the SMIG (40 hours per week), 320 TD for the SMIG (48 hours per week), and 11.6 TD per day for the SMAG. A new minimum wage was passed on June 23, 2021 in 2014 for Tunisia (Amara, 2014) and was 300.7 TD for the SMIG (40 hours per week), 348.1 TD for the SMIG (48 hours per week), and 12.3 TD per day for the SMAG.

[7] We use the higher of the two poverty lines for defining poverty wages.

[8] After these adjustments, the living wage in Jordan is 502 JD per month in 2016, 435 JD per month in 2010, and in Tunisia is 504 TD for rural areas, 572 TD for small and medium cities, and 634 TD for large cities.

[9] After these adjustments, the poverty wage in Jordan is 267 JD in 2016 and 231 JD in 2010. The poverty wage in Tunisia is 330 for large cities; 297 for small and medium cities; and 262 TD for rural areas.

[10] The median wage is 330 JD per month in Jordan in 2016, 264 JD per month in 2010, and 420 TD per month in Tunisia

[11] A proportion, e.g., 40%, 50%, or 60%, of median income is often used. However, we note that in both countries this would be well below the minimum wage and poverty wage, so prefer using the median wage as an anchoring point between these cut-offs and a living wage.

[12] In cases where dates that acted as inputs to this were don't know, the sample mean was used.

[13] In Jordan in 2010, the life history was not asked, precluding calculation of complete work experience. We therefore use the year of the first job to calculate work experience in 2010.

[14] The distinction between whether other workers have social insurance or not is not available in 2010.

[15] In 2010 this was not asked of public sector workers, and we assume that they are all in an establishment given their sector.

[16] In 2010 only technical skills were asked, not other skills nor required education.

[17] Not available for public sector firms in 2010, such firms were classified as 100+/don't know.

[18] Not available for the full sample in 2010, so not included.

[19] Minimum wage increases can also have complex productivity effects, potentially including increases in productivity (Mayneris, Poncet, & Zhang, 2018; Riley & Rosazza Bondibene, 2017).

[20] Authors' calculations based on JLMPS 2016.

References

Alhawarin, I., & Kreishan, F. (2017). Minimum Wage Compliance in the Private Sector: The Case of Wage and Salary Workers in Jordan. *Jordan Journal of Economic Sciences*, *4*(2), 185–207.

Amara, T. (2014, June 23). Tunisia to Raise Minimum Wage in Private Sector by 6 Pct -Chambers of Commerce. *Reuters*.

Andalón, M., & Pagés, C. (2009). Minimum Wages in Kenya. In R. Kanbur & J. Svejnar (Eds.), *Labor Markets and Economic Development* (pp. 236–268). New York. N.Y.: Routledge.

Angel-Urdinola, D. F., Nucifora, A., & Robalino, D. (2015). *Labor Policy to Promote Good Jobs in Tunisia*. *Directions in Development: Human Development*. Washington, D.C.: World Bank.

Anker, R. (2011). *Estimating a Living Wage: A Methodological Review*. *Conditions of Work and Employment Series No. 29*. Geneva, Switzerland.

Arango, L. E., & Flórez, L. A. (2021). Regional Labour Informality in Colombia and a Proposal for a Differential Minimum Wage. *Journal of Development Studies*, *57*(6), 1016–1037.

Assaad, R. (2014). Making Sense of Arab Labor Markets: The Enduring Legacy of Dualism. *IZA Journal of Labor & Development*, *3*(6), 1–25.

Assaad, R., Ghazouani, S., & Krafft, C. (2018). The Composition of Labor Supply and Unemployment in Tunisia. In R. Assaad & M. Boughzala (Eds.), *The Tunisian Labor Market in an Era of Transition* (pp. 1–38). Oxford, UK: Oxford University Press.

Assaad, R., Ghazouani, S., Krafft, C., & Rolando, D. J. (2016). Introducing the Tunisia Labor Market Panel Survey 2014. *IZA Journal of Labor & Development*, *5*(15), 1–21.

Assaad, R., & Krafft, C. (2023). Labour Market Dynamics and Youth Unemployment in the

Middle East and North Africa: Evidence from Egypt, Jordan, and Tunisia. *Labour*, *37*(4), 519–553.

Assaad, R., Krafft, C., & Keo, C. (2019). The Composition of Labor Supply and Its Evolution from 2010 to 2016 in Jordan. In C. Krafft & R. Assaad (Eds.), *The Jordanian Labor Market Between Fragility and Resilience* (pp. 11–42). Oxford, UK: Oxford University Press.

Assaad, R., Krafft, C., & Salemi, C. (2023). Socioeconomic Status and the Changing Nature of School-to-Work Transitions in Egypt, Jordan, and Tunisia. *ILR Review*, *76*(4), 697–723.

Assaad, R., & Salemi, C. (2019). The Structure of Employment and Job Creation in Jordan: 2010-2016. In C. Krafft & R. Assaad (Eds.), *The Jordanian Labor Market Between Fragility and Resilience* (pp. 27–51). Oxford, UK: Oxford University Press.

Badaoui, E., & Walsh, F. (2022). Productivity, Non-Compliance and the Minimum Wage. *Journal of Development Economics*, *155*, 102778.

Ben Chaabane, M. (2014). La Rémunération Des Salariés, 1989–2014. Tunis, Tunisia.

Bhorat, H., Kanbur, R., & Mayet, N. (2012). Estimating the Causal Effect of Enforcement on Minimum Wage Compliance: The Case of South Africa. *Review of Development Economics*, *16*(4), 608–623.

Bhorat, H., Kanbur, R., & Stanwix, B. (2017). Minimum Wages in Sub-Saharan Africa: A Primer. *World Bank Research Observer*, *32*(1), 21–74.

Blanchflower, D. G., Oswald, A. J., & Sanfey, P. (1996). Wages, Profits, and Rent-Sharing. *Quarterly Journal of Economics*, *111*(1), 227–251.

Blundell, R., & Macurdy, T. (1999). Labour Supply: A Review of Alternative Approaches. *Handbook of Labor Economics*, *3*, 1559–1695.

Campos-Vazquez, R. M., & Esquivel, G. (2022). The Effect of the Minimum Wage on Poverty:

Evidence from a Quasi-Experiment in Mexico. *Journal of Development Studies*, *59*(3), 360–380.

Cunningham, W. (2007). *Minimum Wages and Social Policy: Lessons from Developing Countries*. *Directions in Development: Human Development*. Washington, D.C.: World Bank.

Department of Statistics (Jordan). (2021). Poverty Indicators. Retrieved December 30, 2021 from http://jorinfo.dos.gov.jo/Databank/pxweb/en/Poverty/Poverty__Poverty-Indicators/

Devarajan, S., & Ianchovichina, E. (2018). A Broken Social Contract, Not High Inequality, Led to the Arab Spring. *Review of Income and Wealth*, *64*(S1), S5–S25.

Devereux, S., & Sabates-Wheeler, R. (2004). *Transformative Social Protection*. *IDS Working Paper No. 232*. Brighton, Sussex, England.

Dobbins, T., & Prowse, P. (Eds.). (2022). *The Living Wage: Advancing a Global Movement*. New York. N.Y.: Routledge.

El-Haddad, A. (2020). Redefining the Social Contract in the Wake of the Arab Spring: The Experiences of Egypt, Morocco and Tunisia. *World Development*, *127*(104774), 1–22.

El-Kogali, S. E. T., & Krafft, C. (Eds.). (2020). *Expectations and Aspirations: A New Framework for Education in the Middle East and North Africa*. Washington, DC: World Bank.

Fabo, B., & Belli, S. S. (2017). (Un)Beliveable Wages? An Analysis of Minimum Wage Policies in Europe from a Living Wage Perspective. *IZA Journal of Labor Policy*, *6*(1), 1–11.

Fafchamps, M., & Söderbom, M. (2006). Wages and Labor Management in African Manufacturing. *Journal of Human Resources*, *41*(2), 346–379.

Garnero, A. (2018). The Dog That Barks Doesn't Bite: Coverage and Compliance of Sectoral Minimum Wages in Italy. *IZA Journal of Labor Policy*, *7*(1), 1–31.

Ghazali, M. (2011). Trade Liberalization, Rent Sharing and Wage Inequality in Tunisia, 1998-

2002. *International Economics*, *125*(1), 5–39.

Gindling, T. H. (2018). Does Increasing the Minimum Wage Reduce Poverty in Developing Countries? *IZA World of Labor*, *30v2*, 1–10.

Global Living Wage Coalition. (2020). *Anker Living Wage Reference Value - Rural Tunisia 2020*.

Global Living Wage Coalition. (2021a). What Is a Living Wage? Retrieved December 7, 2021 from https://www.globallivingwage.org/about/what-is-a-living-wage/

Global Living Wage Coalition. (2021b). The Anker Methodology for Estimating a Living Wage. Retrieved December 7, 2021 from https://globallivingwage.org/about/anker-methodology/

Goraus-Tańska, K., & Lewandowski, P. (2019). Minimum Wage Violation in Central and Eastern Europe. *International Labour Review*, *158*(2), 297–336.

Guzi, M., Kahanec, M., & Kabina, T. (2016). *Codebook and Explanatory Note of the WageIndicator Cost-of-Living Survey and Living Wage Calculations*. Amsterdam: WageIndicator Foundation.

