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Minimum and Living Wages in Jordan and Tunisia

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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 and Tunisia, as well as estimating the wage gaps between what workers earn and these wages. 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. These findings highlight which workers are vulnerable to low earnings and where greater enforcement of minimum wage legislation might be needed. Furthermore, we use our results to simulate a number of social protection floor policy options, from universal basic income to more targeted transfers. We demonstrate that most of these policies are not fiscally viable; they would require far more social assistance spending than is currently undertaken in Jordan and Tunisia.

ملخص

تطور البلدان في جميع أنحاء العالم من الحد الأدنى للحماية الاجتماعية، وذلك للمساعدة في الحد من الفقر. يعد ضمان حصول العاملين على أجور مناسبة مكونًا مهمًا في الحد الأدنى للحماية الاجتماعية. تستكشف هذه الدراسة الأشخاص الذين يحصلون على الحد الأدنى من الأجور، والأجور الضعيفة، والمتوسطة، والمعيشية في الأردن وتونس، وذلك بالإضافة إلى تقدير فجوات الأجور بين ما يكسبه العاملون وهذه الأجور. وتوضح الدراسة أنه في حين أن غالبية العاملين يكسبون على الأقل الحد الأدنى للأجور وأجور ضئيلة، إلا أن أقلية من العاملين فقط يكسبون أجرًا معيشيًا. تعتمد فرص الحصول على الحد الأدنى من الأجور، وأجور ضئيلة، ومتوسطة، ومعيشية على خصائص أماكن العمل، وخصائص العمل المحددة (خاصةً الإجراءات والمهارات المطلوبة للوظيفة)، والخصائص الديموغرافية للعاملين. وتسلط هذه النتائج الضوء على العاملين العرضة لأجور منخفضة وحيثما قد توجد حاجة إلى إنفاذ تشريعات إضافية للحد الأدنى للأجور. وعلاوة على ذلك، تستخدم الدراسة النتائج لمحاكاة عدد من خيارات سياسة الحد الأدنى للحماية الاجتماعية، بدايةً من الدخل الأساسي الشامل إلى التحويلات الأكثر استهدافًا. وتثبت الدراسة أن معظم هذه السياسات ليست قابلة للتطبيق من الناحية المالية؛ حيث إنها تحتاج إلى مزيد من الإنفاق على المساعدة الاجتماعية أكثر بكثير مما يتم تنفيذه حاليًا في الأردن وتونس.

1   Introduction

Social protection floors were a key policy and anti-poverty focus globally, even before the challenges presented by the COVID-19 pandemic (UNDP, 2014). In line with the global push for social protection floors, low- and middle-income countries have been creating and expanding cash transfer programs targeted to the poor. A variety of countries are also experimenting with universal basic income (UBI), a form of social protection floor (Hanna & Olken, 2018; International Monetary Fund (IMF), 2017). These newer efforts build on a long-term focus on poverty. Yet another important and longstanding aspect of social protection and ensuring basic needs are met focuses on workers, specifically minimum wage policies. An important question for minimum wage policies is whether they ensure above-poverty or living wages, such that workers can meet their basic needs.

The question of the role of minimum and living wages in social protection, ensuring workers can meet their basic needs, and addressing poverty is particularly pertinent in the Middle East and North Africa (MENA) region. Countries in the region have been struggling with poor labor market outcomes, including high youth unemployment rates and low female labor force participation (Assaad, Ghazouani, & Krafft, 2018; Assaad, Hendy, Lassassi, & Yassin, 2020; Assaad & Krafft, 2016; Assaad, Krafft, & Keo, 2019; Krafft, Assaad, & Keo, 2022). The region also has a sharp dualism between the formal labor market, covered by social insurance and minimum wages, and a large informal sector (Alhawarin & Selwaness, 2019; Assaad, AlSharawy, & Salemi, 2022; Assaad & Salemi, 2019; El-Mekkaoui & Chaker, 2020; 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 systems and especially floors have the potential to be an important part of the new social contract (Loewe & Jawad, 2018).

In this paper, we explore the potential role of minimum wages and living wages in developing a new social contract and providing a social protection floor, focusing on Jordan and Tunisia. The two countries share some common labor market challenges but also have differences in context and policy that provide valuable contrasts. Using microdata on workers and wages from Jordan (2016) and Tunisia (2014) we explore which wage workers receive minimum, poverty, median, and living wages, and the gaps between the wages workers receive, minimum wages, poverty wages, median wages, and living wages.

We find that the majority of workers in both Tunisia and Jordan 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 chances of earning minimum, poverty, median, and living wages depend on a variety of worker, work, and workplace characteristics. For instance, younger workers are vulnerable to falling below these benchmarks. Job formality 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 in Jordan and Tunisia.

We use our results to simulate a number of social protection floor policy options, including universal basic income at minimum, poverty, median, and living wage levels, as well as more targeted options to close the gap between current wages and minimum, poverty, median, and living wages. When comparing these policy options to current social assistance spending, we note that most of these options are not fiscally viable. Universal basic incomes to any of these benchmarks far exceed current spending, and even targeted efforts to achieve living wages are not fiscally viable. Efforts to achieve social protection floors that close the gap between earned wages and minimum or poverty wages may be more feasible, albeit challenging. Our findings highlight some of the challenges in achieving social protection floors for workers, whether via their earned wages or transfers.

In the next section, we provide background and context on minimum and living wages as components of social protection, globally. We also discuss country and labor market context, including minimum wage policies and poverty lines in Jordan and Tunisia and their evolution over time. We then describe the data we use to assess which workers receive minimum wages, wages that place them above the poverty line, median wages, and living wages (and their construction). The methods section, which follows, explains our models and analyses. Our results are organized around a description of the distribution of wages, who receives minimum, above-poverty, median, and living wages, and subsequently models of these outcomes as well as the gaps between wages received and these various metrics. We then present simulations, based on our findings, of different social protection floor policies, including universal basic income and more targeted policies to close wage gaps. We conclude with a discussion of the implications of our findings for wage policies in Jordan and Tunisia and policy options for achieving social protection floors.

2 Background and context

2.1 Global evidence on minimum and living wages

The International Labor Organization (ILO)'s 2012 "Social Protection Floors Recommendation" is the first international standard for social protection floors, which includes standards for universal and adequate income, for both vulnerable groups such as children and the elderly and working age adults who do not earn sufficient income (Schüring & Loewe, 2021). The Sustainable Development Goal target 1.3 includes social protection floors for all, measured by the proportion of persons covered by social protection floors (Schüring & Loewe, 2021). These goals and recommendations are examples of a shift towards universalism in social protection (Schüring & Loewe, 2021). Yet an important question remains how to achieve such social protection floors, particularly in fiscally constrained low- and middle-income countries such as Jordan and Tunisia.

Wage policies are a key target of sustainable development goals to reduce inequality and poverty (International Labour Organization, 2020). While sometimes framed as separate and a complement to social protection systems, other times 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). Globally, 90% of countries have minimum wages. But the Arab states are the region with the lowest share of countries covered by minimum wages, at 64% (International Labour Organization, 2020).

Most literature on minimum wages in developing countries focuses on the impact of the minimum wage on earnings, employment, informality, and poverty (Gindling, 2018; Neumark, 2018; Neumark & Corella, 2021). However, some studies examine who earns the minimum wage or below. Studies show that young workers, the less skilled and unskilled workers, those without any formal education, those working in the private sector (especially in small firms), informal workers, and self-employed people are more likely to earn less than a minimum wage (Alaniz, Gindling, & Terrell, 2011; Kristensen & Cunningham, 2006; Nguyen, 2013). In South Africa, minimum wage compliance was related to worker, firm, sector, and spatial characteristics – but not enforcement metrics such as labor inspectors (Bhorat, Kanbur, & Mayet, 2012).

There are few studies dealing with minimum wages in MENA and in particular, in Jordan or Tunisia, the countries we examine. Alhawarin and Kreishan (2017) focus on the violation of minimum wages in the private sector and show that Jordan has incomplete enforcement. They found 17% of workers were paid under the minimum wage and overall a minimum wage gap (the difference between the wage and minimum wage) of 27% relative to the minimum wage. They also found that those employed in small firms, the less-educated, women, those in informal occupations, and youth are disproportionately earning below minimum wages. In Tunisia, Larbi and Almi (2018) worked on wages' evolution before and after the Tunisian revolution of 2011 and show that the efforts made to increase wages were based on increasing the minimum wage, specifically. Moreover, they show the impact of the minimum wage on increasing the consumer price index but did not research the impact of minimum wages on employment or households' welfare.

To understand the impact of minimum wages, theories typical posit a dual sector minimum wage model (in which minimum wages only apply in the formal sector) (Boeri, Garibaldi, & Ribeiro, 2011). Overall employment results are mixed, but empirical papers tend to find a negative impact of minimum wages on employment in the formal sector and a positive impact on the employment in the informal sector (Broecke, Forti, & Vandeweyer, 2017; Neumark & Corella, 2021). Furthermore, some studies show increased minimum wages increase working hours (Bhorat, Kanbur, & Stanwix, 2014; Wong, 2019).

The impact of minimum wages on poverty is mixed in the literature (Gindling, 2018), with some studies finding a positive impact of minimum wages on reducing poverty, especially for people receiving minimum wages or below (Alaniz, Gindling, & Terrell, 2011; Pauw & Leibbrandt, 2012; Sotomayor, 2021). However, other studies find that minimum wages are not a tool for poverty reduction and welfare improvement (del Carpio, Messina, & Sanz-de-Galdeano, 2019; Nwude, 2013; Yamada, 2016).

Papers often evaluate the design of minimum wages by comparing them with average or median wages or GDP per capita or per worker (Caraballo-Cueto, 2016; Ni, Wang, & Yao, 2011; Wong, 2019). There has, however, been renewed interest in a different wage metric—a living wage. 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 labor market developments, yet remains somewhat ambiguous as there is not yet a standardized definition or approach (Anker, 2011). In contrast, although there is variation in how, exactly, poverty is measured, there are, as we discuss below, relatively standardized approaches and metrics for poverty measurement (Duclos & Araar, 2006; Ravallion, 2020).

2.2   Country and labor market context

Jordan and Tunisia had both struggled with high rates of unemployment (particularly female, educated, and youth unemployment) and limited female labor force participation even pre-pandemic (Assaad et al., 2021; Assaad, Ghazouani, & Krafft, 2018; Assaad, Krafft, & Keo, 2019). Returns to education in the labor market are relatively low (Galal & Said, 2019; Krafft, Branson, & Flak, 2019; Limam & Ben Hafaiedh, 2018; Pellicer, 2018). Jobs in the public sector are preferred by workers due to their better work conditions and job security (Assaad, 2014; Assaad et al., 2021).

Historically, the countries' 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 to undertake structural reform have not succeeded in generating the number or quality of private sector jobs needed (Devarajan & Ianchovichina, 2018; Diwan, Malik, & Atiyas, 2019; El-Haddad, 2020; Malik & Awadallah, 2013). In Jordan, non-Jordanians (particularly Syrian refugees and Egyptian migrants) play an important role in the labor market, working primarily in a limited segment of low-wage jobs (Fallah, Krafft, & Wahba, 2019; Malaeb & Wahba, 2019; 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) specifically names the development of a social protection floor as a key component of anti-poverty efforts (Hashemite Kingdom of Jordan, 2019). Jordan is the only Arab country to have adopted the ILO's recommendation on social protection floors (Kawar, Nimeh, & Kool, 2022). The national social protection strategy has as two of its key pillars "opportunity," namely "a just, private-sector-

focused labor market based on decent working conditions and social security. Government enables families to be economically self-sufficient" and "dignity," namely "government provides targeted, temporary social assistance to citizens who are unable to be economically self-sufficient, allowing them to maintain a basic level of consumption" (Hashemite Kingdom of Jordan, 2019, p. 10).

Social protection floors are thus closely linked to earned income (or lack thereof). The Takmeely or Takaful One program and Jordan's recent social protection strategy thus emphasize social assistance that includes the working poor (Hashemite Kingdom of Jordan, 2019; Kawar, Nimeh, & Kool, 2022). Tunisia likewise placed developing a social protection floor at the center of its 2016-2020 five-year national plan and undertaken feasibility and costing research, including for a potential UBI scheme (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 a governmental decree by the National Committee for Social Dialogue chaired by the Minister of Social Affairs (Ben Chaabane, 2014). The committee includes social partners and the main representatives of employers and workers: UTICA (Tunisian Confederation of Industry, Trade and Handicrafts)[4] and UGTT (Tunisian General Labor Union).[5] Readjustments are either covered by sectoral collective bargaining agreements or established by decree.[6]

Maintaining social stability and employment security are important goals of the wage policies and labor organizations in Tunisia (Ben Chaabane, 2014). The goal is to take into account price changes and economic indicators to readjust the minimum wage (Ben Chaabane, 2014). However, wage adjustments are not set by formula and so minimum wage changes may diverge from inflation and other fundamentals (Angel-Urdinola, Nucifora, & Robalino, 2015). After the Arab Spring and the Tunisian 2011 revolution, more consideration has been given by authorities to social justice and equality demands. There has been a focus particularly on the issues of income, employment, and wages (Ben Chaabane, 2014).

In Tunisia, there are two types of minimum wages: the interprofessional guaranteed minimum wage (SMIG) for non-agricultural sectors and the guaranteed minimum agricultural wage (SMAG) for the agricultural sector (Ben Chaabane, 2014). 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

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[4] Employers' representative in the industrial, trade and craft sectors, founded in 1947.
[5] National trade union center founded in 1946 to defend workers' rights.
[6] Decrees concern some professional statuses such as executive agents, chief executives, and managers that are not covered by sectoral collective agreements.

2020 (Tunisia Central Bank, 2021). There tend to be annual adjustments to minimum wages, but their timing is not set by law (Angel-Urdinola, Nucifora, & Robalino, 2015).

Figure 1 shows the evolution of the minimum wage, in nominal and real (2020)[7] terms. For comparative purposes, we show the SMAG for a five-day work week in monthly terms. In nominal terms, the SMIG increased from 113 TD per month (for 40 hours) in 1990 to 235 TD in 2010, then to 301 TD in 2014, and to 366 in 2020. The SMAG was just 3.7 TD per day in 1990, 8.4 TD per day in 2010 then 12.3 TD in 2014 and increased to 16.5 TD in 2020 (Ben Chaabane, 2014; Tunisia Central Bank, 2021). Notably, the SMAG was below the SMIG historically, but in recent years 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).

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[7] Real numbers for 2021 not presented because the 2021 price indices were not yet available.

