The Role of Public Employment and Wage Policy in the Dynamic of Earnings Inequality: The Tunisian perspective

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Outline

Outline

Introduction

- Debate on the main drivers of inequality and polarization
  - Routine based technical change in rich countries
  - Structural change
  - Education Premia

- How does the existence of a large public sector impact inequality variation?
  - Public wages generally less dispersed than private ones

- Adoption of a labor market lens
  - Occupational and earning distribution change

- Disentangle the contribution of different factors highlighted in the literature

Tunisia: an interesting case-study

- A LMIC structurally charcaterized by high unemployment rates
  - Youth bulge and spectacular progress in education

  - Sustained growth rates since the Mid 1990s

  - Severe youth unemployment, particularly for graduates

- The 2011 revolution
  - Labor market outcomes fuelled the revolution

  - Coupled to political discontent and rising cronyism

- The consequences of the revolution
  - An increasing cost of security

  - Public employment and wage policies to ensure social peace

Our contribution

- Impact of public wage and employment policy on earnings inequality
  - Based on LFS from the past 20 years

  - Recentered-influence function

  - Assess the contribution of public policies against other determinants

- Main finding: Inequality decreased susbstantially
  - Lower public-private wage gap

  - Lower sector wage gap

  - Decreasing education premia

  - Other factors

Outline

Data

- Employment data:
    - Cross-sectional data from the National Population and Employment Survey (Enquête Nationale sur la Population et l'Emploi, ENPE)
    - Three waves of survey: 2000, 2010, 2017

- Task-content measure:
    - proposed by Autor et al. (2003).
    - based on the US Department of Labor's DOT, and its successor O*NET.
    - composed of five sub-indices measuring the intensity of five different types of tasks: non-routine cognitive, non-routine interactive, non-routine manual, routine cognitive, and routine manual.

Outline

Overview: A decrease in inequality over the two decades
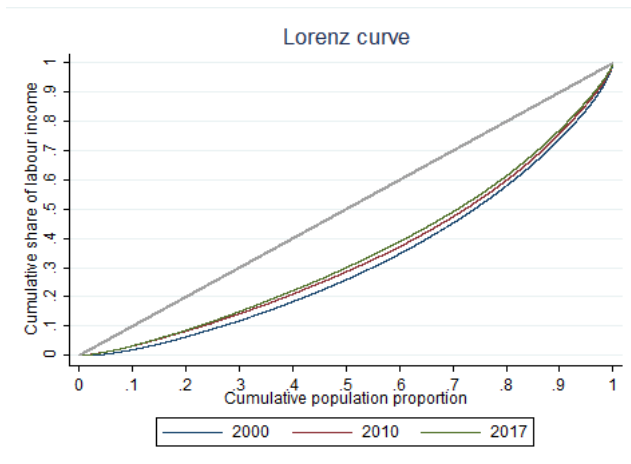
Figure: Lorenz curves showing trends in labor income inequality
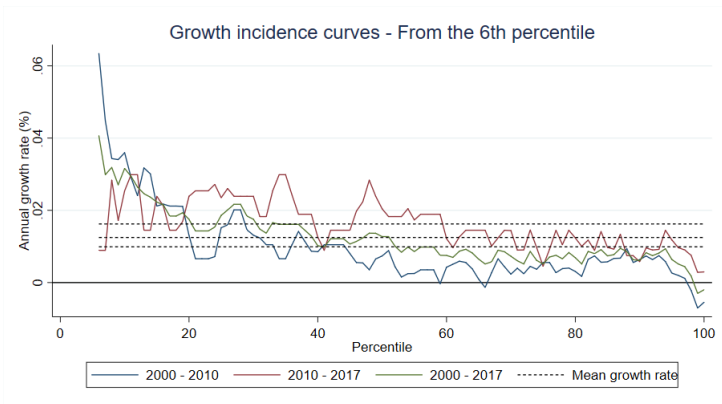
Figure: Growth incidence curves of the wage distribution

