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Abstract

In this paper, we analyze the structure of employment and job creation in Jordan over the period from 2010 to 2016. This period coincided with a notable downturn in the economy, which substantially reduced the rate of job creation. Nonetheless, Jordan continued to rely on a growing population of migrant workers whose numbers were further boosted by the influx of Syrian refugees, resulting in approximately one out of two new jobs going to a non-Jordanian. For Jordanians, employment rates continued to fall, and employment became more precarious for the poorest, least educated workers, despite an increase in the share of public sector employment. Unskilled Jordanian males shifted out of informal regular wage employment into irregular work as well as non-employment. With regard to labor market dynamics, the share of the public sector in the first-time employment of new entrants had started to increase after an extended decline. The increase has now reversed again, but many recent entrants still managed to obtain public sector jobs five years after entry. The transition from school to work is very protracted, with a large fraction of youth remaining in the not in education, employment or training (NEET) state for an extended period of time.

Keywords: Employment Structure; Employment Dynamics; Job Creation; Labor Market; Jordan.

JEL Classifications: E24, J21, J23, N35

ملخص

في هذه الورقة ، نقوم بتحليل هيكل التوظيف وخلق الوظائف في الأردن خلال الفترة من 2010 إلى 2016. تزامنت هذه الفترة مع تباطؤ ملحوظ في الاقتصاد ، مما أدى إلى انخفاض كبير في معدل خلق الوظائف. ومع ذلك ، استمر الأردن في الاعتماد على عدد متزايد من العمال المهاجرين الذين تعززت أعدادهم بتدفق اللاجئين السوريين ، مما أدى إلى الحصول غير الاردنيين على وظيفة واحدة من بين وظيفتين جديدتين. وبالنسبة للأردنيين ، واصلت معدلات التوظيف انخفاضها ، وأصبحت العمالة أقل احتمالا بالنسبة للعمال الأفقر والأقل تعليما ، على الرغم من زيادة حصة العمالة في القطاع العام. وتحول الذكور الأردنيون غير المهرة من العمالة غير الرسمية ذات الأجور العادية إلى عمل غير منتظم بالإضافة إلى عدم التشغيل إطلاقا. وفيما يتعلق بديناميكيات سوق العمل ، بدأت حصة القطاع العام في التشغيل لأول مرة للوافدين الجدد في الزيادة بعد انخفاض مطول. وقد انقلب هذا الارتفاع مرة أخرى ، ولكن العديد من المشاركين الجدد تمكنوا من الحصول على وظائف في القطاع العام بعد مرور خمس سنوات على دخولهم. اما الانتقال من المدرسة إلى العمل فقد طال جداً ، مع بقاء جزء كبير من الشباب خارج التعليم أو التشغيل أو التدريب لفترة زمنية طويلة.

1. Introduction

Jordan's employment challenges, including the need to absorb a growing, young, and increasingly educated workforce, were described as "daunting" in a National Employment Strategy (NES) drawn up in 2011 for the period 2011-2020 (NES, 2011). Since then, as expressed in a recent ILO report on the Jordanian labor market, a challenging situation has become even more challenging due to the regional security crisis and its economic consequences (Razzaz, 2017).

According to the NES, past "solutions" to Jordan's employment challenges were to absorb more workers in the public sector, open the door to cheap migrant labor, and facilitate the migration of qualified Jordanian workers to Gulf labor markets. The NES and other Jordanian stakeholders have argued that such solutions would only exacerbate problems in the long run. They have proposed instead a strategy that would generate high-quality jobs for Jordanians, prepare a well-trained and motivated workforce, and provide social protection to all workers (El-Rayyes, 2014; Jordan Strategy Forum, 2016). Specifically, the NES goals included moving from a low-skill traditional service economy up the value chain toward an economy that can export high-value-added products and services.

No sooner had the 2011 NES been completed than Jordan was hit by a series of powerful external shocks that shaped the course of the economy over the subsequent six years. Growth rates slowed dramatically, trade routes to Syria and Iraq were disrupted, tourism revenues were severely curtailed, and the country absorbed large flows of refugees fleeing conflict in neighboring countries, particularly Syria. At the same time, Jordan benefited from a large-scale program of international assistance, embodied in the Jordan Response Plan (JRP) (JRPSC, 2017). The Jordan Compact, an agreement negotiated with the European Union in 2016, offered aid and trade concessions to Jordanian exporters in exchange for Jordan granting refugees work permits (Salemi, Bowman and Compton 2018). However, firms only benefited from reduced trade barriers if they hired a sufficient number of Syrians (Lenner & Turner, 2018).

The proportion of non-nationals in the Jordanian workforce has continued to grow over the past decade, even before the large influx of Syrian refugees. The Population Census placed the share of non-nationals in total employment at 16% in 2004 and 36% in 2015 (Department of Statistics (Jordan), 2004, 2015). As we show below, the majority of employed non-nationals were, in fact, Egyptian rather than Syrian. At a time when employment growth has slowed, employment rates for Jordanians have fallen, and when a large number of refugees need to be accommodated, it becomes increasingly important to understand the role of non-Jordanian workers, including migrants and refugees, in the Jordanian labor market. After a brief overview of job creation for Jordanians and non-Jordanians, we conduct separate analyses of the structure of employment for these two groups of workers.

The most notable trends that emerged in the evolution of the structure of employment for Jordanian nationals since 2010 were the re-emergence of the public sector as an important source of job growth and the increased formalization of private wage employment, as social insurance coverage continues to be further extended into small and micro-enterprises. In contrast, non-

Jordanians continued to be concentrated in informal wage employment in the private sector, constituting about two-thirds of this category of employment.

In what follows, we discuss the relationship between economic growth and employment creation for Jordanians and non-Jordanians in Section 2, the structure of employment and its evolution from 2010 to 2016 in section 3, with separate sub-sections for Jordanians and non-Jordanians, and provide conclusions in Section 4.[3]

2. Economic growth and job creation for Jordanians and Non-Jordanians

After achieving fairly high rates of economic growth in the late 2000s, Jordan's economy was hit by a series of external shocks starting with the global financial crisis in 2008, which was closely followed by the region-wide crisis resulting from the Arab Spring uprisings and the ensuing instability. As shown in ***Figure 1***, rates of economic growth reached over 8% in the period from 2004 to 2007 only to decline to just over 2% in 2010 and then remain within the 2-3% range until 2016. The employment-to-population ratio (EPR) for Jordanians reacted positively to the growth of the 2000s, but with some lag, rising from 32% in 2003 to peak at 35% in 2009.[4] The economic slowdown eventually caught up with employment, leading to a 4.5 percentage point (p.p.) drop in the EPR from 2011 to 2016.

The drop in EPR suggests that employment growth was not keeping up with population growth, which was itself quite rapid during the 2010-2016 period as described in Assaad, Krafft, and Keo (2018). As reported in that paper, employment rates for Jordanians have been declining steadily since 2009. According to the Jordan Labor Market Panel Survey (JLMPS), the employment to population ratio among Jordanians aged 15 to 64 has declined from 38% in 2010 to 32% in 2016, a trend that is broadly in line with estimates from the official Employment and Unemployment Survey (EUS) and that makes Jordan the third lowest country in the world by this measure. The decline has been more pronounced among Jordanian males 15-64, with employment rates going from 64% in 2010 to 55% in 2016 (Assaad, Krafft, & Keo, 2018).

Another issue of great concern for Jordan is the rising proportion of employment that is made up of non-nationals at a time when overall employment growth is declining. Because data on non-Jordanian employment in Jordan was not measured by the official Employment and Unemployment Survey before 2017 (Azzeh, 2017), an assessment of this important issue requires the triangulation of data from a number of sources. First, we use data from the JLMPS 2010 and 2016, and make some adjustments for the underestimation of non-Jordanian employment in 2010. Second, we use data from the population censuses of 2004 and 2015. Third, we use data from the EUS, which did not adequately represent non-Jordanians before 2017, but which was re-designed in that year to more accurately represent them. Again, we make adjustments to the EUS employment figures in 2010 to account for the underestimation of non-

[3] Most of the analysis is focused on wage employment in the public and private sectors. Own account employment is discussed in more detail in Rizk & Salemi (2018).

[4] Prior to 2017, the EUS did not provide estimates for the employment-to-population ratio of non-Jordanians (Azzeh, 2017).

Jordanians. These data sources differ in their periodicity and in their methods. The Population Census is only available for 2004 and 2015 and it tends to report higher employment rates than either the EUS or JLMPS.[5] Although the 2010 wave of the JLMPS, like the EUS, was not designed to measure non-Jordanian employment, the 2016 wave included a refresher sample that over-sampled areas with high proportions of non-Jordanians. This strategy allowed for estimates of the major groups of non-Jordanian populations, with the appropriate weights that reflect the 2015 Population Census counts.[6]

The only estimate we found for the number of non-Jordanian workers in Jordan around 2010 was in the National Employment Strategy (NES, 2011), which provided a range of between 350 and 500 thousand non-Jordanian workers in 2009. We, therefore, use the mid-point of that estimate – 425 thousand – as a reasonable estimate for the number of non-Jordanians in 2010 for both the EUS and JLMPS.

Table 1 shows the population and employment estimates for Jordanians and non-Jordanians at different points in time, as well the absolute and relative growth of employment for the two groups from each of the three data sources.[7] The estimates of the number of non-Jordanian workers in Jordan for the period 2015-2017 varied from 595 thousand in the JLMPS 2016 to 858 thousand in the 2015 Population Census, with the EUS 2017 providing an intermediate figure of 669 thousand. Since the estimates of the population of non-Jordanians 15+ are roughly the same across the three sources, the variation in the number of non-Jordanian workers comes from differences in the employment rate estimates for this group, which varied from 32% in the JLMPS 2016, to 35% in the EUS 2017, to 45% in the 2015 Population Census.[8]

As shown in Table 1, the JLMPS shows that the employment rate for Jordanians 15+ declined from 36% in 2010 to 30% 2016, but there was also a sharp decline in employment rates among non-Jordanians, from 46% to 32%, reflecting the increasing share of refugees, as opposed to migrants, in the non-Jordanian population in Jordan over this period. A similar relative decline in employment rates among non-Jordanians is shown by the population censuses, but from much higher initial levels.

The JLMPS showed an average annual employment growth rate of 2.1% per annum (p.a.) for the period 2010 to 2016, which comes out to about 38,000 jobs per year, on average. This overall rate is a weighted average of a fairly low growth rate for Jordanians of 0.7% p.a. (or 9,000 jobs per year), and a fairly high rate of 5.6% p.a. for non-Jordanians (28,000 jobs per year), reflecting

[5] See comparisons between the EUS, JLMPS and Population Census in Krafft & Assaad (2018)

[6] See Krafft & Assaad (2018) for a more complete discussion of this issue and the way that the weights were constructed.

[7] The EUS does not provide aggregate estimates of employment, but only shares of the population that is employed. We obtained aggregate estimates of employment by interpolating the population of Jordanians 15+ across the two population censuses and multiplying these estimates by the employment rates reported in the EUS.

[8] The definition of employment we used in analyzing the JLMPS data relies on the definition adopted by the 19th International Conference of Labour Statisticians, which specifies that employment is work performed for others in exchange for pay or profit. We use the short reference period of seven days, whereby a person is considered employed if he or she has engaged in such work for at least one hour during the reference period (ILO, 2013).

a shift of the workforce toward non-Jordanians. The slow growth of employment among Jordanians is particularly notable given the relatively rapid rate of growth of the Jordanian population 15+, which was 3.8% p.a. during the same period, a fact that is consistent with the observed sharp drop in employment rates. A similar, but less extreme picture emerges from the EUS, where the employment of Jordanians has grown at 2.8% p.a. compared to 3.9% p.a. growth for the Jordanian population 15+.

Given the divergent path of employment growth for Jordanians and non-Jordanians, non-Jordanians made up an increasing share of employment over time. The adjusted JLMPS estimates suggest that the non-Jordanian share of employment rose from 25% in 2010 to 31% in 2016, which is similar to the EUS estimates of 26% in 2010 and 31% in 2017.[9] Despite the similarity in the initial and final shares of non-Jordanian employment in the two surveys, the JLMPS estimated that 75% of new jobs are going to non-Jordanians and the EUS estimates this share at 48%.[10] The population census estimated the proportion of non-Jordanians in total employment in 2015 to be even higher at 36%, up from 16% in 2004. This places the proportion of net job growth going to non-Jordanians at 53%. In comparison, the NES estimated that 40% of all jobs went to non-Jordanians in 2008-09 (NES, 2011, p. 26). Other estimates suggest that the proportion of jobs going to non-Jordanians in the 2002-2006 period was as high as 53% (Assaad & Amer, 2008). All of these estimates suggest that at least half of all net job growth in Jordan is going to non-Jordanians.

With regard to the composition of the non-Jordanian workforce by nationality, the JLMPS 2016 estimated that 54% are Egyptian, 20% are Syrian, and 20% are other Arabs, which mostly include non-nationalized Palestinians and Iraqi nationals (see Figure 4). The published data from the EUS 2017 does not provide a breakdown of non-Jordanians by nationality.

This analysis suggests that Jordanians faced a labor market with declining rates of employment growth overall, due to a slowdown in economic growth, and a rising share of non-Jordanians in the workforce, most of whom are in fact migrant workers rather than refugees. At the same time, employment rates among Jordanians have been declining substantially since 2009. While it is not possible to causally attribute this decline to the widespread use of migrant workers in the Jordanian economy, this must at least be considered as a hypothesis in a time of slowing economic growth.

To get another perspective on the evolution of job creation for Jordanian nationals over time, we examine results from the New Job Opportunities Survey, which has been carried out since 2007. As shown in Figure 2, the number of net new jobs created every year declined from about 60,000 in the late 2000s to nearly 40,000 by 2015, a decline of about one third. This compares to an average annual job growth of 9,000 for Jordanians as ascertained by JLMPS and 38,000, as ascertained by the EUS. The decline in annual job growth in the New Jobs Opportunities Survey

[9] This estimate adjusts non-Jordanian employment in 2010 in the EUS is a similar way that the JLMPS estimate was adjusting using the mid-point figure from the NES.

[10] The discrepancy arises from the higher estimate of employment growth among Jordanians in the EUS relative to JLMPS.

is attributable to a decline in the number of job entries rates rather than an increase in the number of job exits.

To examine the nature of job exit over time, we use retrospective data from the JLMPS 2016, for the period 2005 to 2015. Note that these data were obtained through recall and may, therefore, suffer from some recall error (Assaad, Krafft, & Yassin, 2018). Figure 3 displays the job separation rate[11] and the share of separations that were voluntary over a ten-year timeframe (2005-2015). The job separation rate remained fairly flat at about 3 percent from 2005 to 2009 with the share of voluntary separations fluctuating around 80%. After a spike in the separation rate in 2010, the separation rate increased gradually from 3% in 2011 to 4% in 2014. At the same time, the share of voluntary separations fell to an average of about 70%. The period of slowdown in growth is therefore associated with a higher job separation rate as well as a higher percentage of these separations being involuntary.

