MEASURING THE IMPACT OF COVID-19 ON THE MENA REGION: LABOUR MARKET, FIRMS AND HOUSEHOLDS

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Impact of the stringency and volatility of COVID containment measures on firms' performances in the MENA region

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Introduction & Literature
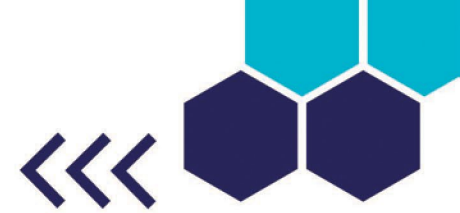
Data, Methodology and Empirical Model

Results

Introduction & Literature

Data, Methodology and Empirical Model

Results

Introduction

- Higher expected difficulties in MENA countries

    - Pre-pandemic structural constraints

    - Weak Government support

- Impact of containment policies in four MENA countries

- Stringency of measures

- Volatility

- Heterogeneous effects

Issues

- Does the level of restrictions and their volatility have a significant effect on firms' performances?

- Which firms did better in closure times?

- Is the availability of credit effective in dampening the effects of higher stringency/volatility?

- Are foreign/exporting firms relatively advantaged or disadvantaged when stringency or volatility increase?

- Which strategies of firms' adaptation work with higher stringency/volatility?

The literature

- Early-stage short run studies

- Apedo-Amah et al. (2020) : Severe effects on sales, financial situation, exacerbated by the difficulty of accessing finance and uncertainty.

- Bartik et al. (2020) : More than 40% of SMEs were temporarily closed while employment was reduced by 40%. This is due, mainly, to the absence of cash before the pandemic.

- Ashraf (2020) : Covid containment measures have a negatively significant impact on stock market returns.

- Webster et al. (2022) : While stay-at-home restrictions and public transport bans have a negative impact on firms' sales, workplace closure has a positive impact.
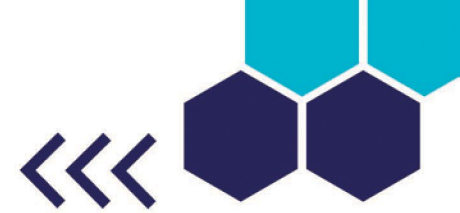
- Chen et al. (2020): The stringency has negative effect firms' stock returns in the US tourism and leisure sector, while positive effect on the e-commerce sector (Alfonso C et al., 2021).

- Fernandez-Perez et al. (2021) : The increase of the stringency of anti-Covid measures has a negative impact on stock market returns.

- Guerrero-Amezaga et al. (2022): Firms' performances are significantly correlated to their expectations induced by government support.

- Buchheim et al. (2022): The announcement of school closure in Germany was the triggering factor of the plunge in firms' expectations.

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Database

- ERF Covid-19 MENA Monitor
    - 4 rounds of firms (500) surveys
    - Egypt, Tunisia, Morocco and Jordan.

Table 1 : Waves of the Enterprise Survey

	Wave 1	Wave 2	Wave 3
Jordan	Feb-March. 2021	May-June. 2021	August-Sept. 2021
Morocco	Feb-March. 2021	June-July. 2021	August-Sept. 2021
Tunisia	Jan-April. 2021	June-July. 2021	August-Sept. 2021
Egypt	Feb-March. 2021	June-July. 2021	-