Figure 1. Monthly minimum wages and per capita poverty lines in Jordan and Tunisia, in real and nominal dinar, 1989-2021
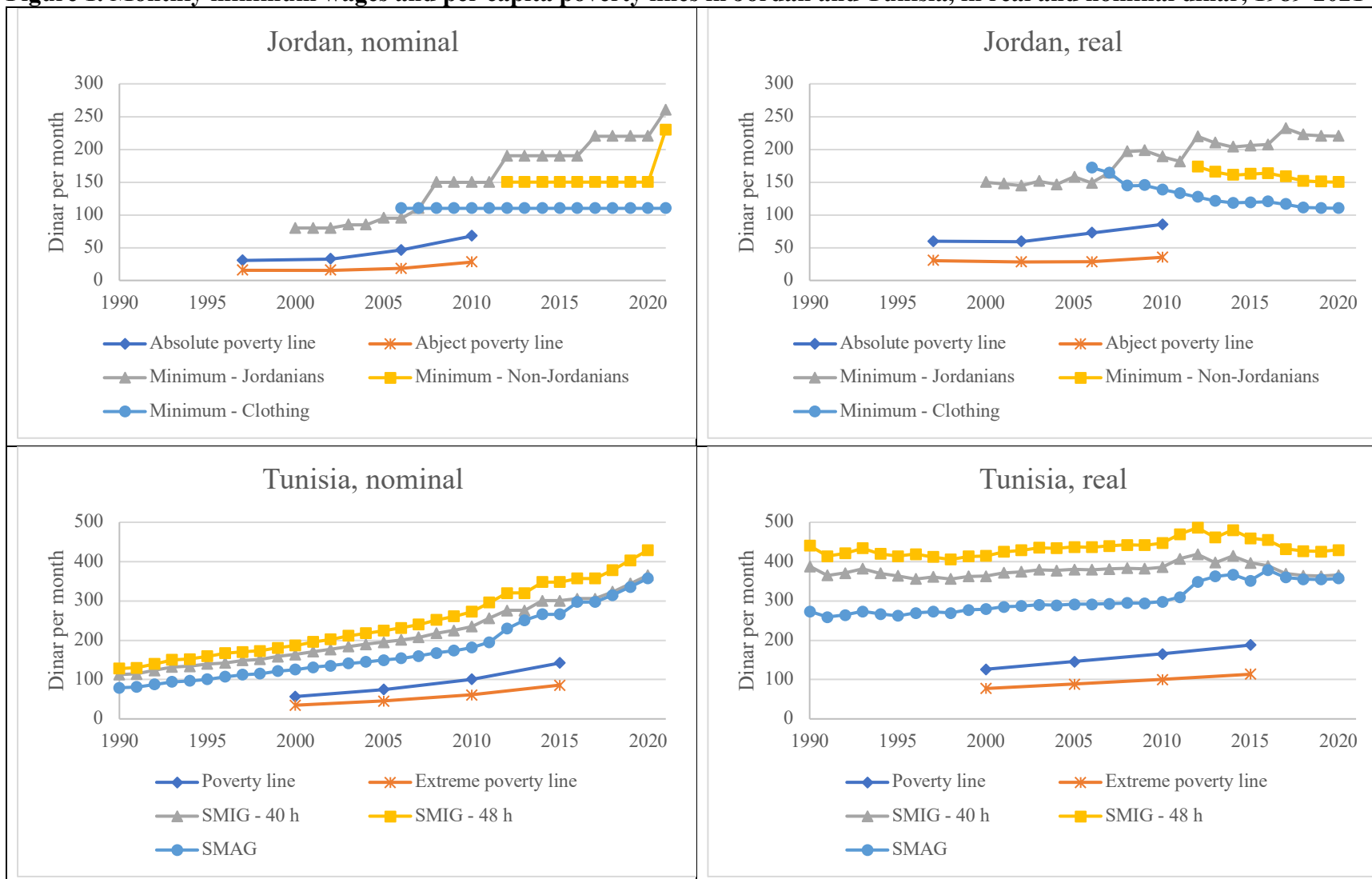
Source: Authors' construction based on Ben Chaabane (2014), Central Bank of Tunisia (2021), Ministry of Labor (Jordan) (2021), Qandah (2020), Institut National de la Statistique (INS) (2021), Department of Statistics (Jordan) (2021), and World Bank (2022).
Notes: For comparative purposes, we show the SMAG for a five-day work week in monthly terms.

2.3.2 Minimum wages in Jordan

The minimum wage in Jordan started in 1999 (Qandah, 2020) and is fixed and readjusted by a tripartite committee formed by the council of ministers and composed of the Ministry of Labor and 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 (non-wage family since 2006 and domestic workers since 2009). Jordanians have a different minimum wage, a higher one, than non-Jordanians. The minimum wage has not had built in cost of living adjustments to take into account inflation rates 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 Jordan in Jordanian Dinar (JD). The minimum wage in Jordan (for Jordanians) increased from 80 JD in 1999 to 150 JD in 2008, then 190 JD in 2012, and has stagnated until 2017 to reach 220 JD and recently 260 JD in 2021 (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 with 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 labor law since 2012 with an initial minimum wage of 150 JD. The same level of minimum wage for non-Jordanians was maintained until 2021 when it was raised to 230 JD (Alhawarin & Kreishan, 2017; Ministry of Labor (Jordan), 2021; Qandah, 2020). The minimum wage for non-Jordanian workers is planned to converge with Jordanians' wages, rising from 230 JD in 2021 to 245 JD in 2022 and 260 JD by 2023 (Mustafa, 2022).

2.3.3 Minimum wages in Tunisia and Jordan in comparative perspective

In the low-income and lower-middle income countries with data available,[8] shown in Figure 2, the minimum wage is, on average, 40% of the mean wage. Tunisia is above average with a minimum wage that was 59% of the mean in 2014, while the minimum wage in Jordan was set at 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. From the other MENA countries with available data, Egypt has an above-average ratio (50%). The low ratios (less than 30%) correspond to either low-income countries such as Uganda, Guinea-Bissau, and Gambia or lower-middle income economies such as Cameroon, Ghana, and Bangladesh. Higher ratios (more than 60%) mainly are in lower-middle

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[8] Only low income ($1,045 per year per capita or less) and lower-middle income economies ($1,046 to $4,095 per capita per year). Includes the most recent available year for each country for all countries with data.

income economies, many from the East Asia and Pacific region such as Indonesia, Vietnam, and the Philippines. From the Sub-Saharan African countries, Burkina Faso and Tanzania have low ratios (less 35%) while Senegal, Lesotho, Zambia, and Mali have more than the average level (between 40% and 60%). Tunisia's minimum wage is thus, relative to mean wage, high,[9] in comparison to other countries while the same rate in Jordan is slightly below average.

Figure 2. Minimum wage as a percentage of the mean monthly wage in low income and lower-middle income countries
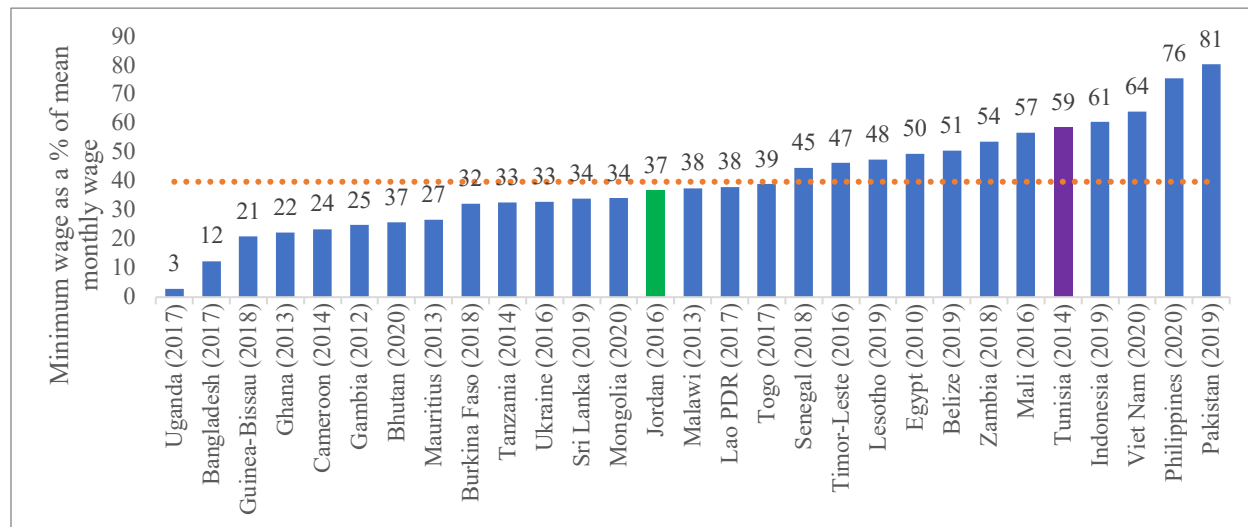
Source: Authors' construction based on ILOSTAT (ILO, 2022) minimum wages and mean monthly wages, most recent year available, all low and lower-middle income countries with data available. For Jordan and Tunisia, mean monthly wages based on JLMPS 2016 and TLMPS 2014. Notes: Dotted orange line denotes mean, averaging across countries.

2.3.4 Living wages in Tunisia

As of 2021, there was one estimate of living wages in Tunisia. The Global Living Wage Coalition, using the method developed by Anker, Anker, and Praets, 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 an effort by the Global Living Wage Coalition 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

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[9] Research on minimum wages relative to labor productivity for Tunisia shows the minimum wage is fairly low relative to labor productivity (Angel-Urdinola, Nucifora, & Robalino, 2015).

- 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). The rural Tunisia 2020 estimate for a living wage was 695 TD per month (Global Living Wage Coalition, 2020). The 95% confidence interval was 636 to 759 TD per month.

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 eventually produce a globally comparable living wage indicator (Fabo & Belli, 2017; Guzi, Kahanec, & Kabina, 2016). Data on the cost of living are collected online,[10] 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. The estimated living wage in Jordan had a range of 466 (25th percentile) to 548 JD (50th percentile) per month (WageIndicator Foundation, 2020).

2.3.6 Poverty lines in Tunisia

Poverty lines in Tunisia are computed for each five-year period by the National Institute of Statistics (Institut National de la Statistique (INS), 2021) from the EBCNV (National Survey on Household Budget, Consumption and Standard of Living). Poverty lines are calculated on the basis of two components (Institut National de la Statistique (INS), 2017). The first is a food component based on the cost of a food basket that guarantees an essential caloric intake. The reference group whose basket is used to calculate the average cost of a calorie is the first quintile of the population ranked according to the total consumption per capita of the households in the survey. The second component is non-food expenditure computed from a regression model that estimates the fraction of food expenditure, with the total expenditure per capita, its log and the household size. 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).

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[10] The online nature of the survey means that respondents are likely to be selected from higher socioeconomic backgrounds, which is likely to affect reported prices (although more so for some goods than others).

As shown in Figure 1, the nominal national poverty line increased from 57 TD per month per capita in 2000 to 142 TD in 2015. The extreme poverty line rose from 35 TD per month per capita in 2000 to reach 86 TD in 2015. Tunisia succeeded in decreasing the poverty rate between 2000 and 2015, from 25% in 2000 to 15% in 2015 (Institut National de la Statistique (INS), 2021; Kokas, El Lahga, & Lopez-Acevedo, 2021). However, the rural population is the most affected by high poverty levels, with a poverty rate of 40% in 2000 and 26% in 2015 (Institut National de la Statistique (INS), 2021).

2.3.7 Poverty lines in Jordan

Poverty lines in Jordan are based on expenditure (Department of Statistics (Jordan), 2021). Moreover, two poverty lines are defined: The abject poverty line takes into account only the monetary component that is based 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 national abject poverty line, in nominal terms, increased from 16 JD per month per capita in 1997 to 28 JD in 2010, while the national absolute poverty line rose from 31 JD per month per capita in 1997 to 68 JD in 2010 (Department of Statistics (Jordan), 2021).

The poverty rate in Jordan was 21.3% in 1997 (Department of Statistics (Jordan), 2021). The poverty rate was 13.3% in 2000 and increased slightly to 14.4% in 2010 with high disparities between regions. Although historically poverty lines were determined by governorate in order to take into account the living standards in each region, differences were small, and a single national poverty line was used starting in 2010 (Department of Statistics (Jordan), 2021).

3   Data

3.1   Surveys

In order to investigate our research questions on minimum and living wages, data are required on the distribution of wages. Unfortunately, there is very limited availability of wage microdata in Jordan and Tunisia. The Jordan Employment and Unemployment data (EUS), fielded quarterly, asks for wages only categorically. The quarterly Tunisian Labor Force Survey (ENPE) publicly available microdata do not include wages, although they are collected in the survey. We therefore rely on the two most recent microdata sources with wages for each country, namely the Jordan Labor Market Panel Survey (JLMPS) 2016 and the Tunisia Labor Market Panel Survey (TLMPS) 2014 (Assaad, Ghazouani, Krafft, & Rolando, 2016; Krafft & Assaad, 2021; OAMDI, 2016, 2018).

Each survey is nationally representative after the application of weights, which are used throughout. 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 1,577 wage workers with reported wage information. The JLMPS

2016 was the second wave of the JLMPS, with the first in 2010, and 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 a minimum, poverty, median, or living wage, and the distance between that wage and the various benchmarks, if they fall below a minimum, poverty, median, or living wage. Wages were collected in detail in each survey, including the basic wage, overtime, and any supplemental, bonus, or incentive payments. We focus on the basic wage, since other components are variable and not guaranteed.[11] Wages were initially reported in whatever period the respondent received/recalled them (for regular wage workers; daily for irregular wage workers) and then transformed into monthly and hourly wages based on hours of work. 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 minimum wage in 2016 in Jordan was 190 JD for Jordanians and 150 JD for non-Jordanians. 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. The 2017 minimum wage, which was increased to 220 JD for Jordanians and remained 150 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.

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. We use the date of the survey (June 23 or before versus after June 23) to determine which wage to apply. We use data on whether someone worked fewer than 48 hours to apply the 40 hours per week regime and 48 or more hours to apply the 48 hours per week regime. 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.

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[11] In Jordan, in 94% of cases the basic and total wage are the same, and in Tunisia this share is 74%. The difference between the total wage and the basic wage is equivalent to a median of 6% of the basic wage in Tunisia, where such additional wages are more common, and 33% in Jordan, where such additional wages are rarer.

For both living wages and poverty wages, benchmarks are from different years than our survey. We therefore use inflation rates to adjust into 2016 (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. After adjustment, the living wage in Jordan is 502 JD per month and in Tunisia is 504 TD for rural areas, 572 TD for small and medium cities, and 634 TD for large cities.

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. After these adjustments, the poverty wage in Jordan is 229 JD. The poverty wage in Tunisia is 330 for large cities; 297 for small and medium cities; and 262 TD for rural areas.

Our final metric is median wages (50% of wage earners are below and 50% above this benchmark). Median wages are included based on a relative concept of poverty (Ravallion, 2020). The median wage is 330 JD per month in Jordan and 420 TD per month in Tunisia.[12]

3.3 Covariates

To understand who receives minimum or living wages, we consider a number of primary job, employer, and worker characteristics. 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[13] (and its square), 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 but not the respondent have social insurance); whether the job has a contract and if so the type (definite versus indefinite duration); the regularity of the job (regular versus irregular), whether the job is inside or outside an establishment; and the required education level and skills (basic literacy, mathematics, physical fitness, computer, or technical skills) of the job.[14] In terms of the characteristics of employers, we consider the economic activity (industry); the firm size (categorically); the percentage of female workers in the firm (categorically); and whether the firm is public or private sector.

Differences by sector are particularly pertinent because the public sector should fully comply with the minimum wage, while compliance may be an issue in the private sector, particularly in informal

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[12] 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 cutoffs and a living wage.