Hashemite Kingdom of Jordan. (2019). *National Social Protection Strategy 2019-2025*. Amman, Jordan: UNICEF.

Hellerstein, J. K., Neumark, D., & Troske, K. R. (1999). Wages, Productivity, and Worker Characteristics: Evidence from Plant-Level Production Functions and Wage Equations. *Journal of Labor Economics*, *17*(3), 409–446.

Hicks, J. (1963). *The Theory of Wages*. London, UK: Palgrave Macmillan.

ILO. (2022). Statistics on Wages. *ILOSTAT*. Retrieved May 16, 2022 from https://ilostat.ilo.org/topics/wages/

ILO, & ERF. (2021). *Regional Report on Jobs and Growth Report in North Africa 2020*. Geneva, Switzerland.

Institut National de la Statistique (INS). (2017). *Methodology of the Measurement of Poverty in Tunisia (French)*. Tunis, Tunisia.

Institut National de la Statistique (INS). (2021). Poverty Line in Tunisia. Retrieved from http://dataportal.ins.tn/fr/DataAnalysis?27jtngcZbUslVGoEBcHaw

International Labour Organization. (2018). *Care Work and Care Jobs for the Future of Decent Work*. Geneva.

International Labour Organization. (2020). *Global wage report 2020-21: Wages and minimum wages in the time of COVID-19*. Geneva.

International Labour Organization. (2022). *ILO Declaration on Social Justice for a Fair Globalization*. Geneva, Switzerland.

Islam, A. M., Moosa, D., & Saliola, F. (2022). *Jobs Undone: Reshaping the Role of Governments toward Markets and Workers in the Middle East and North Africa*. Washington, D.C.: World Bank.

Jordan Strategy Forum. (2020). The Minimum Wage in Jordan: Nominal & Productivity Enhancement. Amman, Jordan.

Kanbur, R., Ronconi, L., & Wedenoja, L. (2013). Labour Law Violations in Chile. *International Labour Review*, *152*(3–4), 432–444.

Krafft, C., & Assaad, R. (2021). Introducing the Jordan Labor Market Panel Survey 2016. *IZA Journal of Development and Migration*, *12*(08), 1–42.

Krafft, C., & Rizk, R. (2021). The Promise and Peril of Youth Entrepreneurship in MENA. *International Journal of Manpower*, *42*(8), 1500–1526.

Larbi, E., & El Almi, T. (2018). Étude Sur l'évolution Des Salaires Réels En Tunisie. La Marsa, Tunisia: Fredrich Ebert Stiftung.

Lemos, S. (2007). Minimum Wage Effects across the Private and Public Sectors in Brazil. *Journal of Development Studies*, *43*(4), 700–720.

Loewe, M., & Jawad, R. (2018). Introducing Social Protection in the Middle East and North Africa: Prospects for a New Social Contract? *International Social Security Review*, *71*(2), 3–18.

Malik, A., & Awadallah, B. (2013). The Economics of the Arab Spring. *World Development*, *45*, 296–313.

Malkawi, K. (2017, February 9). 'Raising Minimum Wage a Positive Step, but Disproportionate to Rise in Prices.' *Jordan Times*. Amman.

Mansoor, K., & O'Neill, D. (2021). Minimum Wage Compliance and Household Welfare: An Analysis of over 1500 Minimum Wages in India. *World Development*, *147*(105653), 1–19.

Mayneris, F., Poncet, S., & Zhang, T. (2018). Improving or Disappearing: Firm-Level Adjustments to Minimum Wages in China. *Journal of Development Economics*, *135*, 20–42.

Ministry of Labor (Jordan). (2021). Raising the Wage Limit to 260 Dinars as of 1-1-2021 (Arabic). Retrieved from https://web.archive.org/web/20210322123616/http://mol.gov.jo/ar/NewsDetails/رفع_الحد_للأجور_إلى_260_دينار_اعتباراً_من_112021

Mustafa, M. I. (2022). Minimum Wage Increase Deferred Due to COVID Crisis — Labour Ministry. *Jordan Times*. Amman, Jordan.

Neumark, D. (2018). Employment Effects of Minimum Wages: When Minimum Wages Are Introduced or Raised, Are There Fewer Jobs? *IZA World of Labor*, *6v2*, 1–10.

Neumark, D., & Corella, L. F. M. (2021). Do Minimum Wages Reduce Employment in Developing Countries? A Survey and Exploration of Conflicting Evidence. *World*

Development, *137*(105165), 1–23.

OAMDI. (2016). Labor Market Panel Surveys (LMPS). Version 2.0 of Licensed Data Files; TLMPS 2014. Egypt: Economic Research Forum (ERF).

OAMDI. (2018). Labor Market Panel Surveys (LMPS). Version 1.1 of Licensed Data Files; JLMPS 2016. Cairo, Egypt: Economic Research Forum.

Ozturk, O. (2009). *Employment Effects of Minimum Wages in Inflexible Labor Markets*. *MPRA Paper No. 16233*. Munich.

Qandah, A. (2020, January 7). Should the Minimum Wage Be Raised in Jordan? (Arabic). *Al-Ghad*.

Rani, U., Belser, P., Oelz, M., & Ranjbar, S. (2013). Minimum Wage Coverage and Compliance in Developing Countries. *International Labour Review*, *152*(3–4), 381–410.

Ravallion, M. (2020). On Measuring Global Poverty. *Annual Review of Economics*, *12*, 167–188.

Razzaz, S. (2017). *A Challenging Market Becomes More Challenging: Jordanian Workers, Migrant Workers, and Refugees*. Beirut: International Labour Organization.

Rijkers, B., Baghdadi, L., & Raballand, G. (2017). Political Connections and Tariff Evasion: Evidence from Tunisia. *World Bank Economic Review*, *31*(2), 459–482.

Riley, R., & Rosazza Bondibene, C. (2017). Raising the Standard: Minimum Wages and Firm Productivity. *Labour Economics*, *44*, 27–50.

Schüring, E., & Loewe, M. (Eds.). (2021). *Handbook on social protection systems*. Cheltenham, UK: Edward Elgar Publishing.

Strobl, E., & Walsh, F. (2003). Minimum Wages and Compliance: The Case of Trinidad and Tobago. *Economic Development and Cultural Change*, *51*(2), 427–450.

Tunisia Central Bank. (2021). *Annual Report 2020*. Tunis, Tunisia.

UNDP. (2014). *Human Development Report 2014: Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience*. New York, NY: UNDP.

UNDP. (2016). *Leaving No One behind: A Social Protection Primer for Practitioners*. New York. N.Y.

UNICEF, Centre de Recherches d'Etudies Sociales, & International Labour Organization. (2019). *Les Garanties Du Socle National de La Protection Sociale: Faisabilitie, Cout et Financement: Note d'Orientation (French)*.

WageIndicator Foundation. (2020). ARCHIVE - Living Wage Series - Jordan - September 2020 - In JOD , per Month. Retrieved December 7, 2021 from https://wageindicator.org/salary/living-wage/archive-no-index/jordan-living-wage-series-september-2020/living-wage-series-jordan-september-2020-in-jod-per-month

World Bank. (2013). *Jobs for Shared Prosperity: Time for Action in the Middle East and North Africa*. Washington, DC: World Bank.

World Bank. (2022). World Development Indicators. *World Bank Databank*. Retrieved January 6, 2022 from https://databank.worldbank.org/source/world-development-indicators#

Yellen, J. L. (1984). Efficiency Wage Models of Unemployment. *American Economic Review*, *74*(2), 200–205.

Table 1. Percentage of wage workers earning minimum, poverty, median, and living wages, by country and wave

	Jordan - 2010				Jordan - 2016				Tunisia				Sample size		
	% earn minimum wage	% earn poverty wage	% earn median wage	% earn living wage	% earn minimum wage	% earn poverty wage	% earn median wage	% earn living wage	% earn minimum wage	% earn poverty wage	% earn median wage	% earn living wage	Jordan - 2010	Jordan - 2016	Tunisia
Nationality															
Jordanian	90	67	53	13	91	79	63	11					4599	4789	
Syrian		71	55	21	74	31	16	6						162	
Egyptian		30	19	9	92	45	16	4						175	
Other Arab		43	31	12	91	65	49	13						202	
Other					95	52	19	0						23	
Age group															
15-19	55	20	10	3	72	50	35	1	31	39	3	2	212	175	60
20-24	88	53	36	7	88	66	40	5	57	68	23	12	748	768	141
25-29	92	65	48	8	91	70	53	7	70	78	42	24	972	1119	168
30-34	94	70	56	12	90	74	59	9	78	82	58	36	833	1075	203
35-39	93	72	59	15	93	67	50	8	80	83	58	38	716	780	214
40-44	92	66	54	16	93	69	49	15	72	75	57	33	505	575	197
45-49	95	72	62	28	89	63	48	9	79	81	63	34	295	438	190
50-54	95	78	66	29	88	74	55	22	83	85	60	28	164	249	164
55-59	92	68	60	27	96	61	45	16	80	85	64	35	98	100	89
60-64	87	66	60	39	91	86	64	25	56	55	24	18	41	47	29
65+	93	56	56	29	73	71	70	56	52	52	36	2	15	25	16
Sex															
Male	91	64	50	14	90	69	50	10	78	82	56	31	3701	4386	1091
Female	87	61	49	11	89	67	52	8	59	67	39	26	898	965	357
Marital status															
Single	85	53	38	9	88	63	44	7	63	70	37	19	1764	1706	484
Married	94	70	57	16	91	71	53	11	79	82	59	35	2835	3645	964
Education Level															
Illiterate	70	29	16	2	85	39	17	6	57	58	23	8	84	266	230
Read & Write	78	40	28	5	81	55	29	5	75	77	43	13	588	706	301
Basic Education	88	55	39	6	89	68	49	6	65	74	40	18	1559	1757	549
Secondary Educ	93	62	47	9	93	73	55	8	86	88	74	50	727	785	177
Post-Secondary	94	72	56	14	94	73	54	10	91	92	83	71	557	496	75
University	98	88	79	31	95	86	76	19	93	95	89	79	1084	1341	108
Urban/Rural															
Urban	90	64	51	15	90	68	50	10	75	79	55	31	3304	4140	672
Rural	93	63	47	5	91	73	54	8	68	75	40	24	1295	1211	800
Region															
Jordan-Middle	90	62	50	16	90	67	47	10					2256	2412	

