Migration and Employment Interactions in a Crisis Context

the case of Tunisia

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Motivation

- High and persistent unemployment rates, especially for highly educated youth
- Significant migration to Western countries and MENA oil exporting countries
- The global crisis worsened the labor market situation
- Migration is increasingly selective
- The global crisis worsened this context

Research Objectives

- Better understanding of migration's effects on the sending country's labor market
- Analysis of migration-employment interactions in a general equilibrium model
- Impact of remittances on labor supply
- Experiment with the global crisis in host countries followed by a revolution in the home country.

Migration effects on domestic labor supply

- Impact depends on skill composition and substitutability or complementarity (Hanson, 2010)
  - Mishra (2007) - The decrease in the Mexican labor supply between 1970 and 2000 due to emigration increased the wage level by 8%
  - Aydemir (2007) - Relative wage increase for medium skilled and decrease for low skilled due to skill composition of Mexican emigration

Migration effects on domestic labor supply

- Remittances and their impact on participation rates
  - Remittances decrease non-migrants labor supply and increase their leisure (Funkhouser, 1995, Rodriguez, 2001), Kim, 2007)
  - Remittances increase the probability to be involved in self employment, non-wage employment or involved in higher education (Yang, 2008, Lokshin, 2009)
- Remittances and migration duration - joint determination (Kirdar, 2009, Dustmann, 2010, Dustmann, 2011)

Migration effects on domestic labor supply

- Impact of migration on expected return to education
  - Positive externality on non-migrants through skill-premium increase and incentives to invest in education (Mountford, 1997, Stark, 1997)
  - The migration-education nexus is strongly influenced by structural parameters (Dessus, 2008)

Migration in CGE literature

- Migration is considered as permanent (Dessus, 2008)
  - Baas (2012) -The outflow of remittances impacts the economy mainly through the depreciation of the real exchange rate, translating into a converse Dutch disease phenomenon
  - Bussolo & Medvedev (2008) - An increase in remittances entails a decrease in labor supply, a wage increase and a decrease in competitiveness

A Dynamic General Equilibrium Framework

- Formalization of the emigration decision, its duration and the evolution of the remittances rate
- An endogenous labor supply function which reacts to remittances
- Labor demand disaggregated by sector, skill and age
- Endogenous unemployment through a wage curve
- Modeling of the production of skills with an endogenization of transition rates between cycles

Emigration and remittances levels

- Emigration depends on relative wages, following a constant elasticity of transformation function:

$$EMIG = al \cdot LS \left(\frac{W_{EMIG}}{W_{LS}} \right)^{sig1} \quad (1)$$

- The migrant's utility depends also on the welfare of her family and her degree of altruism (Rapoport & Docquier, 2006). The remittance rate per migrant is as follows:

$$RR_{lf} = gammaM_{lf} * WEMIG_{lf} - (1 - gammaM_{lf}) * YD \quad (2)$$

with $gammaM$ being the altruism coefficient.

Education and the supply of skills

- Total labor force by skill driven by the population growth rate, the current stocks of students in each cycle and the performances of the education system at each level.
- We use a model developed by Fredriksson (1997) to link migration and education incentives and endogenize the transition rates from primary to secondary and from secondary to tertiary.