3. The Structure of Employment and Its Evolution from 2010 to 2016

As the Jordanian economy slowed and as the workforce increasingly shifted toward non-Jordanians in the 2010 to 2016 period, the Jordanian labor market was also becoming more informal. As shown in Figure 4, which is based on JLMPS data, looking first at all workers, the share of informal but regular[12] employment in total employment increased from 20% to 25% and the share of irregular or casual wage work increased from under 1% to 8%.[13] The share of formal employment, in both the public and private sectors, declined. This seeming informalization of the Jordanian labor market is almost entirely due to the increasing share of non-Jordanians in the workforce and the increasing informalization of their employment. The share of informal wage employment among non-Jordanians increased from 46% in 2010 to 68% in 2016, including 15% in irregular wage employment, which had practically been non-existent in 2010. At the same time that the proportion of non-Jordanians in the labor force was increasing, their employment was becoming more precarious.

Among Jordanians, the share working informally but regularly declined, but there was also a substantial increase in the percentage working irregularly, from under 1% to 5%. The percentage of Jordanians in the public sector rose from 39% to 43%, and those in formal private wage employment also rose slightly from 24% to 25%. Jordanians were, therefore, less likely to be employed informally over time, a form of employment that was becoming increasing dominated by non-nationals. Some may see this as good news, as the share of formal employment, both public and private, appears to have increased among Jordanians. However, an increasing share of

[11] The job separation rate is calculated by dividing the number of job exits in the reference year by the number of jobs in the previous year.

[12] Regular employment refers to employment where the worker is working continuously with the same employer or in the same job, whereas irregular employment involves workers who work intermittently for different employers, often as day laborers or casual laborers.

[13] We define formal employment as employment that is covered by social insurance or is subject to a legal contract between the worker and the employer. Non-national workers who have a work permit but are not covered by social insurance or a legal work contract are considered informal.

Jordanians moved into irregular employment, one of the most precarious forms of employment, and some into non-employment, which has also been rising among Jordanians. In what follows, we analyze the dynamics of employment, separately among Jordanians and non-Jordanians, to determine which groups of Jordanians were most likely affected by the downturn and increased competition with foreign workers.

3.1. The Structure of Employment among Jordanians

The public sector has been the dominant employer of Jordanian nationals for some time and continued to be so until 2016. As shown in Figure 5, the share of public sector employment among Jordanian nationals, according to EUS data, had increased from 35% in 2001 to 39% in 2008, declined slightly to 38% by 2010, and then resumed its increase to reach 40% by 2015. The public sector share declined slightly in the past two years to reach 39% in 2016 primarily as a result of a decline in the share among employed Jordanian women, who have traditionally been more concentrated in public employment than men.

Figure 6, which is based on JLMPS data, also confirms the increase in the share of the public sector in total employment, although the levels are slightly higher than in the EUS. In contrast to the EUS, which shows a decreasing share of public sector work among women from 2010 to 2016, the JLMPS shows that the public sector share has increased among women as it did among men, going from 46% to 49% of total female employment. The differences appear to be entirely due to differences in 2010 rather than in 2016, when the two sources produce very similar estimates around 47-49%. In contrast, the EUS estimates the public sector share among women to be 50% in 2010, compared to 46% in JLMPS 2010.[14]

Besides the increase in the share of public sector employment, Jordanians also saw an increase in the share of formal private sector employment, which increased from 24% to 25% of employment for Jordanians, but again in a more pronounced way for women than for men. This apparent formalization of employment in the private sector could be the result of the social security reforms that were carried out around 2010, which aimed to extend social insurance coverage to workers in small and microenterprises.[15] However, it could also be due to the crowding out of Jordanian workers from informal, but regular wage employment, which is increasingly becoming the domain of foreign workers in Jordan.

For Jordanian men, the substantial decline in informal regular wage employment from 19% to 13% was partly counteracted by a substantial increase in irregular wage employment, which went from under 1% to about 6% of male employment. This is a somewhat alarming trend, as this is one of the most vulnerable forms of employment and its increase is an indication of employment distress among certain groups in Jordanian society, an issue that we will discuss

[14] These discrepancies could be due to differences in methodology related to the measurement of economic activity and employment. The Jordanian Department of Statistics (DoS) just adopted in 2016 the recommendations of the 19th International Conference of Labor Statisticians, which limits the definition of employment to work for pay or profit. This is the definition that JLMPS was using in 2010 and 2016. A comparison of the evolution of the structure of employment between JLMPS 2010, 2016 and EUS is shown in Appendix A.

[15] This issue is discussed in more detail in Al-Hawarin and Selwaness (2018)

further below. For Jordanian women, the increasing formalization of employment came at the expense of informal but regular wage employment, as in the case of men.

Own account work, in the form of either self-employment or as an employer was very limited among Jordanian women. It constituted 20% of employment for men in 2010, but declined to 17% in 2016, probably an indication of the difficulties micro and small enterprises were facing in tough economic times.

To examine how different segments of Jordanian society have fared regarding employment in the 2010-2016 period, we first disaggregate the structure of employment by the wealth quintile of the individual's household and then by educational attainment.[16] We continue to disaggregate by sex as well. As shown in Figure 7, Jordanian men at all levels of wealth relied strongly on public sector employment. In fact, while the share of the public sector was lowest for the highest two wealth quintiles in 2010, it appears to have caught up with that of the lower wealth quintiles by 2016. The reason public sector employment is so equally distributed among Jordanian males is that public sector employment for men is not as conditional on educational attainment in Jordan as it is in other contexts, such as Egypt, because it includes low-skilled jobs in the military and security services.[17]

Formal private wage employment, on the other hand, appears to exhibit a strong relationship with household wealth. It is lowest for the lowest three wealth quintiles, at about 17% in 2010, but has increased by 3-4 p.p. from 2010 to 2016. It was substantially higher for the fourth (26%) and fifth (33%) wealth quintiles, in 2010, but declined for both by 2016.

The contrast in the trend of formal private wage employment between the three lower wealth quintiles and the top two is intriguing. The increasing share for the lowest three wealth quintiles was offset by a decrease in informal but regular wage work, which is what would be expected if social insurance coverage were extended deeper into small and micro enterprises (Al Hawarin & Selwaness, 2018). These enterprises would most likely have been hiring wage workers informally, and now they are increasingly becoming formalized. The decline in the share of private formal wage work for the upper two quintiles was partly offset by an increase in the share of public sector work for these groups. This is probably an indication of a reduction in the supply of good private sector jobs in the economy as a result of the economic slowdown, and increased hiring in the public sector, especially in positions requiring more educational qualifications. The decline in the share of employers noted in the aggregated results above is almost exclusively in the top two wealth quintiles, where the bulk of employers are.

The increase in the share of the highly vulnerable irregular wage work was most pronounced in the lowest three wealth quintiles and almost negligible for the highest. Irregular work is known to increase when economic conditions are tough and informal wage workers find it hard to find regular employment. The fact that informal regular wage employment declined and irregular

[16] Wealth quintiles are from a wealth index based on housing conditions and ownership of household durables using a by now well-established method first proposed by Filmer & Pritchett (2001).

[17] The proportion of proportion of public sector workers with less than secondary education is 16% in Egypt in 2012 as compared to 42% in Jordan in 2016 (calculated by authors from ELMPS 2012 and JLMPS 2016).

work increased among Jordanian males from the poorest wealth quintile suggests that poor male workers are having trouble finding regular employment in the private sector. A similar phenomenon was observed in Egypt during the economic crisis that followed the 2011 revolution (Assaad & Krafft, 2015). In Jordan, this is likely compounded by the fact that it is this category of worker that was facing the greatest degree of competition from non-national labor.

For Jordanian women of working age, employment rates fell from 14% in 2010 to 11% in 2016, but the decline was much sharper at lower levels of household wealth. Women in the lowest wealth quintile had a decline in their rate of employment from 8% to 4%, as compared to a decline from 19% to 15% at the highest wealth quintile. This suggests that women in marginal informal jobs tended to leave these jobs at higher rates as the economy worsened. The result is that Jordanian women have become more dependent on the public sector for employment over time at all wealth levels, as shown in Figure 8. The largest increases in the share of public sector employment occurred for women in the two lowest wealth quintiles.

In contrast, the proportion of Jordanian working women employed in either formal or informal private sector wage work declined for these two quintiles, especially the lowest. Combined with the declining employment rates for these women, this suggests that women in marginal, less desirable jobs were increasingly pushed out of the workforce. Conversely, women belonging to the third and fourth quintiles experienced a slight reduction in public sector employment but a substantial increase in private formal wage work. Finally, like their male counterparts, women in the top quintile increased their public sector employment and decreased their private formal wage employment.

We now move to an analysis of the type of employment over time by educational attainment and by gender. As shown in Figure 9, males at almost all education levels except for those without formal educational certificates rely heavily on the public sector for employment, and this reliance has increased over the 2010-2016 period with a few limited exceptions. Basic education graduates, who constituted 37% of the male working age population, increased their probability of public sector employment from 3% to 43%. Men with secondary education, the second largest group, with 19% of the male working age population, also increased their probability of public sector employment by six p.p. from 41% to 47%. The probability of university educated men working in the public sector also increased by two p.p. from 47% to 49%. The only group of educated males who reduced their probability of public sector employment is those with post-secondary education, whose share in the working age population is only 7% and declining.

The probability of formal private wage employment has either stayed the same or increased for Jordanian men of different education levels. As shown in Figure 9, the largest increase in the probability of formal private wage employment was for Jordanian men with no educational qualifications. This probably reflects social security reforms to extend coverage to small and microenterprises, which are most likely to hire these workers. Secondary and post-secondary educated male workers also experienced an increase in the probability of formal private employment, whereas the probability remained stable for those with basic and university

education. Combined with the increasing probability of public sector employment, this confirms that the degree of employment formality has increased for Jordanian men at all education levels.

The share of those in informal private, but regular wage work among the least educated fell by 50%, from 34% to 17% at the same time that the percentage of irregular wage workers increased substantially. Again, this suggests that the vulnerability of some of these low-skilled workers increased as some of them moved from regular to irregular informal wage work as discussed above, while a fraction of them had their employment formalized. Similar patterns can be seen among the much larger category of workers with basic education.

As shown in Figure 10, women's employment in the public sector exhibits a stronger link to educational attainment as compared to men. The share of public sector employment among employed Jordanian women in 2010 increased steadily with education, from 21% for those without educational certificates to 50% for those with university education. It is notable, however, that this share increased more over time for the less educated categories. It increased by 11 p.p. from 2010 to 2016 for those with basic education, but by only 1-3 p.p. for those with secondary and university education, and it actually decreased by two percentage points for those with post-secondary education.

The share of formal private wage employment among employed Jordanian women also increases with education. We saw earlier that the share of this type of employment was increasing over time among Jordanian women (from 32% in 2010 to 35% in 2016). This increase was partly driven by the increasing share of private wage employment among the educated, and the increasing weight of the educated among employed women in Jordan.

Given the increasingly important role of public sector employment for both men and women in Jordan, it is interesting to see how the occupational structure of such employment has changed over time in response to the security challenges and the service needs the country has faced over the 2010-2016 period. As shown in Figure 11, the occupational structure of public sector work has not changed all that much for men. A small proportion was engaged in delivering social services, such as education and health, but a large proportion was in elementary occupations and protective services. The female public sector workforce saw an increase in the proportion of workers engaged in health and education, reflecting the rising need to provide services to refugee populations. Together, these two categories went from 54% to 59% of the female public sector workforce.

In summary, the economic slowdown and competition from foreign workers had contrasting effects on poor and less educated Jordanian men and women. Poor and less educated Jordanian male workers did not see an increase in public sector employment, but experienced a slight increase in formal private sector work, probably the result of continuing efforts to formalize private sector employment by extending social insurance coverage to small and micro enterprises. They also experienced a reduction in informal regular wage employment, but a sharp increase in irregular wage employment, the most vulnerable type of employment in difficult economic times. Informal wage employment, whether regular or irregular, is the type of employment where Jordanians men are subject to the greatest competition from foreign workers,

and the poor and less educated among them are the ones most vulnerable to such competition. Analyzing the change in employment rates by educational attainment, Assaad, Krafft, & Keo (2018) found that employment rates among the less educated males declined the most, another symptom of employment distress.

Poor, less educated Jordanian female workers are less subject to competition from foreign workers, who tend to be mostly men, but are likely to be affected by the economic slowdown. We find that poor women, few of whom were engaged in employment, have reduced their employment rates disproportionately to other groups. Those who remained employed are therefore increasingly in the public sector. In general, Jordanian women are increasingly reliant on the public sector for employment and may have benefited from the increasing employment opportunities in education and health care that resulted from the response to the refugee influx.

3.2. The Evolution of the Structure of Private Wage Employment for Jordanians

We focus in this section on the evolution of private wage employment, in particular.[18] As discussed above, the informality of employment has increased overall in Jordan due to a rising number of foreign workers who tend to be concentrated in informal jobs. Among Jordanians, the share of formal private wage employment has in fact increased from 2010 to 2016, but formal employment has become less stable over time as the share of temporary contracts has increased. Private wage employment constituted about 42% of total employment for Jordanians in both 2010 and 2016. The share of formal employment in private wage employment increased slightly from 57% to 59%, but the share of permanent jobs in formal wage employment declined from 57% to 52%. Even more concerning is the extent to which informal wage employment became more precarious. The share of irregular employment within informal wage employment went from 6% to 31%, underscoring the substantial increase in economic vulnerability experienced by poorer and low-skilled Jordanians.

A recent report by the Jordan Strategy Forum emphasized the central importance of the private sector in Jordan, and in particular Small and Medium Enterprises (SMEs), in future job creation in Jordan (Jordan Strategy Forum, 2016). Examining the evolution of private wage employment by firm size, we can see in Figure 12 that the proportion of Jordanians employed in small and medium enterprises (10-99 workers) has actually increased substantially over the 2010-2016 period, while there has been diminished employment in microenterprises (<10 workers) and in large firms (100+).[19] The share of SMEs increased from 28% in 2010 to 37% in 2016. The share in large firms decreased from 22% to 17% and the share in microenterprises fell from 33% to 29%. At the same time, the share of workers employed outside fixed establishments, most of whom are irregular, increased slightly from 13% to 14%.

