



Why is Tunisia's unemployment so high? Evidence from policy factors

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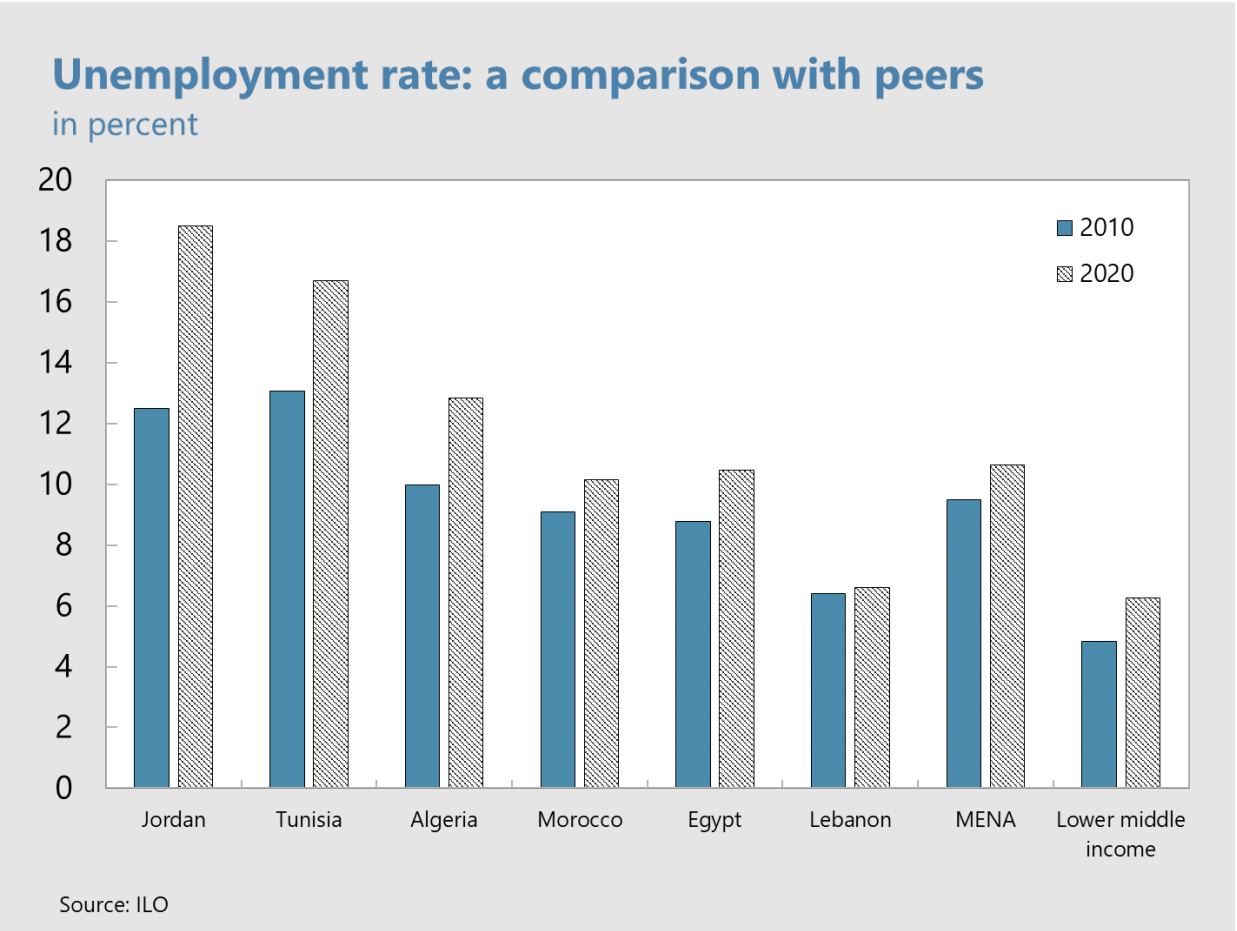
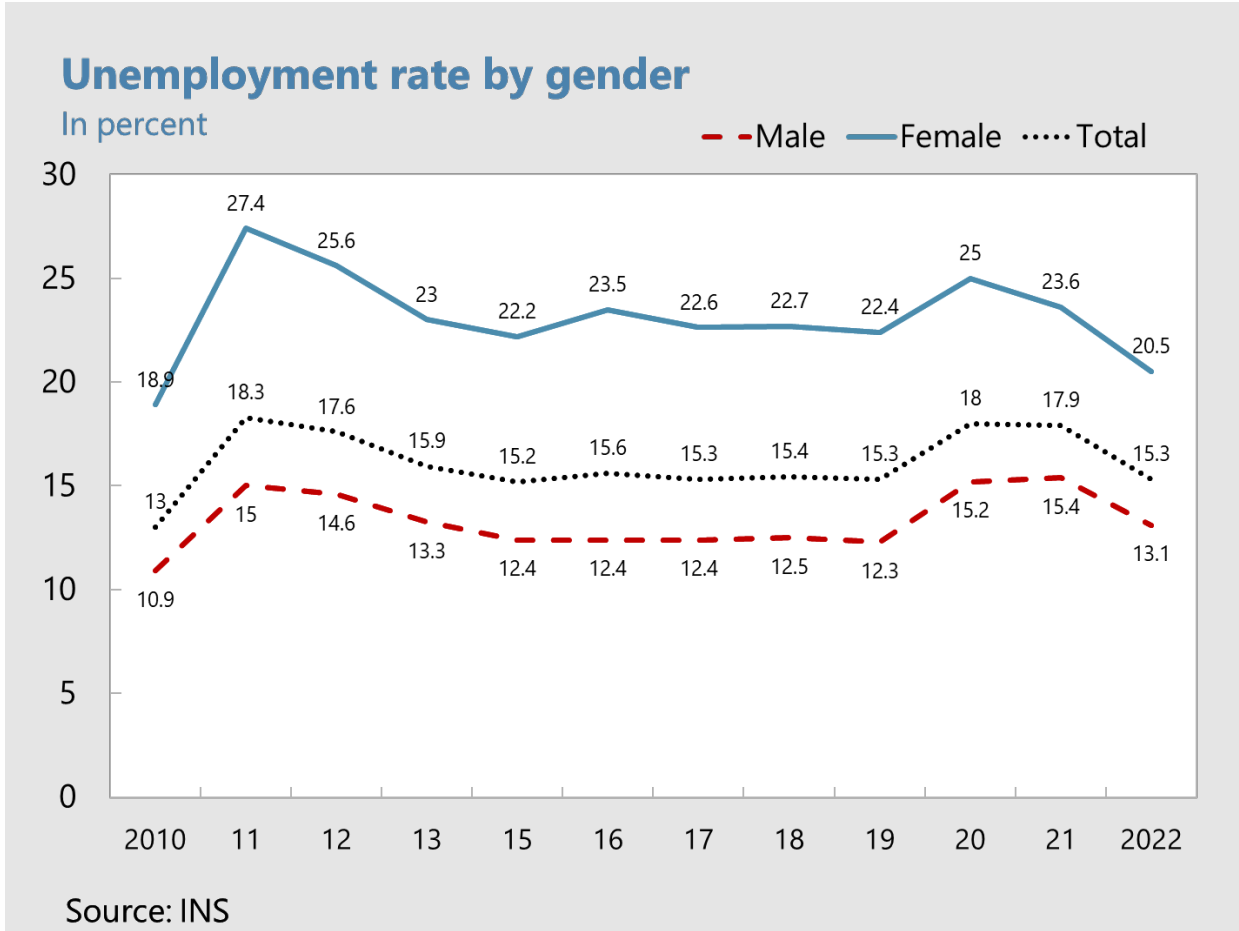
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Introduction