	Jordan - 2010				Jordan - 2016				Tunisia				Sample size		
	% earn minimum wage	% earn poverty wage	% earn median wage	% earn living wage	% earn minimum wage	% earn poverty wage	% earn median wage	% earn living wage	% earn minimum wage	% earn poverty wage	% earn median wage	% earn living wage	Jordan - 2010	Jordan - 2016	Tunisia
Jordan-North	89	65	49	7	90	69	56	8					1530	1984	
Jordan-South	94	68	54	11	94	76	57	11					813	955	
Tunisia-North									79	85	58	29			428
Tunisia-North West									64	68	35	18			215
Tunisia-Center East									72	78	50	32			423
Tunisia-Center West									65	65	36	23			178
Tunisia-South East									76	79	58	38			162
Tunisia-South West									58	63	52	35			66
Occup. of prim. Job															
Managers and professionals	96	86	75	29	96	89	78	20	94	94	90	85	1036	1301	163
Technicians and associate professionals	97	79	63	19	96	85	70	16	89	95	83	56	363	361	64
Clerical support workers	97	67	52	14	98	85	66	10	73	80	69	31	489	366	66
Service and sales workers	92	62	47	6	92	63	43	3	67	78	47	22	1280	1536	205
Skilled agricultural, forestry and fishery workers	53	25	15	3	83	50	15	4	50	40	3	1	56	144	27
Craft and related trades workers	79	50	36	8	81	59	41	11	73	77	44	21	590	679	418
Plant and machine operators, and assemblers	92	57	39	7	90	71	50	11	82	90	63	21	437	467	125
Elementary occupations	74	26	15	2	82	48	27	1	58	62	22	8	348	437	378
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Social insurance in prim. Job															
Uninsured (in informal firm 2014/16)	74	38	27	9	85	52	31	7	61	63	31	11	1121	1931	589
Insured	97	76	61	15	96	85	70	12	86	91	70	46	3478	3320	639
Uninsured in a formal firm (2014/16)					94	80	66	16	60	70	38	21		95	227
Work contract in prim. job															
No contract	73	38	25	5	86	57	39	8	60	64	31	13	883	2312	738
Definite duration	94	64	52	16	90	61	45	7	67	76	40	16	1388	354	193
Indefinite duration	97	78	63	16	97	86	68	12	90	93	76	52	2328	2661	536
Regularity in prim. job															
Regular	92	64	51	13	94	72	53	9	73	80	54	31	4526	4930	1172
Irregular	17	7	5	0	56	33	24	18	71	64	34	17	73	421	300
Establishment in prim. job															

	Jordan - 2010				Jordan - 2016				Tunisia				Sample size		
	% earn minimum wage	% earn poverty wage	% earn median wage	% earn living wage	% earn minimum wage	% earn poverty wage	% earn median wage	% earn living wage	% earn minimum wage	% earn poverty wage	% earn median wage	% earn living wage	Jordan - 2010	Jordan - 2016	Tunisia
No	60	39	26	7	75	40	23	8	62	63	32	12	308	595	505
Yes	93	66	52	14	93	74	56	10	77	83	58	36	4291	4754	966
Level of education required for job															
No formal schooling					85	52	29	6	60	67	29	10		2088	789
Primary					81	69	55	12	74	79	50	15		91	280
Preparatory					95	80	63	5	72	84	37	18		351	44
Secondary					95	83	67	9	88	90	80	55		1215	172
University					96	90	79	18	95	95	90	80		1598	180
Primary job requires technical skill															
No	90	59	46	10	90	66	48	8	67	73	42	21	2711	4487	1024
Yes	92	70	56	18	93	82	68	17	84	86	68	45	1888	852	424
Primary job requires math or statistics															
Yes					92	78	63	12	82	86	68	48		2750	335
No					88	59	39	7	69	74	45	22		2601	1137
Primary job requires physical fitness															
Yes					92	69	52	9	71	77	49	25		3067	832
No					88	68	48	10	75	78	53	34		2284	640
Primary job requires computer skills															
Yes					96	89	76	20	92	92	86	67		1215	183
No					89	64	44	7	69	75	44	22		4136	1289
Primary job requires basic literacy															
Yes					93	79	63	12	83	86	69	45		3579	631
No					85	52	31	6	62	68	32	13		1772	841
Economic activity of prim. job															
Agriculture	44	22	15	6	82	49	15	5	59	47	13	5	87	171	163
Manufacturing & utilities	87	55	43	14	92	68	52	13	68	79	44	19	606	630	237
Construction	73	54	41	12	69	47	34	13	74	76	46	22	201	263	297
Wholesale & retail	81	45	33	12	86	61	40	11	52	59	33	8	403	521	80
Transp. & storage	93	67	55	17	84	65	53	19	81	91	69	24	263	194	40
Accomm. & food serv.	90	56	39	17	90	54	37	7	70	89	40	14	98	105	45
Other Services	95	72	57	13	95	78	61	8	78	83	68	48	2941	3407	374

	Jordan - 2010				Jordan - 2016			Tunisia				Sample size		
	% earn minimum wage	% earn poverty wage	% earn median wage	% earn living wage	% earn minimum wage	% earn poverty wage	% earn median wage	% earn living wage	% earn minimum wage	% earn poverty wage	% earn median wage	% earn living wage	Jordan - 2010	Jordan - 2016	Tunisia
Missing					89	33	20	5	78	82	56	35		60	236
Size of firm, prim. job															
1-4	71	35	24	7	85	46	22	6	57	64	35	14	786	887	407
5-9	82	55	40	15	86	59	42	12	67	72	38	18	210	373	158
10-24	88	60	44	19	85	72	56	11	79	76	46	29	207	822	150
25-49	89	60	52	18	92	78	62	10	79	77	55	36	199	767	103
50-99	95	68	57	28	95	84	65	16	75	81	61	33	176	415	105
100+/don't know	97	77	62	14	97	88	75	10	81	87	61	38	3021	2087	507
Percent. of female employees in prim. job															
None					88	60	40	8	66	71	40	16	815	2448	630
< 1/4					94	83	67	11	81	83	56	29	324	965	178
1/4 - 1/2					96	86	70	15	85	86	73	53	430	1136	183
>1/2					86	63	53	7	71	75	48	30	223	640	250
Do not know					96	87	68	10	74	83	56	37	2807	162	231
Sector															
Private	83	51	40	17	86	56	36	11	70	75	42	18	2100	2448	976
Public	98	80	64	9	97	91	76	8	79	82	68	49	2499	2903	481
Total	90	64	50	13	90	68	50	10	73	78	51	29	4599	5351	1472

Source: Authors' calculations based on JLMPS 2010, JLMPS 2016, and TLMPS 2014

Table 2. Logit model (odds ratios) for earning minimum, poverty, median, and living wages, by country and wave