[18] This section focuses on private wage employment, defined as those working for a wage in the private sector. This omits those working in the "international" or "other" sectors. Self-employment and entrepreneurship are the subject of another paper in this series (Rizk & Salemi, 2018).

[19] There are various definition of MSEs, microenterprises and large enterprises. For the purpose of this paper we consider micro-enterprise to be firms of fewer than 10 workers, SMEs to be firms of 10 to 99 workers and large enterprises to be firms of 100 workers and above.

The disproportionate growth of employment in the SME segment of the private sector was even more pronounced for female workers who remained employed. Jordanian women in the private sector are highly unlikely to work outside fixed establishments, as these jobs are generally considered socially unacceptable in Jordan's conservative society, and they generally eschew jobs in small workplaces, where there may not be other women around. Accordingly, their probability of being in microenterprises was lower than that of male workers in 2010 (28% versus 35%), and both male and female chances of being in that segment had fallen by about six percentage points by 2016 (Figure 12). In contrast, the probability of female employment being in SMEs was higher than for males in 2010 (41% versus 25%) and increased more over the six-year period (14 p.p. versus 8 p.p.). Women were slightly under-represented in large enterprises relative to men in 2010, and their probability of being in that segment declined somewhat faster than for men. It, therefore, appears that the SME segment is becoming slightly more hospitable to female workers over time in Jordan compared to larger enterprises.

The structure of Jordanians' employment by industry in the private sector tends to be heavily weighted toward trade and services. As shown in Figure 13, nearly two-thirds of private sector employment in 2010 was in trade or services, with only 25% in manufacturing and 3% in agriculture. This industrial structure of employment remained fairly stable through 2016. Within services and trade, the share of transport and storage declined a bit.

The formality status of workers is strongly related to whether they work in an establishment and the size of the establishment in which they work. As shown in Figure 14, the vast majority working outside establishments and those in establishments of 1-4 workers were informal (80% of those outside establishments and 77% of those working in firms of 1-4 employees in 2010). The proportion informal fell sharply with firm size to 57% for firms with 5-9 workers, 30% in firms of 10-24 workers, and 11% in firms of 25-49 workers in 2010. Over time, informality has declined for each of these firm sizes, by 2 p.p. for firms of 5-9 workers, 10 p.p. for firms of 10-24 workers, and 3 p.p. for firms of 25-49 workers. These results attest to the relative success of efforts to extend social insurance coverage at least to Jordanian workers in micro and small firms. Overall, the proportion informal went from 44% to 39%.

Among formally employed workers, we examine the distinction between permanent and temporary employment and its relationship to firm size. A shown in Figure 14, as informality decreased over time, it was temporary rather than permanent formal employment that increased. There was not a strong relationship between the share of temporary employment in formal employment and firm size. Temporary employment made up about 45-55% of formal employment in firms of 1-4 to 50-99 workers in 2010.[20] Its share declined to 33% only in firms of 100+ workers. However, the share of temporary employment rose in nearly all firm size categories between 2010 and 2016, with the largest increase being in the 100+ category, where it went from 33% to 42% of formal employment. As employment became somewhat more

[20] Authors' calculations based on JLMPS 2010 and 2016 data.

formalized, employers have sought to gain additional flexibility within formal employment by increasing the share of workers hired through temporary employment arrangements.

One aspect of job quality is whether workers received regular paid leave and sick leave. Like formality, with which such benefits are highly correlated, access to paid leave increased with firm size. A shown in Figure 15, in 2010, access to some form of paid leave increased steadily from nearly zero for workers working outside fixed establishments to nearly 90% for workers working in establishments of 100+ workers. Overall, the proportion of private sector workers who received some kind of paid leave in 2010 was 52%, somewhat similar to the proportion with formal contracts (56%). The share of workers with both paid and sick leave increases from nearly zero for those outside establishments to 52% for those in establishments of 100+ workers, with the remainder only receiving sick leave.

Over time, the proportion of private sector workers receiving any kind of paid leave in the private sector as a whole remained fairly stable at 52%. However, it increased among workers outside establishments and in micro and small firms, while it decreased among workers in enterprises of 50-99 and 100+ workers. As the proportion of workers on temporary contracts increased in these larger enterprises, fewer of them were receiving any kind of paid leave. Nevertheless, among those receiving some form of paid leave, more of them are receiving both types of leaves rather than just sick leave.

Another dimension of job quality is whether or not workers have health insurance. Like access to paid leave, health insurance increased strongly with firm size. As shown in Figure 16, in 2010, the probability of receiving health insurance as an employment benefit increased steadily from less than 1% for those outside fixed establishments to 62% among those in establishments of 100+ workers. Over time, health insurance in the Jordanian private sector has increased slightly by 1 p.p. from 29% to 30%, but again this masks an increase among workers employed in micro and small firms and a reduction in access among workers employed in the 50-99 and 100+ size categories.

We can conclude from the analyses of benefits that social insurance reforms have made progress in extending formal employment to micro and small forms, thus also raising the proportion with access to paid leave and health insurance, but at the same time, deteriorating economic conditions were pushing larger firms to reduce access to permanent contracts and benefits such as paid leave and health insurance.

3.3. An Analysis of Employment Dynamics Using Retrospective and Panel Data

3.3.1. Employment Dynamics from Retrospective Data

By providing retrospective data on the type of job each individual obtained upon entry into the labor market and their subsequent job trajectory, the JLMPS allows us to carry out a dynamic analysis of changes in the labor market by comparing entry dynamics for different cohorts of individuals by year of first job. We make use of retrospective data up to 20 years before the time of the 2016 survey to ascertain the conditions of the labor market over this 20-year period. We examine the distribution of first jobs as well as the distribution of jobs five years later for individuals who remained in employment at least five years after entry. As shown in Figure 17,

the proportion of Jordanians getting a public sector job as their first job in 1985 was over 60%. This proportion declined steadily throughout the second half of the 1980s and the first half of the 1990s to reach a minimum of just over 40% in the late 1990s. The share of the public sector in the first jobs obtained by Jordanians then began to grow again in the late 1990s and early 2000s, as was previously identified using the first wave of the JLMPS (Assaad, 2014). However, as the public sector share rebounded in the 2000s, a delay in obtaining public sector jobs started to appear, with the share of public sector jobs after 5 years slightly exceeding the share at entry. By 2007, the hiring of new entrants in the public sector was being curtailed again.

Female new entrants were even more dependent on public sector employment, with nearly 80% relying on the public sector for their first employment as recently as 1986. They were more affected by the curtailment of public sector hiring in the second half of the 1980s and the 1990s, with the public sector share falling by nearly half over that period. The recovery of public sector hiring affected female entrants more and they were less affected by the more recent decline in public sector hiring than their male counterparts.

The slack caused by the decline in public sector hiring in the 1980s and 1990s was partly filled by an increase in formal and informal private wage employment. However, unlike the case of Egypt, where informal employment filled most of the slack (Assaad & Krafft, 2015), the formal private sector in Jordan played the bigger role. As shown in Figure 17, the proportion of first employment in formal private wage employment rose more rapidly than the share in informal wage employment as the public sector declined. Once public sector hiring recovered, formal private work stagnated and informal wage work declined. Both resumed their increase when public sector work resumed its decline around 2007. Women were much less likely than men to work in informal wage employment. Their fallback position when they cannot find formal employment is non-participation rather than informality.

Comparing the structure of employment upon entry and five years later, we can see that the two are fairly closely matched with a very slight diversion starting around the year 2000. This means that people who entered the labor market before 2000 tended to stay in the first job they entered for at least five years. This was especially true for men. After 2000, men who started in informal wage employment had some probability of moving to either formal private sector work or public employment within five years. Women who remain employed for at least five years tend to move very little between sectors after entry.

3.3.2. Employment Dynamics from Panel Data

To study labor market transitions from 2010 to 2016, we examine the labor market state of individuals aged 15-64 in 2016 who were observed in both waves of the survey and were therefore 9 to 59 years of age in 2010. For purposes of this analysis we sub-divide non-working Jordanians into three categories: (i) full-time students, (ii) not in education, employment or training (NEET) aged less than 34, which includes most of the unemployed, (iii) not working and not a student, aged 35-64, a group that is mostly made up of housewives and retirees. The figures on the diagonal of Table 2 indicate the degree of persistence in a given labor market state. The state with the greatest degree of persistence is “the not working, non-student aged 35-64” state,

which is often an absorbing state in Jordan, meaning that once individuals enter it, they do not leave it. The second most persistent state is being employed in the public sector, with two-thirds of individuals in this state in 2010 remaining in it in 2016. Again, this is to be expected given the desirability and stability of public sector work.

Surprisingly, the next most persistent labor market state is NEET <34, with a persistence of 47%. This is presumably a transitory state in which young people are in their transition from school to work. In Jordan, this transition may take several years (Amer, 2018; Barucci & Mryyan, 2014) and the fact that 47% of those in this state in 2010 remained in it for a period that exceeds six years is concerning. Disaggregating the transition matrix by sex, as is done in Table 3 and Table 4, we see that the high persistence in the NEET category is mostly for young women, most of whom will never enter the labor force. Nevertheless, 27% of NEET males persist in the category six years later. If we add those who transitioned to the non-working, non-student aged 35-64 category, the share who persisted in the non-employment state rises to 36%, suggesting that the transition from school to work can take a very long time for young men in Jordan, if it happens at all. Among the young men who transition out from the NEET category, the largest group goes into public sector work (28% of those in NEET in 2010), and the second largest goes into informal private, but regular wage employment (17% of those in NEET in 2010). The share of young women who remain in some form of non-employment exceeds 90%.

It is also surprising to find that the least persistent employment state is "employer." Only 25% of those in that state in 2010 remain in it in 2016. Among those who exit the state, the largest group goes into retirement and approximately equal shares go into formal private wage work, informal private wage work and self-employment. The self-employed also have low persistence. They mostly tend to transition into retirement or into private informal wage work.

Among those who start in informal private wage work, only a fraction (13%) managed to get formalized within the private sector by 2016, about 6% got public sector jobs and another 13% went into self-employment. Among women, less than a third of those who were in private wage or non-wage work in 2010 remained in that state six years later. Most transitioned into non-employment, with a small fraction moving to public sector work.

3.4. The Structure of Non-Jordanian Employment in Jordan

As we discussed in Section 2, at least one out of two jobs created in Jordan over the 2010-2016 period was contributed by a non-Jordanian. We also found that most non-Jordanians were employed informally.[21] In 2016, 53% were employed as informal but regular wage workers in the private sector and an additional 15% were irregular workers. Very few are employed in the public sector (Figure 4).

We now delve in more detail into the structure of employment for non-Jordanians. The reader should keep in mind that the 2010 round of the survey was not designed to measure the size of the non-Jordanian workforce and may thus understate their numbers and possibly misrepresent

[21] Non-Jordanian workers who have work permits but no employment contracts or social insurance coverage ae considered informal in this analysis.

their characteristics. The sample for the 2016 round, on the other hand, was designed to correctly represent non-Jordanians in Jordan.[22] As shown in Figure 18, non-Jordanian workers as a whole constituted 31% of total employment in Jordan in 2016, with Egyptians constituting more than half of the non-Jordanians. Syrians were no more than one-fifth of the non-Jordanians, with the remainder made up of other Arabs and non-Arab workers. Non-Jordanians made up nearly half of private sector wage employment and nearly two-thirds of informal private wage employment in 2016.

The proportion informal among private wage workers varies substantially by nationality. As shown in Figure 19, 77% of non-Jordanians working in private wage employment were informally employed in 2016, as compared to 32% of Jordanians. However, when further broken down by nationality, we see that Syrians have the highest probability of informality (86% in 2016), followed by Egyptians (75%) and then by other nationalities, which includes both other Arab and other non-Arab (70%).

Besides their greater likelihood to be informal, non-Jordanian workers are also disproportionately in certain industries. As shown in Figure 20, agriculture has now become an industry that mostly hires foreign workers in Jordan. While a tiny fraction of Jordanians works in agriculture, over 20% of non-Jordanians did so as of 2016. Similarly, non-Jordanians are twice as likely as Jordanians to be found in construction (15% versus 8%). In contrast, only 12% of non-Jordanians work in manufacturing compared to 22% of Jordanians. It is not clear whether these jobs in agriculture and manufacturing would exist at all if it were not for the availability of cheap migrant labor. It remains an open question whether restricting the supply of foreign workers would raise wages sufficiently to attract Jordanians to these jobs or whether the jobs would simply disappear.

4. Conclusions

The dramatic slowdown in the rate of growth of the Jordanian economy since 2008-09 has undoubtedly had a large negative impact on overall job creation. Despite this slowdown, Jordan continued to have large numbers of migrant workers. Although some of this influx was involuntary and came in the form of forced migration, the vast majority of foreign workers in Jordan continue to be economic migrants rather than refugees. We estimate that more than 50%, and possibly up to 70%, of net job growth in Jordan over the period 2010 to 2016 has been contributed by non-Jordanian workers. The economic slowdown and continued influx of foreign labor have occurred at the same time as a decline in employment rates among Jordanians, which were already among the lowest in the world, for both men and women.

One consequence of the decline in employment opportunities for Jordanians was the increasing share of public sector employment among Jordanians, which went from 39% in 2010 to 42% in 2016. We should note, however, that the increase in the share of public sector employment among Jordanians appears to have reversed since 2015 according to EUS data, especially for

[22] See Krafft & Assaad (2018) for more discussion of this issue.

women. Poorer, less educated Jordanian men appear to be the most affected by declining employment opportunities. They have not managed to increase their chances of public sector employment like other groups in Jordan and, for many of them, employment has become much more precarious and irregular, undoubtedly pushing many to leave the workforce altogether. Within the public sector, demand for teachers and health workers has increased, partly as the result of the need to provide services to a growing number of refugees. Because of the gender stereotyping of occupations, Jordanian women were more able to take advantage of this increase in demand for public services.

Private sector wage employment for Jordanians has become slightly more formal as new social insurance reforms enacted in 2010 pushed social insurance coverage further down the size distribution of firms (Al Hawarin & Selwaness, 2018). However, similar to the increase in the precariousness of employment among informal workers, formal employment is also becoming more precarious, as the share of those employed with temporary contracts or no contracts at all among the formally employed increases. Similarly, employment benefits such as paid and sick leave and health insurance have increased slightly among workers in the smallest firms, but have declined among workers in medium and larger firms.

With regards to employment dynamics, public sector employment for first-time job seekers had started to rise again over the period from 1998 to 2007 after having declined substantially over the 1985 to 1997 period. Although this decline has reversed again after 2007, many workers were still able to obtain public sector employment after a short stint in the private sector. Once in the public sector, they are unlikely to move again until retirement. A notable finding is how long youth remained in neither education nor employment. Nearly 36% of young men observed in that state in 2010 had not transitioned to employment by 2016. For women, who have much higher rates of non-participation, the share was nearly 90%.