Stylized facts

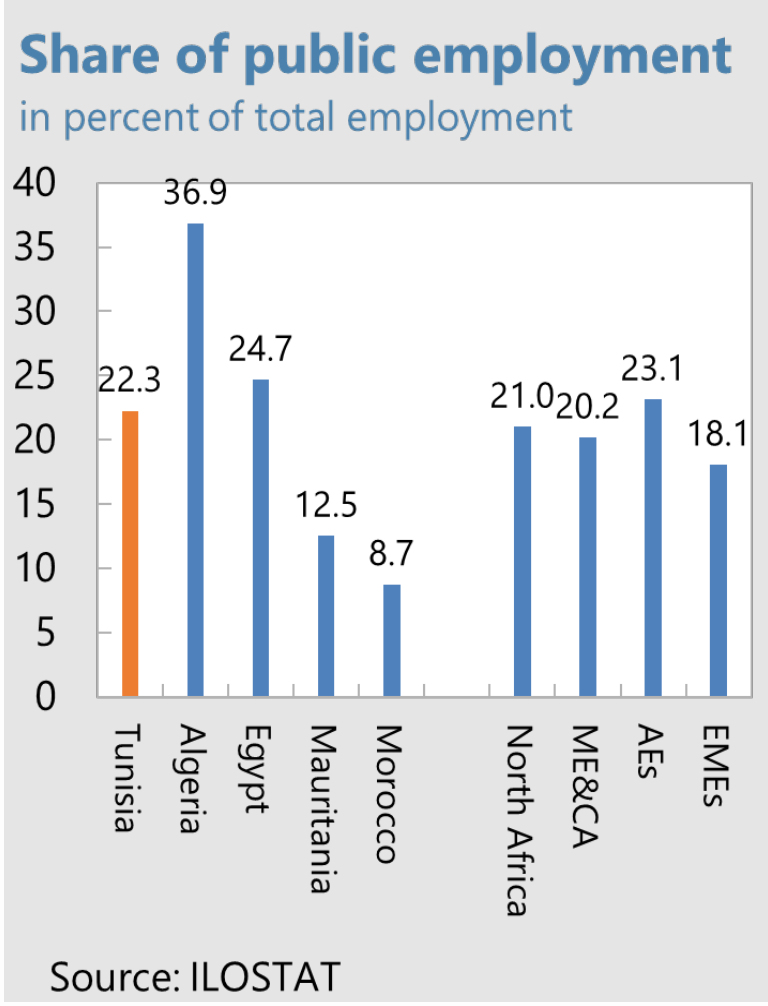
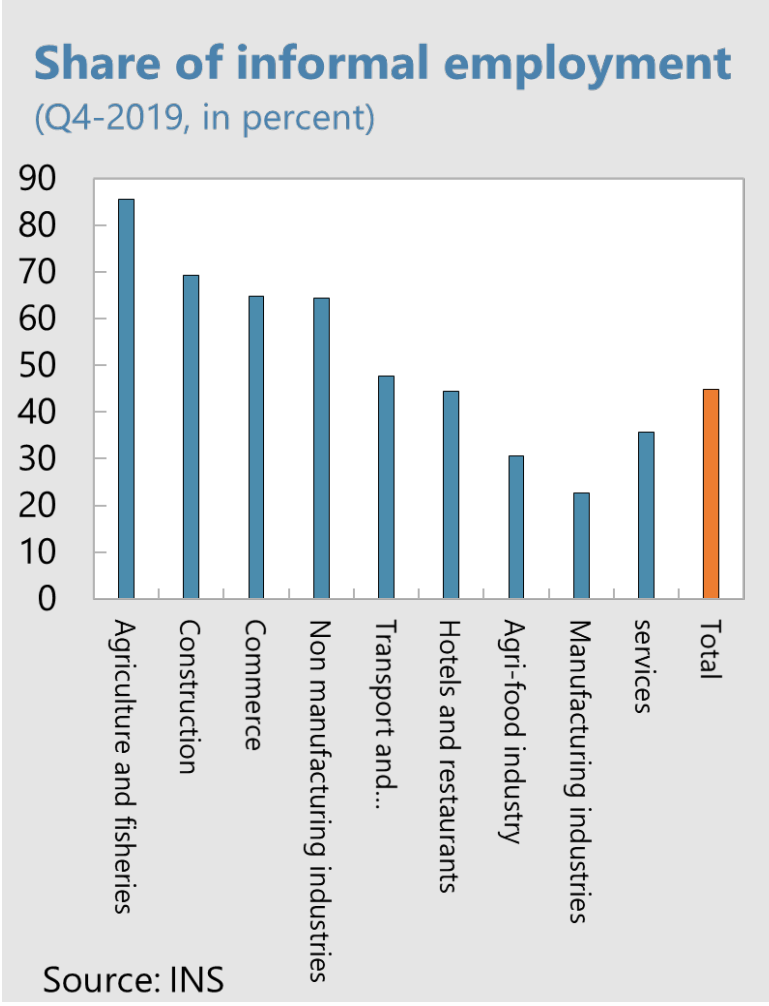
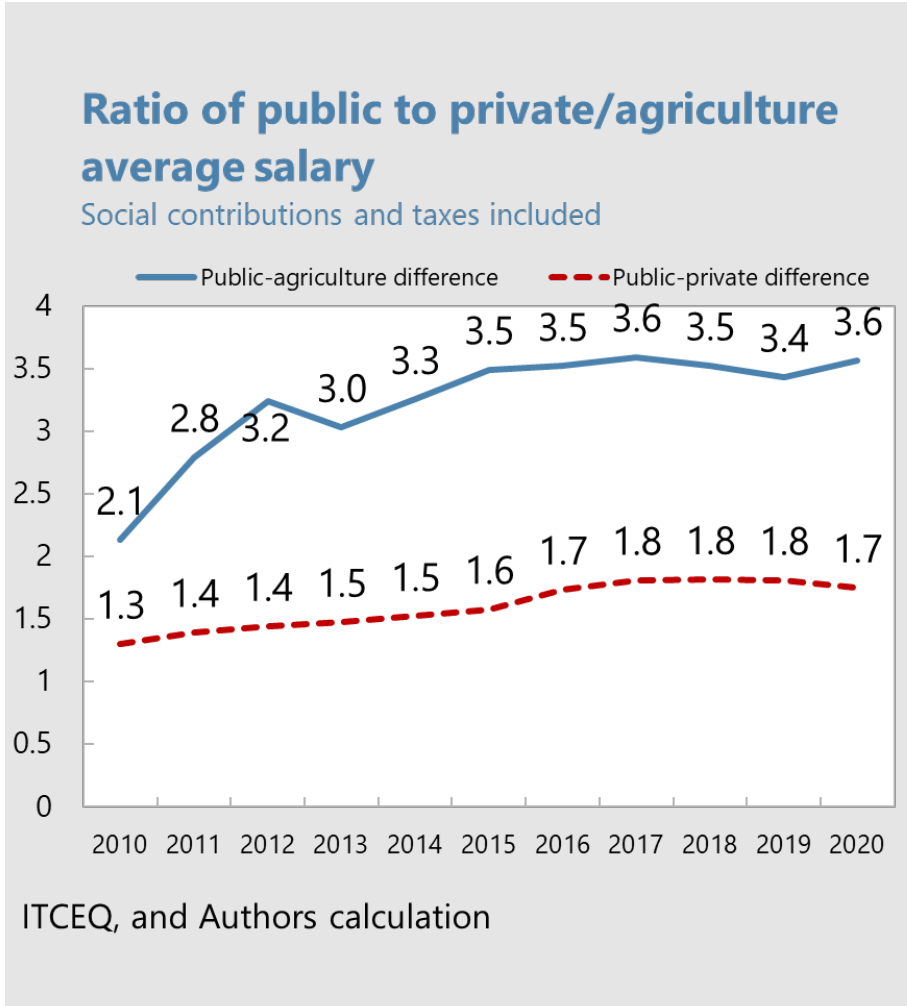
Introduction / stylized facts

Tunisia with a young population has one of the highest unemployment rates in MENA, with significant disparities and high social demands, especially since the Jasmine Revolution.



Introduction / stylized facts

With about 45 percent of the employed labor force in the informal sector and 22 percent in the public sector.



Objective of the paper

Quantify:

- To what extent institutional and policy factors explain Tunisia's unemployment level and its evolution during the last decade
 - Have they played a role given the limited reforms implemented ?
 - Are there linkages/spillovers between different types of regulations and policies ?
 - What is the role of labor demand factors ?

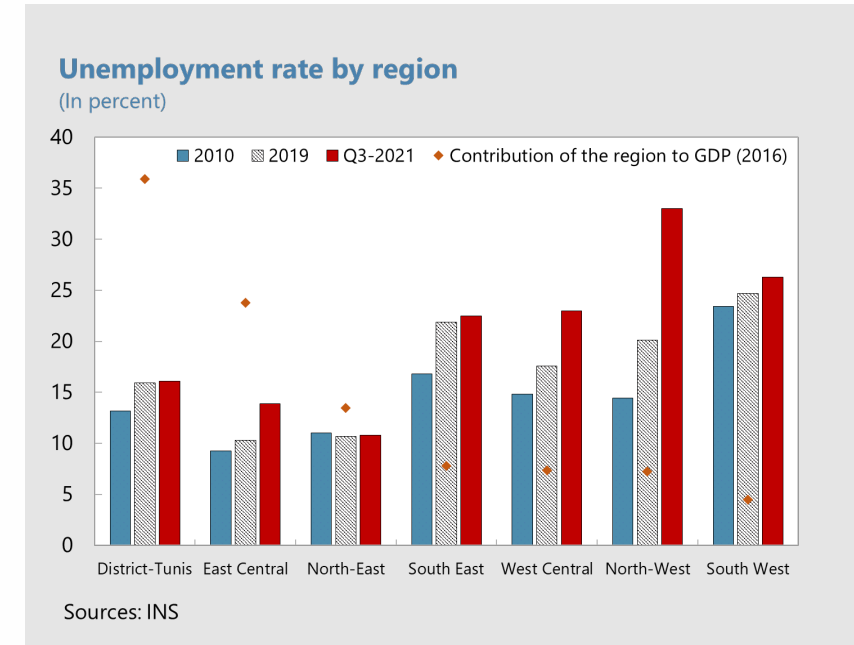
- To what extent they also affect unemployment cyclical in the Tunisian context.
 - How is Tunisia's unemployment sensitive to the output gap ? How is this linked to characteristics of the economy and institutional factors ?