[13] Work experience is the number of years actually worked, not including any periods of non-employment. In cases where dates that acted as inputs to this were don't know, the sample mean was used.

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

firms. The public sector, and to varying degrees private jobs in the formal sector, may offer non-pecuniary benefits (particularly social insurance) that could compensate for lower wages. The public sector generally sets wages centrally as policy, with salary schedules, whereas the private sector sets wages on a firm-by-firm basis, shaped by the labor market. We therefore run some analyses separately for the private and public sectors, as well as pooled together.

4   Methods

We provide descriptive statistics on the distribution of monthly wages, and 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). We also model, for those receiving less than the minimum, poverty, median, or living wage, the difference between that wage and current wage, in log form, as the dependent variable of an OLS model. Our standard errors are clustered on the PSU level. We use estimates of gaps between minimum, poverty, median, and living wages to simulate the costs of different social protection floor strategies.

5   Results

5.1   Distribution of wages relative to minimum, living, and poverty wage cutoffs

Figure 3 shows the cumulative distribution functions for monthly wages, relative to the various minimum, poverty, and living wage cutoffs. Given the many different cutoffs (e.g. for the clothing sector in Jordan or by location in Tunisia), we only show some (the most common) cutoffs. 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, 90% of wage workers earn the minimum wage, 79% the poverty wage, 50% the median wage, and 10% a living wage. In Tunisia, 74% 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 in 2016 (this changed in 2017), 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.

Figure 3. Cumulative distribution functions of monthly wages (in Jordanian and Tunisian dinar) and minimum, poverty, median, and living wage cutoffs
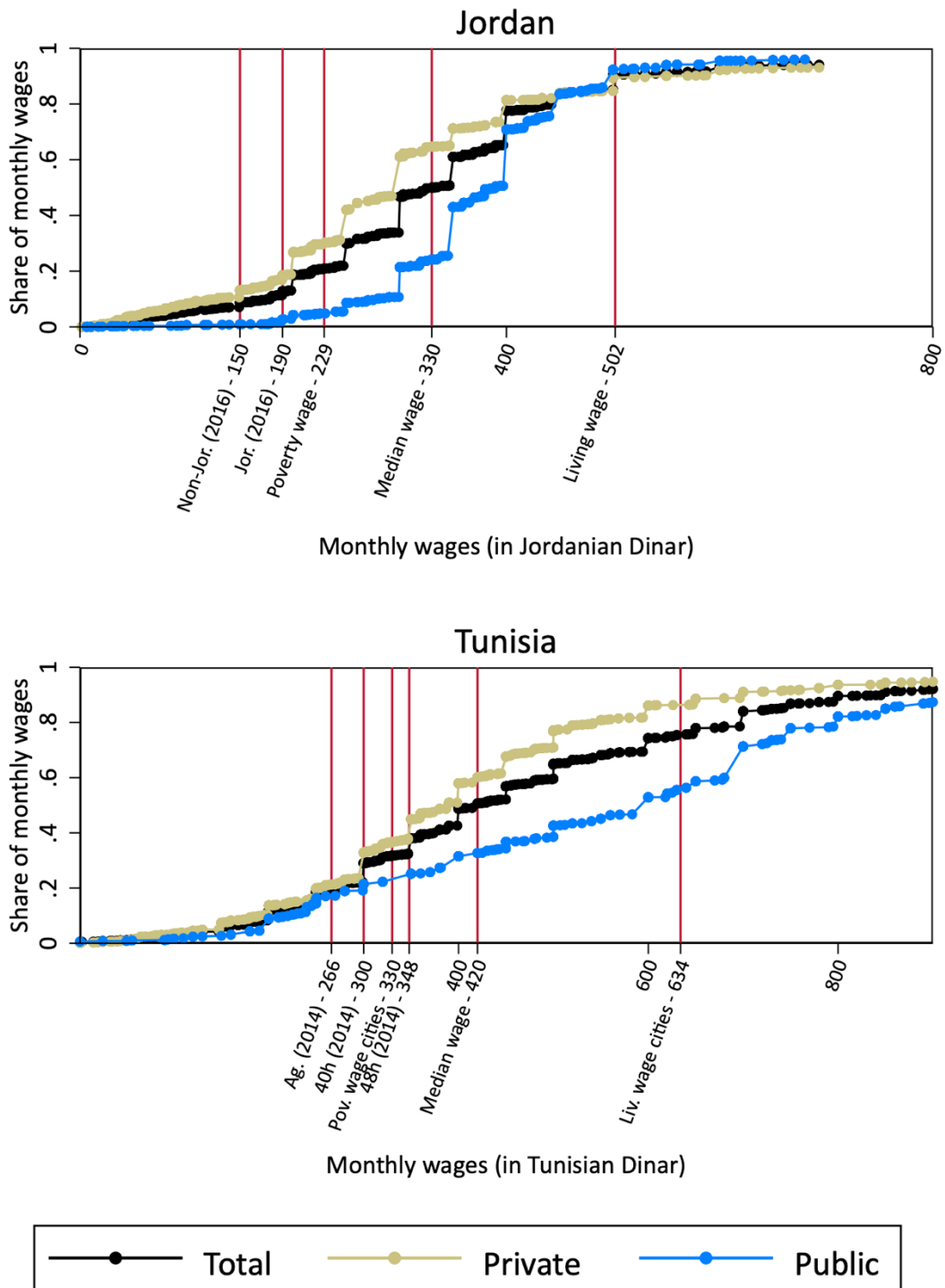
Source: Authors' calculations based on JLMPS 2016 and TLMPS 2014
Notes: Visualizing through 95th percentile of unweighted wage distribution.

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 6, in the appendix, shows minimum wage models solely for the private sector (since minimum wages 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 15-19 to 20-24 and then 25-29, before stabilizing for much of ages 30-59 and then starting to fall again at older ages. 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 (minimum, poverty, and median wages) and for living wages in Jordan. In Jordan, descriptively, Syrians are less likely to earn a minimum wage, and non-Jordanians are less likely to earn poverty and median wages. 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). Syrians are significantly less likely to earn a poverty wage, but no other differences are significant.

In Jordan, men and women have similar chances of earning a minimum,[15] poverty, median, or living wage, but in Tunisia women are less likely to do so than men (e.g. 79% of men earn a minimum wage and 61% of women). The Tunisia result appears to be particularly 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 (minimum wages in Jordan for men; median and living wages in Tunisia). After accounting for other characteristics, work experience is significant in Jordan for earning at least a median or the living wage and in Tunisia for a poverty wage.

In terms of location of residence, there are some descriptive but no significant multivariate differences in Jordan. There are substantial descriptive differences between the coastal regions of Tunisia (North and West) versus the interior (East). Only some regional disparities (and not coastal

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[15] The main effect of female for minimum wages is significant, but from the education interactions we can see this is driven by illiterate women.

versus capitol) persist and are statistically significant in the multivariate model in Tunisia. For instance, those working in the North West region in Tunisia are consistently significantly less likely to earn certain wages than those in the capitol region. Tunisian rural-urban disparities that favor earning wage benchmarks in urban areas, descriptively, also disappear or reverse in the multivariate model. The substantial Tunisian geographic disparities observed descriptively seem to be explained by worker, work, and firm characteristics.

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 and countries. In Tunisia, agriculture workers are the least likely to earn these wages, while in Jordan, agricultural and elementary occupation workers have similarly low chances. Likewise, in the multivariate model, relative to professional and managerial workers, those in other occupations are significantly less likely to earn the various wages, particularly so in terms of minimum and living wages (Jordan) and median and living wages (Tunisia).

When the respondent has social insurance (formal employment) in their job, they are more likely to earn a minimum, poverty, or living wage (results are significant for Tunisia in multivariate models). In Jordan, those uninsured in a formal firm are significantly less likely to earn poverty wages. Indefinite (but not definite) duration contracts are associated with significantly higher probabilities of earning the various wages. In terms of regularity, those with regular work are more likely to earn at least a minimum or poverty wage but fewer earn at least a living wage in Jordan. 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. Odds ratios are large, particularly for university being required (e.g. 5.036 for Jordan minimum wages; 12.306 for Tunisia minimum wages). Almost all, 94-96%, 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 and Tunisia. Moreover, those whose jobs require fitness skills seem to have higher chances to earn at least a minimum wage in Jordan. This is also the case for those whose jobs require computer skills for earning a living wage in both countries. 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.

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; for instance, those who work in the construction, transportation, or accommodation and services sectors are more likely to learn at least a poverty wage in Tunisia, compared to the agriculture sector. In Jordan, those in manufacturing and accommodation and food services are significantly more likely to earn at least a poverty wage.

The size of the firm has a significant pattern primarily in Jordan for the median wage and in Tunisia where those who work for larger firms are more likely to earn at least a minimum, poverty, or median wage in comparison to firms with less than five workers. In Jordan, those working in a firm with a majority of females (more than a half) are less likely to earn at least a minimum or poverty wage. This may be a case where women are 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 97% of workers earn the minimum wage in the public sector, only 86% do in the private sector. In Tunisia, 80% of wage workers earn the minimum wage in the public sector and 71% in the private sector. The patterns of public-private disparities generally follow through other wage metrics, except for private sector workers being slightly more likely to earn living wages in Jordan in the private sector (11%) than public sector. However, in the multivariate models, public sector workers are significantly more likely to earn a minimum, poverty, or median wage in Jordan than private sector workers, but less likely to earn these wages in Tunisia or a living wage in Jordan. The models of earning minimum wages in the private sector (Table 6, in the appendix) are generally consistent with the overall results.

The different patterns by 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 (20%) of workers earning less than the minimum wage in the public sector as well as the private sector may be related to a number of active labor market programs (ALMPs) in Tunisia. A variety of such ALMPSs provided by the National Employment Agency pay less than the minimum wage (Angel-Urdinola, Nucifora, & Robalino, 2015). Other programs provide direct wage subsidies, such that workers may not report the subsidies as part of their wage (Angel-Urdinola, Nucifora, & Robalino, 2015).

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

	Jordan				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	Jordan	Tunisia
Nationality										
Jordanian	91	87	63	11					4789	
Syrian	74	44	16	6					162	
Egyptian	92	67	16	4					175	
Other Arab	91	77	49	13					202	
Other	95	63	19	0					23	
Age group										
15-19	72	58	35	1	31	39	3	2	175	60
20-24	88	79	40	5	61	68	23	12	768	157
25-29	91	82	53	7	72	78	42	24	1119	180
30-34	90	82	59	9	79	82	58	36	1075	219
35-39	93	80	50	8	81	83	58	38	780	230
40-44	93	78	49	15	72	75	57	33	575	209
45-49	89	72	48	9	80	81	63	34	438	207
50-54	88	79	55	22	84	85	60	28	249	172
55-59	96	85	45	16	83	85	64	35	100	96
60-64	91	88	64	25	57	55	24	18	47	30
65+	73	71	70	56	52	52	36	2	25	16
Sex										
Male	90	80	50	10	79	82	56	31	4386	1172
Female	89	75	52	8	61	67	39	26	965	380
Marital status										
Single	88	75	44	7	65	70	37	19	1706	522
Married	91	81	53	11	80	82	59	35	3645	1029
Education Level										
Illiterate	85	58	17	6	59	58	23	8	266	239
Read & Write	81	68	29	5	77	77	43	13	706	316
Basic Education	89	77	49	6	67	74	40	18	1757	589
Secondary Educ	93	87	55	8	87	88	74	50	785	195
Post-Secondary	94	86	54	10	91	92	83	71	496	85
University	95	91	76	19	93	95	89	79	1341	114
Urban/Rural										
Urban	90	79	50	10	76	79	55	31	4140	726
Rural	91	80	54	8	70	75	40	24	1211	851
Region										
Jordan-Middle	90	80	47	10					2412	0

	Jordan				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	Jordan	Tunisia
Jordan-North	90	77	56	8					1984	0
Jordan-South	94	84	57	11					955	0
Tunisia-North					81	85	58	29	0	469
Tunisia-North West					65	68	35	18	0	221
Tunisia-Center East					74	78	50	32	0	452
Tunisia-Center West					67	65	36	23	0	188
Tunisia-South East					77	79	58	38	0	173
Tunisia-South West					66	63	52	35	0	74
Occup. of prim. job										
Managers and professionals	96	92	78	20	94	94	90	85	1301	174
Technicians and associate professionals	96	92	70	16	90	95	83	56	361	69
Clerical support workers	98	94	66	10	77	80	69	31	366	77
Service and sales workers	92	79	43	3	69	78	47	22	1536	224
Skilled agricultural, forestry and fishery workers	83	70	15	4	50	40	3	1	144	27
Craft and related trades workers	81	69	41	11	73	77	44	21	679	435
Plant and machine operators, and assemblers	90	81	50	11	84	90	63	21	467	135
Elementary occupations	82	64	27	1	60	62	22	8	437	398
Social insurance in prim. job										
Uninsured in informal firm	85	68	31	7	62	63	31	11	1931	613
Insured	96	91	70	12	87	91	70	46	3320	700
Uninsured in a formal firm	94	82	66	16	63	70	38	21	95	239
Work contract in prim. job										
No contract	86	71	39	8	61	64	31	13	2312	769
Definite duration	90	76	45	7	68	76	40	16	354	207
Indefinite duration	97	93	68	12	90	93	76	52	2661	588
Regularity in prim. job										
Regular	94	83	53	9	75	80	54	31	4930	1277
Irregular	56	43	24	18	71	64	34	17	421	300
Establishment in prim. job										
No	75	57	23	8	63	63	32	12	595	524
Yes	93	84	56	10	79	83	58	36	4754	1052
Level of education required for job										
No formal schooling	85	67	29	6	62	67	29	10	2088	829
Primary	81	75	55	12	76	79	50	15	91	303

	Jordan				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	Jordan	Tunisia
Preparatory	95	91	63	5	74	84	37	18	351	49
Secondary	95	91	67	9	89	90	80	55	1215	192
University	96	94	79	18	95	95	90	80	1598	196
Primary job requires technical skill										
No	90	78	48	8	69	73	42	21	4487	1080
Yes	93	87	68	17	85	86	68	45	852	462
Primary job requires math or statistics										
Yes	92	87	63	12	83	86	68	48	2750	369
No	88	72	39	7	71	74	45	22	2601	1202
Primary job requires physical fitness										
Yes	92	80	52	9	72	77	49	25	3067	883
No	88	78	48	10	76	78	53	34	2284	688
Primary job requires computer skills										
Yes	96	95	76	20	92	92	86	67	1215	201
No	89	76	44	7	71	75	44	22	4136	1370
Primary job requires basic literacy										
Yes	93	88	63	12	84	86	69	45	3579	691
No	85	66	31	6	64	68	32	13	1772	880
Economic activity of prim. job										
Agriculture	82	65	15	5	59	47	13	5	171	163
Manufacturing & utilities	92	78	52	13	70	79	44	19	630	250
Construction	69	61	34	13	75	76	46	22	263	311
Wholesale & retail	86	72	40	11	54	59	33	8	521	84
Transp. & storage	84	77	53	19	83	91	69	24	194	42
Accomm. & food serv.	90	83	37	7	73	89	40	14	105	52
Other Services	95	87	61	8	80	83	68	48	3407	411
Missing	89	38	20	5	79	82	56	35	60	264
Size of firm, prim. job										
1-4	85	64	22	6	59	64	35	14	887	432
5-9	86	75	42	12	68	72	38	18	373	163
10-24	85	79	56	11	80	76	46	29	822	161
25-49	92	86	62	10	80	77	55	36	767	110
50-99	95	89	65	16	77	81	61	33	415	116