Finally, our analysis of employment patterns among non-Jordanians indicates that they are mostly employed informally and are increasingly concentrated in sectors that are highly dependent on cheap, flexible labor to stay competitive, such as agriculture. It remains an open question whether restricting the flow of migrant workers would raise wages sufficiently in these sectors to make them appealing to Jordanians or whether it would simply destroy jobs in these sectors. With the recent availability of Syrian refugee labor that appears to be a good substitute for migrant workers, one policy option for the Jordanian authorities would be to restrict migrant labor flows into Jordan to improve the job prospects of Jordanians and refugees alike.

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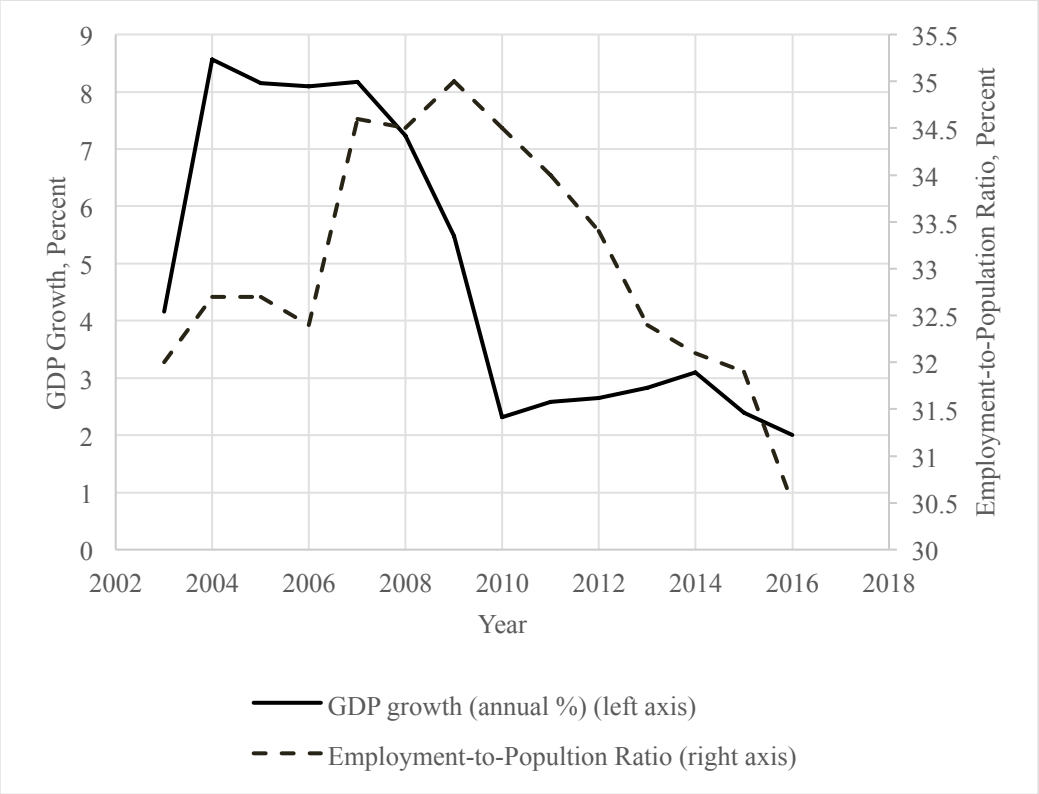
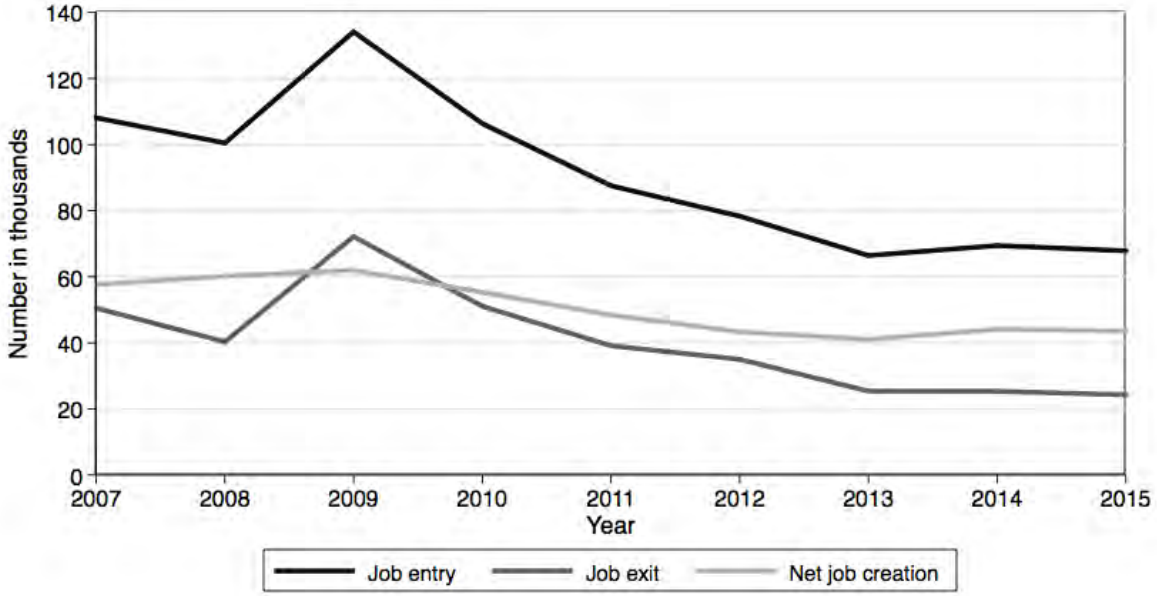
Figure 1: GDP Growth Rate (annual percentage) and Employment-to-Population Ratio (percentage) for Jordanian Nationals, Ages 15+, 2003-2016[23]



Source: Employment to population ratio is from the Employment and Unemployment Survey (EUS) (Department of Statistics (Jordan), various years); GDP growth is from the World Bank World Development Indicators (World Bank, 2018).

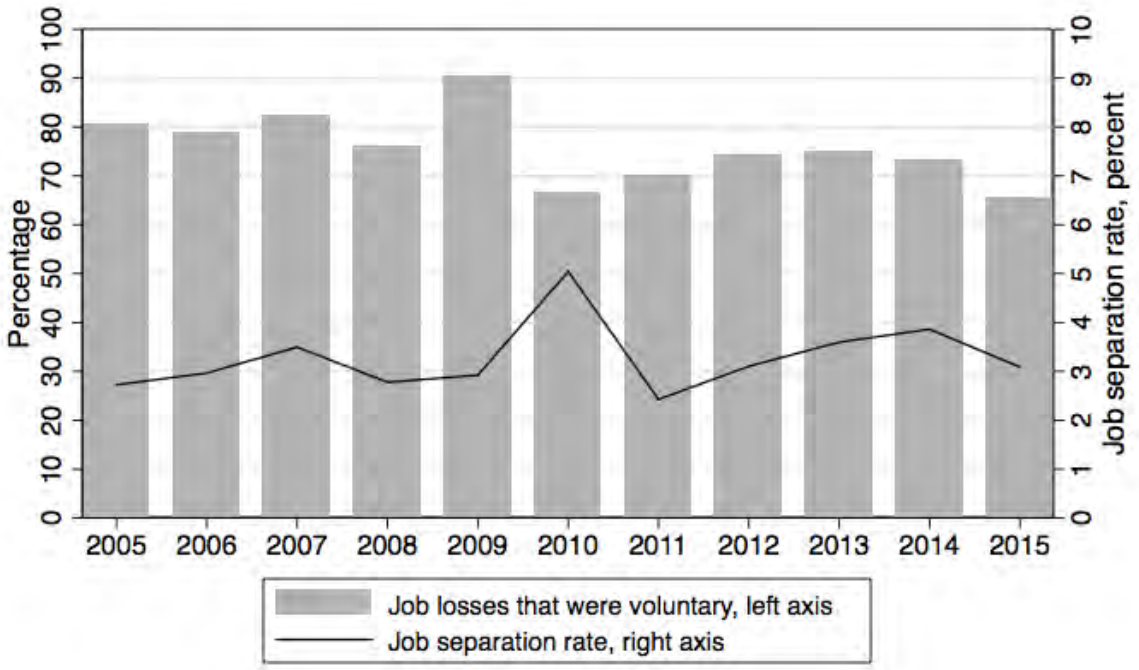
[23] The employment to population ratio estimates presented in this figure may be slightly different from those in Assaad, Krafft, & Keo (2018) because they apply to the population 15+ rather than the population 15-64.

Figure 2: Job Entry, Exit, and Net Job Creation by Year, Number (in thousands), Jordanian Nationals, 2007-2015.



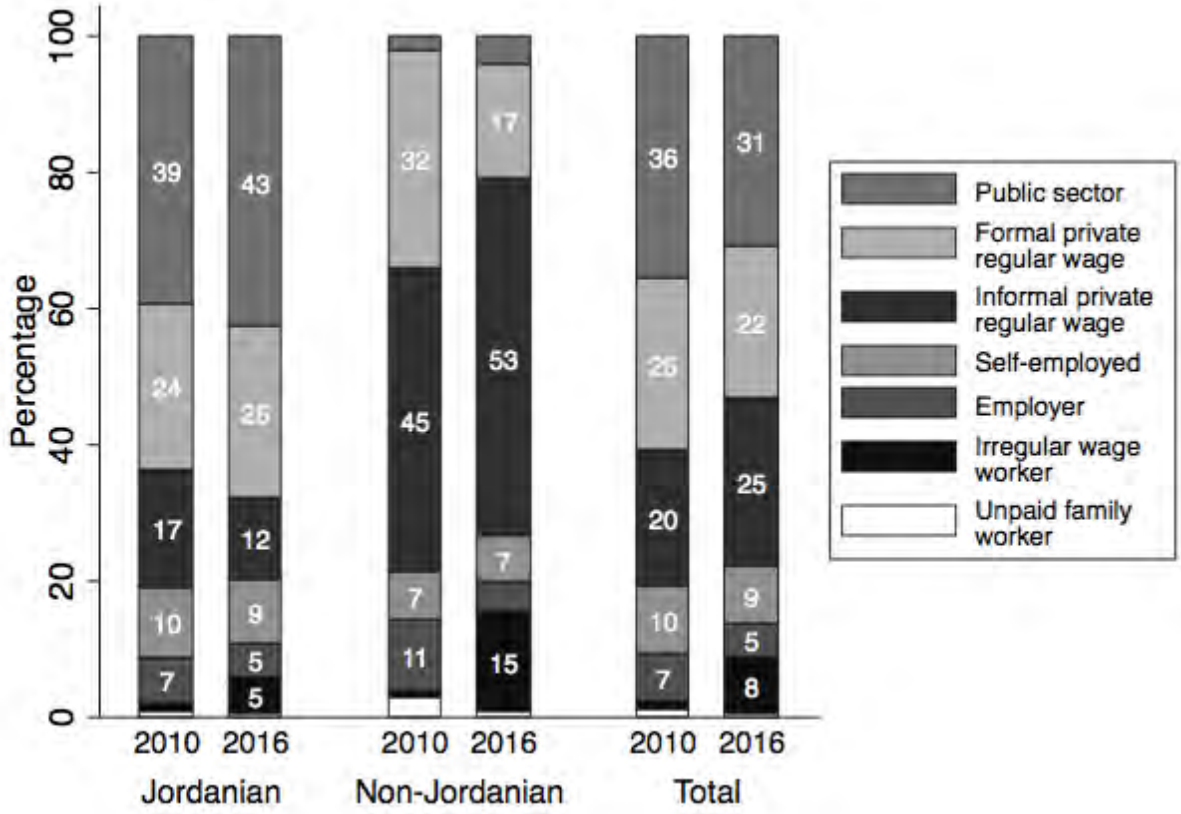
Source: New Job Opportunities Survey 2007-2015 (Department of Statistics (Jordan), 2018)

Figure 3: Job Separation Rate (Percentage) and Percentage of Job Separations that were Voluntary by Year, Jordanian nationals, 2005-2015, Ages 15+ in 2015.



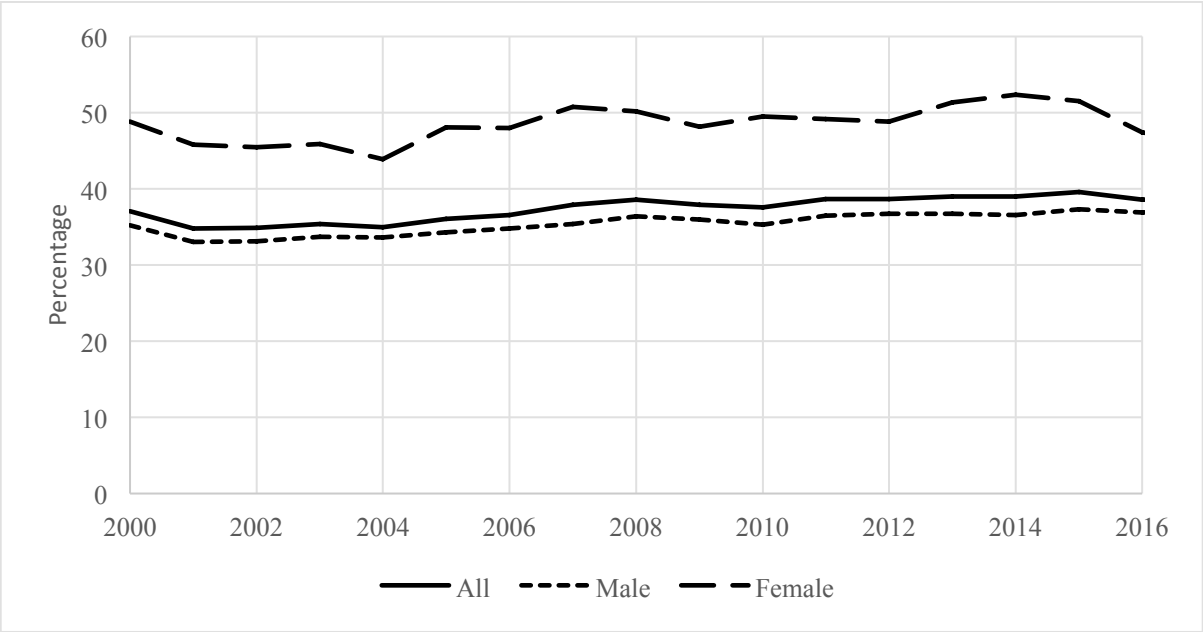
Source: authors' calculations based on data from JLMPS 2016.