Tunisia's labor market in the literature

What we learnt from the literature on the Tunisian labor market is still limited and focused on supply factors or structural features

E.g., focused on:

- Lack of regional development (Boughzala, 2017)
- Skills mismatches (Boughzala, 2017; Assad and Boughzala, 2018; OECD, 2021)



What is still lacking in the literature on the Tunisian labor market: the role of institutional and policy factors as identified in the labor economics literature

(Hatayama, 2020; Jaumotte 2011 among others)

- Employment protection legislation and wage bargaining system
- Product market regulation
- Access to Finance
- Taxation

Contribution of policy and institutional factors to Tunisia's unemployment

Contribution of policy and institutional factors to unemployment in Tunisia

Data and Model

- Panel data of 157 countries from 2007 to 2017, including Tunisia
- Panel fixed effects regression, with different specifications:

$$U_{i,t} = \alpha U_{i,t-1} + \beta Gap_{i,t} + \gamma Labor_{i,t} + \delta Bus_{i,t} + \theta_1 Barg_{i,t} + \theta_2 Barg_{i,t}^2 + \sigma Fin_{i,t} + \vartheta Tax_{i,t} + \mu_i + \tau + \varepsilon_{i,t} \quad (1)$$

- $U_{i,t}$: Unemployment rate for country i at time t
- $Gap_{i,t}$: Output gap
- $Labor_{i,t}$: Labor market regulation
- $Bus_{i,t}$: Business regulation
- $Fin_{i,t}$: Financial market regulation
- $Barg_{i,t}$: The degree of centralization of wage bargaining
- $Tax_{i,t}$: Taxation
- μ_i and τ are country and time fixed effects

Contribution of policy and institutional factors to unemployment in Tunisia

General result: Labor market, product market, and financial market development significantly affect the unemployment rate.

VARIABLES 1/		(1)	(2)	(3)	(4)	(5)	(6)
		Unemployment rate					
	Lagged Unemployment	0.5664*** (0.0376)	0.6030*** (0.0335)	0.6063*** (0.0398)	0.5817*** (0.0407)	0.5721*** (0.0450)	0.6947*** (0.0343)
	Output gap	-0.0769*** (0.0207)	-0.0765*** (0.0168)	-0.0800*** (0.0186)	-0.0767*** (0.0180)	-0.0751*** (0.0181)	-0.0526*** (0.0131)
Employment protection legislation	Employment protection legislation (ILO)	-0.0390 (0.0278)					
	Procedural requirements for dismissals (ILO)		0.0370*** (0.0056)	0.0449*** (0.0045)	0.0427*** (0.0055)	0.0440*** (0.0042)	
	Severance payments (ILO)		0.0101 (0.0063)	0.0112** (0.0053)	0.0090 (0.0057)	0.0105* (0.0054)	
	Flexibility of hiring and firing regulations (Fraser)						0.0010 (0.0007)
Collective bargaining system	Centralized collective bargaining (Fraser)	-0.0006 (0.0043)	0.0012 (0.0045)		0.0007 (0.0047)		
	Square of Centralized collective bargaining	0.0001 (0.0004)	-0.0001 (0.0004)		-0.0001 (0.0004)		
	Flexibility of wage determination (WEF)			-0.0063 (0.0084)		-0.0111 (0.0082)	-0.0162** (0.0080)
	Square of flexibility of wage determination			0.0004 (0.0009)		0.0009 (0.0009)	0.0014* (0.0008)
Business/Product market regulation	Administrative requirements (Fraser)	-0.0023** (0.0011)	-0.0023** (0.0010)	-0.0021* (0.0011)			
	Regulatory Burden (Fraser)	-0.0010** (0.0004)	-0.0009** (0.0004)	-0.0009** (0.0004)			
	Goods market efficiency (WEF)				-0.0110*** (0.0032)	-0.0107*** (0.0033)	-0.0069*** (0.0025)
	Intensity of local competition (WEF)						0.0008 (0.0021)
Taxation	Tax burden (Heritage)	0.0001 (0.0002)	0.0001 (0.0002)	0.0001 (0.0002)	-0.0000 (0.0002)	-0.0000 (0.0002)	0.0001 (0.0001)
Financial markets	Financial market development (WEF)	-0.0036 (0.0024)				-0.0021 (0.0024)	
	Credit market regulations (Fraser)		-0.0018** (0.0008)	-0.0016* (0.0009)	-0.0015* (0.0009)		-0.0021*** (0.0007)
	Constant	0.0728** (0.0327)	0.0335 (0.0250)	0.0560* (0.0287)	0.0765*** (0.0277)	0.1054*** (0.0333)	0.1012*** (0.0267)
	Observations	745	769	750	752	754	1,376
	R-squared	0.5908	0.5990	0.6026	0.6016	0.6015	0.6592