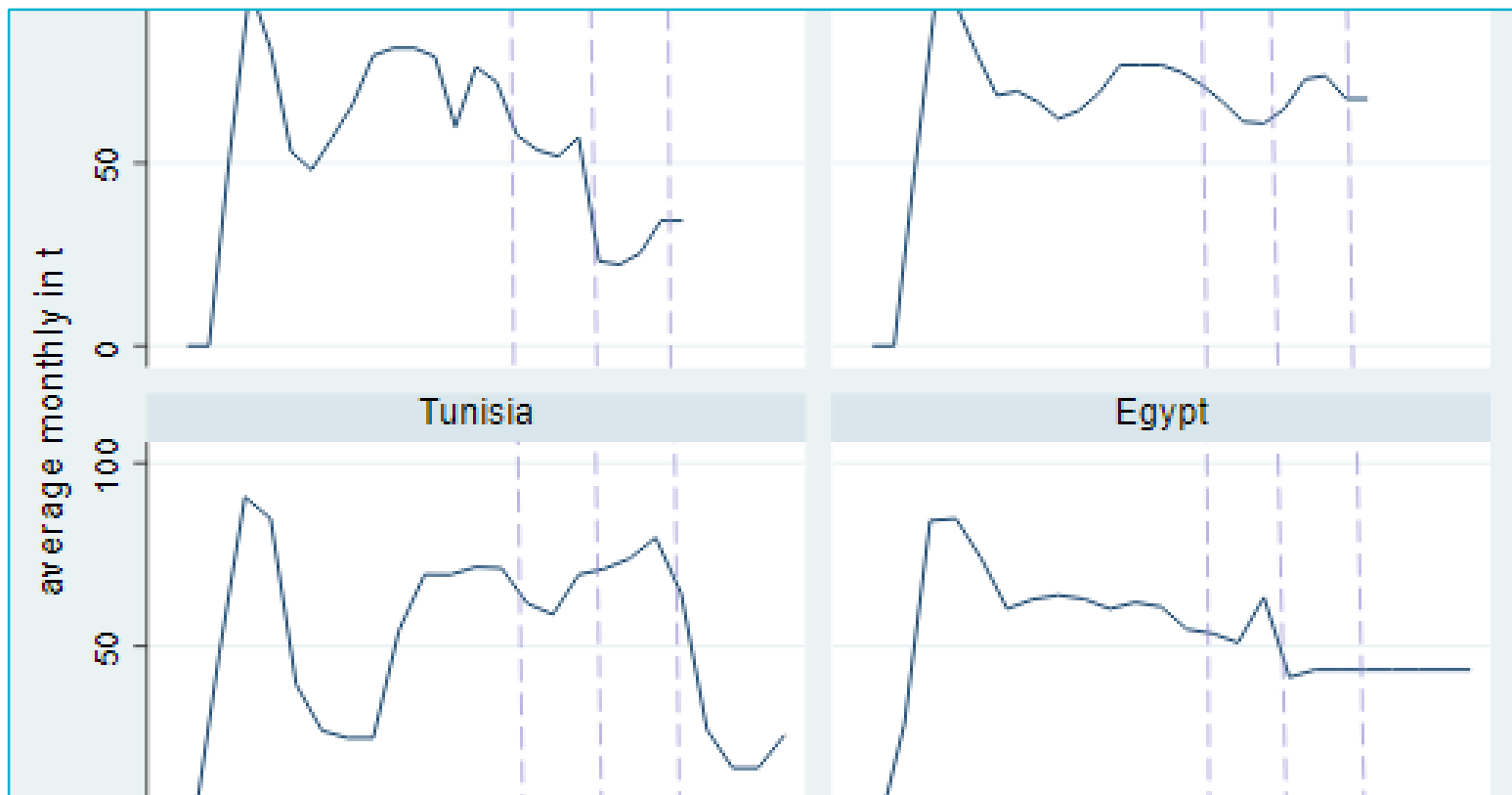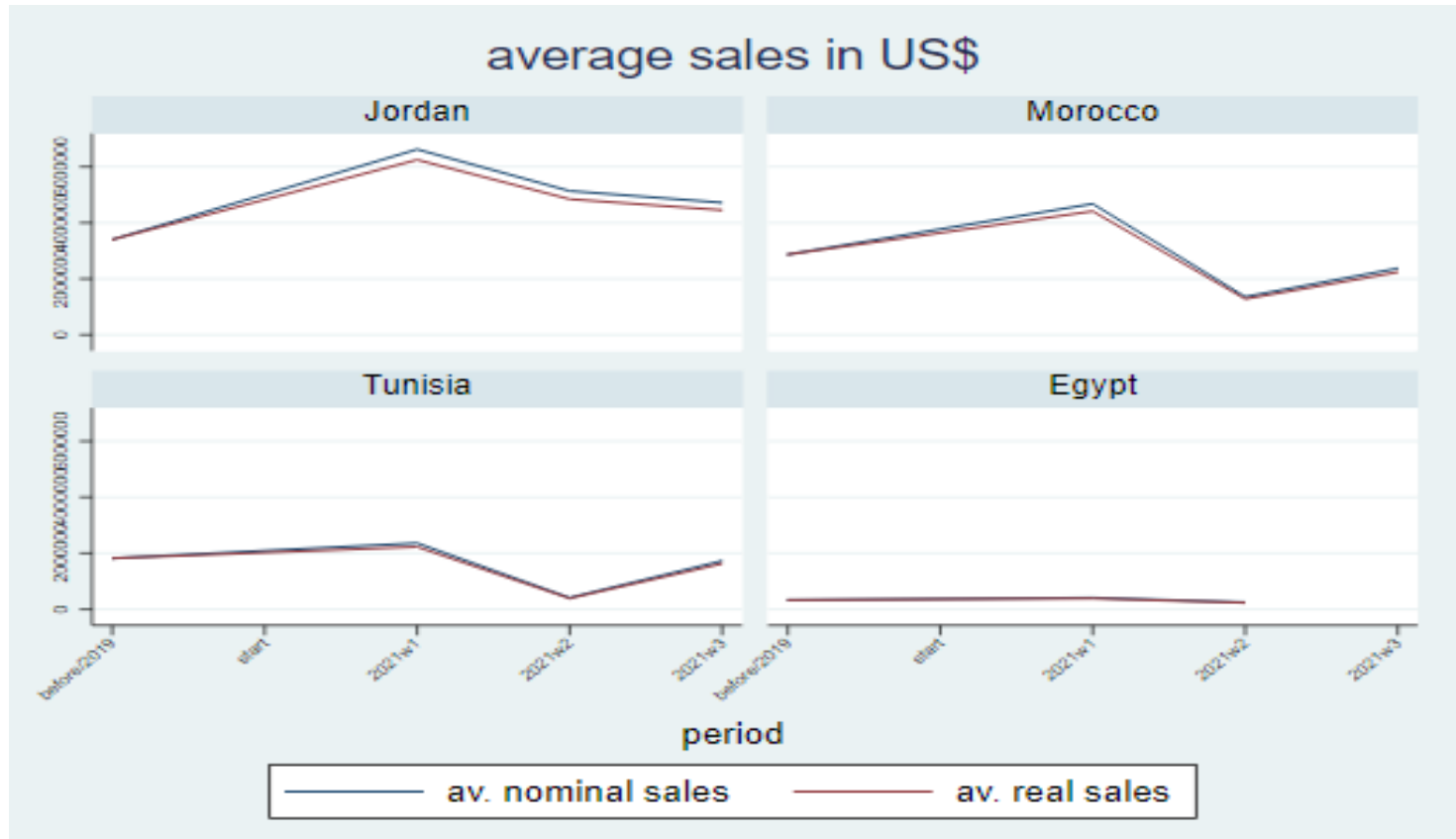# Figure 1: Monthly average of Stringency Index