Figure 4 Structure of Employment by Type and Nationality, Jordanian and Non-Jordanian Workers, Ages 15-64, 2010, 2016 (percentage)



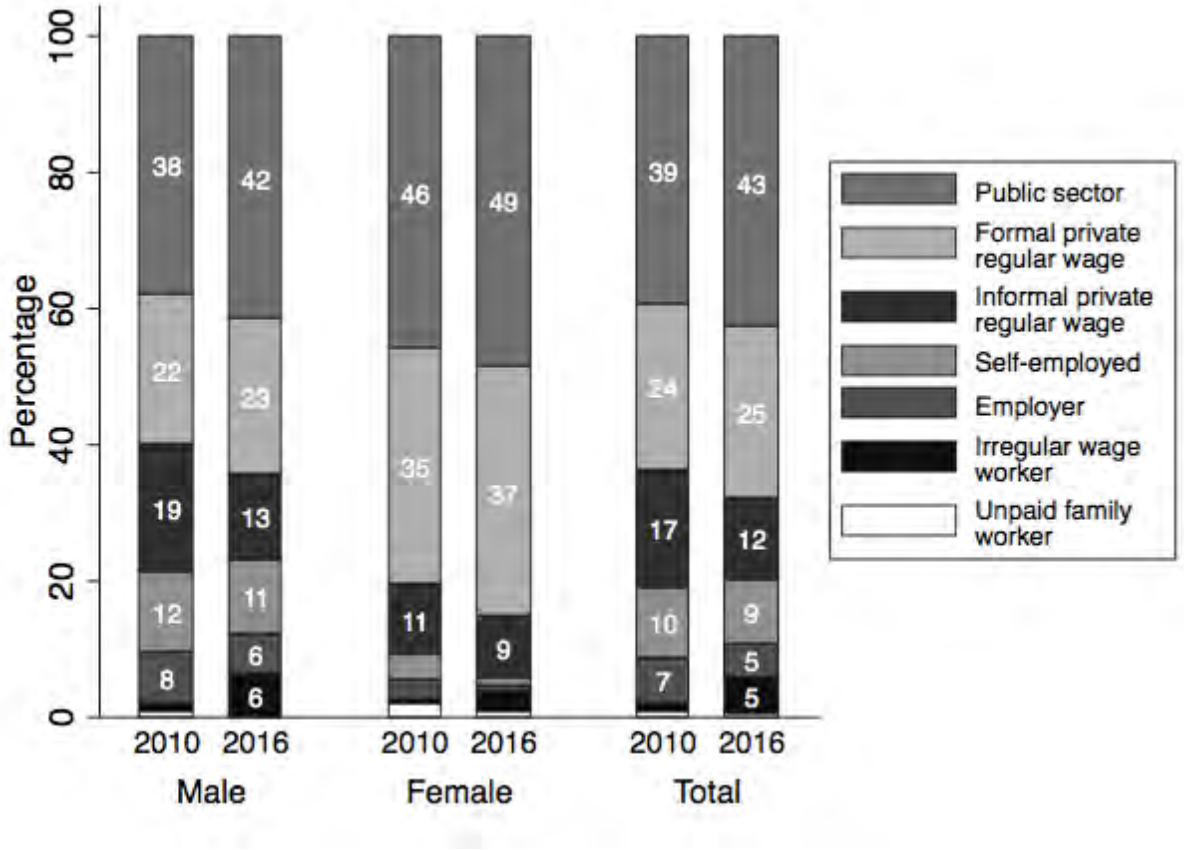
Source: Authors' calculations based on data from JLMPS 2010, 2016.

Figure 5 Share of Public Sector in Employment by Sex, Jordanian Nationals, Ages 15+, 2000-2016 (percentage)



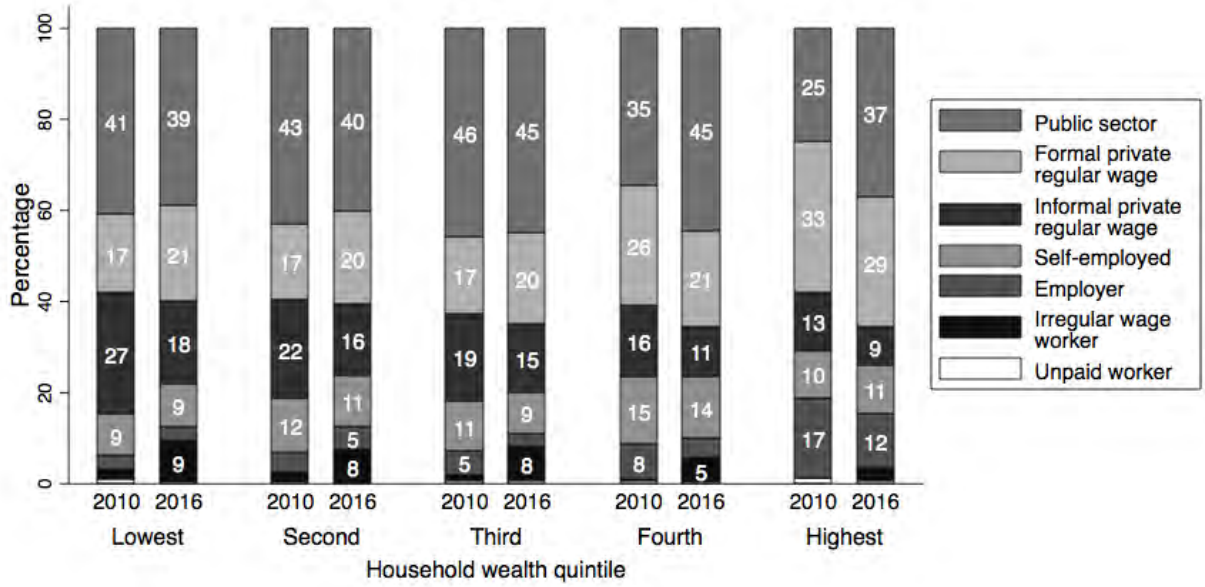
Source: Employment and Unemployment Survey (DoS, various years)

Figure 6: Structure of Employment by Type and Sex, Jordanian Nationals, Ages 15-64, 2010, 2016 (percentage)



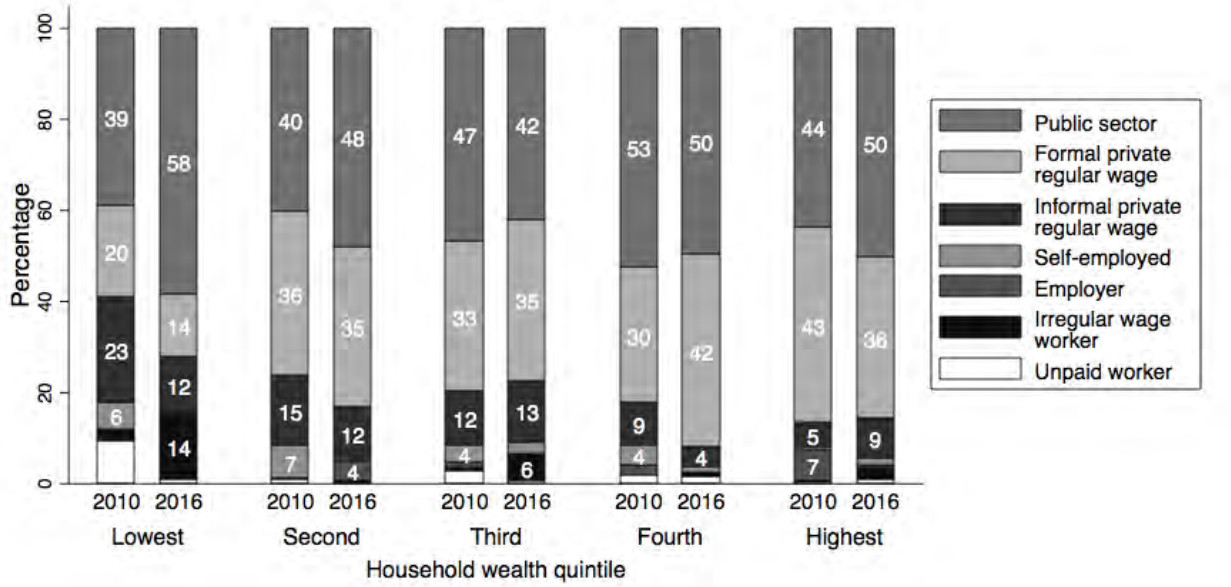
Source: Authors' calculations based on data from JLMPS 2010, 2016.

Figure 7: Structure of Employment by Type and Wealth Quintile, Jordanian Men Aged 15-64, 2010, 2016 (percentage)



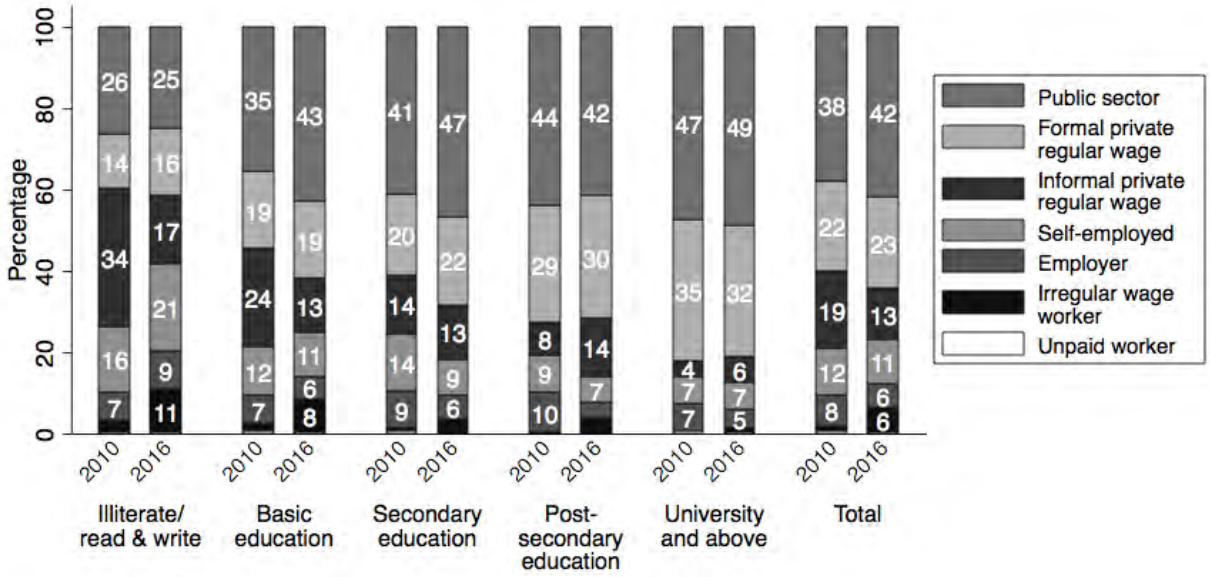
Source: Authors' calculations based on data from JLMPS 2010, 2016.

Figure 8: Structure of Employment by Type and Wealth Quintile, Jordanian Women Aged 15-64, 2010, 2016 (percentage)



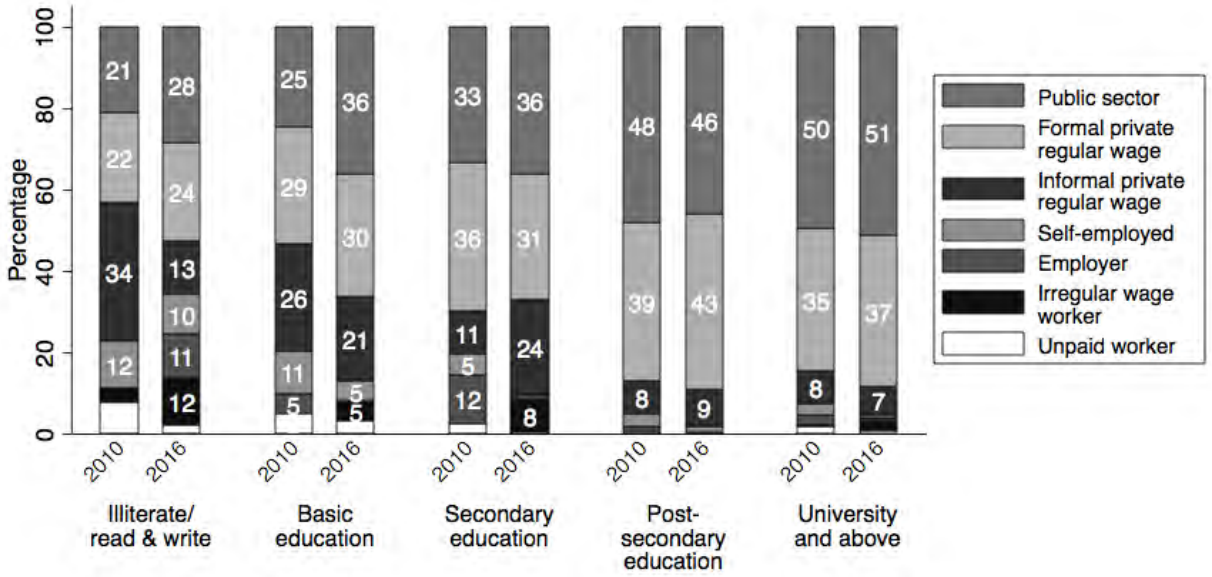
Source: Authors' calculations based on data from JLMPS 2010, 2016.