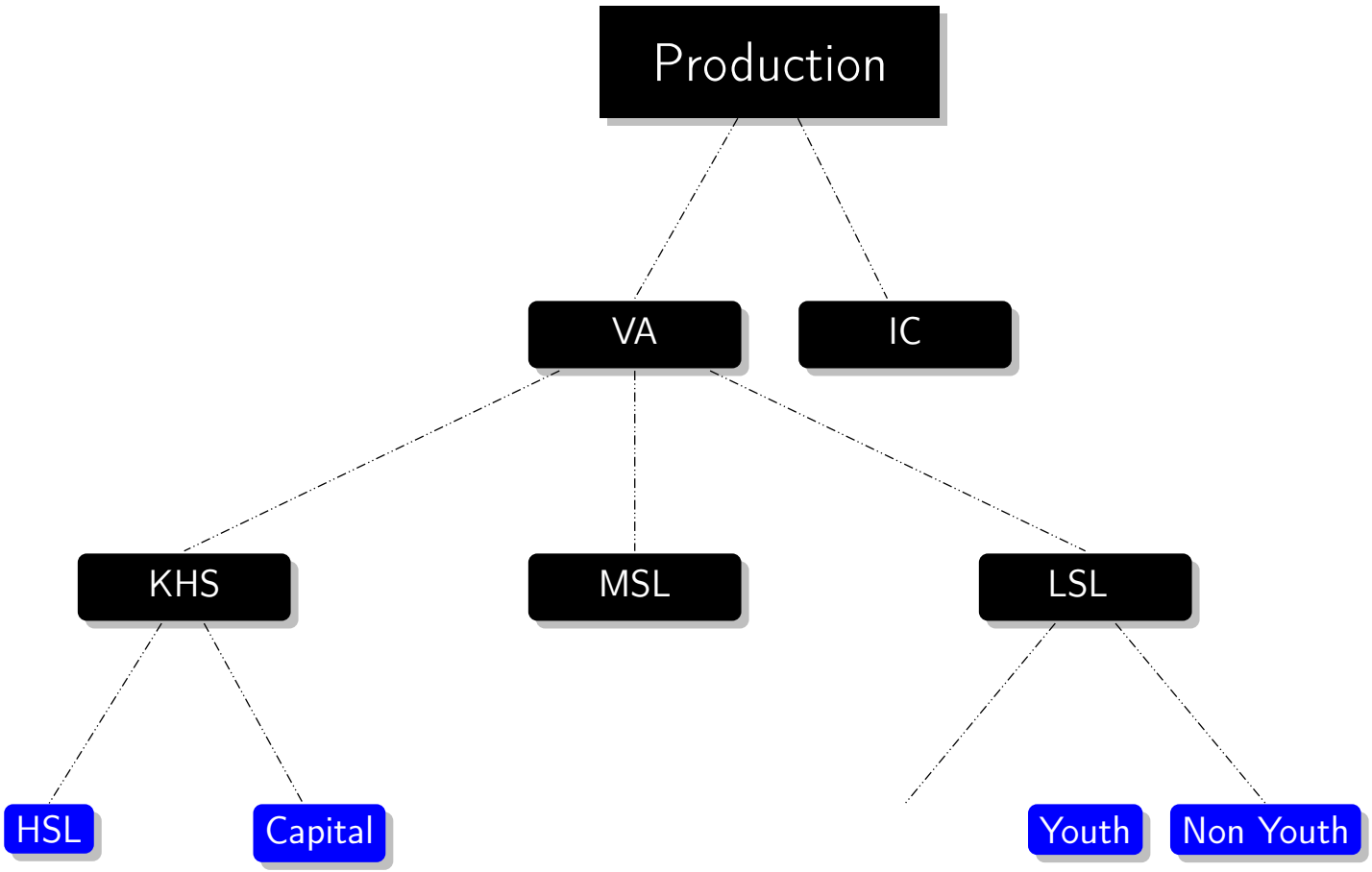
$$\log \frac{TRANS_{edus}}{(1 - TRANS_{edus})} = \alpha_{trans} * \log \frac{wmoy_{MSK} * (1 - u_{MSK})}{wmoy_{LSK} * (1 - u_{LSK})} \quad (3)$$

Local labor supply

- Consumption-leisure trade-off in a Stone-Geary utility function following Blanchflower & Oswald (1990).

$$LS = (1 - \mu_0)LSpot - \frac{\mu_0}{W_l}(HC - \sum_{i=1}^{N} p_i c_i) \qquad (4)$$

The production function and labor demand



Closures and dynamics

- Macroeconomic closure: exogenous households marginal propensity to save
- Foreign closure: exogenous current account balance
- Government closure: fixed tax rates (exogenous increase by 5% annually)
- Labor market closure: wage curve
- Dynamics: accumulation of capital, debt (foreign and public) and skills
  - sectoral investment varies according to sectoral rates of return,
  - debt accumulation driven by deficits,
  - skill stocks driven by demographics and education.