Measures of inequality

Table 1: Inequality indices and inter-quartile ratios

	Summary indices				Inter-quantile ratios		
	2000	2010	2017		2000	2010	2017
Var	0.645	0.384	0.429	p90/p10	1.636	1.422	1.283
Gini (log)	0.098	0.074	0.069	p90/p50	0.847	0.832	0.772
Gini	0.355	0.315	0.295	p50/p10	0.788	0.590	0.511

Occupational perspective

Figure: Change in employment share by skill level

Table 2: Change in employment and earnings by occupational group

Panel A: Employment share (%)

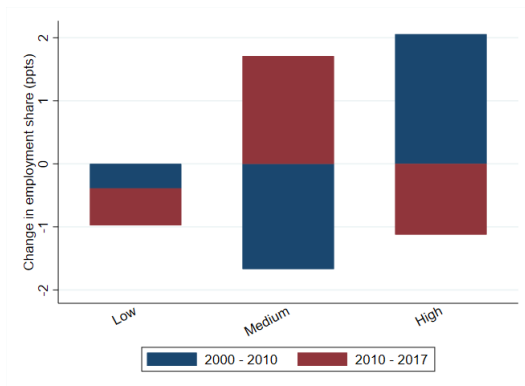|	Level			Percentage change	
	2000	2010	2017	2000-10	2010-17
1 Managers	3.53	3.39	3.20	-0.14	-0.19
2 Professionals	10.74	11.22	10.94	0.48	-0.28
3 Technicians	6.68	6.90	5.36	0.22	-1.54
4 Clerks	9.79	7.51	5.38	-2.28	-2.13
5 Services	10.12	10.91	14.35	0.80	3.44
6 Skilled Agricultural	3.88	3.11	4.74	-0.76	1.63
7 Trades Workers	14.85	13.79	13.92	-1.05	0.13
8 Machine Operators	15.28	15.97	14.93	0.69	-1.04
9 Elementary	25.15	27.19	27.16	2.04	-0.03

Occupational perspective

Table 2: Change in employment and earnings by occupational group
Panel B: Mean weekly earnings (constant 2010 prices)

	Level			Annual growth rate *	
	2000	2010	2017	2000-10	2010-17
1 Managers	193.53	202.43	164.60	0.45	-2.91
2 Professionals	161.61	173.44	179.65	0.71	0.50
3 Technicians	121.80	122.64	138.53	0.07	1.76
4 Clerks	102.09	101.58	109.58	-0.05	1.09
5 Services	83.97	80.34	91.76	-0.44	1.92
6 Skilled Agricultural	44.71	50.96	61.25	1.32	2.66
7 Trades Workers	69.68	81.18	91.52	1.54	1.73
8 Machine Operators	69.62	74.16	82.63	0.63	1.56
9 Elementary	51.54	59.13	75.32	1.38	3.52

(*) Compound annual growth rate.

Outline

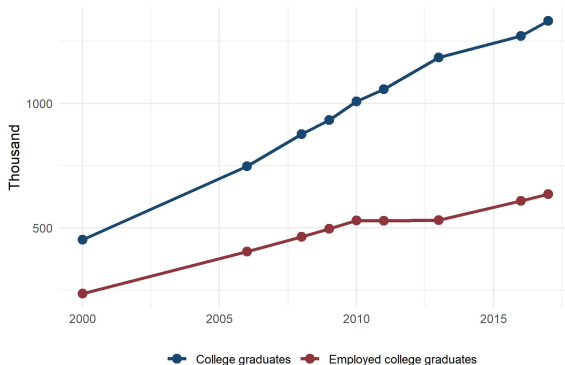# Education expansion and the decreasing education premium