# Figure 2: Change in sales through the different waves per country

Methodology

We estimate the effect of the change and volatility in stringency index on firm sales:

$$LnSales_{i,c,s,w} = \alpha + \beta DELTASI_{c,s,w-6} + \gamma VOLSI_{c,s,w-6} +$$

$$\mu X_{i,c,s,w} + \zeta_c + \delta_s + \eta_w + \varepsilon_{i,c,s,w} \quad (1)$$

• $LnSales_{i,c,s,w}$: sales of firm i in country c, sector s from wave w

• $DELTASI_{c,s,w-6} = SI_{c,s,w} - SI_{c,s,-6}$

• $X_{i,c,s,w}$: firm-level characteristics (size, foreign, access to finance).

• Fixed effects for country: (ζ_c), sector (δ_s) and wave (η_w).

• Standard errors are clustered at country-sector-wave level.
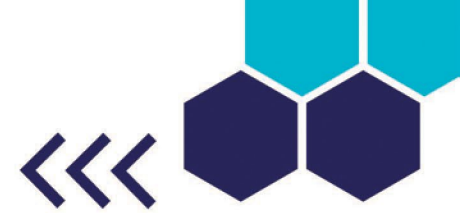
The cycle in SI is obtained by detrending SI, estimating the following regression for each of the four countries:

$$SI_m = \alpha + \beta SI_{m-1} + \gamma TIME_m + \varepsilon_m \quad (2)$$

• SI_{m-1} : the stochastic trend.

• $TIME_m$: the deterministic trend.

• The cycle of SI is the residual (ε_m).

• The volatility of SI is then constructed as the standard error of this residual, over a six-months period before the wave of the interview.