	Jordan (2010) min.	Jordan -(2010) pov.	Jordan -(2010) med.	- Jordan (2010) - liv.	Jordan (2016) min.	Jordan -(2016) pov.	Jordan -(2016) med.	- Jordan (2016) - liv.	Tunisia min.	-Tunisia pov.	-Tunisia med.	-Tunisia - liv.
Nationality (Jor. omit)												
Syrian		3.879	3.712	7.229	2.625*	0.564	0.483	1.148				
		(3.281)	(3.117)	(7.823)	(1.115)	(0.177)	(0.192)	(0.719)				
Egyptian		0.559	0.489	1.364	7.100***	1.097	0.617	0.674				
		(0.185)	(0.185)	(0.732)	(2.911)	(0.303)	(0.207)	(0.368)				
Other Arab		0.687	0.595	0.450	5.264**	1.243	1.340	1.189				
		(0.188)	(0.182)	(0.211)	(2.800)	(0.317)	(0.377)	(0.646)				
Other					15.935**	2.347	2.127					
					(16.191)	(1.653)	(2.486)					
Age group (15-19 omit.)												
20-24	4.410***	2.912***	2.634***	0.772	2.909*	1.861	0.851	3.668	3.088*	3.360**	3.406	1.055
	(1.101)	(0.680)	(0.747)	(0.464)	(1.250)	(0.744)	(0.347)	(3.003)	(1.365)	(1.490)	(2.255)	(0.763)
25-29	3.694***	2.286**	1.897*	0.494	1.768	1.145	1.000	2.940	3.728**	3.275*	5.238*	0.763
	(1.100)	(0.620)	(0.577)	(0.304)	(0.789)	(0.426)	(0.440)	(2.233)	(1.890)	(1.525)	(3.723)	(0.585)
30-34	3.520**	2.140*	1.900	0.828	1.250	1.534	1.484	3.828	6.099***	5.161**	18.971***	1.381
	(1.423)	(0.643)	(0.640)	(0.519)	(0.604)	(0.662)	(0.703)	(3.097)	(3.293)	(2.778)	(14.992)	(1.163)
35-39	2.628	1.917	1.578	0.758	2.740	1.176	1.146	2.872	6.251**	6.315**	16.684***	1.657
	(1.302)	(0.649)	(0.580)	(0.519)	(1.417)	(0.560)	(0.578)	(2.433)	(3.657)	(3.987)	(13.449)	(1.444)
40-44	2.185	1.385	1.256	0.805	3.002*	1.376	1.042	5.464*	3.243	4.356*	27.045***	0.929
	(1.255)	(0.509)	(0.498)	(0.585)	(1.641)	(0.681)	(0.536)	(4.535)	(2.086)	(2.943)	(22.765)	(0.830)
45-49	4.167*	1.820	1.761	1.786	1.576	1.422	1.343	3.878	6.118**	7.351**	46.891***	1.285
	(2.887)	(0.756)	(0.757)	(1.399)	(0.938)	(0.791)	(0.762)	(3.177)	(3.847)	(4.612)	(38.357)	(1.116)
50-54	5.404	4.209*	3.404*	1.701	0.839	1.148	0.817	7.206*	6.285**	8.032**	17.722***	0.844
	(5.467)	(2.571)	(1.923)	(1.436)	(0.519)	(0.659)	(0.469)	(6.074)	(4.356)	(5.884)	(14.194)	(0.787)
55-59	2.581	3.181	3.725*	1.350	6.700	1.034	0.760	6.552*	6.359**	10.613**	26.015***	1.224
	(2.388)	(1.941)	(2.327)	(1.246)	(7.131)	(0.666)	(0.398)	(5.880)	(4.361)	(8.136)	(21.033)	(1.161)
60-64	2.863	9.312**	10.272**	4.066	3.626	5.528*	1.725	7.581*	5.327	5.634	5.276	1.175
	(3.707)	(7.051)	(7.534)	(4.001)	(3.315)	(4.309)	(1.400)	(7.281)	(5.667)	(6.332)	(5.166)	(1.477)
65+	18.020	18.417**	47.063***	1.921	0.502	2.004	4.800	75.465***	4.212	4.803	80.921***	0.219
	(32.758)	(18.629)	(51.769)	(2.714)	(0.519)	(1.831)	(4.306)	(82.299)	(4.403)	(4.922)	(104.892)	(0.283)
Sex (male omit.)												
Female	1.013	0.406	0.695	4.573	8.231*	0.178*	0.230	0.334	0.057***	0.048***	0.105	0.474
	(0.858)	(0.304)	(0.588)	(6.695)	(8.817)	(0.139)	(0.213)	(0.469)	(0.038)	(0.034)	(0.133)	(0.345)
Ever married (single omit.)												

	Jordan (2010) min.	Jordan -(2010) pov.	Jordan -(2010) med.	- Jordan (2010) - liv.	Jordan (2016) min.	Jordan -(2016) pov.	Jordan -(2016) med.	- Jordan (2016) - liv.	Tunisia min.	-Tunisia pov.	-Tunisia med.	-Tunisia - liv.
Married	1.676*	1.252	1.341*	0.842	1.770	1.241	0.965	0.857	0.672	0.442	0.749	2.053
	(0.373)	(0.168)	(0.180)	(0.214)	(0.535)	(0.358)	(0.195)	(0.261)	(0.266)	(0.185)	(0.260)	(0.754)
Sex and ever married int.												
Female # Married	0.662	1.059	0.982	0.931	1.069	1.717	1.501	0.404	3.568*	6.338***	1.017	0.412
	(0.247)	(0.247)	(0.236)	(0.356)	(0.436)	(0.685)	(0.460)	(0.193)	(1.850)	(3.413)	(0.602)	(0.278)
Education (illit. omit.)												
Read & Write	1.263	0.878	1.349	3.878	1.432	1.896	1.080	0.294	1.996*	1.451	1.451	1.282
	(0.661)	(0.312)	(0.547)	(3.346)	(0.496)	(0.667)	(0.437)	(0.192)	(0.654)	(0.426)	(0.475)	(0.509)
Basic Education	1.902	1.254	1.757	5.194	1.987*	1.466	1.518	0.441	0.929	1.257	2.025*	2.100
	(0.971)	(0.442)	(0.719)	(4.503)	(0.687)	(0.516)	(0.628)	(0.270)	(0.319)	(0.408)	(0.688)	(0.860)
Secondary Educ	2.306	1.721	2.423*	7.974*	2.276*	1.792	2.034	0.623	2.885	1.625	6.516***	6.212**
	(1.284)	(0.641)	(1.032)	(6.872)	(0.882)	(0.684)	(0.914)	(0.375)	(2.060)	(0.948)	(3.455)	(3.615)
Post-Secondary	3.176	2.178*	2.972**	10.021**	4.570**	2.056	1.404	0.612	0.857	2.144	1.780	13.446**
	(2.038)	(0.839)	(1.254)	(8.730)	(2.465)	(1.195)	(0.754)	(0.481)	(0.979)	(2.415)	(1.554)	(10.625)
University	8.970**	7.204***	10.192***	40.611***	0.942	1.104	1.596	1.150	3.844	12.095	3.171	14.064***
	(6.815)	(3.039)	(4.675)	(34.954)	(0.569)	(0.643)	(0.844)	(0.841)	(6.549)	(17.508)	(2.943)	(10.716)
Sex and educ. int.												
Female # Read & Write	0.394	0.475	0.540	0.041	0.068*	0.321	0.765	11.534	0.836	0.926	0.934	
	(0.399)	(0.515)	(0.632)	(0.074)	(0.082)	(0.284)	(0.784)	(15.998)	(0.574)	(0.686)	(1.189)	
Female # Basic Education	0.221	0.695	0.401	0.046	0.080*	1.089	0.496	2.193	0.846	1.901	1.071	2.896
	(0.179)	(0.595)	(0.415)	(0.077)	(0.088)	(0.833)	(0.466)	(3.262)	(0.564)	(1.271)	(1.367)	(2.365)
Female # Secondary Educ	0.363	0.789	0.514	0.089	0.074*	1.824	1.290	2.834	0.716	1.780	0.662	0.866
	(0.357)	(0.616)	(0.444)	(0.139)	(0.086)	(1.411)	(1.184)	(4.065)	(0.670)	(1.571)	(0.906)	(0.714)
Female # Post-Secondary	0.268	0.710	0.559	0.089	0.011***	0.785	0.961	0.612	8.450*	12.730*	8.867	0.619
	(0.248)	(0.564)	(0.463)	(0.136)	(0.013)	(0.727)	(0.934)	(0.910)	(8.823)	(15.499)	(13.052)	(0.637)
Female # University	0.614	0.991	0.777	0.093	0.052**	1.802	1.555	3.349	0.742	1.123	2.686	
	(0.589)	(0.763)	(0.642)	(0.137)	(0.057)	(1.415)	(1.407)	(4.565)	(1.504)	(1.999)	(4.224)	
Work experience												
Work experience	1.086*	1.174***	1.200***	1.133***	1.013	1.069**	1.074**	1.169***	1.038	1.057*	1.011	1.030
	(0.040)	(0.028)	(0.025)	(0.036)	(0.042)	(0.027)	(0.024)	(0.040)	(0.028)	(0.029)	(0.040)	(0.039)
Work experience # Work experience	0.998	0.997***	0.996***	0.998***	1.000	0.998*	0.999*	0.997***	0.999	0.999	1.000	1.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Urban (rural omit.)												
Urban	1.166	1.553***	1.404***	2.098***	1.164	1.004	1.048	1.080	1.190	0.660	1.200	0.611*
	(0.231)	(0.157)	(0.139)	(0.381)	(0.329)	(0.193)	(0.237)	(0.402)	(0.279)	(0.151)	(0.263)	(0.136)
Region (capitol omit.)												