	Jordan				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	Jordan	Tunisia
100+/don't know	97	93	75	10	82	87	61	38	2087	533
Percent. of female employees in prim. job										
None	88	74	40	8	68	71	40	16	2448	664
< 1/4	94	88	67	11	82	83	56	29	965	188
1/4 - 1/2	96	93	70	15	87	86	73	53	1136	203
>1/2	86	70	53	7	73	75	48	30	640	266
Do not know	96	92	68	10	75	83	56	37	162	256
Sector										
Private	86	70	36	11	71	75	42	18	2448	1033
Public	97	95	76	8	80	82	68	49	2903	520
Total	90	79	50	10	74	78	51	29	5351	1577

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

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

	Jordan - min.	Jordan - pov.	Jordan - med.	Jordan - liv.	Tunisia - min.	Tunisia - pov.	Tunisia - med.	Tunisia - liv.
Nationality (Jor. omit)								
Syrian	2.625*	0.528*	0.483	1.148				
	(1.115)	(0.156)	(0.192)	(0.719)				
Egyptian	7.100***	1.103	0.617	0.674				
	(2.911)	(0.373)	(0.207)	(0.368)				
Other Arab	5.264**	1.350	1.340	1.189				
	(2.800)	(0.419)	(0.377)	(0.646)				
Other	15.935**	1.153	2.127					
	(16.191)	(0.885)	(2.486)					
Age group (15-19 omit.)								
20-24	2.909*	2.773**	0.851	3.668	3.593**	3.360**	3.406	1.055
	(1.250)	(0.997)	(0.347)	(3.003)	(1.558)	(1.490)	(2.255)	(0.763)
25-29	1.768	1.727	1.000	2.940	4.104**	3.275*	5.238*	0.763
	(0.789)	(0.720)	(0.440)	(2.233)	(2.088)	(1.525)	(3.723)	(0.585)
30-34	1.250	1.327	1.484	3.828	6.938***	5.161**	18.971***	1.381
	(0.604)	(0.619)	(0.703)	(3.097)	(3.678)	(2.778)	(14.992)	(1.163)
35-39	2.740	1.415	1.146	2.872	5.892**	6.315**	16.684***	1.657
	(1.417)	(0.739)	(0.578)	(2.433)	(3.401)	(3.987)	(13.449)	(1.444)
40-44	3.002*	1.401	1.042	5.464*	3.423	4.356*	27.045***	0.929
	(1.641)	(0.764)	(0.536)	(4.535)	(2.179)	(2.943)	(22.765)	(0.830)
45-49	1.576	1.196	1.343	3.878	7.099**	7.351**	46.891***	1.285
	(0.938)	(0.758)	(0.762)	(3.177)	(4.451)	(4.612)	(38.357)	(1.116)
50-54	0.839	0.641	0.817	7.206*	5.971**	8.032**	17.722***	0.844
	(0.519)	(0.424)	(0.469)	(6.074)	(4.103)	(5.884)	(14.194)	(0.787)
55-59	6.700	1.693	0.760	6.552*	6.085**	10.613**	26.015***	1.224
	(7.131)	(1.808)	(0.398)	(5.880)	(4.141)	(8.136)	(21.033)	(1.161)
60-64	3.626	2.085	1.725	7.581*	5.101	5.634	5.276	1.175
	(3.315)	(1.587)	(1.400)	(7.281)	(5.355)	(6.332)	(5.166)	(1.477)
65+	0.502	0.304	4.800	75.465***	4.108	4.803	80.921***	0.219
	(0.519)	(0.302)	(4.306)	(82.299)	(4.376)	(4.922)	(104.892)	(0.283)
Sex (male omit.)								
Female	8.231*	0.224	0.230	0.334	0.052***	0.048***	0.105	0.474
	(8.817)	(0.204)	(0.213)	(0.469)	(0.035)	(0.034)	(0.133)	(0.345)
Ever married (single omit.)								
Married	1.770	1.866	0.965	0.857	0.643	0.442	0.749	2.053
	(0.535)	(0.632)	(0.195)	(0.261)	(0.254)	(0.185)	(0.260)	(0.754)
Sex and ever married int.								
Female # Married	1.069	1.104	1.501	0.404	3.710**	6.338***	1.017	0.412
	(0.436)	(0.457)	(0.460)	(0.193)	(1.878)	(3.413)	(0.602)	(0.278)
Education (illit. omit.)								
Read & Write	1.432	1.512	1.080	0.294	1.774	1.451	1.451	1.282
	(0.496)	(0.542)	(0.437)	(0.192)	(0.570)	(0.426)	(0.475)	(0.509)
Basic Education	1.987*	1.032	1.518	0.441	0.859	1.257	2.025*	2.100
	(0.687)	(0.407)	(0.628)	(0.270)	(0.288)	(0.408)	(0.688)	(0.860)
Secondary Educ	2.276*	1.811	2.034	0.623	2.727	1.625	6.516***	6.212**
	(0.882)	(0.898)	(0.914)	(0.375)	(1.834)	(0.948)	(3.455)	(3.615)
Post-Secondary	4.570**	1.983	1.404	0.612	0.598	2.144	1.780	13.446**

	Jordan - min.	Jordan - pov.	Jordan - med.	Jordan - liv.	Tunisia - min.	Tunisia - pov.	Tunisia - med.	Tunisia - liv.
	(2.465)	(1.186)	(0.754)	(0.481)	(0.587)	(2.415)	(1.554)	(10.625)
University	0.942	0.929	1.596	1.150	2.088	12.095	3.171	14.064***
	(0.569)	(0.560)	(0.844)	(0.841)	(3.755)	(17.508)	(2.943)	(10.716)
Sex and educ. int.								
Female # Read & Write	0.068*	0.362	0.765	11.534	0.883	0.926	0.934	
	(0.082)	(0.363)	(0.784)	(15.998)	(0.599)	(0.686)	(1.189)	
Female # Basic Education	0.080*	0.947	0.496	2.193	1.098	1.901	1.071	2.896
	(0.088)	(0.925)	(0.466)	(3.262)	(0.712)	(1.271)	(1.367)	(2.365)
Female # Secondary Educ	0.074*	0.995	1.290	2.834	0.756	1.780	0.662	0.866
	(0.086)	(0.989)	(1.184)	(4.065)	(0.670)	(1.571)	(0.906)	(0.714)
Female # Post-Secondary	0.011***	0.656	0.961	0.612	8.436*	12.730*	8.867	0.619
	(0.013)	(0.679)	(0.934)	(0.910)	(8.625)	(15.499)	(13.052)	(0.637)
Female # University	0.052**	1.312	1.555	3.349	0.784	1.123	2.686	
	(0.057)	(1.190)	(1.407)	(4.565)	(1.630)	(1.999)	(4.224)	
Work experience								
Work experience from life history	1.013	1.016	1.074**	1.169***	1.041	1.057*	1.011	1.030
	(0.042)	(0.029)	(0.024)	(0.040)	(0.028)	(0.029)	(0.040)	(0.039)
Work experience from life history # Work experience from life history	1.000	1.000	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)
Urban (rural omit.)								
Urban	1.164	1.296	1.048	1.080	1.151	0.660	1.200	0.611*
	(0.329)	(0.326)	(0.237)	(0.402)	(0.262)	(0.151)	(0.263)	(0.136)
Region (capitol omit.)								
Jordan-North	0.917	0.681	1.233	1.117				
	(0.233)	(0.136)	(0.205)	(0.263)				
Jordan-South	1.189	1.005	0.978	1.551				
	(0.370)	(0.257)	(0.187)	(0.488)				
Tunisia-North West					0.407*	0.358**	0.266***	0.431*
					(0.156)	(0.128)	(0.092)	(0.178)
Tunisia-Center East					0.960	0.806	0.927	1.195
					(0.294)	(0.259)	(0.210)	(0.384)
Tunisia-Center West					0.581	0.431*	0.299**	0.601
					(0.223)	(0.175)	(0.110)	(0.244)
Tunisia-South East					0.786	0.783	0.866	1.434
					(0.419)	(0.420)	(0.321)	(0.541)
Tunisia-South West					0.503	0.172**	0.817	1.860
					(0.330)	(0.095)	(0.394)	(0.924)
Occupation (prof./man. omit.)								
Technicians and associate professionals	0.626	0.843	0.760	1.108	0.325	1.017	0.462	0.301
	(0.347)	(0.398)	(0.236)	(0.390)	(0.201)	(0.671)	(0.255)	(0.185)
Clerical support workers	0.977	1.259	0.595	0.700	0.281*	0.395	0.247**	0.076***
	(0.492)	(0.541)	(0.203)	(0.271)	(0.179)	(0.308)	(0.121)	(0.042)
Service and sales workers	0.404*	0.527	0.562	0.325*	0.849	0.964	0.530	0.303*
	(0.181)	(0.234)	(0.176)	(0.145)	(0.484)	(0.602)	(0.240)	(0.147)
Skilled agricultural, forestry and fishery workers	0.489	2.395	0.430	0.185*	0.829	0.452	0.036**	0.049*
	(0.536)	(1.881)	(0.300)	(0.157)	(0.678)	(0.360)	(0.043)	(0.063)
Craft and related trades workers	0.301*	0.629	0.605	0.721	1.275	0.940	0.441	0.557

	Jordan - min.	Jordan - pov.	Jordan - med.	Jordan - liv.	Tunisia - min.	Tunisia - pov.	Tunisia - med.	Tunisia - liv.
	(0.159)	(0.311)	(0.200)	(0.298)	(0.868)	(0.650)	(0.284)	(0.384)
Plant and machine operators and assemblers	0.765	0.732	0.537	0.886	1.340	1.608	0.865	0.624
	(0.467)	(0.375)	(0.186)	(0.411)	(1.003)	(1.216)	(0.506)	(0.396)
Elementary occupations	0.226**	0.523	0.303**	0.106***	1.009	0.683	0.173***	0.242**
	(0.110)	(0.269)	(0.125)	(0.062)	(0.635)	(0.455)	(0.087)	(0.128)
Social insurance (uninsured in informal firm omit.)								
Insured	1.435	1.145	1.142	1.430	2.529**	3.510***	1.999*	2.629**
	(0.281)	(0.271)	(0.153)	(0.377)	(0.766)	(1.039)	(0.565)	(0.854)
Uninsured in a formal firm	0.701	0.364*	0.761	1.786	1.281	1.508	1.182	1.706
	(0.360)	(0.150)	(0.238)	(0.898)	(0.391)	(0.402)	(0.359)	(0.621)
Contract (none omit.)								
Definite duration	0.870	0.885	0.606	0.698	0.854	0.543	0.532	0.145***
	(0.270)	(0.239)	(0.171)	(0.409)	(0.304)	(0.200)	(0.265)	(0.083)
Indefinite duration	1.819**	2.117***	1.062	1.256	3.103***	2.365*	2.977***	2.137*
	(0.393)	(0.429)	(0.161)	(0.290)	(1.061)	(0.865)	(0.926)	(0.809)
Regularity (irregular omit.)								
Regular	5.185***	3.229***	1.251	0.163***	0.281***	0.552	0.489	0.360*
	(1.398)	(1.012)	(0.428)	(0.076)	(0.104)	(0.190)	(0.199)	(0.164)
Work in est. (outside omit.)								
Yes	2.108**	1.266	1.177	1.637	1.412	1.891	1.104	1.296
	(0.610)	(0.353)	(0.363)	(0.709)	(0.398)	(0.616)	(0.326)	(0.595)
Required education (none omit.)								
Primary	0.519	1.073	1.744	1.220	1.316	0.931	1.274	1.466
	(0.246)	(0.549)	(0.608)	(0.758)	(0.454)	(0.307)	(0.432)	(0.520)
Preparatory	1.699	2.217*	1.277	1.276	3.403*	2.622	1.792	3.945*
	(0.823)	(0.871)	(0.259)	(0.573)	(2.029)	(1.528)	(0.893)	(2.534)
Secondary	1.498	1.649	1.470*	1.531	5.488**	2.660	3.125**	6.257***
	(0.463)	(0.437)	(0.241)	(0.499)	(2.942)	(1.467)	(1.228)	(2.827)
University	5.036***	4.058**	3.772***	1.542	12.306***	1.934	7.175**	13.448***
	(2.316)	(1.812)	(1.224)	(0.892)	(9.016)	(1.477)	(4.518)	(9.129)
Job req. tech skills (no omit.)								
Yes	1.192	0.975	1.117	1.392	1.490	1.334	1.852*	2.021**
	(0.346)	(0.246)	(0.190)	(0.270)	(0.364)	(0.317)	(0.524)	(0.525)
Job req. lit. skill (no omit.)								
Yes	1.995*	2.032**	1.181	1.133	2.142*	1.663	1.384	0.891
	(0.590)	(0.537)	(0.227)	(0.333)	(0.645)	(0.510)	(0.391)	(0.304)
Job req. math skill (no omit.)								
Yes	0.522	0.842	0.987	0.847	0.916	1.088	0.761	0.724
	(0.179)	(0.211)	(0.167)	(0.216)	(0.247)	(0.302)	(0.179)	(0.176)
Job req. fitness skill (no omit.)								
Yes	1.676**	0.973	1.072	1.035	0.814	1.141	1.145	0.880
	(0.321)	(0.161)	(0.153)	(0.177)	(0.186)	(0.247)	(0.265)	(0.223)
Job req. computer skill (no omit.)								
Yes	1.136	1.734	1.129	1.739**	0.897	0.927	2.038	2.594*
	(0.369)	(0.494)	(0.179)	(0.329)	(0.385)	(0.491)	(0.765)	(1.186)
Industry (agric. omit.)								
Manufacturing & utilities	2.669	2.858*	2.471	0.588	0.452	1.605	1.814	1.050
	(2.457)	(1.420)	(1.331)	(0.413)	(0.191)	(0.732)	(0.969)	(0.665)
Construction	1.027	2.338	1.861	0.494	1.052	3.499*	4.665**	4.159