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Baseline estimations, OLS

	(1) log(sales)	(2) log(sales)	(3) log(sales)	(4) log(sales)
$DELTASI_{c,s,w-6}$	-0.023** (0.010)	-0.022** (0.010)	-0.020** (0.010)	-0.020** (0.010)
$VOLSI_{c,s,w-6}$	-0.105*** (0.038)	-0.108*** (0.039)	-0.073* (0.038)	-0.073* (0.038)
$FOREIGN_{i,c,s,w}$		0.245 (0.160)	0.232 (0.160)	0.206 (0.160)
$FINANCE_{i,c,s,w}$		0.649*** (0.124)	0.636*** (0.127)	0.625*** (0.126)
$EXPORT_{i,c,s,w}$		0.788*** (0.111)	0.750*** (0.110)	0.777*** (0.109)

	(1) log(sales)	(2) log(sales)	(3) log(sales)	(4) log(sales)
$SIZE_{i,c,s,w}$ (ref=0-5)				
6-49		0.858*** (0.167)	0.872*** (0.165)	0.866*** (0.167)
50-199		1.818*** (0.203)	1.815*** (0.202)	1.826*** (0.203)
200+		2.729*** (0.630)	2.676*** (0.644)	2.630*** (0.636)
$CHANGEBM_{i,c,s,w}$			0.758*** (0.186)	
$DIGITAL_{i,c,s,w}$				0.682*** (0.164)
Observations	2698	2595	2568	2595
Sector fixed effects	yes	yes	yes	yes
Country fixed effects	yes	yes	yes	yes
Wave fixed effects	yes	yes	yes	yes

Heterogeneity Analysis

	(1) FINANCE	(2) FOREIGN	(3) EXPORT	(4) DIGITAL	(5) CHANGEBM
Panel A - using stringency index (SI)					
$VARIABLE_{c,s,w}$	0.710***	0.180	0.697***	0.182	-0.106
	(0.188)	(0.225)	(0.142)	(0.399)	(0.399)
$DELTASI_{c,s,w-6}$	-0.021**	-0.019*	-0.017*	-0.042***	-0.046***
	(0.010)	(0.010)	(0.009)	(0.009)	(0.008)
$VARIABLE_{c,s,w} \times DELTASI_{c,s,w-6}$	-0.004	-0.031***	-0.028**	0.062***	0.061***
	(0.009)	(0.011)	(0.011)	(0.009)	(0.008)
$VOLSI_{c,s,w-6}$	-0.104**	-0.110***	-0.110***	-0.085*	-0.115**
	(0.040)	(0.040)	(0.037)	(0.049)	(0.050)
$VARIABLE_{c,s,w} \times VOLSI_{c,s,w-6}$	-0.016	0.033	0.041	0.067	0.100**
	(0.028)	(0.043)	(0.028)	(0.050)	(0.047)
N	2595	2595	2595	2595	2568

	(1) FINANCE	(2) FOREIGN	(3) EXPORT	(4) DIGITAL	(5) CHANGEBM
Panel B - using international travel restrictions (ITR)					
$VARIABLE_{c,s,w}$	0.630***	0.222	0.755***	1.045***	1.225***
	(0.169)	(0.200)	(0.127)	(0.302)	(0.327)
$DELTAITR_{c,s,w-6}$	-0.475***	-0.409**	-0.391***	-0.967***	-1.171***
	(0.162)	(0.159)	(0.145)	(0.207)	(0.202)
$VARIABLE_{c,s,w} \times DELTAITR_{c,s,w-6}$	0.030	-0.708***	-0.425*	0.934***	1.127***
	(0.164)	(0.263)	(0.248)	(0.232)	(0.213)
$VOLITR_{c,s,w-6}$	-2.123***	-2.022***	-2.008***	-1.709**	-1.630**
	(0.632)	(0.619)	(0.582)	(0.665)	(0.683)
$VARIABLE_{c,s,w} \times VOLITR_{c,s,w-6}$	0.048	-1.016*	-0.306	0.564	0.513
	(0.360)	(0.613)	(0.414)	(0.688)	(0.680)
Observations	2595	2595	2595	2595	2568
Firm level controls	yes	yes	yes	yes	yes
Sector fixed effects	yes	yes	yes	yes	yes
Country fixed effects	yes	yes	yes	yes	yes
Wave fixed effects	yes	yes	yes	yes	yes

