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## Firm electrification is a continent-wide issue: evidence from the Maghreb

Firms across sub-Saharan Africa (SSA) view power outages as significant obstacles to productivity, and firms in the Maghreb share this concern, despite better infrastructure and greater government capacity. While most countries in the Maghreb have attained universal electrification, power remains expensive and the supply to industry is frequently unreliable.

### Take for example...

**Morocco** has a 100% electrification rate, but a 2019 World Bank Enterprise Survey shows:

- Out of 1,096 firms surveyed, **270 (>20%)** reported experiencing outages in the past year (Table 1).<sup>1</sup>
- Most firms claimed that electricity is a significant obstacle to operations (Figure 1).
  - **23%** reported it as a **major or very severe** obstacle.
  - **57%** cited electricity as a **minor or moderate** obstacle.
  - Only **15%** claimed it has not been an issue.
- Only **11%** of firms are able to invest in self-generation capacity that can fill in during outages (Table 2). Even for firms that can afford it, self-generation is a very expensive alternative.
- Responses do not vary significantly across size of firm or sector (whether manufacturing, retail, and other services). Figure 2 shows the distribution of self-reported losses resulting from power outages in Morocco.

And in **Tunisia**:

- An even higher percentage of firms (**42%** of the 615 surveyed) reported experiencing outages during the year.<sup>2</sup> The frequency of outages is shown in Table 1.
- **44%** cited electricity as either a **major or very severe** obstacle.
  - Of these, 74% are in manufacturing (despite that sector making up only 59% of the survey sample).
- **38%** considered electricity to be a **minor or moderate** obstacle. Only **17%** reported that electricity is not an obstacle.

### From the Maghreb to SSA, firms need better reliability

Firms in Morocco and Tunisia suffer significant losses from the lack of reliable electricity supply. These countries demonstrate the issues that arise when policy goals emphasize the electrification rate but ignore reliability. While outages in countries with universal electrification are perhaps not as pervasive as those elsewhere in sub-Saharan Africa, they still impact firm productivity. In view of this, policymakers across all of Africa must focus on the *reliability* of electricity supply to industry -- not just on the electrification *rate* -- to minimize losses and raise productivity in the private sector.

TABLE 1: Power Outages

Variable	Obs.	Mean	Std. Dev.	Min	Max
<b>Morocco</b>					
# power outages per month	230	1.660	.956	1	6
Duration of outages by hour	212	10.481	12.612	0	50
<b>Tunisia</b>					
# power outages per month	190	2.652	2.086	1	6
Duration of outages by hour	181	2.447	3.270	0	20

**Notes:** Obs (observation) is the total number of firms for which information on listed variables is provided. Observations for which the value exceeds three standard deviations from the mean are classified as outliers and returned as missing following the recommendations of the Enterprise Analysis unit of the World Bank.

TABLE 2: Generator Ownership

Generator Shared or Owned in Last Fiscal Year	Industry Categories			
	Manufacturing	Retail	Other	Total
<b>Morocco (# firms)</b>	<b>446</b>	<b>174</b>	<b>421</b>	<b>1041</b>
Yes	9%	10.3%	13.1%	10.9%
No	91%	89.7%	86.9%	89.1%
<b>Tunisia (# firms)</b>	<b>364</b>	<b>60</b>	<b>190</b>	<b>614</b>
Yes	14%	3.3%	14.7%	13.2%
No	86%	96.7%	85.3%	86.8%

**Note:** This table shows the distribution of generator ownership among the broad categorization of industries in Morocco and Tunisia.

FIGURE 1: Cited obstacle levels of electricity

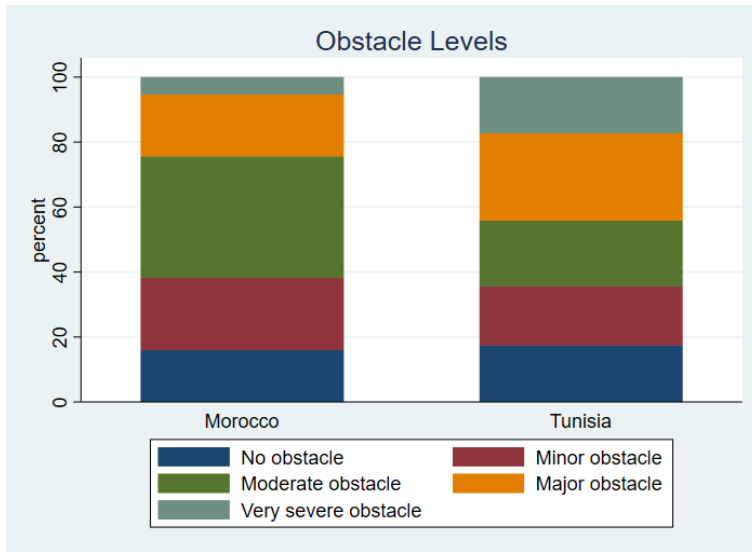
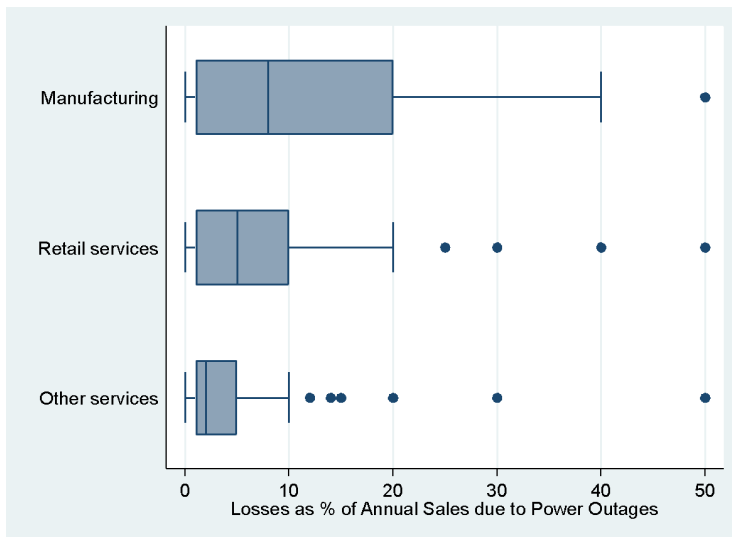


FIGURE 2: Distribution of self-reported losses among industries in Morocco



**Note:** Self-reported losses for which the value exceeds three standard deviations from the mean are classified as outliers and returned as missing following the recommendations of the Enterprise Analysis unit of the World Bank.

**Endnotes:**

1. World Bank Enterprise Surveys, 2019.
2. World Bank Enterprise Surveys, 2020.