Figure: The supply and demand of college graduates, 2000–2017

Education expansion and the decreasing education premium
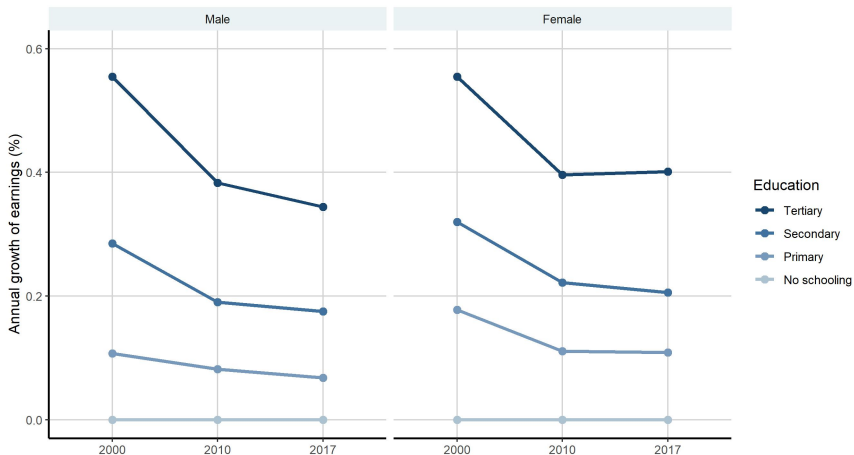

Figure: the fall of education premium
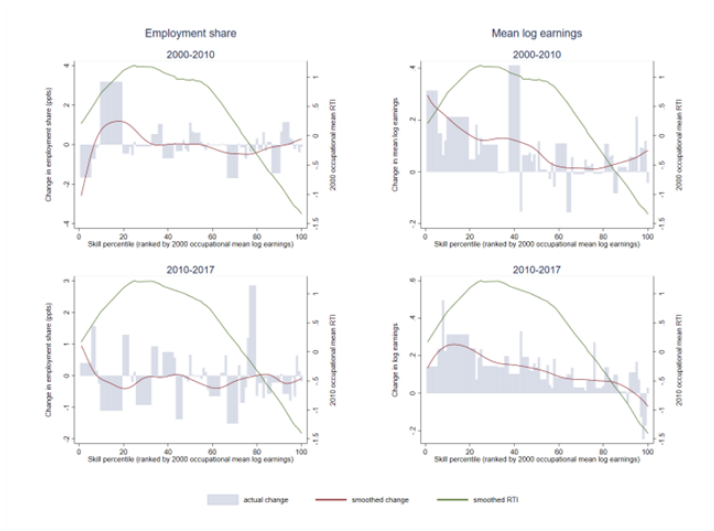
The unclear role of technical change

Figure: Change in mean log earnings and employment share by skill percentiles

The unclear role of technical change

Table 3: Job and earnings polarization tests

Dependent variable: Change in employment share

	2000-2010	2010-2017	2000-2017
Initial mean log earnings	-2.233	-1.391	-5.579
	-11.781	-8.635	-10.807
Sq. Initial mean log earnings	0.199	0.149	0.565
	-1.252	-0.91	-1.159
Constant	5.955	3.049	13.381
	-27.561	-20.235	-24.911
Observations	103	102	101
R-squared	0.029	0.001	0.046
F-test	0.788	0.985	0.679

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 3: Job and earnings polarization tests

Dependent variable: Change in mean log earnings

	2000-2010	2010-2017	2000-2017
Initial mean log earnings	-1.659***	-1.062*	-1.936***
	-0.499	-0.623	-0.691
Sq. Initial mean log earnings	0.173***	0.096	0.184**
	-0.056	-0.067	-0.076
Constant	4.009***	2.940**	5.121***
	-1.088	-1.447	-1.558
Observations	103	102	101
R-squared	0.284	0.385	0.53
F-test	0	0	0