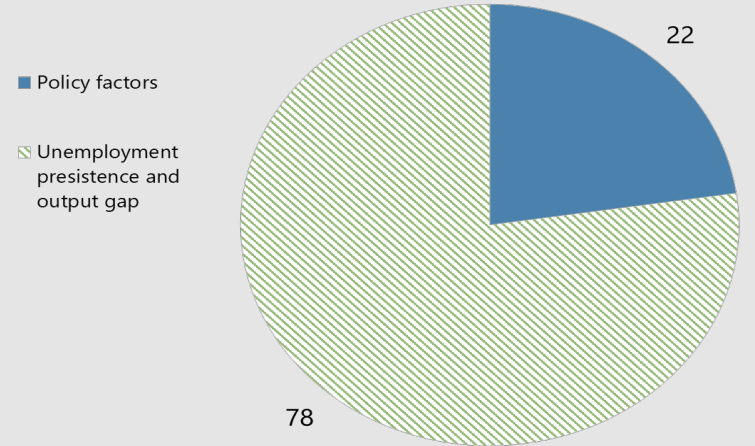
Contribution of policy and institutional factors to unemployment in Tunisia

For Tunisia: While the output gap and the persistence of unemployment explain most of the increase in the unemployment rate between 2009 and 2017, changes in institutional policy factors explain about a quarter of it. Female and youth employment change in Tunisia were more influenced by economic cycles during the last decade.

Share of institutional factors in the unemployment increase between 2009 and 2017

Tunisia: Share of policy changes in the unemployment increase between 2009 and 2017

In percent

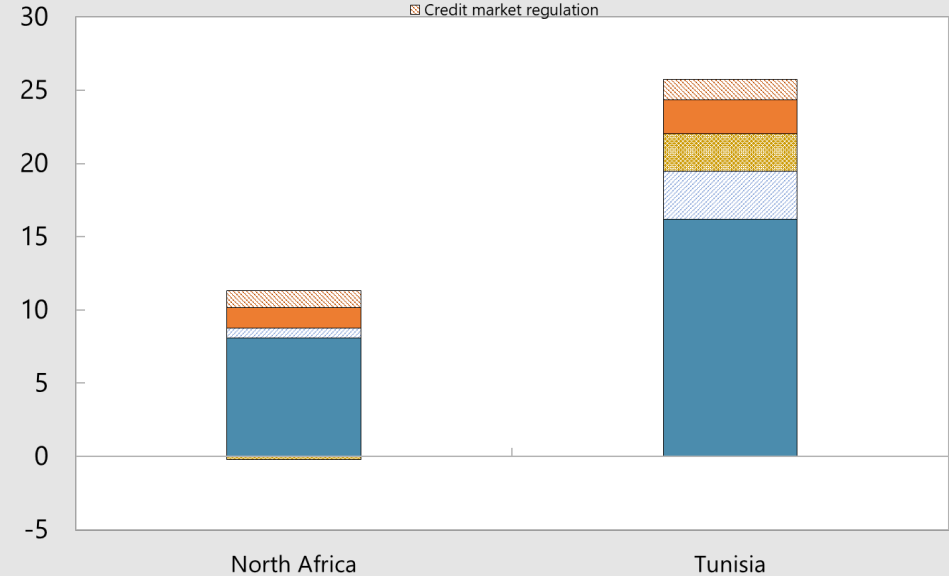


Authors calculations from regression 6.

Contribution of the output gap and institutional factors to the change in the predicted unemployment rate between 2009 and 2017

(in percent, regression 6)