Standard errors clustered at the country-sector-wave level in parentheses
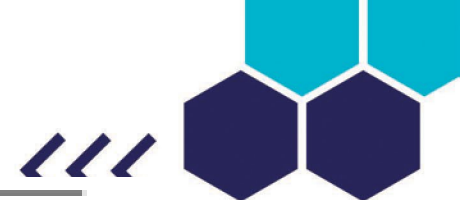
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Interaction between change and volatility in SI

	(1) $i = 6$	(2) $i = 3$	(3) $i = 9$	(4) $i = 12$
$DELTASI_{c,s,w-i}$	0.124*** (0.026)	0.072** (0.032)	0.061*** (0.018)	0.055*** (0.010)
$VOLSI_{c,s,w-i}$	-0.166*** (0.041)	0.011 (0.057)	-0.234*** (0.054)	-0.057* (0.031)
$DELTASI_{c,s,w-i} \times VOLSI_{c,s,w-3}$	-0.016*** (0.003)	-0.013** (0.005)	-0.003** (0.002)	-0.003*** (0.001)
Observations	2595	2595	2595	2595
Firm level controls	yes	yes	yes	yes
Sector fixed effects	yes	yes	yes	yes
Country fixed effects	yes	yes	yes	yes
Wave fixed effects	yes	yes	yes	yes
Turning point in $DELTASI_{c,s,w-i}$	7.75	5.54	20.3	18.3

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Dropping one country-wave at a time

	W1	W2	W3
W/O TUNISIA			
$DELTASI_{c,s,w-6}$	0.019***	-0.022**	-0.022**
	(0.007)	(0.010)	(0.009)
$VOLSI_{c,s,w-6}$	0.015	-0.098**	-0.128***
	(0.031)	(0.039)	(0.039)
$DELTAITR_{c,s,w-6}$	-0.108	-0.546***	-0.310
	(0.109)	(0.152)	(0.194)
$VOLITR_{c,s,w-6}$	-0.665	-2.253***	-1.726**
	(0.413)	(0.598)	(0.719)
N	2468	2453	2442
W/O JORDAN			
$DELTASI_{c,s,w-6}$	-0.019**	-0.043***	-0.019*
	(0.009)	(0.016)	(0.010)
$VOLSI_{c,s,w-6}$	-0.126***	0.020	-0.105**
	(0.038)	(0.053)	(0.041)
$DELTAITR_{c,s,w-6}$	-0.446***	-1.022***	-0.749***
	(0.153)	(0.290)	(0.286)
$VOLITR_{c,s,w-6}$	-2.017***	-0.620	-3.138***
	(0.624)	(0.686)	(1.099)
N	2447	2457	2439

	W1	W2	W3
W/O MOROCCO			
$DELTASI_{c,s,w-6}$	-0.021**	-0.024**	-0.027***
	(0.010)	(0.011)	(0.010)
$VOLSI_{c,s,w-6}$	-0.115***	-0.093**	-0.136***
	(0.040)	(0.046)	(0.040)
$DELTAITR_{c,s,w-6}$	-0.421***	-0.488***	-0.553***
	(0.147)	(0.161)	(0.152)
$VOLITR_{c,s,w-6}$	-2.191***	-2.027***	-2.819***
	(0.631)	(0.655)	(0.638)
N	2521	2517	2519
W/O EGYPT			
$DELTASI_{c,s,w-6}$	-0.027**	-0.022**	
	(0.012)	(0.011)	
$VOLSI_{c,s,w-6}$	-0.153***	-0.108***	
	(0.057)	(0.039)	
$DELTAITR_{c,s,w-6}$	-0.487***	-0.371***	
	(0.157)	(0.142)	
$VOLITR_{c,s,w-6}$	-1.901***	-2.574***	
	(0.561)	(0.687)	
N	2388	2430	
Firm level controls	yes	yes	yes
Sector fixed effects	yes	yes	yes
Country fixed effects	yes	yes	yes
Wave fixed effects	yes	yes	yes

Summary Findings

- Not only restrictions tightening, but also higher volatility of the stringency index are negatively associated with the variation in firms' sales.

- Larger firms and those with access to finance have, all else equal, performed better than other firms.

- Access to finance does not seem to lessen the negative effect of the stringency of restrictions on sales. • Firms' which adapted by changing their business model or digitalizing dampened the effects of higher stringency.

- Only a change in the business model can dampen the effects of higher volatility.

- There is evidence of a stronger negative effect of restrictions tightening for foreign-owned and exporting firms.

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Thank you for your attention!

Questions?!