Note: Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

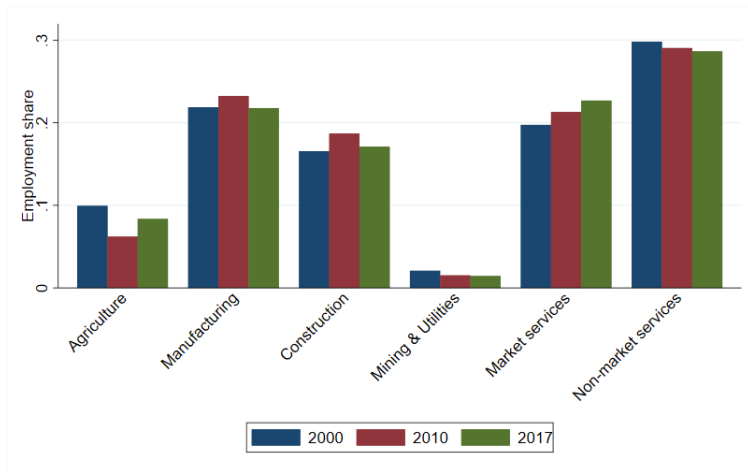# A sluggish structural transformation

Figure: Employment distribution by sector 2000–2017

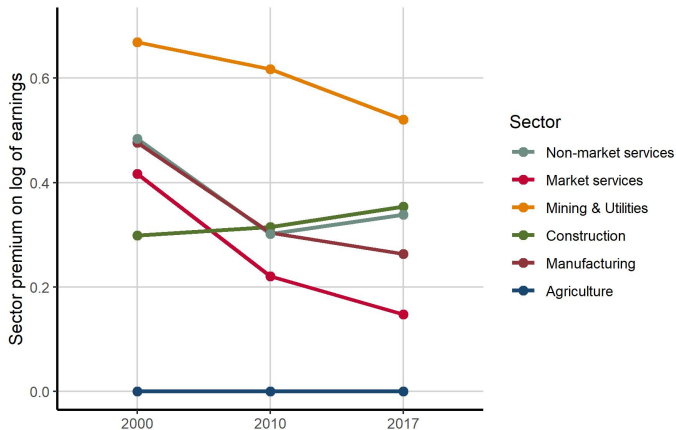# A sluggish structural transformation

Figure: Change in the sector premium on log earnings 2000-2017

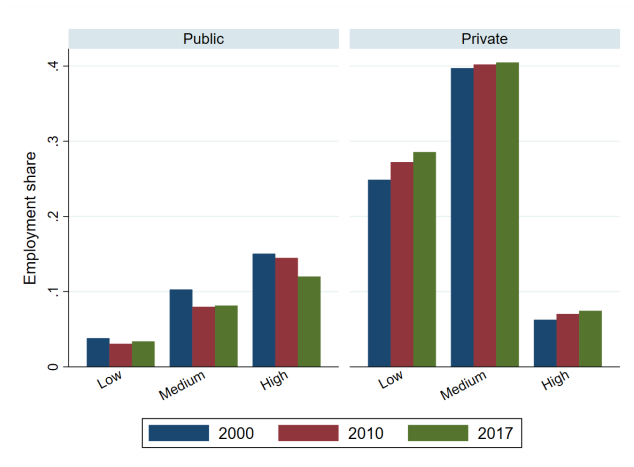# Public wage and employment policies as a redistribution tool

Figure: Employment shares in public and private sector by skill levels 2000-2017

Public wage and employment policies as a redistribution tool
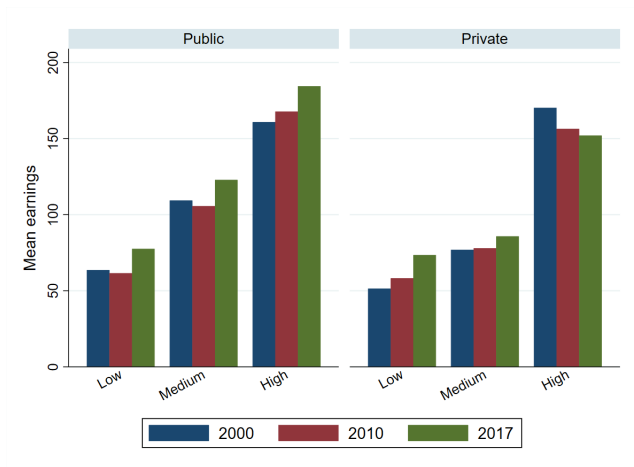
Figure: Earnings in public and private sector by skill levels 2000-2017