	Jordan - min.	Jordan - pov.	Jordan - med.	Jordan - liv.	Tunisia - min.	Tunisia - pov.	Tunisia - med.	Tunisia - liv.
	(1.039)	(1.322)	(1.053)	(0.389)	(0.556)	(1.746)	(2.738)	(3.117)
Wholesale & retail	1.296	1.841	1.625	0.475	0.379	0.841	1.477	0.303
	(1.181)	(0.908)	(0.905)	(0.325)	(0.194)	(0.393)	(0.958)	(0.264)
Transp. & storage	1.237	1.900	2.396	0.652	1.422	5.364*	3.524	0.893
	(1.201)	(1.191)	(1.409)	(0.477)	(0.964)	(4.273)	(2.583)	(0.782)
Accomm. & food serv.	1.891	3.969*	1.535	0.713	0.969	9.363***	1.470	0.559
	(1.846)	(2.306)	(1.151)	(0.582)	(0.555)	(5.983)	(0.962)	(0.427)
Other Services	1.287	2.412	1.349	0.414	0.819	2.417*	2.015	1.318
	(1.159)	(1.092)	(0.723)	(0.280)	(0.374)	(0.890)	(1.118)	(0.707)
Missing		1.045	0.079**		0.772	2.193*	1.612	1.327
		(1.032)	(0.075)		(0.335)	(0.849)	(0.960)	(0.853)
Firm size (1-4 workers omit.)								
5-9	0.978	1.174	2.111**	1.630	1.059	1.154	0.749	0.831
	(0.315)	(0.391)	(0.549)	(0.639)	(0.392)	(0.400)	(0.288)	(0.299)
10-24	0.790	0.789	1.696*	0.949	2.991**	1.795	1.658	1.633
	(0.291)	(0.251)	(0.398)	(0.348)	(1.018)	(0.554)	(0.620)	(0.678)
25-49	0.890	0.853	1.783**	0.801	3.036*	1.817	1.740	1.460
	(0.291)	(0.262)	(0.392)	(0.239)	(1.442)	(0.797)	(0.792)	(0.556)
50-99	1.326	1.009	1.698*	1.472	1.922	1.646	2.009	1.754
	(0.543)	(0.340)	(0.433)	(0.531)	(0.817)	(0.736)	(0.886)	(0.855)
100+/don't know	2.149	1.449	3.152***	1.158	4.456***	3.860***	2.333*	1.842
	(0.903)	(0.448)	(0.691)	(0.370)	(1.564)	(1.336)	(0.794)	(0.716)
% firm female (none omit.)								
< 1/4	0.674	0.702	0.980	0.862	1.557	1.262	0.733	0.570
	(0.242)	(0.185)	(0.155)	(0.206)	(0.573)	(0.484)	(0.227)	(0.221)
1/4 - 1/2	0.984	0.990	0.909	1.044	2.372*	1.756	1.177	1.223
	(0.447)	(0.287)	(0.151)	(0.230)	(0.968)	(0.676)	(0.512)	(0.590)
>1/2	0.250**	0.260***	0.523**	0.546	1.894	1.834	1.019	0.733
	(0.123)	(0.100)	(0.126)	(0.197)	(0.773)	(0.703)	(0.487)	(0.351)
Do not know	0.555	0.773	0.742	0.837	0.619	1.717	0.610	0.892
	(0.325)	(0.381)	(0.233)	(0.334)	(0.241)	(0.835)	(0.230)	(0.383)
Firm sector (private omit.)								
Public	2.350**	3.953***	2.545***	0.459*	0.205***	0.199***	0.669	1.294
	(0.727)	(0.939)	(0.412)	(0.143)	(0.069)	(0.065)	(0.232)	(0.545)
N (Observations)	5236	5242	5242	5215	1359	1387	1387	1299
Pseudo R-squared	0.317	0.299	0.300	0.229	0.353	0.364	0.464	0.506

Source: Authors' calculations based on 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.

5.3 Wage gaps

We now turn to the size of wage gaps. For workers earning less than a certain benchmark, Table 3 presents the size of the gap between wages and the benchmark, in dinar. The average monthly wage gap is 81 JD for the minimum wage in Jordan, 80 JD for the poverty wage, 104 JD for the median wage, and 195 JD for the living wage. The gap in Tunisia is 92 TD for the minimum wage, 97 TD for the poverty wage, 141 for the median wage, and 219 TD for the living wage. Table 4 presents regression models of the size of the log-gap, which can be interpreted approximately in

percentage terms. It is important to keep in mind that these gaps are among those earning below the benchmark, so patterns can be different (even the opposite) of earning less than the benchmark, depending on the distribution of wages.

5.3.1 Wage gaps by worker characteristics

Jordanians tend to have smaller wage gaps than other nationality groups descriptively, but the differences in the multivariate models are mixed and rarely significant. In Tunisia, the mean living wage gap for the 15-19 age group is 317 TD, and differences by age in Tunisia tend to be significant, particularly for the living wage model. In Jordan, age plays a minor role in determining the wage gap, with significant differences for a few age groups.

In Tunisia, the living wage gap is higher for women than men (by 47%) as is the median wage gap (by 85%), while in Jordan, there is no significant gap by gender (both women and men have almost the same mean living wage gap around 195 JD). The results show that the living wage gap is smaller in Jordan for married individuals in comparison to single (by 18%, and 29% for the median wage) while the same gap is higher in Tunisia (by 29%), but women who are married have a significantly smaller gap in Tunisia for the median wage. There are some education differences, mostly smaller gaps at higher education levels, some significant, but a few cases of significant interactions by gender and education as well.

In Jordan the minimum and living wage gaps have significant but opposite quadratic relationships with work experience. In terms of location of residence, the living wage gap is significantly smaller for those living in urban areas in Jordan (by 10%) while in Tunisia, it is higher in urban areas (by 49%, with a significant result of 34% higher for the poverty wage as well). There are a few significant regional differences in the wage gap for the median and living wage in Tunisia.

5.3.2 Wage gaps by work characteristics

While in Jordan, white-collar (particularly professional and managerial) occupations have smaller mean wage gaps for the four benchmarks in comparison to other occupational status, the regression model shows only a significantly larger living wage gap for those with elementary (by 40%) and craft occupations in comparison to professional and managerial occupations (by 32%). In Tunisia, there are significantly smaller poverty wage gaps for service and sales workers and plant and machine operators, as well as significantly smaller median gaps for craft, machine operator, and elementary occupation workers.

When the respondent has social insurance in their job, the poverty wage gap is significantly smaller in Jordan (by 24%) and the minimum wage gap in Tunisia (by 53%). Definite duration contracts are associated with significantly smaller minimum wage gap (by more than 100%) in Jordan but a larger living wage gap (by 22%). In Tunisia only those who have indefinite duration contract have a smaller poverty, median, or living wage gap (by 36-46%) in comparison to those with no

contract. In terms of regularity, those with a regular work have smaller gaps in Jordan (50-69% across models) while in Tunisia, no significant differences are found in the regression model estimations. However, the results show that those whose work is in an establishment have significantly smaller median wage gaps in Tunisia (by 34%).

The descriptive statistics show minor differences between the mean wage gaps according to the level of education required for the work in both Jordan and Tunisia. However, for positions that require a university education, the mean living wage gap amounts to 125 JD while it amounts to 241 JD for positions requiring no formal schooling. This result carries over significantly into the regression model, and for median wages as well. In Tunisia only those requiring secondary education have a significantly smaller median wage gap (53%). In comparison to those whose jobs do not require specific skills, those whose jobs require basic literacy skills have a smaller living wage gap (by 18%) in Tunisia. For those whose work require fitness skills, they have also larger median wage gaps (by 19%) and a higher minimum wage gap (by 31%).

5.3.3   Wage gaps by firm characteristics

In terms of the firm's economic activity, those who work in manufacturing and utilities have a smaller living wage gap in comparison to those working in the agricultural sector in Jordan. In Tunisia, the result is reversed for minimum wages with higher wage gaps (by 123%). This finding is also valid for the wholesale and retail sector in Tunisia (by 151%). Moreover, those working in other services have higher minimum wage gaps (by 76%). Transportation and storage has a significantly smaller median wage gap as well as living wage gap, where construction and accommodation and food services also have smaller gaps as well.

The size of the firm has a significant impact in both Tunisia and Jordan for firms with more than 100 workers with smaller living wage gaps than those with only 4 workers or fewer. This is also the case for those working in other firm sizes, but only in Tunisia. Patterns by the percentage of the firm female are heterogenous and sometimes significant. Those working in the public sector in Tunisia have higher minimum wage gaps than those working in the private sector (by 79%) and median wage gaps are significant as well (64% higher in the public sector). In Jordan, in contrast, the median gap is significantly smaller in the public sector (34%). Different salary scales in the public sector and relative to the private sector are likely to be driving these results.

Table 3. Minimum, poverty, and living wage gaps (in dinar), by country

	Jordan				Tunisia				Jordan N (obs.)				Tunisia N (obs.)			
	Min. wage gap	Pov. wage gap	Med. wage gap	Liv. wage gap	Min. wage gap	Pov. wage gap	Med. wage gap	Liv. wage gap	*Min. wage gap N*	*Pov. wage gap N*	*Med. wage gap N*	*Liv. wage gap N*	*Min. wage gap N*	*Pov. wage gap N*	*Med. wage gap N*	*Liv. wage gap N*
Nationality																
Jordanian	81	80	96	168					*448*	*672*	*1795*	*4331*				
Syrian	87	101	155	303					*50*	*118*	*143*	*154*				
Egyptian	83	71	99	250					*11*	*51*	*132*	*165*				
Other Arab	56	75	109	194					*20*	*65*	*121*	*181*				
Other	119	61	94	236					*2*	*11*	*21*	*23*				
Age group																
15-19	88	95	142	250	121	117	180	317	*42*	*69*	*118*	*173*	*38*	*36*	*58*	*59*
20-24	77	83	92	211	101	99	137	248	*94*	*155*	*396*	*744*	*68*	*55*	*128*	*146*
25-29	77	85	102	189	66	70	119	212	*84*	*166*	*449*	*1048*	*54*	*49*	*111*	*144*
30-34	82	81	106	179	83	92	138	212	*92*	*149*	*359*	*990*	*54*	*47*	*109*	*152*
35-39	90	79	103	190	97	100	130	207	*70*	*118*	*285*	*705*	*49*	*44*	*104*	*149*
40-44	87	74	101	197	89	111	172	227	*51*	*95*	*244*	*491*	*58*	*50*	*97*	*149*
45-49	93	81	119	210	101	104	150	208	*43*	*76*	*182*	*377*	*51*	*47*	*93*	*144*
50-54	53	56	94	188	118	115	136	183	*31*	*54*	*109*	*196*	*36*	*33*	*86*	*126*
55-59	80	56	84	199	84	91	123	184	*9*	*16*	*38*	*77*	*20*	*20*	*41*	*71*
60-64	70	104	89	178	61	49	127	262	*6*	*9*	*20*	*37*	*13*	*14*	*23*	*26*
65+	67	80	178	281	86	87	191	257	*9*	*10*	*12*	*16*	*11*	*12*	*15*	*17*
Sex																
Male	86	84	103	195	92	95	132	198	*413*	*688*	*1752*	*3962*	*282*	*257*	*586*	*855*
Female	61	62	109	195	93	101	158	271	*118*	*229*	*460*	*892*	*164*	*143*	*266*	*306*
Marital status																
Single	74	77	106	211	96	100	145	238	*199*	*355*	*845*	*1612*	*202*	*179*	*360*	*446*
Married	86	82	103	188	90	96	138	204	*332*	*562*	*1367*	*3242*	*243*	*220*	*487*	*715*
Education Level																
Illiterate	93	78	115	268	84	84	153	245	*56*	*97*	*199*	*250*	*101*	*107*	*194*	*223*
Read & Write	80	97	115	243	104	97	128	203	*140*	*230*	*458*	*669*	*92*	*83*	*194*	*276*
Basic Education	83	76	106	200	93	107	143	229	*175*	*305*	*787*	*1672*	*191*	*158*	*362*	*495*
Secondary Educ	92	80	89	180	85	90	135	180	*66*	*118*	*310*	*726*	*32*	*29*	*56*	*105*
Post-Secondary	76	75	89	185	104	132	142	193	*32*	*59*	*191*	*451*	*10*	*8*	*18*	*26*
University	57	68	93	131	79	79	130	200	*62*	*108*	*267*	*1086*	*10*	*8*	*15*	*24*
Urban/Rural																
Urban	82	81	104	196	91	104	138	232	*396*	*670*	*1680*	*3696*	*187*	*171*	*347*	*529*
Rural	76	72	101	187	94	83	146	189	*135*	*247*	*532*	*1158*	*265*	*236*	*518*	*654*
Region																
Jordan-Middle	85	87	102	201					*251*	*390*	*1090*	*2156*	*0*	*0*	*0*	*0*
Jordan-North	75	70	111	187					*219*	*416*	*765*	*1835*	*0*	*0*	*0*	*0*

	Jordan				Tunisia				Jordan N (obs.)				Tunisia N (obs.)			
	Min. wage gap	*Pov. wage gap*	*Med. wage gap*	*Liv. wage gap*	*Min. wage gap*	*Pov. wage gap*	*Med. wage gap*	*Liv. wage gap*	*Min. wage gap N*	*Pov. wage gap N*	*Med. wage gap N*	*Liv. wage gap N*	*Min. wage gap N*	*Pov. wage gap N*	*Med. wage gap N*	*Liv. wage gap N*
Jordan-South	72	70	93	182					*61*	*111*	*357*	*863*	*0*	*0*	*0*	*0*
Tunisia-North					83	109	125	202	*0*	*0*	*0*	*0*	*99*	*68*	*218*	*342*
Tunisia-North West					113	115	162	236	*0*	*0*	*0*	*0*	*84*	*84*	*156*	*191*
Tunisia-Center East					94	95	135	223	*0*	*0*	*0*	*0*	*135*	*113*	*254*	*339*
Tunisia-Center West					80	74	152	240	*0*	*0*	*0*	*0*	*60*	*70*	*121*	*146*
Tunisia-South East					100	100	148	212	*0*	*0*	*0*	*0*	*53*	*50*	*81*	*119*
Tunisia-South West					86	81	182	249	*0*	*0*	*0*	*0*	*21*	*22*	*35*	*46*
Occup. of prim. job																
Managers and professionals	63	63	86	127	104	102	175	222	*57*	*104*	*269*	*1055*	*16*	*15*	*22*	*32*
Technicians and associate professionals	92	80	80	154	63	88	121	140	*18*	*34*	*124*	*324*	*7*	*5*	*16*	*31*
Clerical support workers	90	64	68	149	102	109	172	197	*17*	*31*	*131*	*333*	*20*	*17*	*25*	*50*
Service and sales workers	72	67	96	203	87	94	133	214	*130*	*229*	*601*	*1487*	*73*	*52*	*126*	*179*
Skilled agricultural, forestry and fishery workers	92	111	103	254	59	83	164	286	*50*	*67*	*112*	*140*	*11*	*19*	*30*	*31*
Craft and related trades workers	93	108	131	237	115	115	141	220	*117*	*198*	*378*	*609*	*125*	*108*	*247*	*345*
Plant and machine operators, and assemblers	85	74	95	194	51	50	105	159	*58*	*97*	*248*	*426*	*27*	*15*	*57*	*106*
Elementary occupations	68	71	114	242	86	88	144	249	*77*	*142*	*320*	*422*	*161*	*167*	*321*	*381*
Social insurance in prim. job																
Uninsured in informal firm	88	88	115	239	109	108	159	251	*375*	*610*	*1150*	*1770*	*245*	*255*	*450*	*554*
Insured	57	54	77	148	61	71	107	173	*145*	*283*	*1017*	*2991*	*100*	*68*	*244*	*409*
Uninsured in a formal firm	38	40	93	154	86	88	144	234	*10*	*22*	*43*	*87*	*101*	*80*	*157*	*201*
Work contract in prim. job																
No contract	89	86	116	225	102	106	157	251	*381*	*601*	*1231*	*2112*	*301*	*294*	*554*	*677*
Definite duration	35	54	100	199	78	81	127	216	*41*	*111*	*205*	*333*	*76*	*58*	*139*	*182*
Indefinite duration	55	53	69	148	66	67	104	158	*105*	*199*	*761*	*2386*	*73*	*52*	*165*	*315*
Regularity in prim. job																
Regular	67	61	89	181	88	94	135	215	*328*	*682*	*1909*	*4509*	*373*	*296*	*658*	*926*
Irregular	100	131	183	337	116	109	167	241	*203*	*235*	*303*	*344*	*79*	*111*	*207*	*257*