	Jordan (2010) - min.	Jordan -(2010) pov.	Jordan -(2010) med.	- Jordan (2010) - liv.	Jordan (2016) - min.	Jordan -(2016) pov.	Jordan -(2016) med.	- Jordan (2016) - liv.	Tunisia - min.	Tunisia -pov.	Tunisia -med.	Tunisia - liv.
Jordan-North	0.502***	0.807	0.791*	0.530***	0.917	0.837	1.233	1.117				
	(0.082)	(0.090)	(0.077)	(0.088)	(0.233)	(0.140)	(0.205)	(0.263)				
Jordan-South	0.693	0.783	0.888	1.311	1.189	0.968	0.978	1.551				
	(0.202)	(0.116)	(0.110)	(0.296)	(0.370)	(0.210)	(0.187)	(0.488)				
Tunisia-North West									0.415*	0.358**	0.266***	0.431*
									(0.164)	(0.128)	(0.092)	(0.178)
Tunisia-Center East									0.968	0.806	0.927	1.195
									(0.302)	(0.259)	(0.210)	(0.384)
Tunisia-Center West									0.565	0.431*	0.299**	0.601
									(0.227)	(0.175)	(0.110)	(0.244)
Tunisia-South East									0.795	0.783	0.866	1.434
									(0.428)	(0.420)	(0.321)	(0.541)
Tunisia-South West									0.279*	0.172**	0.817	1.860
									(0.168)	(0.095)	(0.394)	(0.924)
Occupation (prof./man. omit.)												
Technicians and associate professionals	3.357**	1.229	1.095	1.174	0.626	0.608	0.760	1.108	0.426	1.017	0.462	0.301
	(1.515)	(0.295)	(0.234)	(0.285)	(0.347)	(0.227)	(0.236)	(0.390)	(0.274)	(0.671)	(0.255)	(0.185)
Clerical support workers	4.393**	0.659	0.783	0.956	0.977	0.611	0.595	0.700	0.199*	0.395	0.247**	0.076***
	(2.260)	(0.161)	(0.166)	(0.197)	(0.492)	(0.265)	(0.203)	(0.271)	(0.140)	(0.308)	(0.121)	(0.042)
Service and sales workers	1.584	1.035	1.242	0.641	0.404*	0.381*	0.562	0.325*	1.059	0.964	0.530	0.303*
	(0.676)	(0.251)	(0.248)	(0.148)	(0.181)	(0.154)	(0.176)	(0.145)	(0.621)	(0.602)	(0.240)	(0.147)
Skilled agricultural, forestry and fishery workers	1.484	0.427	0.420	0.315	0.489	0.414	0.430	0.185*	1.055	0.452	0.036**	0.049*
	(1.325)	(0.216)	(0.244)	(0.342)	(0.536)	(0.265)	(0.300)	(0.157)	(0.896)	(0.360)	(0.043)	(0.063)
Craft and related trades workers	1.379	0.634	0.714	0.778	0.301*	0.661	0.605	0.721	1.841	0.940	0.441	0.557
	(0.626)	(0.168)	(0.171)	(0.234)	(0.159)	(0.294)	(0.200)	(0.298)	(1.276)	(0.650)	(0.284)	(0.384)
Plant and machine operators and assemblers	3.719**	0.577*	0.490**	0.388*	0.765	0.591	0.537	0.886	1.746	1.608	0.865	0.624
	(1.888)	(0.153)	(0.118)	(0.159)	(0.467)	(0.282)	(0.186)	(0.411)	(1.351)	(1.216)	(0.506)	(0.396)
Elementary occupations	1.127	0.267***	0.276***	0.265**	0.226**	0.287*	0.303**	0.106***	1.297	0.683	0.173***	0.242**
	(0.531)	(0.079)	(0.081)	(0.127)	(0.110)	(0.140)	(0.125)	(0.062)	(0.849)	(0.455)	(0.087)	(0.128)

	Jordan (2010) min.	Jordan -(2010) pov.	Jordan -(2010) med.	- Jordan (2010) - liv.	Jordan (2016) min.	Jordan -(2016) pov.	Jordan -(2016) med.	- Jordan (2016) - liv.	Tunisia min.	-Tunisia pov.	-Tunisia med.	-Tunisia - liv.
Social insurance (uninsured in informal firm omit.)												
Insured	3.132***	2.124***	1.682**	0.732	1.435	1.107	1.142	1.430	2.464**	3.510***	1.999*	2.629**
	(0.900)	(0.363)	(0.278)	(0.173)	(0.281)	(0.185)	(0.153)	(0.377)	(0.796)	(1.039)	(0.565)	(0.854)
Uninsured in a formal firm					0.701	0.671	0.761	1.786	1.275	1.508	1.182	1.706
					(0.360)	(0.234)	(0.238)	(0.898)	(0.402)	(0.402)	(0.359)	(0.621)
Contract (none omit.)												
Definite duration	0.705	0.606**	0.898	2.574**	0.870	0.707	0.606	0.698	0.876	0.543	0.532	0.145***
	(0.172)	(0.107)	(0.165)	(0.806)	(0.270)	(0.193)	(0.171)	(0.409)	(0.324)	(0.200)	(0.265)	(0.083)
Indefinite duration	1.582	1.182	1.367	3.226***	1.819**	1.769**	1.062	1.256	3.000**	2.365*	2.977***	2.137*
	(0.403)	(0.198)	(0.231)	(0.886)	(0.393)	(0.333)	(0.161)	(0.290)	(1.078)	(0.865)	(0.926)	(0.809)
Regularity (irregular omit.)												
Regular	13.936***	13.182***	8.686***		5.185***	2.026*	1.251	0.163***	0.270***	0.552	0.489	0.360*
	(5.831)	(7.208)	(4.941)		(1.398)	(0.600)	(0.428)	(0.076)	(0.106)	(0.190)	(0.199)	(0.164)
Work in est. (outside omit.)												
Yes	3.478***	0.670	0.702	0.541	2.108**	1.254	1.177	1.637	1.406	1.891	1.104	1.296
	(1.051)	(0.162)	(0.189)	(0.220)	(0.610)	(0.321)	(0.363)	(0.709)	(0.402)	(0.616)	(0.326)	(0.595)
Required education (none omit.)												
Primary					0.519	1.232	1.744	1.220	1.356	0.931	1.274	1.466
					(0.246)	(0.466)	(0.608)	(0.758)	(0.474)	(0.307)	(0.432)	(0.520)
Preparatory					1.699	1.248	1.277	1.276	3.018	2.622	1.792	3.945*
					(0.823)	(0.394)	(0.259)	(0.573)	(1.834)	(1.528)	(0.893)	(2.534)
Secondary					1.498	1.563*	1.470*	1.531	7.030***	2.660	3.125**	6.257***
					(0.463)	(0.350)	(0.241)	(0.499)	(3.782)	(1.467)	(1.228)	(2.827)
University					5.036***	4.961***	3.772***	1.542	9.782**	1.934	7.175**	13.448***
					(2.316)	(1.963)	(1.224)	(0.892)	(7.838)	(1.477)	(4.518)	(9.129)
Job req. tech skills (no omit.)												
Yes	1.520*	1.741***	1.478***	1.518**	1.192	1.307	1.117	1.392	1.471	1.334	1.852*	2.021**
	(0.284)	(0.179)	(0.145)	(0.206)	(0.346)	(0.258)	(0.190)	(0.270)	(0.372)	(0.317)	(0.524)	(0.525)
Job req. lit. skill (no omit.)												
Yes					1.995*	1.471	1.181	1.133	2.194*	1.663	1.384	0.891