Figure 9: Structure of Employment by Type and Educational Attainment, Jordanian Men aged 15-64, 2010, 2016 (percentage)



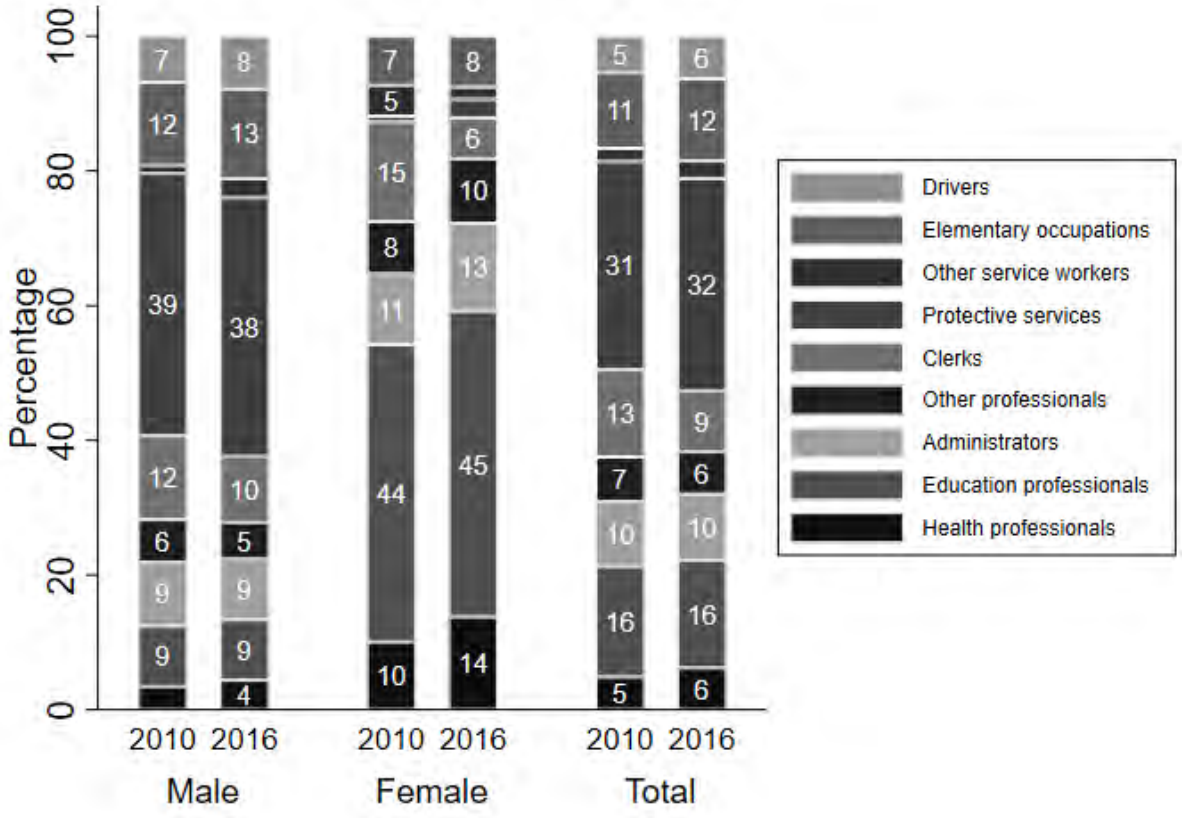
Source: Authors' calculations based on data from JLMPS 2010, 2016.

Figure 10: Structure of Employment by Type and Educational Attainment, Jordanian Women, Ages 15-64, 2010, 2016 (percentage)



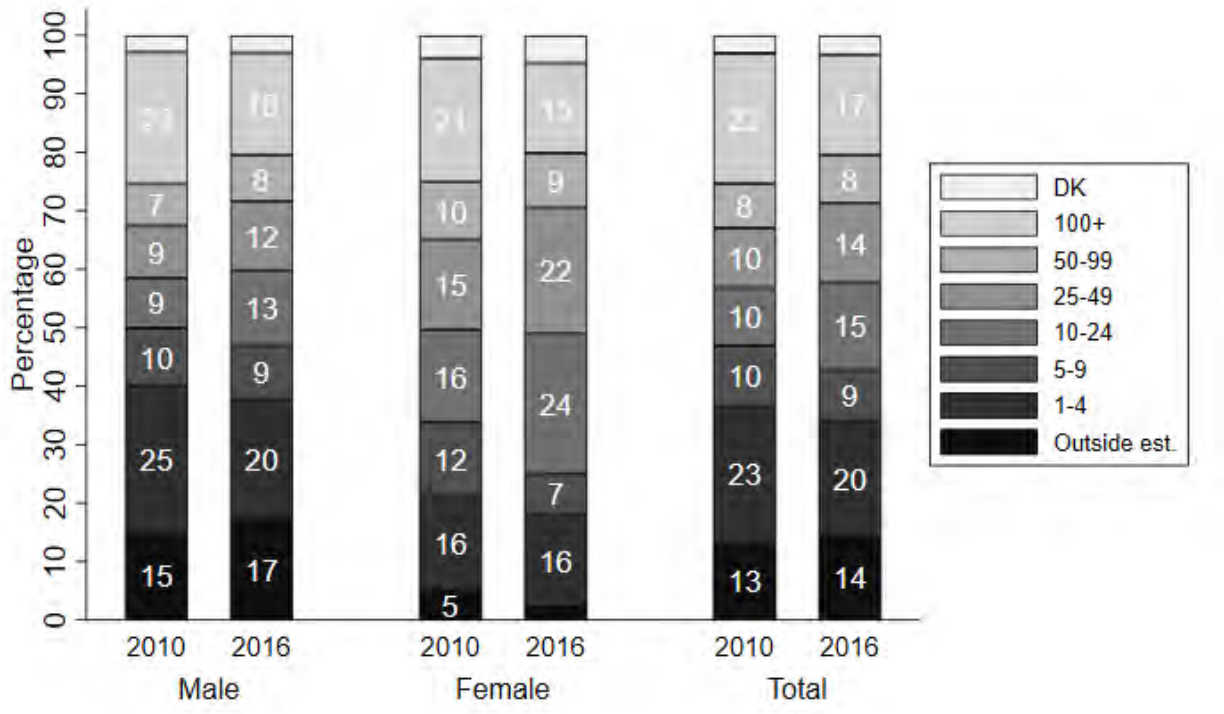
Source: Authors' calculations based on data from JLMPS 2010, 2016.

Figure 11 The Occupational Structure of Public Sector Employment by Sex, Jordanian Nationals, Ages 15-64, 2010, 2016 (percentage)



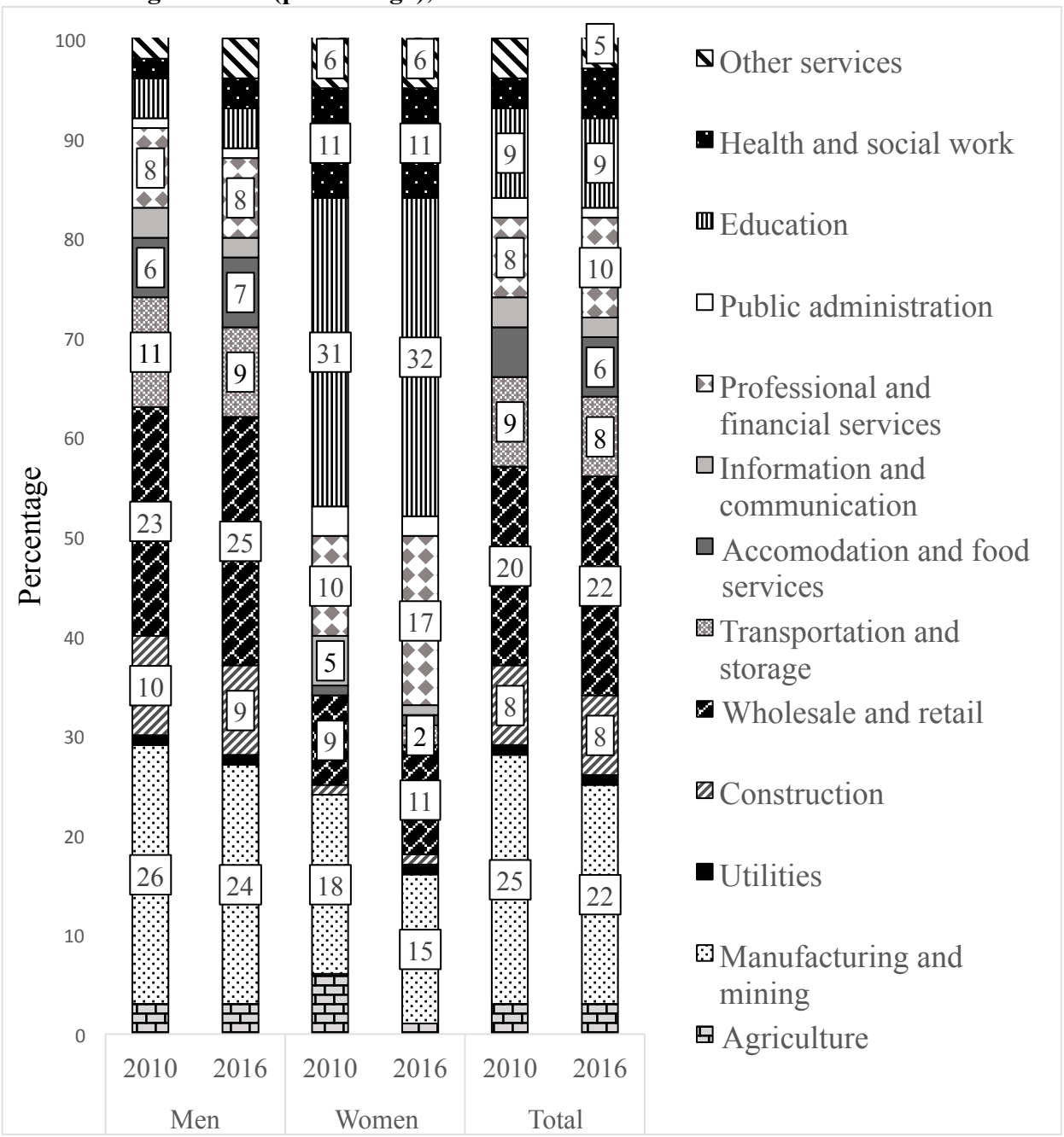
Source: Authors' calculations based on data from JLMPS 2010, 2016.

Figure 12: Establishment Sizes by Sex, Private Wage Employment, Jordanian Nationals, Ages 15-64, 2010, 2016 (percentage)



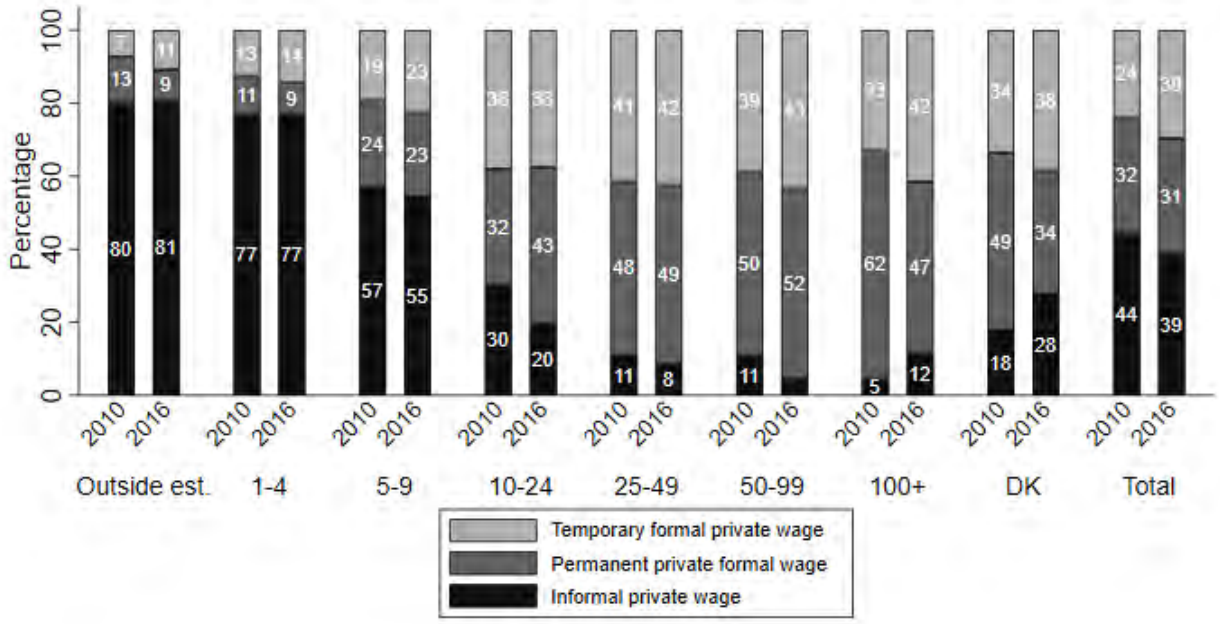
Source: Authors' calculations based on data from JLMPS 2010, 2016. "Outside est." indicates that the worker works outside of a fixed establishment.

Figure 13: Economic Activities by Sex, Private Wage Employment, Jordanian Nationals Aged 15-64 (percentage), 2010 and 2016.



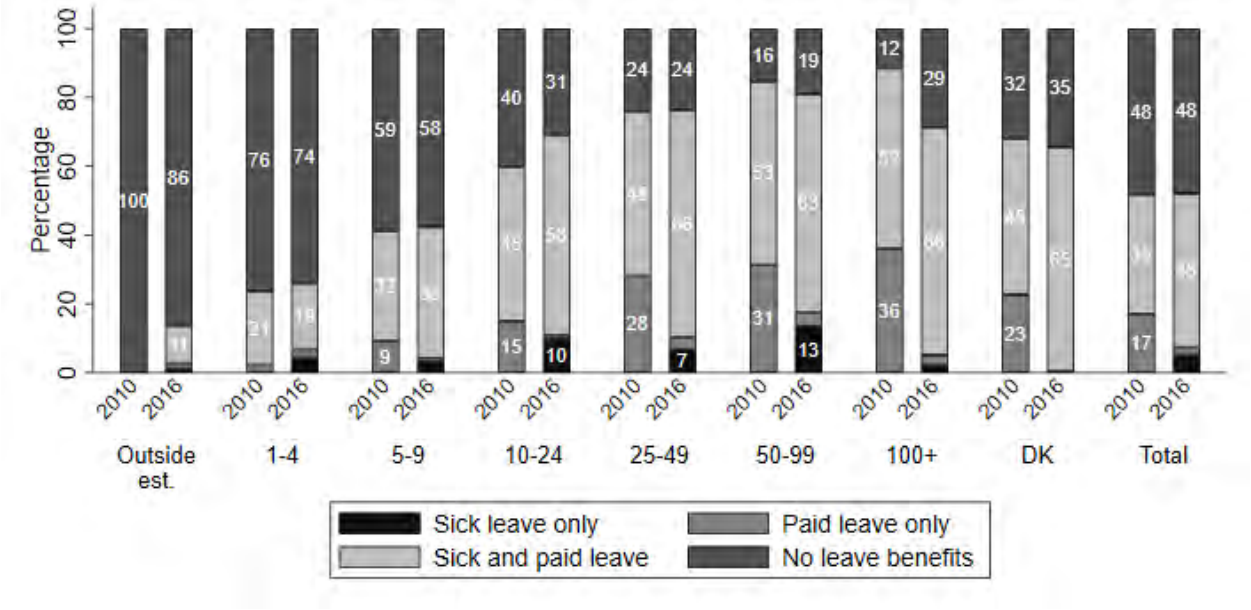
Source: authors' calculations based on JLMPS 2010, 2016

Figure 14: Formality and Contract Type by Establishment Size, Private Wage Employment, Jordanian Nationals, Ages 15-64 (percentage), 2010, 2016