	Jordan				Tunisia				Jordan N (obs.)				Tunisia N (obs.)			
	Min. wage gap	Pov. wage gap	Med. wage gap	Liv. wage gap	Min. wage gap	Pov. wage gap	Med. wage gap	Liv. wage gap	Min. wage gap N	Pov. wage gap N	Med. wage gap N	Liv. wage gap N	Min. wage gap N	Pov. wage gap N	Med. wage gap N	Liv. wage gap N
Establishment in prim. job																
No	88	99	134	273	108	111	164	252	189	243	398	525	187	200	369	462
Yes	76	70	93	179	81	86	126	202	342	674	1813	4326	265	206	495	720
Level of education required for job																
No formal schooling	85	84	112	241	88	94	143	239	384	654	1324	1964	313	296	607	753
Primary	73	81	122	194	103	101	130	196	15	18	44	84	81	60	155	255
Preparatory	71	74	78	162	86	87	118	209	16	31	123	334	15	12	33	41
Secondary	71	66	80	159	106	119	157	170	49	97	388	1146	26	23	45	90
University	63	63	81	125	97	114	148	194	67	116	328	1317	14	13	22	39
Primary job requires technical skill																
No	81	81	105	200	90	96	143	226	468	804	1933	4111	347	318	658	866
Yes	85	75	97	160	100	104	135	201	61	111	275	732	97	84	189	290
Primary job requires math or statistics																
Yes	72	80	94	166	100	116	139	209	190	327	847	2429	56	46	116	191
No	87	81	109	221	90	94	142	222	341	590	1365	2424	396	361	746	988
Primary job requires physical fitness																
Yes	82	73	101	191	96	101	144	215	276	483	1171	2788	257	232	498	693
No	81	89	107	201	87	94	138	224	255	434	1041	2065	195	175	364	486
Primary job requires computer skills																
Yes	68	75	76	131	90	114	155	179	48	73	265	1007	19	17	31	63
No	82	81	106	208	92	96	140	223	483	844	1947	3846	433	390	831	1116
Primary job requires basic literacy																
Yes	71	75	89	165	95	99	133	194	234	412	1153	3197	131	107	241	396
No	89	83	116	239	91	97	145	236	297	505	1059	1656	321	300	621	783
Economic activity of prim. job																

	Jordan				Tunisia				Jordan N (obs.)				Tunisia N (obs.)			
	Min. wage gap	*Pov. wage gap*	*Med. wage gap*	*Liv. wage gap*	*Min. wage gap*	*Pov. wage gap*	*Med. wage gap*	*Liv. wage gap*	*Min. wage gap N*	*Pov. wage gap N*	*Med. wage gap N*	*Liv. wage gap N*	*Min. wage gap N*	*Pov. wage gap N*	*Med. wage gap N*	*Liv. wage gap N*
Agriculture	89	106	111	263	72	83	167	264	59	82	132	163	58	91	159	171
Manufacturing & utilities	85	69	105	191	77	83	125	216	70	162	330	551	82	59	157	219
Construction	92	131	158	277	119	115	143	210	65	79	146	220	82	75	168	236
Wholesale & retail	87	81	110	219	120	114	170	249	89	149	324	473	37	32	56	75
Transp. & storage	79	83	115	203	94	152	128	167	39	46	94	160	11	5	16	31
Accomm. & food serv.	68	65	94	218	49	82	94	209	16	28	69	95	15	6	32	43
Other Services	67	62	85	167	99	99	152	213	187	357	1087	3135	104	87	153	226
Missing	81	50	128	267	85	97	130	214	6	14	30	57	63	52	124	182
Size of firm, prim. job																
1-4	84	78	109	252	99	103	157	248	209	331	630	807	167	153	282	365
5-9	98	98	116	223	98	104	154	234	68	104	219	337	55	51	109	140
10-24	80	106	122	195	98	93	135	216	107	169	372	752	43	57	100	124
25-49	62	74	96	165	119	107	147	224	62	109	286	694	26	26	56	77
50-99	29	41	73	162	76	80	140	200	23	60	164	352	27	22	48	74
100+/don't know	86	62	77	138	74	82	116	189	62	144	541	1911	123	86	245	365
Percent. of female employees in prim. job																
None	90	85	108	218	97	97	145	224	333	524	1169	2255	222	209	410	554
< 1/4	52	68	88	153	91	101	123	188	57	107	320	879	37	35	92	137
1/4 - 1/2	85	80	78	150	99	90	139	194	48	97	369	980	31	33	59	98
>1/2	57	65	124	199	101	105	151	241	87	174	301	594	93	88	177	217
Do not know	60	70	72	152	69	91	129	214	6	15	53	146	69	42	127	177
Sector																
Private	85	83	112	231	91	100	137	223	433	747	1446	2152	311	284	649	872
Public	53	55	64	135	93	87	153	204	98	170	766	2701	133	117	200	292
Total	81	80	104	195	92	97	141	219	531	917	2212	4854	452	407	865	1183

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

Table 4. Regression models of log minimum, poverty, and living wage gaps, by country

	Jordan - min.	Jordan - pov.	Jordan - med.	Jordan - liv.	Tunisia - min.	Tunisia - pov.	Tunisia - med.	Tunisia - liv.
Nationality (Jor. omit)								
Syrian	0.029	-0.248	0.247	0.149				
	(0.236)	(0.195)	(0.140)	(0.122)				
Egyptian	0.224	-0.266	-0.239	-0.019				
	(0.197)	(0.156)	(0.159)	(0.101)				
Other Arab	-0.558*	-0.280	0.033	-0.443*				
	(0.233)	(0.194)	(0.124)	(0.216)				
Other	0.989**	-0.053	-0.173	-0.085				
	(0.332)	(0.380)	(0.231)	(0.249)				
Age group (15-19 omit.)								
20-24	-0.309	-0.343	-0.450**	0.029	-0.369	-0.234	-0.369**	-0.161
	(0.224)	(0.193)	(0.173)	(0.095)	(0.250)	(0.226)	(0.126)	(0.097)
25-29	-0.363	-0.208	-0.080	0.051	-0.516	-0.623*	-0.454**	-0.290**
	(0.225)	(0.175)	(0.157)	(0.105)	(0.310)	(0.272)	(0.142)	(0.103)
30-34	-0.224	-0.161	0.018	0.018	-0.639*	-0.401	-0.287	-0.555***
	(0.285)	(0.230)	(0.176)	(0.114)	(0.321)	(0.315)	(0.146)	(0.126)
35-39	-0.450	-0.225	0.072	-0.016	-0.669	-0.365	-0.588**	-0.481***
	(0.276)	(0.209)	(0.195)	(0.129)	(0.396)	(0.387)	(0.177)	(0.134)
40-44	-0.240	-0.375	-0.089	0.005	-0.848*	-0.266	-0.175	-0.705***
	(0.288)	(0.217)	(0.208)	(0.129)	(0.354)	(0.377)	(0.180)	(0.148)
45-49	-0.341	-0.118	0.027	0.059	-0.898*	-0.445	-0.399	-0.764***
	(0.305)	(0.229)	(0.205)	(0.136)	(0.411)	(0.443)	(0.223)	(0.171)
50-54	-0.923**	-0.650*	-0.046	-0.005	-0.653	-0.470	-0.554*	-0.745***
	(0.354)	(0.269)	(0.231)	(0.179)	(0.514)	(0.473)	(0.238)	(0.221)
55-59	-0.177	-0.258	-0.230	0.126	-0.842	-0.687	-0.831**	-1.069***
	(0.437)	(0.308)	(0.299)	(0.178)	(0.629)	(0.542)	(0.280)	(0.200)
60-64	-0.709	-0.444	-0.323	0.096	-1.296*	-1.489**	-0.797*	-0.656*
	(0.509)	(0.353)	(0.344)	(0.257)	(0.610)	(0.483)	(0.356)	(0.279)
65+	-0.367	-0.567	0.545*	0.197	-1.368*	-1.001	-0.430	-0.722**
	(0.381)	(0.289)	(0.267)	(0.284)	(0.599)	(0.581)	(0.328)	(0.269)
Sex (male omit.)								
Female	-0.590	-0.490	0.090	0.119	0.577	0.352	0.846***	0.473**
	(0.409)	(0.303)	(0.197)	(0.198)	(0.469)	(0.396)	(0.201)	(0.164)
Ever married (single omit.)								
Married	-0.227	-0.167	-0.288*	-0.188**	0.072	-0.021	0.170	0.293*
	(0.209)	(0.145)	(0.116)	(0.065)	(0.261)	(0.235)	(0.117)	(0.121)
Sex and ever married int.								
Female # Married	0.497	0.278	0.086	-0.050	0.069	0.081	-0.464**	-0.320
	(0.276)	(0.183)	(0.136)	(0.129)	(0.365)	(0.302)	(0.154)	(0.165)
Education (illit. omit.)								
Read & Write	-0.215	0.073	-0.291	-0.092	0.247	0.169	-0.182	-0.200
	(0.193)	(0.152)	(0.156)	(0.079)	(0.265)	(0.235)	(0.115)	(0.106)
Basic Education	-0.170	-0.194	-0.015	-0.234**	0.064	0.265	0.072	-0.211
	(0.160)	(0.159)	(0.117)	(0.077)	(0.272)	(0.233)	(0.140)	(0.118)
Secondary Educ	-0.172	-0.135	0.021	-0.333***	0.157	-0.042	0.141	-0.545*
	(0.300)	(0.201)	(0.145)	(0.098)	(0.486)	(0.365)	(0.207)	(0.210)
Post-Secondary	-0.771	-0.069	-0.179	-0.090	-0.365	-0.260	-0.223	0.162

	Jordan - min.	Jordan - pov.	Jordan - med.	Jordan - liv.	Tunisia - min.	Tunisia - pov.	Tunisia - med.	Tunisia - liv.
	(0.761)	(0.224)	(0.177)	(0.113)	(0.564)	(0.454)	(0.433)	(0.282)
University	-0.769**	0.113	0.136	-0.695***	-0.893	-0.617	-1.393*	-0.375
	(0.267)	(0.260)	(0.166)	(0.168)	(1.100)	(0.617)	(0.544)	(0.395)
Sex and educ. int.								
Female # Read & Write	-0.096	-0.100	0.565*	0.134	0.041	-0.195	-0.023	0.412*
	(0.448)	(0.266)	(0.263)	(0.183)	(0.509)	(0.425)	(0.217)	(0.169)
Female # Basic Education	0.290	0.294	0.035	0.388*	-0.351	-0.415	-0.296	0.257
	(0.408)	(0.284)	(0.190)	(0.181)	(0.409)	(0.332)	(0.204)	(0.158)
Female # Secondary Educ	0.786	0.546	-0.062	0.485*	-0.592	-0.395	-0.425	0.011
	(0.472)	(0.333)	(0.208)	(0.197)	(0.680)	(0.509)	(0.314)	(0.378)
Female # Post-Secondary	0.787	0.220	0.154	0.368	-1.593	-0.194	-0.316	-1.048*
	(0.813)	(0.398)	(0.250)	(0.225)	(1.301)	(0.624)	(0.501)	(0.478)
Female # University	0.745	0.062	-0.033	0.662**	-0.188	-0.502	0.857	0.182
	(0.486)	(0.352)	(0.222)	(0.236)	(0.929)	(0.654)	(0.575)	(0.448)
Work experience								
Work experience from life history	0.042**	0.001	-0.011	-0.032***	0.002	0.004	-0.011	-0.012
	(0.016)	(0.017)	(0.013)	(0.009)	(0.017)	(0.021)	(0.009)	(0.009)
Work experience from life history # Work experience from life history	-0.001*	-0.000	0.000	0.001*	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Urban (rural omit.)								
Urban	-0.208	-0.088	-0.074	-0.098*	-0.129	0.336**	-0.040	0.490***
	(0.124)	(0.110)	(0.087)	(0.049)	(0.144)	(0.108)	(0.084)	(0.073)
Region (capitol omit.)								
Jordan-North	-0.067	-0.042	0.034	0.040				
	(0.125)	(0.116)	(0.101)	(0.060)				
Jordan-South	-0.038	0.149	-0.044	0.069				
	(0.160)	(0.156)	(0.086)	(0.071)				
Tunisia-North West					0.113	0.246	0.162	0.283*
					(0.250)	(0.190)	(0.108)	(0.111)
Tunisia-Center East					-0.080	-0.353	-0.114	-0.098
					(0.203)	(0.194)	(0.116)	(0.084)
Tunisia-Center West					-0.028	-0.178	0.164	0.270*
					(0.218)	(0.204)	(0.145)	(0.122)
Tunisia-South East					0.076	0.067	0.038	-0.044
					(0.254)	(0.211)	(0.198)	(0.180)
Tunisia-South West					0.630	0.029	0.469**	0.221
					(0.472)	(0.290)	(0.179)	(0.228)
Occupation (prof./man. omit.)								
Technicians and associate professionals	0.117	0.317	0.089	0.154	-0.778	-0.026	-0.115	-0.161
	(0.371)	(0.239)	(0.132)	(0.149)	(0.678)	(0.463)	(0.302)	(0.298)
Clerical support workers	0.024	-0.015	-0.076	0.097	0.228	0.045	0.447	0.140
	(0.369)	(0.299)	(0.131)	(0.172)	(0.385)	(0.289)	(0.282)	(0.319)
Service and sales workers	-0.259	0.378	0.246	0.235	0.197	-0.958*	-0.406	-0.060
	(0.346)	(0.267)	(0.150)	(0.131)	(0.373)	(0.466)	(0.255)	(0.263)
Skilled agricultural, forestry and fishery workers	-0.471	0.221	-0.394	0.133	0.271	-0.527	-0.467	0.204
	(0.426)	(0.414)	(0.283)	(0.216)	(0.548)	(0.521)	(0.339)	(0.291)
Craft and related trades workers	0.033	0.395	0.004	0.320*	-0.201	-0.858	-0.668*	0.103
	(0.367)	(0.268)	(0.166)	(0.154)	(0.421)	(0.524)	(0.283)	(0.280)