Outline

Inequality decomposition

1. Methodology

- To separate the contribution of the main determinants to the decline of the overall earnings inequality, we use Firpo et al.'s 2018 reweighted recentered influence function decomposition.
- This is a Oaxaca-Blinder-decomposition-based method.
- Two extensions added:
  - Non-parametric reweighting procedure (DiNardo et al., 1996) to construct the counterfactual.
  - Recentered influence function (RIF) (Firpo et al., 2009) to evaluate the impact of changes in the distribution of the predictors on quantiles of the unconditional distribution of the outcome variable.

Inequality decomposition

1. Methodology

- At the first stage, we run a logit regression of membership status on the following vector of covariates to estimate the reweighting factor: $X = \{$Education, RTI, Age, Gender, Public/Private, Coastal region, Industry$\}$

- At the second stage, we regress the RIF of our inequality measures on the vector of covariates of the three groups: Group I (initial period), Group F (final period), and the counterfactual Group C.

- Finally, we decompose the changes in overall indices into total composition and total earnings structure effect, then further into detailed composition and detailed earnings structures effect.

Inequality decomposition

2. Results

	Gini					
	2000-2010		2010-2017		2000-2017	
Overall						
Final (F)	0.315***	(0.001)	0.295***	(0.001)	0.295***	(0.002)
Counterfactual (C)	0.359***	(0.003)	0.323***	(0.001)	0.37***	(0.003)
Initial (I)	0.355***	(0.003)	0.315***	(0.001)	0.355***	(0.002)
Total change (F-I)	-0.041***	(0.003)	-0.02***	(0.002)	-0.06***	(0.003)
Total composition (C-I)	0.004*	(0.002)	0.008***	(0.001)	0.014***	(0.002)
Total earnings structure (F-C)	-0.044***	(0.003)	-0.028***	(0.002)	-0.075***	(0.003)
RIF aggregate decomposition						
RIF composition	0.005***	(0.002)	0.007***	(0.001)	0.016***	(0.002)
RIF specification error	-0.002**	(0.001)	0.000***	(0.000)	-0.002**	(0.001)
RIF earnings structure	-0.044***	(0.003)	-0.028***	(0.002)	-0.076***	(0.003)
RIF reweighting errors	0.000	(0.000)	0.000	(0.000)	0.001**	(0.000)

Bootstrapped standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Figure: Overall RIF decomposition of changes in the Gini index

Inequality decomposition

2. Results

	Gini					
	2000-2010		2000-2010		2000-2010	
RIF detailed decomposition						
RIF composition						
RTI	-0.002***	(0.000)	0.002***	(0.000)	-0.001	(0.000)
Age	0.000	(0.000)	0.000	(0.000)	0.000	(0.001)
Male=0	0.001***	(0.000)	0.001***	(0.000)	0.001***	(0.000)
Public=0	0.003***	(0.001)	0.000***	(0.000)	0.004***	(0.001)
Coast=0	0.001**	(0.000)	0.001***	(0.000)	0.002***	(0.000)
Education	0.009***	(0.001)	0.001***	(0.000)	0.009***	(0.001)
Industry	-0.006***	(0.001)	0.003***	(0.000)	0.000	(0.001)

Bootstrapped standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

Figure: RIF detailed decomposition of composition effects

Inequality decomposition

2. Results

	Gini					
	2000-2010		2000-2010		2000-2010	
RIF Earnings structure						
RTI	-0.017***	(0.004)	0.005***	(0.002)	-0.013***	(0.003)
Age	-0.014	(0.012)	-0.018***	(0.006)	-0.024*	(0.012)
Male=0	0.004*	(0.002)	0.003**	(0.001)	0.008***	(0.003)
Public=0	-0.052***	(0.016)	-0.002	(0.008)	-0.054***	(0.015)
Coast=0	-0.004*	(0.003)	-0.008***	(0.001)	-0.014***	(0.002)
Education	-0.021***	(0.003)	-0.013***	(0.002)	-0.035***	(0.004)
Industry	-0.028**	(0.011)	-0.011*	(0.006)	-0.04***	(0.01)
Intercept	0.089***	(0.027)	0.017	(0.012)	0.096***	(0.026)