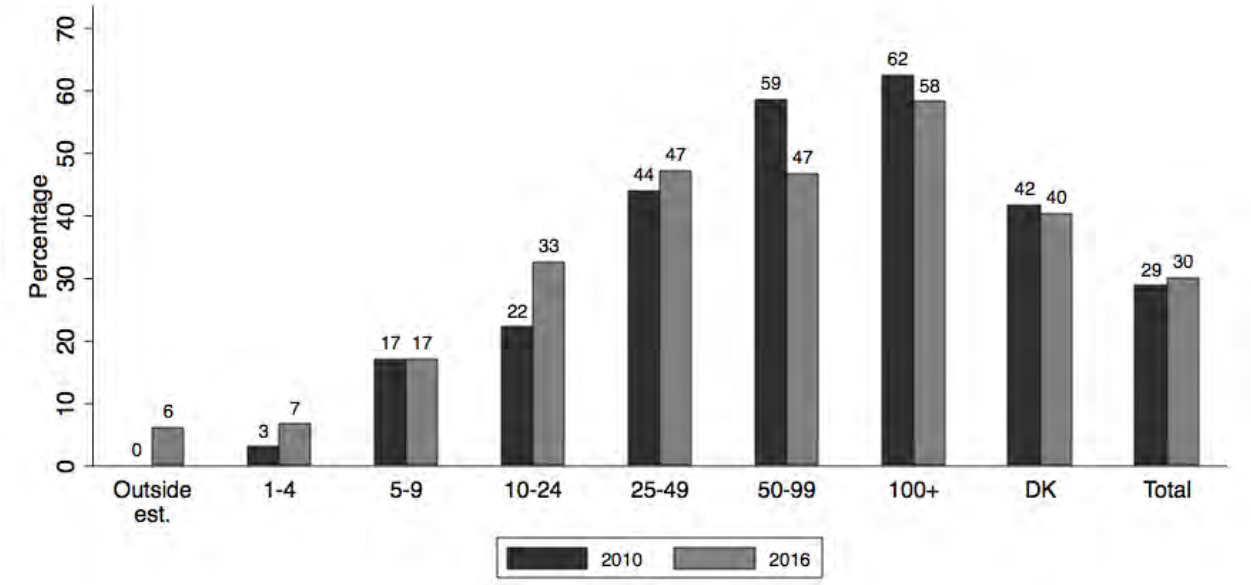
Source: Authors' calculations based on data from JLMPS 2010, 2016. "Outside est." indicates that the worker works outside of a fixed establishment.

Figure 15: Leave Benefits by Establishment Size, Private Wage Employment, Jordanian Nationals, Ages 15-64 (percentage), 2010, 2016



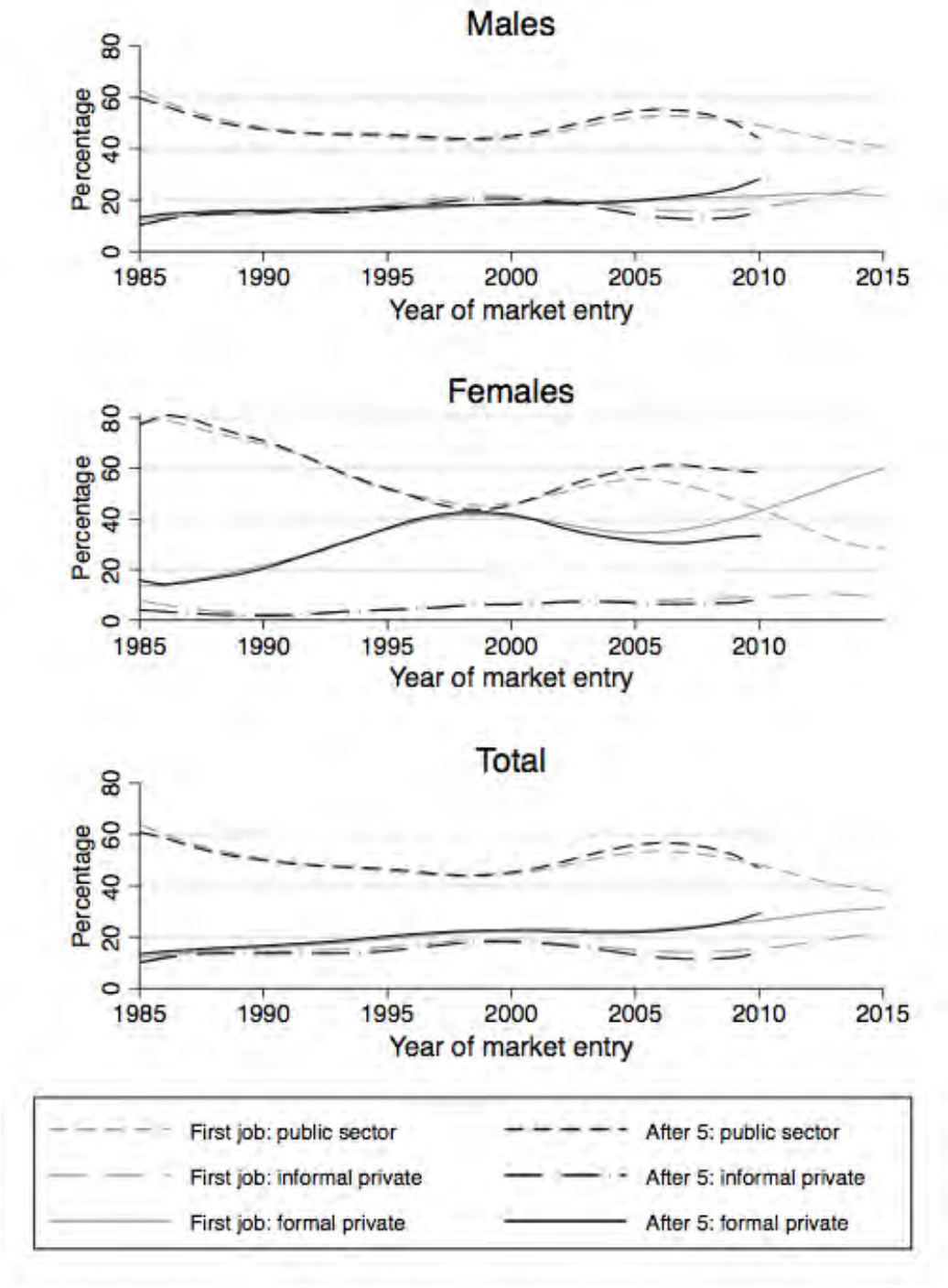
Source: authors' calculations based on JLMPS 2010, 2016. "Outside est." indicates that the worker works outside of a fixed establishment.

Figure 16: Health Insurance by Establishment Size, Private Wage Employment, Jordanian Nationals, Ages 15-64 (percentage), 2010, 2016



Source: authors' calculations based on JLMPS 2010, 2016. "Outside est." indicates that the worker works outside of a fixed establishment.

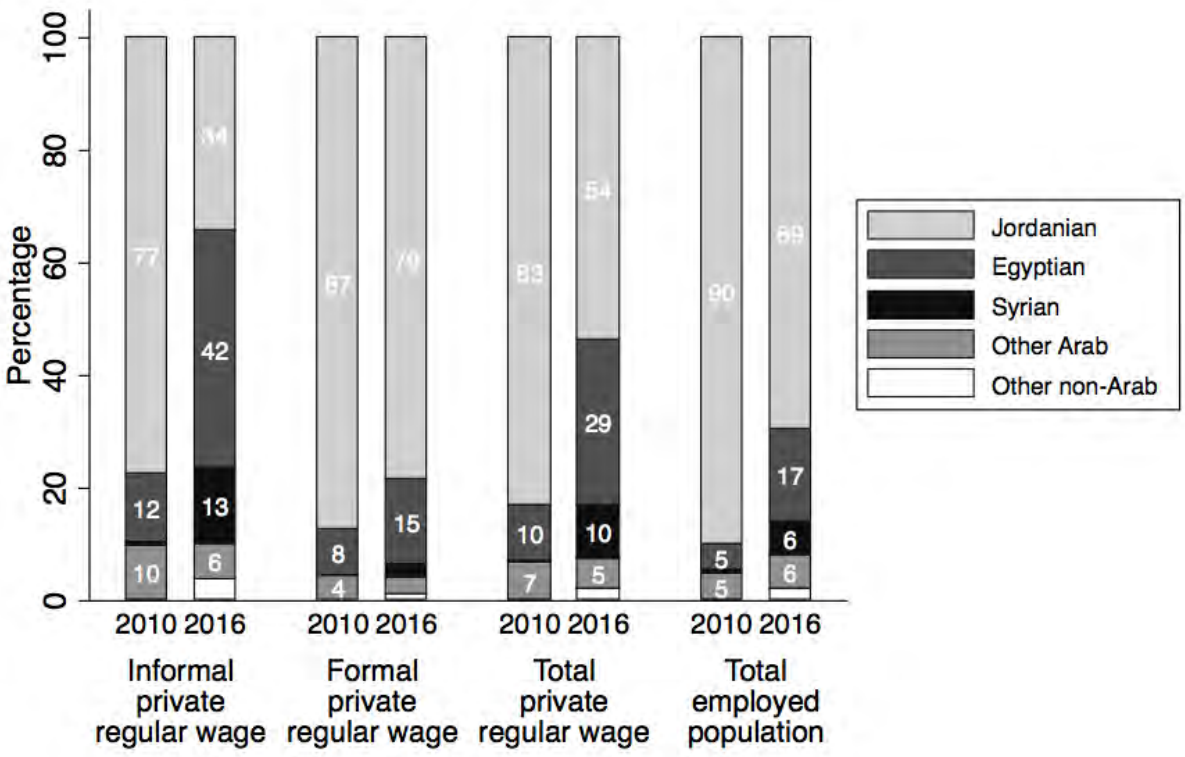
Figure 17: Job Type at Start of First Job and Five Years After Start of First Job by Year of First Job and Sex, Jordanian Nationals who Had a First Job, Ages 15-64 (percentage)



Source: authors' calculations based on JLMPS 2016

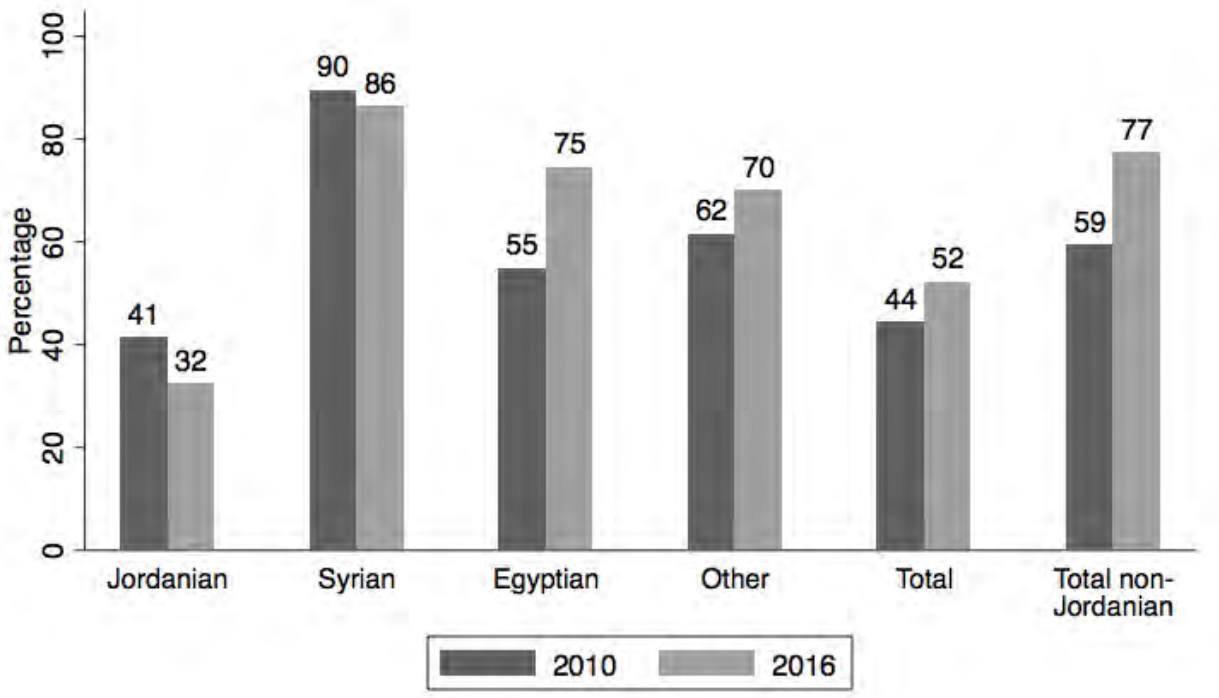
Notes: Lowess smoother: bandwidth = 0.5. "After 5" indicates the distribution of employment five years after the designated year of entry for those still employed. The share of non-wage (i.e. self-employed, employers, and unpaid family workers) is not shown.

Figure 18: Nationality in Various Sectors, Workers Aged 15-64 (percentage), 2010, 2016



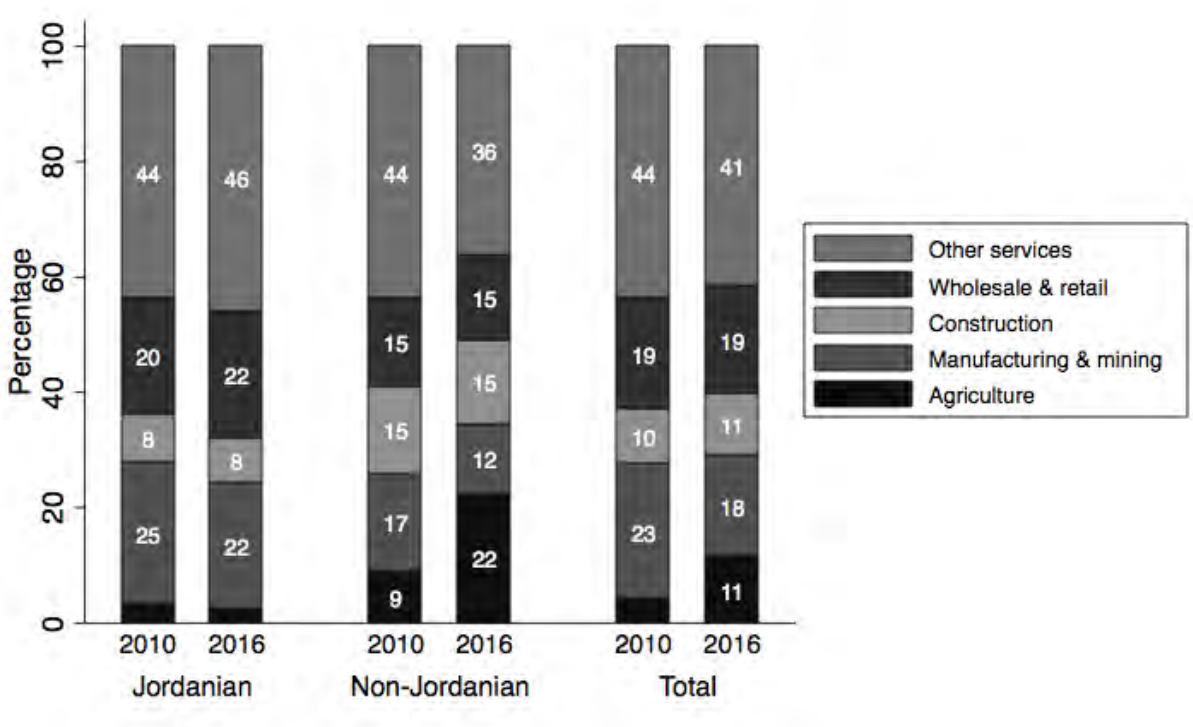
Source: authors' calculations based on JLMPS 2010, 2016

Figure 19: Informal Employment by Nationality, Private Wage Employment, Ages 15-64 (percentage)



Source: authors' calculations based on JLMPS 2010, 2016

Figure 20 Economic Activities by Nationality, Private Wage Employment, Ages 15-64 (percentage), 2010, 2016



Source: authors' calculations based on JLMPS 2010, 2016

Table 1. Employment and Population Estimates, Employment Rates (percentages), and Population and Employment Growth Rates (percentages), from JLMPS, EUS and Population Censuses for Jordanians and Non-Jordanians, Ages 15+.

