

ERF Policy Brief

Does Digitalization Matter for Egyptian and Jordanian Firms?

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About the authors

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In a nutshell

- The objective of this policy brief is to examine how digitalization can affect firms' economic and social outcomes in Egypt and Jordan using a newly collected dataset.
- These outcomes are measured by exports, sales, and labor characteristics (female workers, unpaid workers, part-time workers and workers with permanent contract).
- The main findings show that firms using digital tools are likely to hire more women, less unpaid workers and more workers with permanent contracts. Exports are positively affected by self-built websites, whereas listing the firm on an application and using Internet are positively associated to sales

Digitalization and Economic and Social Outcomes

For the Middle East and North Africa (MENA) region, digital connectivity is a developmental priority raising the prospects of growth, employment, poverty reduction and curbing corruption. Firms are also significantly affected by such developments (Zaki, 2023b). This brief summarizes the effects of digitalization on firms in the MENA region. While the empirical literature on the impact of digitalization on firms' performance is abundant, it is relatively scarce for this region. The literature shows that digitalization is a key issue when it comes to the firms' agility, firms' expansion, and supply chain capability (DeStefano et al., 2018). In addition, firms that adopt different digital tools tend to rely on productive workers that are likely to have contracts (permanent ones) and on women. Thus, firms' economic and social outcomes can improve thanks more digitalization (Acemoglu, 2002).

In order to analyze how such digital tools affect firms' performance, I compare firms that adopt and use such tools to those that do not in both Egypt and Jordan. Table 1 shows the results of the t-statistics test that measures whether the difference between the two groups is statistically significant or not. In terms of sales, online buying and selling, the use of internet and self-built website are associated to higher sales in

Egypt. In contrast, there is no significant difference between the sales of firms that have a website, that are listed on an application, or that use smartphone. In Jordan, the results are different since the use of Internet and websites are statistically different between the two groups. When performance is measured by the exporting status of the firm, the use of smartphones is associated to a higher probability of exports. This shows that firms in both Egypt and Jordan are generally facing several impediments to exports, which explains the limited effect of digitalization on the likelihood of exporting.

To analyze labor characteristics in the two countries, four variables are analyzed, namely the share of females, the share of part-workers (as a proxy either instable jobs or outsourcing some tasks as it has been mentioned before), share of indefinite workers (as a proxy for jobs quality) and finally the share of unpaid workers (as a proxy of vulnerable jobs). Significant differences are observed between the two types of firms (those who adopt vs. those that do not adopt any digital tools) as, in Egypt, firms that adopt such tools are more likely to hire women, less likely to recruit unpaid workers and more likely to have indefinite workers. The difference in having part-time workers is not statistically significant in two countries (with the exception of a few measures).

Table 1: Differences in Economic and Social Outcomes and Digitalization

		Website	List app.	Online buy	Online sell	Self-built	Internet	Smart-phone
Sales	Egypt	Higher	Higher	Higher	Higher	Higher	Higher	Higher
	Jordan	Higher	Higher	Higher	Higher	Higher	Higher	Higher
Exports	Egypt	Higher	Higher	Higher	Higher	Higher	Higher	Higher
	Jordan	Higher	Higher	Higher	Higher	Higher	Higher	Higher
Share Fem.	Egypt	Higher	Higher	Higher	Higher	Higher	Higher	Higher
	Jordan	Higher	Higher	Higher	Higher	Higher	Higher	Higher
Share Part.	Egypt	Higher	Higher	Higher	Higher	Higher	Higher	Higher
	Jordan	Higher	Higher	Higher	Higher	Higher	Higher	Higher
Share Indef.	Egypt	Higher	Higher	Higher	Higher	Higher	Higher	Higher
	Jordan	Higher	Higher	Higher	Higher	Higher	Higher	Higher
Share Unpaid.	Egypt	Higher	Higher	Higher	Higher	Higher	Higher	Higher
	Jordan	Higher	Higher	Higher	Higher	Higher	Higher	Higher
Higher		Higher	Higher	Higher	Higher	Higher	Higher	Higher
Insig.		Higher	Higher	Higher	Higher	Higher	Higher	Higher
Lower		Higher	Higher	Higher	Higher	Higher	Higher	Higher

Source: Author's own elaboration using the Firm Digitalization dataset (2022).