35

	Jordan - min.	Jordan - pov.	Jordan - med.	Jordan - liv.	Tunisia - min.	Tunisia - pov.	Tunisia - med.	Tunisia - liv.
Plant and machine operators and assemblers	0.018	0.076	0.020	0.305	-0.752	-1.365*	-0.596*	-0.037
	(0.407)	(0.348)	(0.173)	(0.156)	(0.505)	(0.589)	(0.273)	(0.275)
Elementary occupations	-0.189	0.187	0.240	0.397**	-0.117	-0.881	-0.553*	0.281
	(0.400)	(0.305)	(0.150)	(0.144)	(0.414)	(0.461)	(0.258)	(0.259)
Social insurance (uninsured in informal firm omit.)								
Insured	0.062	-0.243*	-0.050	-0.013	-0.534*	-0.322	-0.168	-0.060
	(0.164)	(0.104)	(0.084)	(0.071)	(0.231)	(0.193)	(0.098)	(0.094)
Uninsured in a formal firm	-0.411	-0.334	0.133	-0.227	-0.183	-0.228	-0.112	0.032
	(0.268)	(0.198)	(0.144)	(0.281)	(0.181)	(0.182)	(0.101)	(0.095)
Contract (none omit.)								
Definite duration	-1.017***	-0.147	0.092	0.218*	-0.026	-0.459	-0.127	0.031
	(0.237)	(0.146)	(0.078)	(0.094)	(0.230)	(0.257)	(0.127)	(0.109)
Indefinite duration	-0.330	-0.110	-0.276***	-0.060	-0.013	-0.455*	-0.378***	-0.362**
	(0.172)	(0.121)	(0.078)	(0.070)	(0.222)	(0.206)	(0.110)	(0.111)
Regularity (irregular omit.)								
Regular	-0.688***	-0.667***	-0.534***	-0.497***	-0.186	0.040	0.067	0.194
	(0.164)	(0.125)	(0.140)	(0.083)	(0.255)	(0.228)	(0.134)	(0.149)
Work in est. (outside omit.)								
Yes	0.248	0.052	0.080	0.002	-0.421	-0.138	-0.344***	-0.071
	(0.178)	(0.152)	(0.099)	(0.080)	(0.221)	(0.185)	(0.085)	(0.091)
Required education (none omit.)								
Primary	-0.017	0.008	0.150	-0.273	0.128	0.202	0.015	-0.165
	(0.273)	(0.372)	(0.127)	(0.264)	(0.174)	(0.140)	(0.105)	(0.104)
Preparatory	-0.165	-0.171	-0.141	-0.121	-0.052	-0.075	-0.205	-0.054
	(0.245)	(0.266)	(0.097)	(0.081)	(0.468)	(0.303)	(0.150)	(0.140)
Secondary	0.164	0.157	-0.104	-0.130	0.628	-0.092	-0.534*	-0.240
	(0.194)	(0.165)	(0.076)	(0.081)	(0.570)	(0.443)	(0.237)	(0.222)
University	0.473	0.131	-0.282*	-0.621***	1.049	0.494	-0.038	-0.414
	(0.414)	(0.276)	(0.143)	(0.131)	(0.761)	(0.521)	(0.304)	(0.324)
Job req. tech skills (no omit.)								
Yes	0.118	-0.062	0.046	0.003	0.011	0.004	-0.081	0.024
	(0.144)	(0.113)	(0.092)	(0.076)	(0.180)	(0.166)	(0.098)	(0.086)
Job req. lit. skill (no omit.)								
Yes	-0.098	-0.093	-0.183	0.010	0.052	-0.072	-0.112	-0.179*
	(0.153)	(0.125)	(0.097)	(0.061)	(0.224)	(0.169)	(0.116)	(0.090)
Job req. math skill (no omit.)								
Yes	0.014	0.069	-0.022	-0.091	-0.139	0.228	0.000	0.042
	(0.166)	(0.148)	(0.094)	(0.061)	(0.232)	(0.182)	(0.118)	(0.086)
Job req. fitness skill (no omit.)								
Yes	0.056	-0.145	-0.003	0.002	0.307*	0.043	0.193*	-0.120
	(0.118)	(0.092)	(0.058)	(0.053)	(0.153)	(0.122)	(0.080)	(0.061)
Job req. computer skill (no omit.)								
Yes	0.127	0.245	-0.072	-0.138	-0.220	-0.309	-0.180	0.106
	(0.202)	(0.141)	(0.088)	(0.127)	(0.527)	(0.294)	(0.274)	(0.200)
Industry (agric. omit.)								
Manufacturing & utilities	-0.233	-0.399	-0.225	-0.457**	1.224**	0.174	0.087	-0.303
	(0.315)	(0.356)	(0.194)	(0.166)	(0.428)	(0.321)	(0.153)	(0.159)
Construction	-0.488	-0.090	-0.022	-0.225	0.755	0.274	-0.280	-0.529**
	(0.257)	(0.416)	(0.275)	(0.167)	(0.383)	(0.354)	(0.173)	(0.175)

	Jordan - min.	Jordan - pov.	Jordan - med.	Jordan - liv.	Tunisia - min.	Tunisia - pov.	Tunisia - med.	Tunisia - liv.
Wholesale & retail	-0.207	-0.393	-0.165	-0.155	1.508***	0.511	0.181	-0.102
	(0.306)	(0.360)	(0.195)	(0.153)	(0.407)	(0.303)	(0.169)	(0.175)
Transp. & storage	-0.441	-0.106	0.016	-0.262	0.602	0.564	-0.689*	-0.577*
	(0.367)	(0.438)	(0.242)	(0.186)	(0.832)	(0.629)	(0.327)	(0.278)
Accomm. & food serv.	-0.195	-0.544	-0.225	-0.093	0.385	0.048	-0.316	-0.352*
	(0.493)	(0.411)	(0.210)	(0.192)	(0.486)	(0.442)	(0.174)	(0.177)
Other Services	-0.132	-0.379	-0.254	-0.010	0.761*	0.379	-0.175	-0.169
	(0.297)	(0.339)	(0.186)	(0.128)	(0.342)	(0.232)	(0.132)	(0.142)
Missing		-1.233**	-0.315	0.048	0.850**	0.454	-0.081	-0.127
		(0.414)	(0.242)	(0.186)	(0.320)	(0.249)	(0.135)	(0.149)
Firm size (1-4 workers omit.)								
5-9	0.095	0.162	0.124	-0.149	0.254	0.066	-0.031	-0.025
	(0.149)	(0.161)	(0.120)	(0.107)	(0.189)	(0.179)	(0.110)	(0.109)
10-24	0.118	0.126	0.093	-0.066	0.066	-0.247	-0.407**	-0.232*
	(0.150)	(0.145)	(0.149)	(0.098)	(0.230)	(0.301)	(0.154)	(0.117)
25-49	0.161	0.046	0.060	-0.190	0.207	-0.067	-0.197	-0.310
	(0.179)	(0.155)	(0.134)	(0.100)	(0.314)	(0.240)	(0.180)	(0.178)
50-99	-0.450	-0.273	-0.103	-0.022	0.033	-0.385	-0.179	-0.386**
	(0.272)	(0.163)	(0.134)	(0.110)	(0.322)	(0.298)	(0.166)	(0.140)
100+/don't know	0.457	-0.064	-0.089	-0.420***	0.073	0.092	-0.288*	-0.352**
	(0.304)	(0.216)	(0.121)	(0.096)	(0.214)	(0.229)	(0.142)	(0.121)
% firm female (none omit.)								
< 1/4	-0.343*	0.126	0.082	-0.231*	-0.059	0.531*	-0.329*	-0.083
	(0.157)	(0.137)	(0.107)	(0.090)	(0.281)	(0.243)	(0.134)	(0.106)
1/4 - 1/2	-0.146	0.086	0.084	-0.064	-0.269	0.265	-0.232	-0.050
	(0.189)	(0.158)	(0.115)	(0.079)	(0.305)	(0.247)	(0.136)	(0.138)
>1/2	-0.221	0.335	0.459***	0.032	0.136	0.412	0.014	-0.104
	(0.259)	(0.173)	(0.128)	(0.125)	(0.296)	(0.246)	(0.121)	(0.140)
Do not know	-0.377	0.441	-0.048	0.059	-0.716*	0.159	-0.191	0.055
	(0.425)	(0.260)	(0.156)	(0.115)	(0.335)	(0.293)	(0.159)	(0.126)
Firm sector (private omit.)								
Public	-0.337	0.012	-0.338***	-0.084	0.785**	0.243	0.639***	0.004
	(0.173)	(0.121)	(0.079)	(0.083)	(0.277)	(0.200)	(0.111)	(0.122)
Constant	5.380***	5.207***	5.454***	6.392***	3.809***	4.657***	5.828***	5.738***
	(0.520)	(0.538)	(0.361)	(0.230)	(0.643)	(0.525)	(0.292)	(0.334)
N (Observations)	517	891	2156	4751	385	348	747	1016
R-squared	0.395	0.306	0.267	0.317	0.327	0.314	0.333	0.322

Source: Authors' calculations based on 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.

5.4   Simulations of social protection floors and universal basic income

In this section, we undertake simulations of a variety of social protection floor policies and compare them to current social assistance budgets.[16] The first few simulations are universal basic incomes of varying levels of generosity (living, minimum, median, and poverty wages). We note that the living wage is high, and alternative policies might target 50%, 25%, or 10% of the living

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[16] See Lustig et al. (2021) for a similar exercise in sub-Saharan Africa.

wage as a UBI. The second set of simulations are for closing the living, minimum, median, and poverty wage gaps in a targeted manner (for those wage workers making less than each of these benchmarks). These simulations assume that there are no behavioral responses to these policies and that they are perfectly targeted; the simulations do not address how such transfers would be funded beyond noting the funding level required. The simulations also do not address individuals in households that have no wage earners. They are thus likely an underestimate of the spending required, although social insurance may already cover more of the households with no wage earners and is not included in estimates.

Table 5 shows the results of these simulations. In 2015, social assistance spending amounted to 1.1% of GDP in Jordan and 0.8% of GDP in Tunisia (World Bank, 2015).[17] Universal basic income spending for wage workers would substantially exceed current spending, even to confer only a minimum wage (35% of GDP for a UBI at the living wage in Jordan and 17% in Tunisia; 24% of GDP for a median wage in Jordan and 13% in Tunisia; 16% of GDP for a poverty wage in Jordan and 9% in Tunisia; 13% of GDP for a minimum wage in Jordan and 6% in Tunisia).

Achieving a living wage through solely targeting living wage gaps would cost 12% of GDP in Jordan and 6% in Tunisia. Such levels of spending are well above current spending levels are very unlikely to be fiscally feasible. Targeted median wage transfers are also substantially above current spending levels, 4% of GDP in Jordan and 3% in Tunisia. Targeted efforts to close poverty and minimum wage gaps may be more achievable; doing so would cost 1.6% of GDP for either policy (gaps are similar) in Tunisia, and 1.3% of GDP for closing the poverty wage gap or 0.7% of GDP for closing the minimum wage gap in Jordan.

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[17] Social assistance statistics are for cash transfers, fee waivers and subsidies, in-kind assistance, and other social assistance. They do not include social pensions, which are primarily received by retirees (contributory) or elderly/disabled (also non-working) individuals. This focus on social assistance is logical, as social pensions are outside of our analysis of wage earners.

Table 5. Simulations of universal basic income and targeted wage-gap transfers

	Jordan				Tunisia			
	Average transfer (dinar per month to wage earner)	Number of wage workers targeted	Total annual transfer in billions of dinars	Total transfer as a % of GDP	Average transfer (dinar per month to wage earner)	Number of wage workers targeted	Total annual transfer in billions of dinars	Total transfer as a % of GDP
Current social assistance spending				1.1				0.8
Universal basic income								
Living wage	502	1,647,022	9.92	35.0	562	2,154,485	14.53	17.0
Median wage	330	1,647,022	6.52	23.0	420	2,154,485	10.86	12.7
Poverty wage	229	1,647,022	4.53	16.0	292	2,154,485	7.55	8.8
Minimum wage	188	1,647,022	3.72	13.1	200	2,154,485	5.17	6.1
Targeted to wage gaps								
Living wage gap	195	1,494,606	3.50	12.3	219	1,772,727	4.66	5.5
Median wage	104	840,605	1.05	3.7	141	1,490,384	2.52	3.0
Poverty wage gap	80	375,068	0.36	1.3	97	1,143,153	1.33	1.6
Minimum wage gap	81	202,308	0.20	0.7	92	1,205,752	1.33	1.6

Source: Authors' calculations based on JLMPS 2016 and TLMPS 2014. Current social assistance spending from World Bank (2015).
Notes: Number of wage workers targeted denotes the number of people who would have to receive either the universal basic income or targeted wage gap transfers.

6   Discussion and conclusions

Countries around the world, and particularly in MENA, are working to write new social contracts and redesign social protection systems. Historically, MENA countries relied on a social contract providing public services and public sector employment in exchange for political acquiescence, but this social contract has faltered (Devarajan & Ianchovichina, 2018; Diwan, Malik, & Atiyas, 2019; El-Haddad, 2020; Malik & Awadallah, 2013). A new social contract, with a greater emphasis on private sector employment, is needed and has been needed for some time (Loewe & Jawad, 2018; World Bank, 2004). Minimum wages and social protection floors, including UBI, 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 UBI 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

The aim of this paper was to investigate the determinants of earning a minimum, poverty, median, or living wage in Jordan and Tunisia in order to better design and target public policies that aim to reduce poverty and wage inequalities. 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 key finding also shows that minimum wage policies do not guarantee living wages.

We find that the chances of earning minimum, poverty, median, and living wages depend on the demographic characteristics of workers. In particular, men and women have similar chances of earning such wages in Jordan, while in Tunisia women, especially unmarried young women, are less likely to do so than men. This result in Jordan contradicts that found by Alhawarin and Kreishan (2017) focusing on the private sector and using JLMPS (2010) while the other findings are generally similar. We also find that younger workers are vulnerable to falling below these benchmarks, especially for Tunisia. Workers whose jobs require higher educational levels or specific skills are more likely to earn various wage benchmarks.

Furthermore, social insurance, regularity of work, indefinite work contracts, and the firm size play a role in earning a minimum, poverty or living wage. Receipt of various wage benchmarks varies substantially by industry, with agriculture often having the greatest shortfall (particularly in Tunisia, despite lower minimum wages in this sector). We also show that those working in the public sector are more likely to earn a minimum or poverty wage in Jordan, while in Tunisia, they are less likely to earn such wages. This sectoral result is also found by Nguyen (2013) while Kristensen and Cunningham (2006) and Alaniz, Gindling and Terrell (2011) show the reverse result as that for Jordan. The differences between our results and past studies may be explained by our much richer set of covariates. In terms of wage gaps, we find similar patterns as for determining

the chances of earning a minimum, poverty, median, or living wages are also often found for explaining the size of wage gaps.

We used our results to simulate a number of social protection floor policy options, from universal basic income to more targeted transfers. We demonstrate that most of these policies are not fiscally viable. UBI and even targeted transfers to address living wage gaps would require far more social assistance spending than is currently undertaken in Jordan and Tunisia. Smaller and more targeted transfers might be fiscally feasible.

6.2   Limitations

It is important to keep in mind that these analyses focused on wage earners. Not all households have wage earners; those that do not may either have independent income (e.g. pensions from the social insurance system), work in non-wage work, or be particularly poor and in need of assistance (since they have no earners). Household-level needs will also vary depending on the number of earners and number of dependents in the family. We calculate that only 18% of all individuals (regardless of age) are wage earners in Jordan and 29% in Tunisia. Nevertheless, the percentage of households with at least one wage earner is 58% in Jordan and 56% in Tunisia. Wage policy thus potentially affects the income of the majority of households. However, households without wage earners will require different social assistance approaches.