Bootstrapped standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

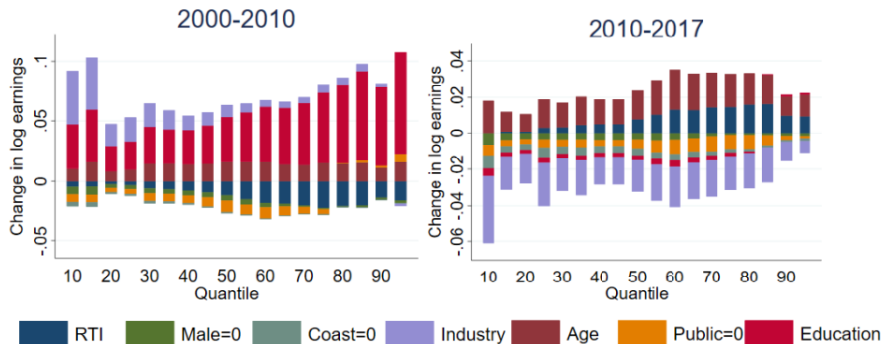Figure: RIF detailed decomposition of earnings structure effects

2. Results

Figure: RIF detailed decomposition of changes in the Gini index

Inequality decomposition

2. Results

Earnings structure effects

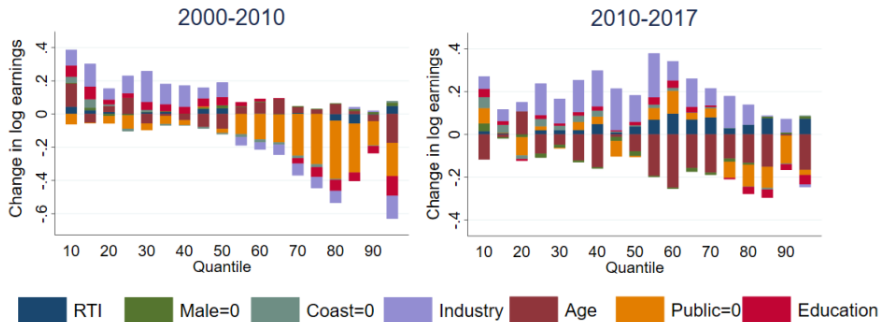Figure: RIF detailed decomposition of changes in the Gini index

Outline

Conclusions

- Strong decline in inequality in Tunisia

- L-shaped polarization

- Ambiguous evidence on RBTC

- Earning structure effects dominating (RIF decomposition)

- Decomposition of earnings inequality change
  - Decline of the public-private wage gap
  - Declining trends of sector premia
  - Excess supply of tertiary educated job seekers
  - Increase in marginal returns to low-wage average RTI jobs
  - Falling return to experience
  - Decreasing regional wage gap

References

Autor, David, Frank Levy, and Richard J Murnane, "The skill content of recent technological change: An empirical exploration," *The Quarterly journal of economics*, 2003, *118* (4), 1279–1333.

DiNardo, John, Nicole M. Fortin, and Thomas Lemieux, "Labor Market Institutions and the Distribution of Wages, 1973-1992: A Semiparametric Approach," *Econometrica*, 1996, *64* (5), 1001–1044.

Firpo, Sergio, Nicole M Fortin, and Thomas Lemieux, "Unconditional quantile regressions," *Econometrica*, 2009, *77* (3), 953–973.

_ , _ , **and** _ , "Decomposing wage distributions using recentered influence function regressions," *Econometrics*, 2018, *6* (2), 28.