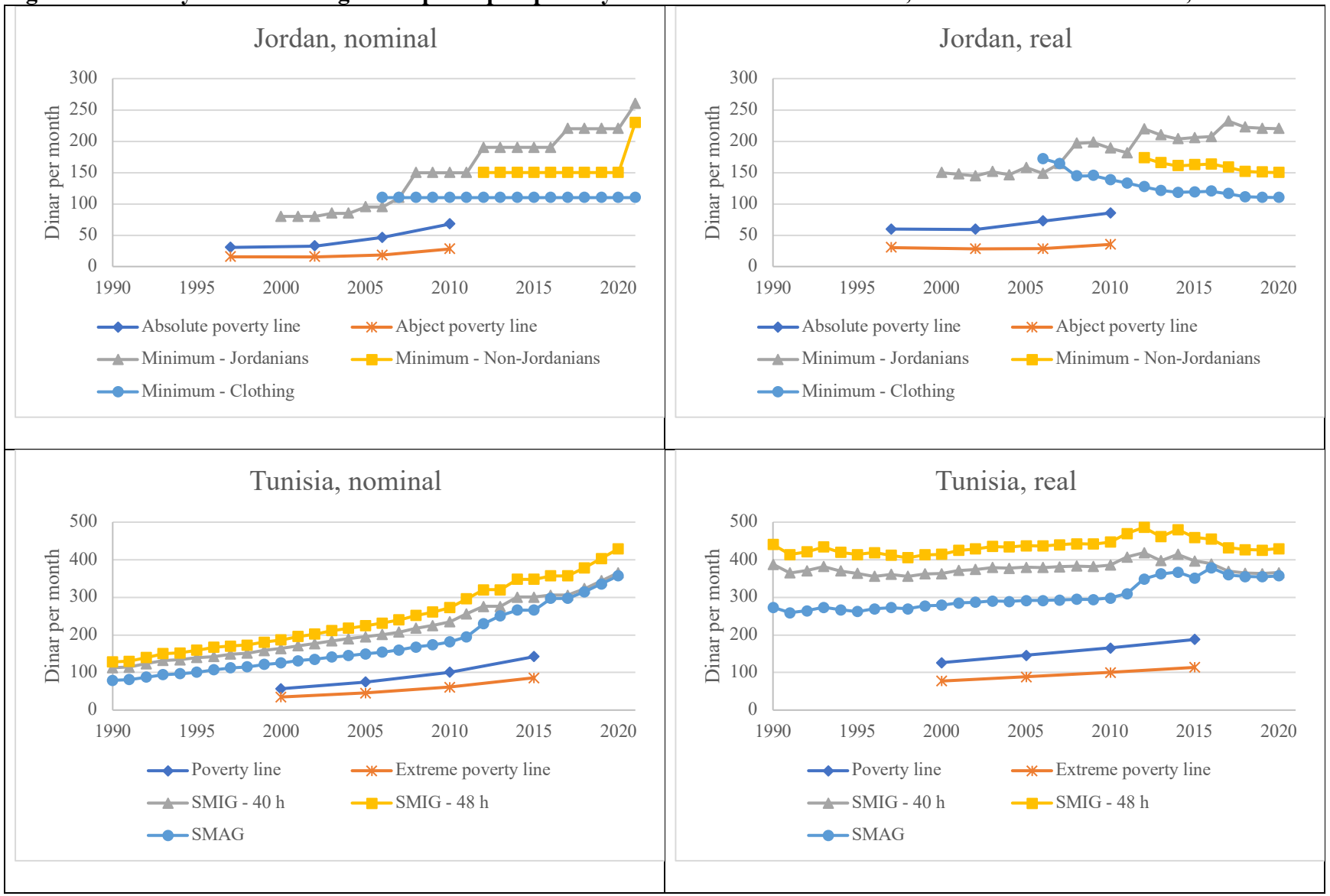
	Jordan (2010) min.	Jordan -(2010) pov.	Jordan -(2010) med.	- Jordan (2010) - liv.	Jordan (2016) min.	Jordan -(2016) pov.	Jordan -(2016) med.	- Jordan (2016) - liv.	Tunisia min.	-Tunisia pov.	-Tunisia med.	-Tunisia liv.
					(0.590)	(0.317)	(0.227)	(0.333)	(0.672)	(0.510)	(0.391)	(0.304)
Job req. math skill (no omit.)												
Yes					0.522	0.933	0.987	0.847	0.985	1.088	0.761	0.724
					(0.179)	(0.182)	(0.167)	(0.216)	(0.278)	(0.302)	(0.179)	(0.176)
Job req. fitness skill (no omit.)												
Yes					1.676**	0.878	1.072	1.035	0.795	1.141	1.145	0.880
					(0.321)	(0.146)	(0.153)	(0.177)	(0.193)	(0.247)	(0.265)	(0.223)
Job req. computer skill (no omit.)												
Yes					1.136	1.232	1.129	1.739**	1.004	0.927	2.038	2.594*
					(0.369)	(0.245)	(0.179)	(0.329)	(0.488)	(0.491)	(0.765)	(1.186)
Industry (agric. omit.)												
Manufacturing & utilities	1.094	0.788	0.766	0.389	2.669	0.813	2.471	0.588	0.402*	1.605	1.814	1.050
	(0.665)	(0.326)	(0.369)	(0.323)	(2.457)	(0.344)	(1.331)	(0.413)	(0.172)	(0.732)	(0.969)	(0.665)
Construction	2.773	1.402	1.326	0.309	1.027	0.559	1.861	0.494	0.900	3.499*	4.665**	4.159
	(1.737)	(0.595)	(0.671)	(0.264)	(1.039)	(0.276)	(1.053)	(0.389)	(0.490)	(1.746)	(2.738)	(3.117)
Wholesale & retail	1.375	0.753	0.671	0.564	1.296	0.769	1.625	0.475	0.309*	0.841	1.477	0.303
	(0.852)	(0.309)	(0.325)	(0.465)	(1.181)	(0.329)	(0.905)	(0.325)	(0.167)	(0.393)	(0.958)	(0.264)
Transp. & storage	2.479	1.229	1.454	0.703	1.237	0.647	2.396	0.652	1.269	5.364*	3.524	0.893
	(1.632)	(0.516)	(0.708)	(0.593)	(1.201)	(0.340)	(1.409)	(0.477)	(0.888)	(4.273)	(2.583)	(0.782)
Accomm. & food serv.	1.771	0.747	0.517	0.371	1.891	0.618	1.535	0.713	0.755	9.363***	1.470	0.559
	(1.248)	(0.355)	(0.270)	(0.324)	(1.846)	(0.386)	(1.151)	(0.582)	(0.439)	(5.983)	(0.962)	(0.427)
Other Services	1.018	0.608	0.593	0.408	1.287	0.677	1.349	0.414	0.679	2.417*	2.015	1.318
	(0.649)	(0.245)	(0.282)	(0.337)	(1.159)	(0.267)	(0.723)	(0.280)	(0.317)	(0.890)	(1.118)	(0.707)
Missing						1.229	0.079**		0.602	2.193*	1.612	1.327
						(1.471)	(0.075)		(0.269)	(0.849)	(0.960)	(0.853)
Firm size (1-4 workers omit.)												
5-9	1.018	2.404***	2.140**	1.654	0.978	1.204	2.111**	1.630	1.034	1.154	0.749	0.831
	(0.282)	(0.570)	(0.587)	(0.729)	(0.315)	(0.306)	(0.549)	(0.639)	(0.401)	(0.400)	(0.288)	(0.299)
10-24	0.964	1.742*	1.494	1.523	0.790	1.258	1.696*	0.949	2.924**	1.795	1.658	1.633
	(0.286)	(0.413)	(0.366)	(0.594)	(0.291)	(0.314)	(0.398)	(0.348)	(1.009)	(0.554)	(0.620)	(0.678)
25-49	1.188	1.720*	2.112**	1.249	0.890	1.278	1.783**	0.801	2.609*	1.817	1.740	1.460
	(0.430)	(0.367)	(0.516)	(0.492)	(0.291)	(0.312)	(0.392)	(0.239)	(1.229)	(0.797)	(0.792)	(0.556)
50-99	2.167	2.272**	2.372***	2.573*	1.326	1.661	1.698*	1.472	1.856	1.646	2.009	1.754

	Jordan (2010) -(2010) min.	Jordan -(2010) pov.	Jordan -(2010) med.	- Jordan (2010) - liv.	Jordan (2016) -(2016) min.	Jordan -(2016) pov.	Jordan -(2016) med.	- Jordan (2016) - liv.	Tunisia -Tunisia min.	-Tunisia pov.	-Tunisia med.	-Tunisia - liv.
	(0.979)	(0.593)	(0.585)	(1.068)	(0.543)	(0.486)	(0.433)	(0.531)	(0.834)	(0.736)	(0.886)	(0.855)
100+/don't know	1.101	2.141***	2.437***	2.904**	2.149	2.169**	3.152***	1.158	4.784***	3.860***	2.333*	1.842
	(0.407)	(0.460)	(0.529)	(0.972)	(0.903)	(0.532)	(0.691)	(0.370)	(1.733)	(1.336)	(0.794)	(0.716)
% firm female (none omit.)												
< 1/4					0.674	1.009	0.980	0.862	1.666	1.262	0.733	0.570
					(0.242)	(0.199)	(0.155)	(0.206)	(0.641)	(0.484)	(0.227)	(0.221)
1/4 - 1/2					0.984	0.849	0.909	1.044	2.311	1.756	1.177	1.223
					(0.447)	(0.200)	(0.151)	(0.230)	(1.016)	(0.676)	(0.512)	(0.590)
>1/2					0.250**	0.235***	0.523**	0.546	1.965	1.834	1.019	0.733
					(0.123)	(0.077)	(0.126)	(0.197)	(0.830)	(0.703)	(0.487)	(0.351)
Do not know					0.555	1.016	0.742	0.837	0.678	1.717	0.610	0.892
					(0.325)	(0.366)	(0.233)	(0.334)	(0.273)	(0.835)	(0.230)	(0.383)
Firm sector (private omit.)												
Public	4.930***	2.305***	1.246	0.160***	2.350**	3.828***	2.545***	0.459*	0.206***	0.199***	0.669	1.294
	(1.798)	(0.427)	(0.211)	(0.034)	(0.727)	(0.754)	(0.412)	(0.143)	(0.074)	(0.065)	(0.232)	(0.545)
N (Observations)	4599	4889	4889	4811	5236	5242	5242	5215	1284	1387	1387	1299
Pseudo R-squared	.3859442	.2902164	.2538255	.2897988	.3167164	.2946312	.2995669	.2293826	.3633351	.3637216	.4642772	.5058279

Source: Authors' calculations based on JLMPS 2010, JLMPS 2016 and TLMPS 2014

Notes: *p<0.05; **p<0.01; ***p<0.001. Standard errors in parentheses. Standard errors clustered at the PSU level.