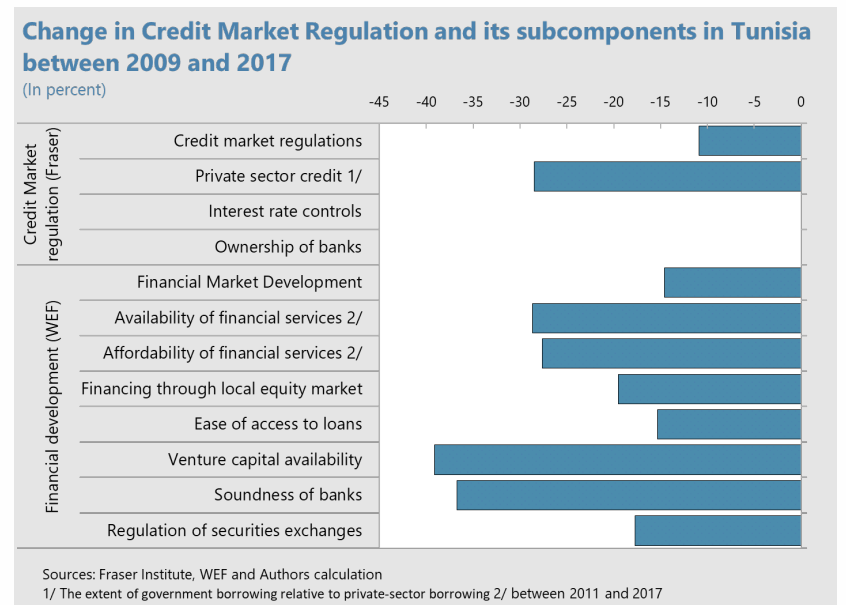
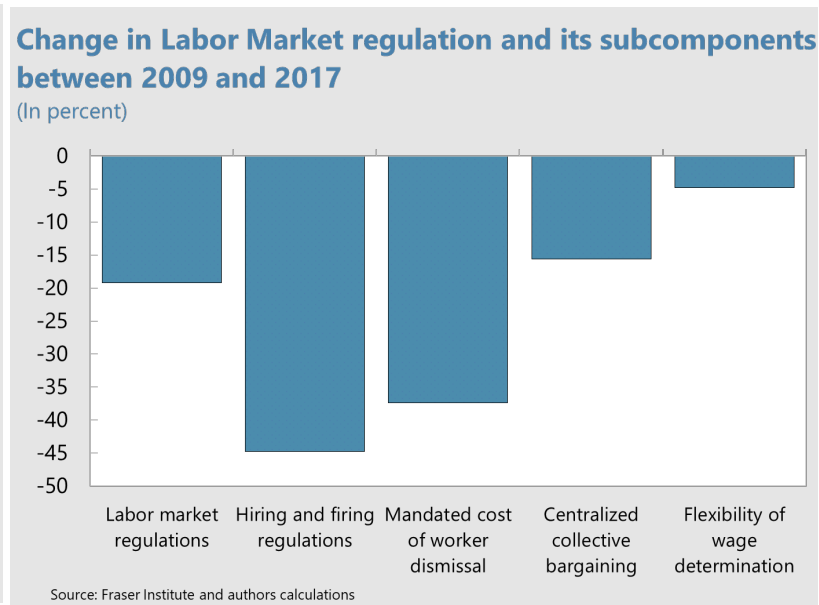
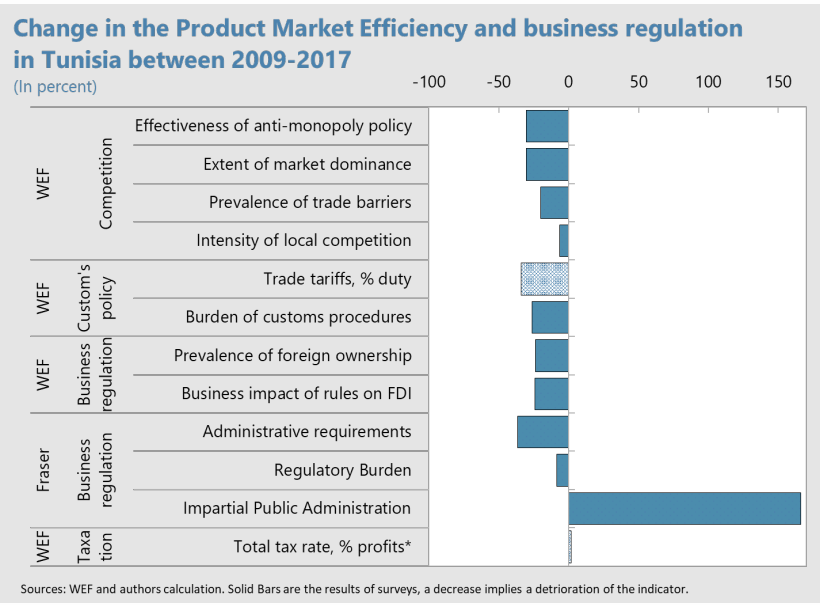
- Lagged unemployment rate
- Output Gap
- Credit market regulation
- Product Market efficiency
- Employment protection legislation



Source: Authors calculation based on regression (6)

Contribution of policy and institutional factors to unemployment in Tunisia

- Deterioration of product market regulation, of the bargaining system as well as of labor market regulations.
- Financial development and access also seem to matter for the labor market in Tunisia, especially in the presence of a rigid labor market regulation.



Unemployment in Tunisia and its sensitivity to the output gap

Unemployment In Tunisia and its sensitivity to the output gap

Data and Model

- Estimate the Okun's coefficient and then regress it on a set of policy variables
- Panel data of 151 countries from 1996 to 2017, including Tunisia
- A dynamic common-correlated effects with heterogenous coefficients

$$\Delta u_{i,t} = \lambda_i \Delta u_{i,t-1} + \beta_i \Delta y_{i,t} + \vartheta_{i,t}$$
$$\vartheta_{i,t} = \alpha_i + \sum_{l=1}^{P_T} \delta_{i,l} f_{l,t} + \varepsilon_{i,t}$$

- $\Delta u_{i,t} = u_{i,t} - u_{i,t-1}$ is the (absolute) change in unemployment rate,
- $\Delta y_{i,t} = y_{i,t} - y_{i,t-1}$ is the change in log of output (real GDP),
- α_i a unit-specific fixed-effect,
- $\varepsilon_{i,t}$ is a cross section unit specific error term,
- $f_{m,t}$ are unobserved common factors,
- (δ_i) is the heterogenous, country-specific loading factor.

Unemployment In Tunisia and its sensitivity to the output gap

Key results

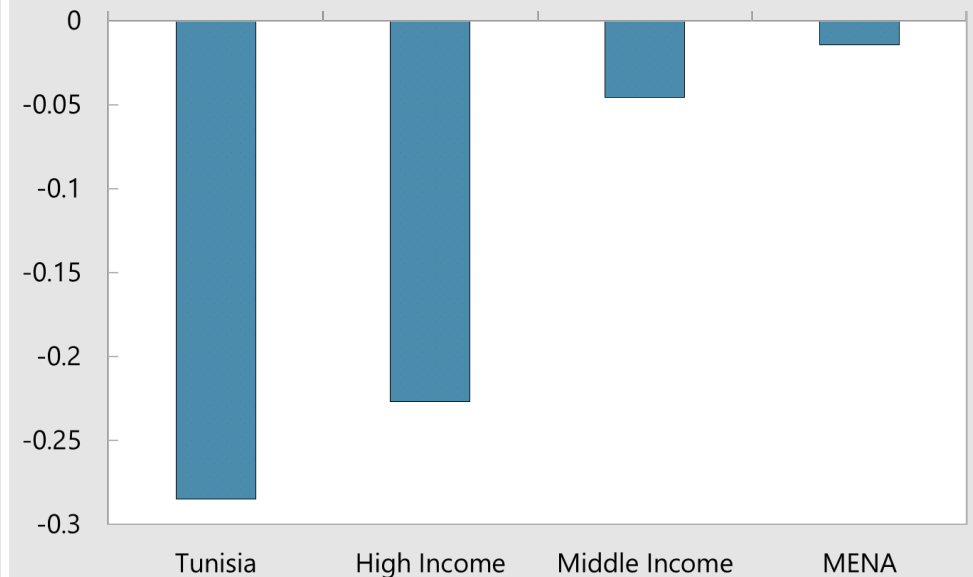
- Unemployment's responsiveness to variations in output depends on country income levels
- For Tunisia, the responsiveness of unemployment to the business cycle is substantially higher than for the average of middle-income countries and the MENA region and is comparable to high income countries (consistent with Cardarelli, et alii., 2022)