Increasing the number of members per household who work, and in particular increasing female labor force participation, could potentially lead to lower wages per worker being required to meet basic needs in multi-earner households. However, reducing the unpaid care work women had been engaging in might create new expenses for the household. Another limitation to the study is that we do not examine the social assistance benefits already received or any other type of benefit or ALMP. Wage-earning households may be receiving these benefits already, which is why we compare spending on transfers to current social assistance spending; not all spending to close wage gaps would necessarily be new spending.

While minimum wages are relatively straightforward to measure (since they are set by policy), poverty lines and especially living wages are not as straightforward to measure. In terms of poverty, questions of absolute versus relative poverty and the exact reference point are central and debatable decisions (Ravallion, 2020). We followed national measures for absolute poverty and presented a relative measure (the median). The national basis of absolute poverty lines in nutritional requirements is also, however, debatable (Ravallion, 2020).

Concerns about whether such 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, and as we demonstrated, in developing countries they yield metrics substantially higher than the minimum wage or poverty wage. As a point of comparison,

in Europe, while some countries in the "core" of Europe have minimum wages that are above living wages, other peripheral countries have minimum wages below living wages (Fabo & Belli, 2017). The approaches used to generate living wages in Jordan and Tunisia are consistent with the concept of meeting basic needs of food, housing, and other needs (Global Living Wage Coalition, 2020; Guzi, Kahanec, & Kabina, 2016; WageIndicator Foundation, 2020). However, additional data collection, research, standardization, and validation of global living wage measures is needed.

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 and thus selected sample (Guzi, Kahanec, & Kabina, 2016) and local stakeholder participation that may not necessarily be representative (Global Living Wage Coalition, 2021b). The additional extrapolation from rural to urban areas in Tunisia also presents a challenge. These limitations underscore the need for nationally representative and standardized data collection efforts to measure living wages.

6.3   Policy implications

In this section we discuss the implications of our findings for policy design, specifically for minimum wages and in terms of universal basic income and social protection floors. It is important to keep in mind that while our results have implications for these policies, any changes in policy would have to be carefully designed and rigorously evaluated.

6.3.1   Design of minimum wages

Our results suggest that most workers in Jordan and Tunisia were earning minimum wages, although enforcement gaps remain and may need to be addressed. Although coverage of minimum wages (at 90% in Jordan and 74% in Tunisia) is better than in many Latin American and Caribbean countries (Cunningham, 2007) and much higher than most of sub-Saharan Africa (Bhorat, Kanbur, & Stanwix, 2017), higher coverage in Jordan than Tunisia and in other developing countries underscores potential for increasing coverage. Increasing compliance and coverage is challenging; a study from South Africa, for example, shows that additional local labor inspectors do not lead to increased compliance with minimum wages (Bhorat, Kanbur, & Mayet, 2012). Increases in enforcement, if effective, may also have tradeoffs 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 tradeoffs. Compliance and coverage are 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, primarily informal 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). Tradeoffs in terms of potential wage increases, employment effects, and sectoral shifts must be kept in mind (Gindling, 2018; Neumark, 2018; Neumark & Corella, 2021).

Beyond the level of minimum wages, there are a number of aspects of minimum wage policy design to consider. One important change 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 (which, as the pattern of minimum wage increases particularly in Jordan indicates, can be highly variable),[18] regular (annual) minimum wage increases should occur based on inflation and the cost of living. Additional changes may develop through political processes, but accounting for inflation in set policy can improve predictability of wages and ensure they better track supporting basic needs. However, indexed minimum wages may then diverge from other fundamentals, such as labor 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 labor and paid work outside the home, but these challenges are particularly acute in MENA, which has the world's largest gender disparity in unpaid work (Economic Research Forum & UN Women, 2020; International Labour Organization, 2018). Even when they engage in paid employment outside the home, women in MENA face the same immovable care hours (Assaad, Krafft, & Selwaness, 2017). Part-time work can potentially help address difficulties reconciling unpaid domestic work and paid employment (Krafft & Assaad, 2015). However, minimum monthly wages disincentivize the creation of part-time jobs (Ozturk, 2009); minimum wage policies that focus on hourly wages or scale monthly wages accordingly by hours could be helpful. The downside of minimum hourly wages rather than monthly wages is that they may preclude living wages; if hourly wages become the norm employers may more frequently adjust employment on the intensive (hours) margin, such that monthly income becomes more variable.

Both Jordan and Tunisia have sector-specific wages, for agriculture in Tunisia and Jordan for clothing and domestic work in Jordan. These wages may be designed to keep wages low and exports competitive in some sectors but lack a clear economic or social policy justification;

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[18] Starting in 2022, based on a 2020 decision, Jordan was supposed to adjust the minimum wage based on the previous year's inflation. However, with the COVID-19 crisis and economic challenges, the government decided to postpone the minimum wage increase until 2023 (Mustafa, 2022).

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

workers in these sectors have the same basic needs but are getting shortchanged. Simplification of minimum wages could, potentially, increase their effectiveness and enforcement (Bhorat, Kanbur, & Stanwix, 2017; Rani, Belser, Oelz, & Ranjbar, 2013).

An issue specific to Jordan is the existence of nationality-specific wages. Jordan's national social protection strategy recognizes these as a disincentive to hire Jordanians (Hashemite Kingdom of Jordan, 2019) and indeed, half of jobs created in recent years went to non-Jordanians (Assaad, AlSharawy, & Salemi, 2022). Plans are in place for non-Jordanians and Jordanians minimum wages to converge by 2023 (Mustafa, 2022). Although ending the nationality-specific wages could potentially have some additional consequences, including lower employment for already-struggling Syrians and higher prices for goods and services, these secondary effects do not justify the distortions created by nationality-specific wages, which should be ended. Hourly wages might also help make Jordanians and Syrians more competitive with immigrant workers; for instance Egyptian migrant workers tend to work substantially longer hours per week than Jordanians or Syrians.[20]

A further design issue for minimum wages is whether they should be region-specific. Poverty lines in Jordan are now national, but in Tunisia there are different poverty lines for rural, suburban, and urban areas, reflecting variation in cost of living. Designing minimum wages to reflect cost of living has some challenging tradeoffs; higher minimum wages in more costly areas may help make progress towards living wages and ensure basic needs are met. However, they may also disincentivize hiring in more costly 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 more urban and better-off coast (Hanmer, Tebaldi, & Verner, 2018), but there are distinct tradeoffs with this, and all, minimum wage design decisions.

6.3.2 Design of UBI, targeted transfers, or social protection floors

Our findings also have important implications for the design of potential UBI schemes. A major concern with UBI is its impact on the labor market. However, cash transfers result in little to no change in labor market outcomes overall (Baird, Mckenzie, & Özler, 2018; Salehi-Isfahani & Mostafavi-Dehzooei, 2018). More problematic and relevant for the cases of Jordan, Tunisia, and other low- and middle-income countries are the tradeoffs between a smaller transfer, universally, versus more targeted cash transfers (Hanna & Olken, 2018).

Our estimates and simulations underline the infeasible cost of implementing a UBI, even at the lowest minimum wage level. A similar problem arose in microsimulations of UBI in twelve sub-Saharan African countries; providing UBI to a reasonable level would not be budget neutral given limited current social protection spending (Lustig, Jellema, & Pabon, 2021). Countries are

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[20] Authors' calculations based on JLMPS 2016.

therefore considering UBIs at much lower levels than minimum wages or the poverty line, for example, Tunisia has discussed a transfer of 350 dinar annually per child (UNICEF, Centre de Recherches d'Etudies Sociales, & International Labour Organization, 2019). Whether spending limited social assistance at low levels universally or at higher levels in a more targeted fashion is a question with important political and poverty-reduction tradeoffs.

Although fiscal space is limited, our case studies also highlight the potential for countries to work towards social protection floors, whether targeted cash transfers or UBIs. The COVID-19 pandemic has underscored the need for a more robust social protection strategy – as unexpected shocks met a sparse safety net in MENA (Krafft, Assaad, & Marouani, 2021). The pandemic has exacerbated poverty and inequality in the region and globally (Acevedo, Castellani, Cota, Lotti, & Székely, 2022; Delaporte, Escobar, & Peña, 2021; Krafft, Assaad, & Marouani, 2022; Miguel & Mobarak, 2021). In Jordan and Tunisia, formal workers were less likely to be laid off or experience income losses than informal workers (Krafft, Assaad, & Marouani, 2021). At the same time, the pandemic also led to the rapid creation of new emergency assistance programs, expansion of existing programs, and substantial additional spending on social assistance (Krafft, Assaad, & Marouani, 2022; UNICEF & Jordan Strategy Forum, 2020).

One opportunity for further progress towards social protection floors is subsidy reform; social protection strategies have been shifting away from goods subsidies towards cash transfers (Auktor & Loewe, 2021; Salehi-Isfahani & Mostafavi-Dehzooei, 2018).[21] Jordan, for example, in the 2010s shifted from fuel subsidies to cash transfers and then likewise from bread subsidies to cash transfers (Hashemite Kingdom of Jordan, 2019). Tunisia, however, continues with its subsidies programs (Nasri, Helmy, & Amara, 2022), although subsidy reform is one idea for financing a social protection floor (UNICEF, Centre de Recherches d'Etudies Sociales, & International Labour Organization, 2019). There certainly is potential, although politically challenging, to shift social spending towards a robust social protection floor.

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[21] If subsidies are removed, the cost of living necessarily increases, but efficiency gains from providing cash rather than subsidized goods can still create welfare gains.

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Appendix

Table 6. Logit model (odds ratios) for earning minimum wages, by country, private sector only

	Jordan - 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	3.125*	4.567**
	(1.502)	(2.229)
25-29	2.004	6.316***
	(1.009)	(3.456)
30-34	1.154	13.692***
	(0.619)	(8.068)
35-39	2.953	9.707***
	(1.686)	(6.250)
40-44	2.747	4.337
	(1.709)	(3.313)
45-49	1.479	12.257**
	(0.976)	(9.393)
50-54	1.179	9.306**
	(0.788)	(7.398)
55-59	9.151*	9.829*
	(9.790)	(8.756)
60-64	3.980	7.703
	(4.001)	(10.312)
65+	1.410	22.572*
	(1.500)	(30.128)
Sex (male omit.)		
Female	8.524	0.052***
	(10.403)	(0.041)
Ever married (single omit.)		
Married	2.074*	0.541
	(0.704)	(0.259)
Sex and ever married int.		
Female # Married	0.711	3.621*
	(0.311)	(2.295)
Education (illit. omit.)		
Read & Write	1.334	2.341*
	(0.500)	(0.905)
Basic Education	1.825	1.110
	(0.729)	(0.426)
Secondary Educ	2.109	3.509
	(0.917)	(3.465)

	Jordan - min. priv.	Tunisia - min. priv.
Post-Secondary	4.704**	0.390
	(2.762)	(0.511)
University	0.759	0.250
	(0.525)	(0.384)
Sex and educ. int.		
Female # Read & Write	0.085	0.758
	(0.127)	(0.553)
Female # Basic Education	0.062*	0.706
	(0.078)	(0.557)
Female # Secondary Educ	0.092	0.159
	(0.122)	(0.216)
Female # Post-Secondary	0.006***	1.615
	(0.008)	(2.449)
Female # University	0.059*	
	(0.074)	
Work experience		
Work experience from life history	1.014	1.022
	(0.047)	(0.035)
Work experience from life history # Work experience from life history	1.000	1.000
	(0.001)	(0.001)
Urban (rural omit.)		
Urban	1.108	1.040
	(0.440)	(0.306)
Region (capitol omit.)		
Jordan-North	0.959	
	(0.290)	
Jordan-South	1.469	
	(0.647)	
Tunisia-North West		0.319*
		(0.148)
Tunisia-Center East		0.988
		(0.326)
Tunisia-Center West		0.917
		(0.438)
Tunisia-South East		1.190
		(0.688)
Tunisia-South West		0.603
		(0.540)
Occupation (prof./man. omit.)		
Technicians and associate professionals	0.883	0.739
	(0.530)	(0.681)
Clerical support workers	1.219	0.275
	(0.706)	(0.286)
Service and sales workers	0.573	2.303
	(0.299)	(1.971)
Skilled agricultural, forestry and fishery workers	0.816	3.147
	(0.921)	(3.793)
Craft and related trades workers	0.490	4.787
	(0.275)	(4.151)
Plant and machine operators and assemblers	1.593	3.834

	Jordan - min. priv.	Tunisia - min. priv.
	(1.146)	(3.740)
Elementary occupations	0.370	3.817
	(0.196)	(3.307)
Social insurance (uninsured in informal firm omit.)		
Insured	1.493	1.945
	(0.367)	(0.744)
Uninsured in a formal firm	0.367	1.622
	(0.235)	(0.617)
Contract (none omit.)		
Definite duration	1.173	1.870
	(0.405)	(0.767)
Indefinite duration	2.075**	2.507*
	(0.585)	(1.128)
Regularity (irregular omit.)		
Regular	5.437***	0.368*
	(1.544)	(0.153)
Work in est. (outside omit.)		
Yes	2.167*	1.503
	(0.692)	(0.454)
Required education (none omit.)		
Primary	0.272*	1.279
	(0.149)	(0.444)
Preparatory	2.191	3.377
	(1.486)	(2.146)
Secondary	1.557	87.842***
	(0.623)	(84.191)
University	6.318**	52.556***
	(3.668)	(62.062)
Job req. tech skills (no omit.)		
Yes	1.621	1.352
	(0.542)	(0.444)
Job req. lit. skill (no omit.)		
Yes	2.277*	2.413*
	(0.745)	(0.885)
Job req. math skill (no omit.)		
Yes	0.454	0.690
	(0.184)	(0.242)
Job req. fitness skill (no omit.)		
Yes	1.695*	0.890
	(0.390)	(0.252)
Job req. computer skill (no omit.)		
Yes	1.595	1.989
	(0.510)	(1.349)
Industry (agric. omit.)		
Manufacturing & utilities	3.096	0.208**
	(2.872)	(0.116)
Construction	1.062	0.507
	(1.097)	(0.328)
Wholesale & retail	1.479	0.195**
	(1.361)	(0.117)

	Jordan - min. priv.	Tunisia - min. priv.
Transp. & storage	1.071	0.554
	(1.043)	(0.476)
Accomm. & food serv.	2.662	0.453
	(2.661)	(0.277)
Other Services	1.380	0.339
	(1.251)	(0.217)
Missing		0.387
		(0.222)
Firm size (1-4 workers omit.)		
5-9	1.070	1.082
	(0.390)	(0.428)
10-24	0.686	1.981
	(0.271)	(0.915)
25-49	0.830	2.626
	(0.311)	(1.513)
50-99	1.063	4.090**
	(0.492)	(2.206)
100+/don't know	2.144	7.750***
	(1.233)	(3.851)
% firm female (none omit.)		
< 1/4	0.755	2.065
	(0.338)	(0.980)
1/4 - 1/2	1.018	0.838
	(0.586)	(0.550)
>1/2	0.288*	1.332
	(0.163)	(0.700)
Do not know	0.254	0.275*
	(0.188)	(0.161)
N (Observations)	2387	895
Pseudo R-squared	0.304	0.338

Source: Authors' calculations based on 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.