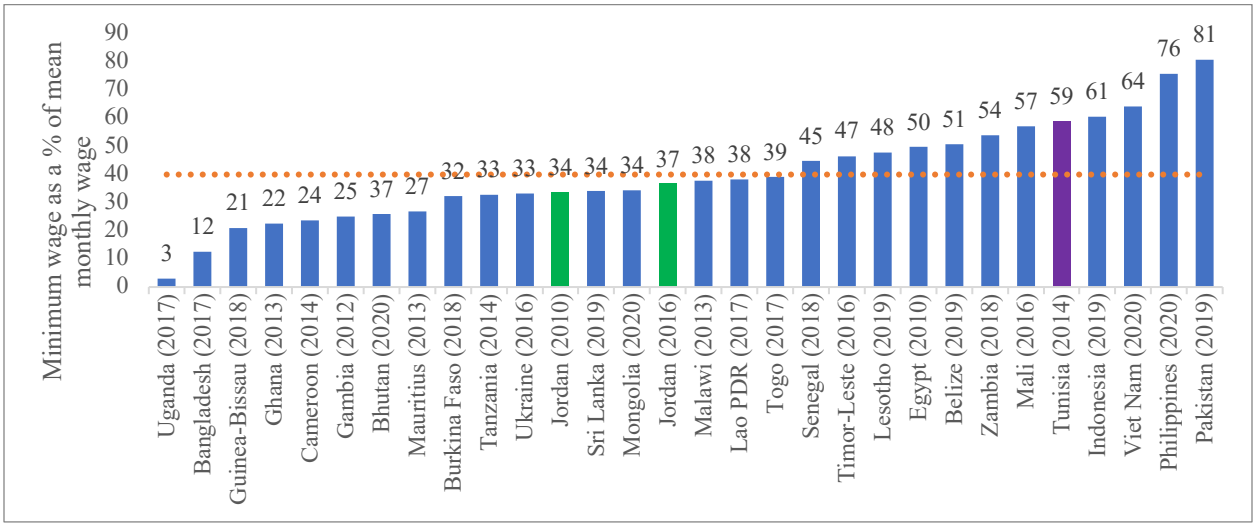
Figure 1. Monthly minimum wages and per capita poverty lines in Jordan and Tunisia, in real and nominal dinar, 1989-2021



Source: Authors' construction based on Ben Chaabane (2014), Central Bank of Tunisia (2021), Ministry of Labor (Jordan) (2021), Qandah (2020), Institut National de la Statistique (INS) (2021), Department of Statistics (Jordan) (2021), and World Bank (2022).

Notes: For comparative purposes, we show the SMAG for a five-day work week in monthly terms.

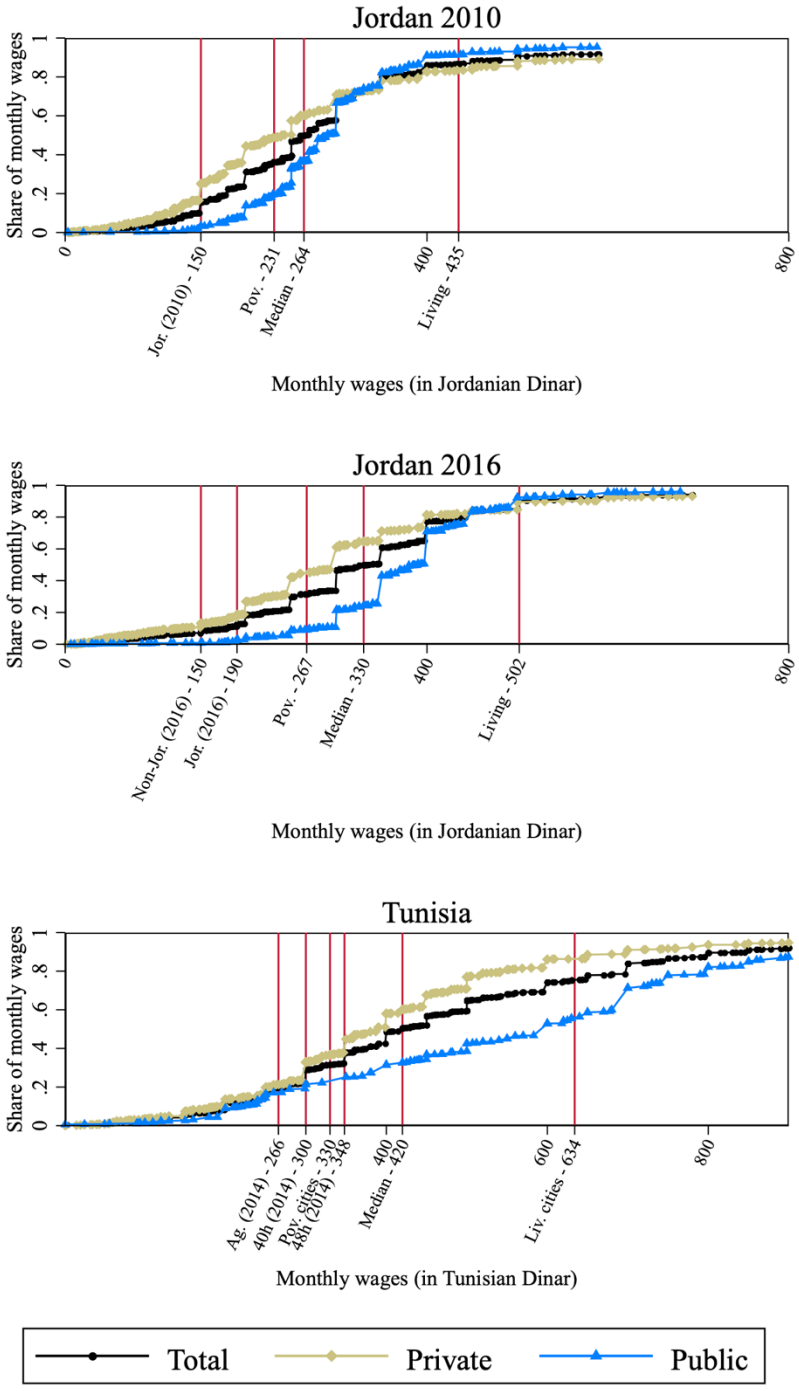
Figure 2. Minimum wage as a percentage of the mean monthly wage in low income and lower-middle income countries



Source: Authors' construction based on ILOSTAT (ILO, 2022) minimum wages and mean monthly wages, most recent year available, all low and lower-middle income countries with data available. For Jordan and Tunisia, mean monthly wages based on JLMPS 2010 and 2016 and TLMPS 2014.

Notes: Dotted line denotes mean, averaging across countries.

Figure 3. Cumulative distribution functions of monthly wages (in Jordanian and Tunisian dinar) and minimum, poverty, median, and living wage cut-offs, by country and wave

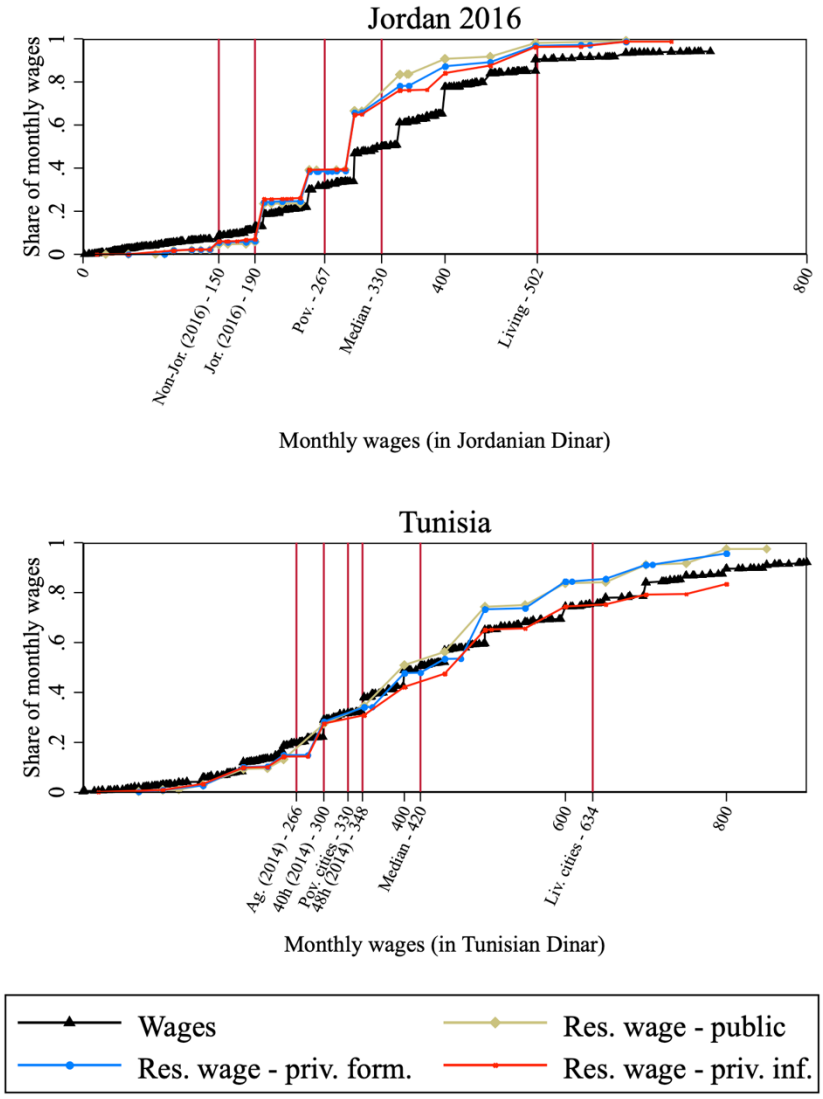


Source: Authors' calculations based on JLMPS 2010, JLMPS 2016 and TLMPS 2014

Notes: Visualizing through 95th percentile of unweighted wage distribution.