Estimation of Okun's coefficient (Equation 2)

	(1)	(2)	(3)
	All sample	Middle income countries	high income countries
	$\Delta Unemployment$	$\Delta Unemployment$	$\Delta Unemployment$
ΔGDP_t	-0.094*** (0.016)	-0.073*** (0.014)	-0.244*** (0.035)
ΔGDP_{t-1}	-0.026*** (0.011)	-0.02 (0.015)	-0.057* (0.032)
$\Delta Unemployment_{t-1}$	0.118*** (0.034)	0.142*** (0.047)	0.175*** (0.071)
Constant	0.001 (0.001)	0.002 (0.002)	-0.001 (0.001)
<i>Number of countries</i>	151	41	48

Figure 6: Okun's coefficient

(in units)



Authors calculation

Unemployment In Tunisia and its sensitivity to the output gap

The Okun's coefficient response to policy factors

- Unemployment's responsiveness to business cycles appears to be less in countries with:
 - ✓ higher level of informality (consistent with informality as a "buffer" to cycles),
 - ✓ more flexible labor markets (adjustment does not go through periods of unemployment),
 - ✓ and/or lower level of unemployment (the higher the unemployment rate, the easier an increased demand for labor can be met through employment)
 - ✓ less flexibility in business regulations and less trade openness

Table 3: Institutional determinants of Okun's coefficient

Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Informal size	0.005*** (0.0012)					0.003** (0.0015)	0.003** (0.0017)
Labor Market regulation (flexibility)		0.018 (0.0136)				0.0374** (0.0155)	0.033** (0.0168)
Business regulation (flexibility)			-0.043*** (0.0111)			- 0.0392** (0.0171)	-0.031** (0.0181)
Unemployment rate				-0.012** (0.0065)			-0.012** (0.0059)
Trade openness					0.0003 (0.0005)		-0.0001** (0.0005)
Constant	-0.317*** (0.0474)	-0.292*** (0.097)	0.109* (0.0677)	-0.073* (0.0433)	-0.187*** (0.0326)	-0.244** (0.12)	-0.148 (0.11)
R-squared	0.1	0.17	0.07	0.08	0.002	0.16	0.23
Number of countries	101	100	100	101	97	100	96

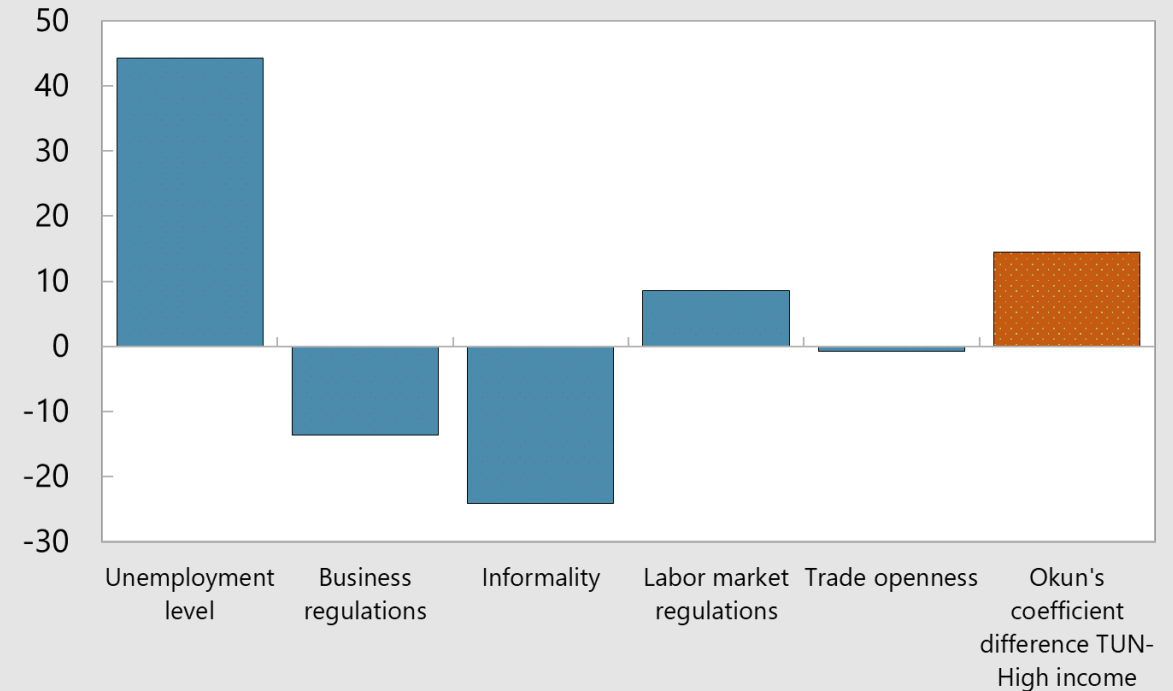
Unemployment in Tunisia and its sensitivity to the output gap

The Okun's coefficient response to policy factors

- Confirmed for Tunisia with an Okun coefficient 61 percent higher than the average of middle-income countries due mostly to a higher unemployment level and more flexibility in business regulations.