	All Jordan	Jordanian	Non-Jordanian	Percent Non-Jordanian
JLMPS (2010, 2016)				
Population, 2010 ('000s)	3,772	3,468	304	8%
Employment, 2010 ('000s)	1,394	1,253	141	10%
Employment Rate, 2010 (percent)	37%	36%	46%	
Employment, 2010 ('000s) (adjusted)*	1,678	1,253	425	25%
Population, 2016 ('000s)	6,211	4,367	1,844	30%
Employment, 2016 ('000s)	1,905	1,310	595	31%
Employment Rate, 2016 (percent)	31%	30%	32%	
Av. Annual Employment Growth ('000s)**	38	9	28	75%
Av. Ann. Gr. Rate of Employment**	2.1%	0.7%	5.6%	
Av. Ann. Gr. Rate of Population	8.3%	3.8%	30.0%	
Population Census (2004, 2015)				
Population, 2004 ('000s)	3,155	2,875	280	9%
Employment, 2004 ('000s)	1,123	944	179	16%
Employment Rate, 2004 (percent)	36%	33%	64%	
Population, 2015 ('000s)	6,195	4,297	1,898	31%
Employment, 2015 ('000s)	2,394	1,536	858	36%
Employment Rate, 2015 (percent)	39%	36%	45%	
Annual Employment Growth '000s	116	54	62	53%
Av. Ann. Gr. Rate of Employment	6.9%	4.4%	14.3%	
Av. Ann. Gr. Rate of Population	6.1%	3.7%	17.4%	
EUS (2010, 2017)				
Population, 2010 ('000s)	n.a.	3,583	n.a.	
Employment, 2010 ('000s) (adjusted)*	1,663	1,238	425	26%
Employment Rate, 2010 (percent)	n.a.	35%	n.a.	
Population, 2017 ('000s)	6,600	4,695	1,905	
Employment, 2017 ('000s)	2,171	1,502	669	31%
Employment Rate, 2017 (percent)	33%	32%	35%	
Annual Employment Growth '000s	73	38	35	48%
Av. Ann. Gr. Rate of Employment	3.8%	2.8%	6.5%	
Av. Ann. Gr. Rate of Population	n.a.	3.9%	n.a.	

Sources: Authors' calculations based on data from JLMPS 2010 and 2016, Population Census 2004 and 2015, EUS 2010 and 2017.

Notes: * Non-Jordanian employment adjusted to reflect mid-range of figure reported by National Employment Strategy (NES). ** Absolute growth and growth rate calculated based on the adjusted figure.

Table 2: Transitions between Different Labor Market States from 2010 to 2016, Jordanian Nationals, Ages 15-64 in 2016 (percentage of 2010 status)

	2016 Status →										
2010 Status	Student	NEET	Not working non-student aged 35-64	Employer	Self-employed or unpaid worker	Informal private regular wage	Formal private regular wage	Public sector	n	Dist. of origin states	Changed
Student	42.1	36.1	0.4	0.3	1.1	4.6	7.4	8.0	800	38.5	57.9
NEET aged 15-34	1.0	47.0	31.7	0.6	3.5	4.0	3.6	8.7	327	15.6	53.0
Not working non-student aged 35-64	0.5	0.6	90.8	0.5	3.0	2.1	1.0	1.6	140	15.7	9.2
Employer	0.6	1.4	22.6	25.0	15.9	16.7	16.2	1.6	87	1.9	75.1
Self-employed or unpaid family worker	0.7	7.7	36.4	3.3	25.6	13.6	5.5	7.2	188	3.8	74.4
Informal private regular wage	0.0	8.8	18.8	6.9	12.8	33.7	13.2	5.9	286	5.7	66.4
Formal private regular wage	0.3	9.6	20.0	1.9	5.0	6.7	45.6	11.0	354	7.2	54.4
Public sector	0.2	3.2	18.8	1.0	2.4	1.9	5.2	67.3	1,101	11.8	32.7
Dist. of destination states	16.5	23.2	25.8	1.5	4.1	6.2	8.7	14.0	3,283		

Source: authors' calculations based on JLMPS 2010, 2016

Table 3: Transitions between Different labor Market States from 2010-2016, Male Jordanian Nationals, Ages 15-64 in 2016 (percentage of 2010 status)

	2016 Status →										
2010 Status	Student	NEET	Not working non-student aged 35-64	Employer	Self-employed or unpaid worker	Informal private regular wage	Formal private regular wage	Public sector	n	Dist. of origin states	Changed
Student	40.3	25.8	0.5	0.6	1.9	7.9	9.1	13.9	653	38.7	59.7
NEET aged 15-34	1.7	26.8	9.1	2.6	9.4	17.1	5.6	27.8	193	6.3	73.3
Not working non-student aged 35-64	0.0	0.4	76.1	3.1	7.7	5.7	3.2	3.8	73	5.4	23.9
Employer	0.7	1.0	18.1	26.8	16.7	17.6	17.4	1.7	85	3.5	73.2
Self-employed or unpaid family worker	0.5	5.8	27.3	4.2	31.1	16.8	6.4	8.1	170	6.1	68.9
Informal private regular wage	0.0	8.8	14.7	7.7	14.5	34.0	14.7	5.8	273	10.1	66.0
Formal private regular wage	0.3	6.1	16.9	2.5	6.5	7.1	48.7	11.9	287	10.9	51.3
Public sector	0.3	3.2	18.1	1.2	2.7	2.3	5.8	66.4	904	19.1	33.6
Dist. of destination states	15.9	14.2	14.0	3.0	6.9	10.7	12.9	22.3	2,638		

Source: authors' calculations based on JLMPS 2010, 2016

Table 4: Transitions between Different Labor Market States from 2010-2016, Female Jordanian Nationals, Ages 15-64 in 2016 (percentage of 2010 status)

	2016 Status →							
2010 Status	Student	NEET	Not working non-student aged 35-64	Private wage or nonwage	Public sector	n	Dist. of origin states	Changed
Student	43.9	46.3	0.4	7.3	2.2	147	38.3	56.1
NEET	0.8	52.1	37.3	5.8	4.0	134	24.8	47.9
Not working non-student aged 35-64	0.6	0.6	93.9	3.8	1.1	67	25.8	6.1
Private wage or nonwage	0.6	16.4	45.4	31.3	6.4	100	6.6	68.7
Public sector	0.0	3.1	22.0	3.7	71.1	197	4.5	28.9
Dist. of destination states	17.2	32.1	37.5	7.5	5.7	645		

Source: authors' calculations based on JLMPS 2010, 2016

Appendix A

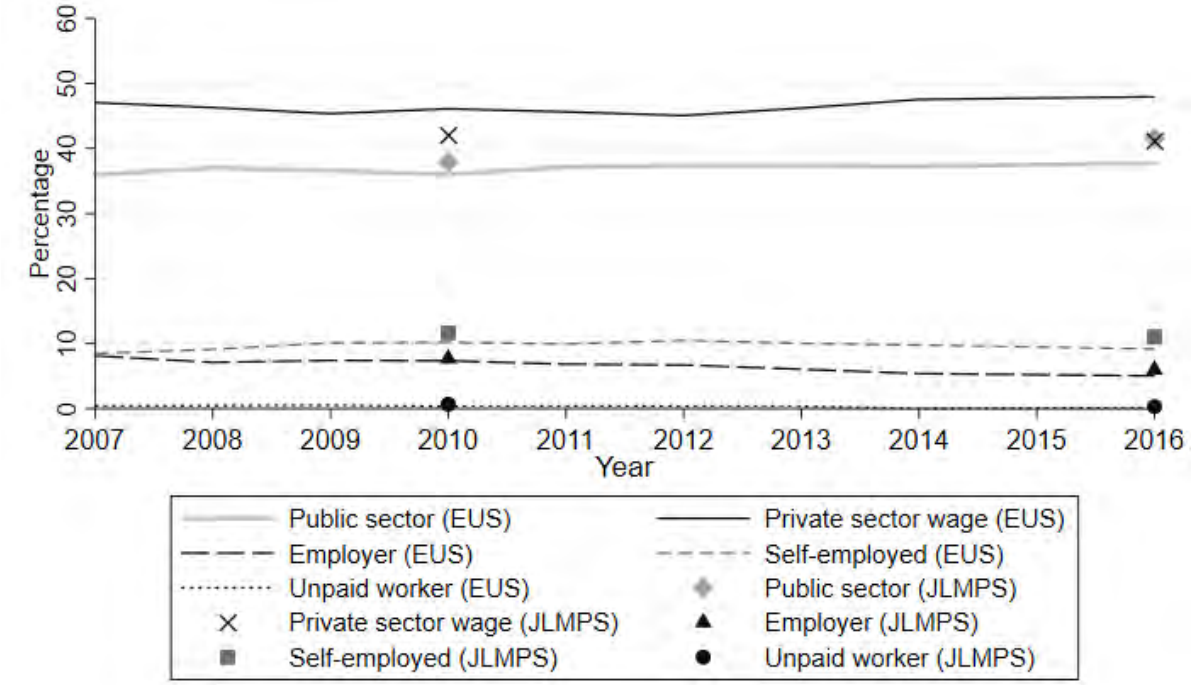
A comparison of the Evolution of the Structure of Employment by Type between the JLMPS and EUS

We compare in this appendix the evolution the structure of employment by type for Jordanian workers between the JLMPS 2010/2016 results and those obtained from the EUS over the 2007-2016 period. Since we cannot distinguish between formal and informal wage employment and between regular and irregular wage employment in the EUS data, we lump all private wage employment in one category for the purpose of this analysis. As before, the analysis is disaggregated by sex since the patterns are quite different for men and women.

As shown in ***Appendix Figure 1***, the JLMPS estimated slightly higher levels of public sector employment and slightly lower levels of private wage employment than the EUS for Jordanian males. With regard to the trend, like the JLMPS, the EUS showed a slight rise in the share of public sector employment from 2010 to 2016. The share of private wage employment was rising slightly in the EUS, although it was declining very slightly in the JLMPS over the same period. The levels and trends in the share of employers, self-employed and unpaid family workers were very similar across the two surveys.

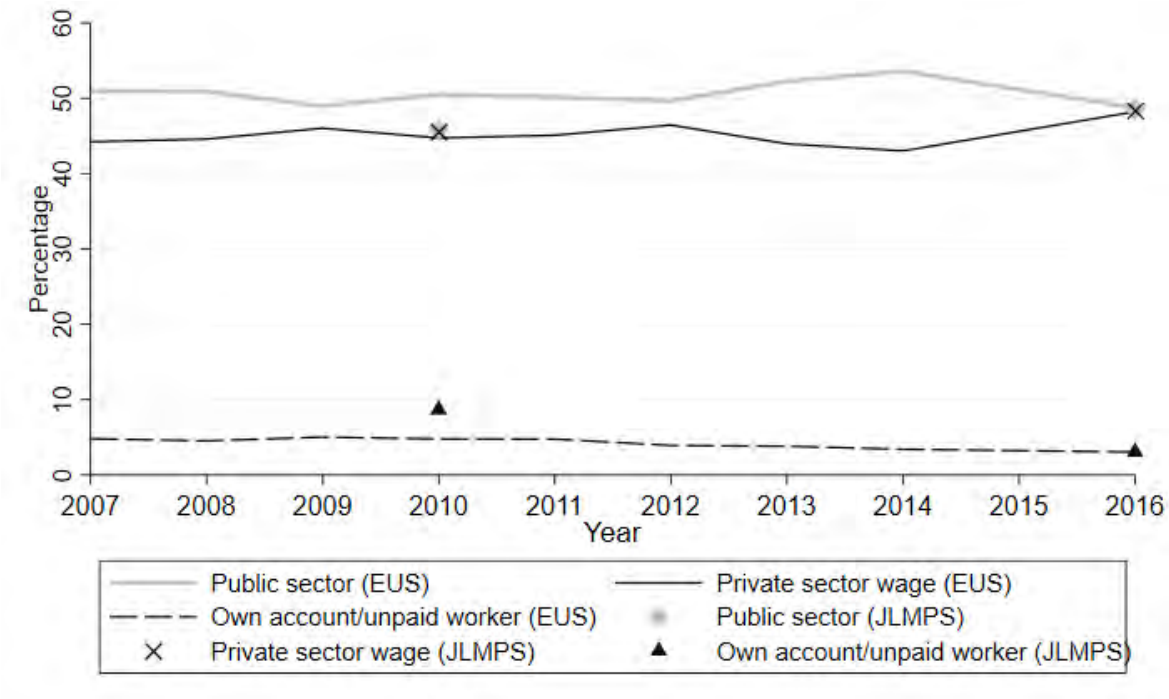
In the case of women (Appendix Figure 2) JLMPS and EUS estimates are aligned for 2016, but not 2010. In 2010, the EUS under-estimated non-wage workers (unpaid and own account) and over-estimated public sector workers relative to JLMPS.

Appendix Figure 1: Job Type over Time, Employed Jordanian Men Aged 15-64 (percentage)



Source: authors' calculations based on EUS and JLMPS 2010, 2016.

Appendix Figure 2: Job Types over Time, Employed Jordanian Women Aged 15-64 (percentage)



Source: authors' calculations based on EUS and JLMPS 2010, 2016.