Appendix

Figure 4. Cumulative distribution functions of monthly wages (employed) and reservation wages (unemployed) (in Jordanian and Tunisian dinar) and minimum, poverty, median, and living wage cut-offs, by country and wave



Source: Authors' calculations based on JLMPS 2016 and TLMPS 2014

Notes: Visualizing through 95th percentile of unweighted wage distribution. Reservation wages not available in Jordan in 2010.

Table 3. Percentage of wage workers (monthly wages), unemployed (average reservation wages), and combination earning minimum, poverty, median, and living wages, by country and wave

	Jordan 2016			Tunisia		
	Wage workers	Unemployed	Combined	Wage workers	Unemployed	Combined
Minimum	90	90	90	73	76	74
Poverty	68	62	67	78	87	80
Median	50	35	47	51	58	53
Living	10	3	8	29	31	30

Source: Authors' calculations based on JLMPS 2016 and TLMPS 2014

Notes: Reservation wages averaged across public, private formal, private informal for the unemployed. Reservation wages not available in Jordan in 2010. In Tunisia, the 40 hour minimum wage is used for unemployed workers as their hours are zero.

Table 4. Logit model (odds ratios) for earning minimum wages, by country and wave, private sector only

	Jordan (2010) - min. priv.	Jordan (2016) - min. priv.	Tunisia - min. priv.
Nationality (Jor. omit)			
Syrian		2.786*	
		(1.239)	
Egyptian		7.853***	
		(3.289)	
Other Arab		5.138**	
		(2.930)	
Other		16.434**	
		(17.843)	
Age group (15-19 omit.)			
20-24	5.003***	3.125*	3.885**
	(1.356)	(1.502)	(1.948)
25-29	4.175***	2.004	5.522**
	(1.331)	(1.009)	(3.030)
30-34	3.901**	1.154	11.654***
	(1.723)	(0.619)	(6.959)
35-39	3.352*	2.953	8.250**
	(1.829)	(1.686)	(5.425)
40-44	3.092	2.747	3.392
	(1.907)	(1.709)	(2.630)
45-49	5.367*	1.479	8.474**
	(3.975)	(0.976)	(6.551)
50-54	7.244	1.179	6.648*
	(8.308)	(0.788)	(5.326)
55-59	3.567	9.151*	6.643*
	(3.653)	(9.790)	(5.943)
60-64	3.639	3.980	5.184
	(5.207)	(4.001)	(6.640)
65+	28.419	1.410	15.577*
	(57.183)	(1.500)	(20.414)
Sex (male omit.)			
Female	0.947	8.524	0.062***
	(0.962)	(10.403)	(0.049)
Ever married (single omit.)			
Married	2.049**	2.074*	0.601
	(0.501)	(0.704)	(0.287)
Sex and ever married int.			
Female # Married	0.584	0.711	3.613*
	(0.236)	(0.311)	(2.324)
Education (illit. omit.)			
Read & Write	1.269	1.334	2.678*
	(0.775)	(0.500)	(1.040)
Basic Education	1.987	1.825	1.249
	(1.180)	(0.729)	(0.485)
Secondary Educ	2.568	2.109	4.520
	(1.651)	(0.917)	(4.502)
Post-Secondary	2.377	4.704**	0.609
	(1.694)	(2.762)	(0.902)
University	10.308**	0.759	0.437
	(9.120)	(0.525)	(0.720)

	Jordan (2010) - min. priv.	Jordan (2016) - min. priv.	Tunisia - min. priv.
Sex and educ. int.			
Female # Read & Write	0.504	0.085	0.662
	(0.597)	(0.127)	(0.495)
Female # Basic Education	0.216	0.062*	0.617
	(0.210)	(0.078)	(0.493)
Female # Secondary Educ	0.319	0.092	0.112
	(0.380)	(0.122)	(0.153)
Female # Post-Secondary	0.328	0.006***	1.795
	(0.359)	(0.008)	(2.566)
Female # University	0.465	0.059*	
	(0.539)	(0.074)	
Work experience			
Work experience	1.078	1.014	1.024
	(0.043)	(0.047)	(0.034)
Work experience # Work experience	0.998	1.000	1.000
	(0.001)	(0.001)	(0.001)
Urban (rural omit.)			
Urban	1.419	1.108	1.143
	(0.350)	(0.440)	(0.343)
Region (capitol omit.)			
Jordan-North	0.463***	0.959	
	(0.085)	(0.290)	
Jordan-South	0.892	1.469	
	(0.353)	(0.647)	
Tunisia-North West			0.344*
			(0.163)
Tunisia-Center East			0.954
			(0.301)
Tunisia-Center West			0.988
			(0.473)
Tunisia-South East			1.391
			(0.807)
Tunisia-South West			0.504
			(0.445)
Occupation (prof./man. omit.)			
Technicians and associate professionals	3.615**	0.883	1.068
	(1.749)	(0.530)	(0.985)
Clerical support workers	8.790***	1.219	0.368
	(5.446)	(0.706)	(0.394)
Service and sales workers	1.729	0.573	2.578
	(0.781)	(0.299)	(2.256)
Skilled agricultural, forestry and fishery workers	1.353	0.816	4.126
	(1.322)	(0.921)	(5.274)
Craft and related trades workers	1.445	0.490	6.478*
	(0.693)	(0.275)	(5.728)
Plant and machine operators and assemblers	3.521*	1.593	5.058
	(1.862)	(1.146)	(5.125)
Elementary occupations	1.081	0.370	5.106
	(0.538)	(0.196)	(4.604)

	Jordan (2010) - min. priv.	Jordan (2016) - min. priv.	Tunisia - min. priv.
Social insurance (uninsured in informal firm omit.)			
Insured	2.463**	1.493	1.831
	(0.685)	(0.367)	(0.701)
Uninsured in a formal firm		0.367	1.813
		(0.235)	(0.711)
Contract (none omit.)			
Definite duration	0.862	1.173	1.539
	(0.231)	(0.405)	(0.633)
Indefinite duration	1.738*	2.075**	2.161
	(0.484)	(0.585)	(0.963)
Regularity (irregular omit.)			
Regular	15.078***	5.437***	0.362*
	(6.505)	(1.544)	(0.159)
Work in est. (outside omit.)			
Yes	3.531***	2.167*	1.542
	(1.152)	(0.692)	(0.458)
Required education (none omit.)			
Primary		0.272*	1.318
		(0.149)	(0.456)
Preparatory		2.191	2.935
		(1.486)	(1.876)
Secondary		1.557	83.449***
		(0.623)	(90.969)
University		6.318**	25.891*
		(3.668)	(33.381)
Job req. tech skills (no omit.)			
Yes	1.576*	1.621	1.357
	(0.325)	(0.542)	(0.441)
Job req. lit. skill (no omit.)			
Yes		2.277*	2.505*
		(0.745)	(0.905)
Job req. math skill (no omit.)			
Yes		0.454	0.679
		(0.184)	(0.250)
Job req. fitness skill (no omit.)			
Yes		1.695*	0.877
		(0.390)	(0.256)
Job req. computer skill (no omit.)			
Yes		1.595	2.518
		(0.510)	(1.619)
Industry (agric. omit.)			
Manufacturing & utilities	0.954	3.096	0.186**
	(0.635)	(2.872)	(0.104)
Construction	2.451	1.062	0.474
	(1.682)	(1.097)	(0.308)
Wholesale & retail	1.169	1.479	0.170**
	(0.801)	(1.361)	(0.106)
Transp. & storage	2.511	1.071	0.492
	(1.769)	(1.043)	(0.424)
Accomm. & food serv.	1.392	2.662	0.359
	(1.085)	(2.661)	(0.214)

	Jordan (2010) - min. priv.	Jordan (2016) - min. priv.	Tunisia - min. priv.
Other Services	0.851	1.380	0.283
	(0.599)	(1.251)	(0.186)
Missing			0.320*
			(0.184)
Firm size (1-4 workers omit.)			
5-9	1.076	1.070	1.136
	(0.307)	(0.390)	(0.466)
10-24	1.070	0.686	2.077
	(0.330)	(0.271)	(0.980)
25-49	1.293	0.830	2.362
	(0.482)	(0.311)	(1.416)
50-99	2.596*	1.063	3.592*
	(1.219)	(0.492)	(2.040)
100+/don't know	1.194	2.144	8.571***
	(0.453)	(1.233)	(4.315)
% firm female (none omit.)			
< 1/4		0.755	2.108
		(0.338)	(1.002)
1/4 - 1/2		1.018	0.925
		(0.586)	(0.558)
>1/2		0.288*	1.479
		(0.163)	(0.769)
Do not know		0.254	0.319
		(0.188)	(0.187)
N (Observations)	2100	2387	849
Pseudo R-squared	.3465343	.304086	.3423342

Source: Authors' calculations based on JLMPS 2010, JLMPS 2016 and TLMPS 2014

Notes: *p<0.05; **p<0.01; ***p<0.001. Standard errors in parentheses. Standard errors clustered at the PSU level.