Methodology and Main Findings

This policy brief relies on a newly collected dataset by the Economic Research Forum (ERF - Cairo, Egypt) in the framework of the Open the Open Access Micro Data Initiative (OAMDI) for the Arab countries, Iran and Turkey. The questionnaire includes several modules as follows: basic information on the firm (sector of operation size, owner's gender and education, and types of owners). Second, it includes another module on digitalization (whether the firm has a website or not, uses smartphones or not, online selling and buying, the Internet, is listed on an application and self-built sales website that enables online payment). Third, it describes the characteristics labor used (women, digital skills, etc.). Finally, a module analyzes the main challenges faced by firms when it comes to digitalization such as electricity outage, days without Internet connection, and cost of digitalization). This survey has been done for three countries (Egypt, Jordan, and Morocco) over two waves for around 1000 observation per country.

To examine the implications of digitalization (Zaki, 2023a), I regress performance variables (measured by the value sales and exporting status) and labor characteristics (share of female workers, unpaid workers, part-time workers and workers with permanent contract) on different variables that measure digitalization (whether the firm has a website or not, uses smartphones or not, online selling and buying, the Internet, is listed on an application and self-built sales website that enables online payment). A vector of control variables is included (size, age, location, share of foreign and government ownership, and sectors fixed effects).

Our main empirical findings show that, for sales, the use of the Internet is significant in both Egypt and Jordan. This confirms the findings of DeStefano et al. (2018) who show a positive and significant impact of the proportion of broadband internet on firms' performance. Moreover, having a website or selling online boost exports in Jordan. In Egypt, listing the firm on an application is positively associated to sales. In terms of exports, self-built websites for payments are significant in Egypt, with the use of the Internet significant in the two countries. The limited effect on sales and exports can be due to the different challenges firms are facing at the legal, infrastructural, and institutional levels when it comes to digitalization.

As per labor characteristics, in Egypt, several digital tools (website, online buying, online selling, internet, and self-built website) are associated to a higher share

of female workers. Indeed, the use of digital platforms provides women with a greater access to markets, knowledge and more flexible working arrangements. This is similar to the findings of Ughetto et al. (2020) who argue that new digital technologies provide an opportunity space in the creation new ventures for women. As per the skills required, adopting such digital measures should increase the demand for skilled workers that are should be formal, paid with indefinite contracts. This is verified in the results as the share of unpaid workers and part-time workers decreases with firms that adopt any digital measure. The share of indefinite workers is also higher for these firms. These results confirm those of Grande et al. (2020) who, using data from the Third European Company Survey, find a positive association between indices of innovation and job quality.

The Way Forward

From a policy perspective, this paper highlights some of the main relationships between firms' economic and social outcomes and digitalization. The hypothesis is that firms adopting more digitalized platforms would develop more. If not, they tend to be small and in the periphery. Thus, unequal access to opportunities plays a large role in explaining under-performance and the limited effect of digital tools on sales and exports. Ramzy and Zaki (2021) point out that there is a dire need to improve digital infrastructure—including coverage and outreach—as it is a prerequisite to boost e-commerce and for successful integration of African and MENA countries into global trade in the digital era. Many areas in these countries (especially rural areas) still lack broadband connectivity. If such reforms are taken into account, digital technologies can have the potential to help “democratize entrepreneurship” as they help small and medium firms to have a wider access to international markets and knowledge diffusion. A key issue in this regard would be the use social media and big data that should play a core role in the business models of SMEs. Bouwman et al. (2018) present different case studies to show how social media and big data helped SMEs improve their performance in different sectors (restaurants in Spain, social media marketing services in Spain, digital marketing solution provider in UK, and brick-and-mortar stores in Finland).

One of the findings of the paper shows also to what extent digitalization is associated to an increase in female workers and a decrease in unpaid jobs. Therefore, digitalization can be perceived as a tool that increase women labor force participation and improve



working conditions. This should help MENA countries implement Sustainable Development Goals (SDGs). For instance, digitalization can help achieve Goal 9 on industry and innovation, Goal 8 on decent employment as it is associated to lower the share of unpaid workers in more digitalized firms, and Goal 5 on gender equality as it increases the share of female workers.

Finally, it is important for governments to invest in education programmes and initiate reskilling programmes that can ensure complementarity between labor skills and technologies (Ndung'u and Signé, 2020). Digitalization and training policies have a two-way relationship: while such policies can enhance skills development for digitalization, digitalization increases the viability of these policies via the availability of online courses.

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