Figure 7: Factors' contributions to the difference in Okun's coefficient between Tunisia and high income countries

(In percent)



Sources: Authors calculation using regression (7)

Conclusion

Conclusion

- During the last decade, the deterioration of institutional factors:
 - not only explains directly about a quarter of the unemployment rate increase in Tunisia,
 - but also, Tunisia's higher sensitivity of unemployment to the output gap,
 - Among all institutional factors, product market regulation is likely to be the most relevant factor, despite the adoption of important laws to strengthen the business climate.
- For Tunisia, the sensitivity of unemployment to the output gap is substantially higher than the average of middle-income countries and is comparable to high income countries.
 - One of the main factors behind this excess sensitivity seems to be Tunisia's high unemployment level.
- In terms of policy implications for Tunisia:
 - Increased labor market and product market flexibility, as well as reduced financial constraints would help tame unemployment.
 - Product and labor market reforms should be done together to avoid adverse effects.
 - Should the output gap close quickly, Tunisia's higher sensitivity would help create jobs more quickly, but growth itself is also unlikely to come without significant structural reforms.

Annexes

What is still lacking in the literature on the Tunisian labor market: the role of institutional and policy factors as identified in the labor economics literature

- Employment protection legislation:
 - Investing in human capital in the context of protected employment could enhance firm productivity (Hatayama, 2020)
 - However, excessive EPL can cause distortions, increase the cost of formal employment and unemployment

- Wage bargaining system:
 - Hump shaped relationship (Calmfors and Driffills, 1988; Jaumotte, 2011)
 - Strong wage bargaining tend to push wages up above productivity
 - An intermediate system limits competition (European employment observatory, 2011)

What is still lacking in the literature on the Tunisian labor market: the role of institutional and policy factors

- Product market regulation:
 - With more flexibility:
 - On one hand: lowers entry barriers, boosts activity and hence labor demand
 - On the other side: increase competition and in turn employment costs (Jaumotte, 2011)
- Access to finance:
 - Interactions between labor market flexibility and labor adjustment cost (Rendon, 2001).
 - More competition in the credit market (Gatti et al., 2012)

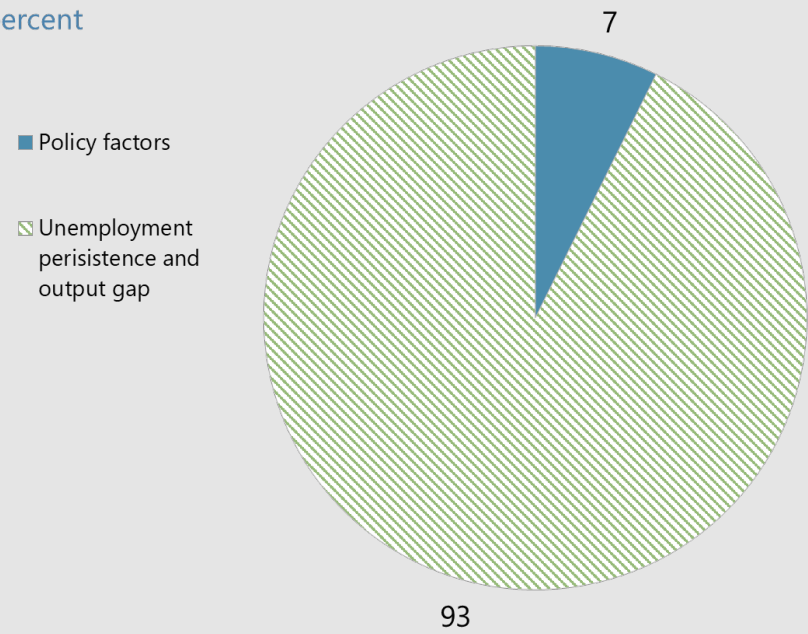
Contribution of policy and institutional factors to unemployment in Tunisia

Female and youth employment change in Tunisia were more influenced by economic cycles during the last decade.

Share of institutional factors in the unemployment increase between 2009 and 2017

Tunisia: Share of policy changes in female unemployment increase between 2009 and 2017

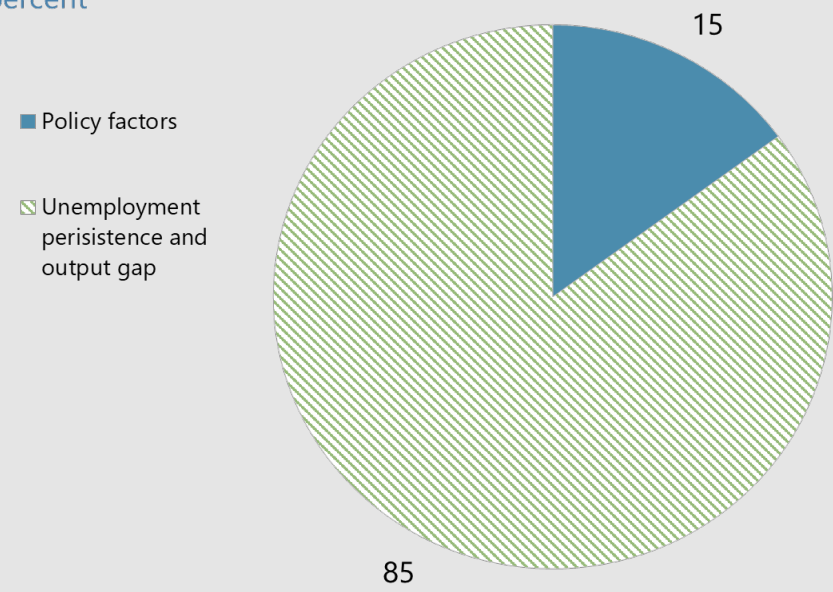
In percent



Authors calculations from regression 4.

Tunisia: Share of policy changes in youth unemployment increase between 2009 and 2017

In percent



Authors calculations from regression 4.