Tunisian context

- A young educated population
- Unemployment rate of 18.9% in 2011

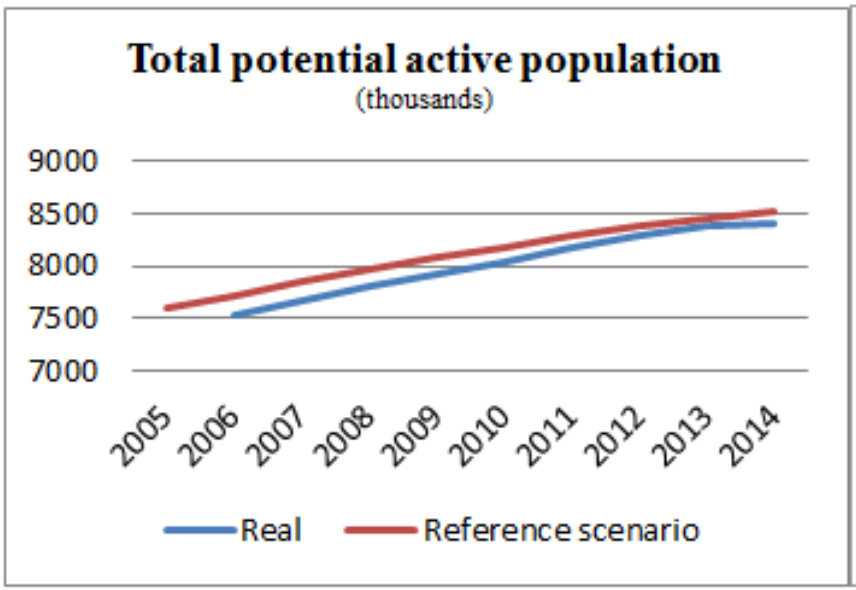
  $\rightarrow$ Unemployment rate among graduates is 30.5%
- Highly educated population's expatriation rate is of almost 21.4%
- Stock of Tunisian migrants is estimated to over 1 million $\rightarrow$

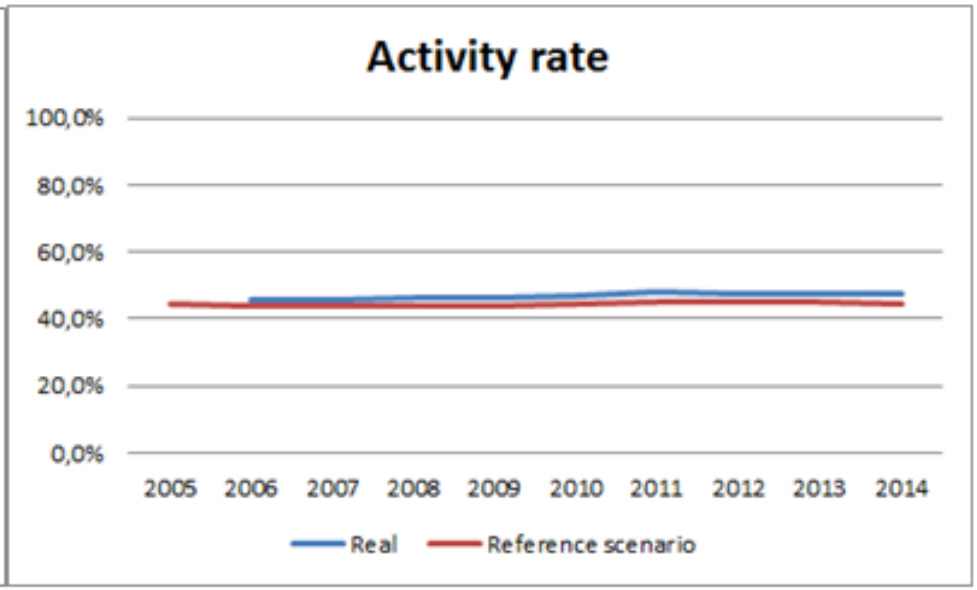
  83% living in Europe, mostly in France (40%) and Italy (25%)

Data

- 2005 Social Accounting Matrix
- Labor market data from INS
- Migration data from CARIM, DIOC-E, DM database
- Remittances and macroeconomic aggregates from BCT, IMF, World Bank
- Education data from ITCEQ, UNICEF, World Bank
- Elasticities from the literature or dynamically calibrated for base year

Comparison between baseline and actual trends in unemployment





Crisis simulation

What the situation would have been without the global crisis?

- Counterfactual scenario
- Economic growth rates forecasted by the IMF before the economic crisis and the revolution
- Variables for the shock implementation: Tunisia's economic growth rate, the growth rate of its main partners, the savings propensity in Tunisia, the foreign wage

Macroeconomic results

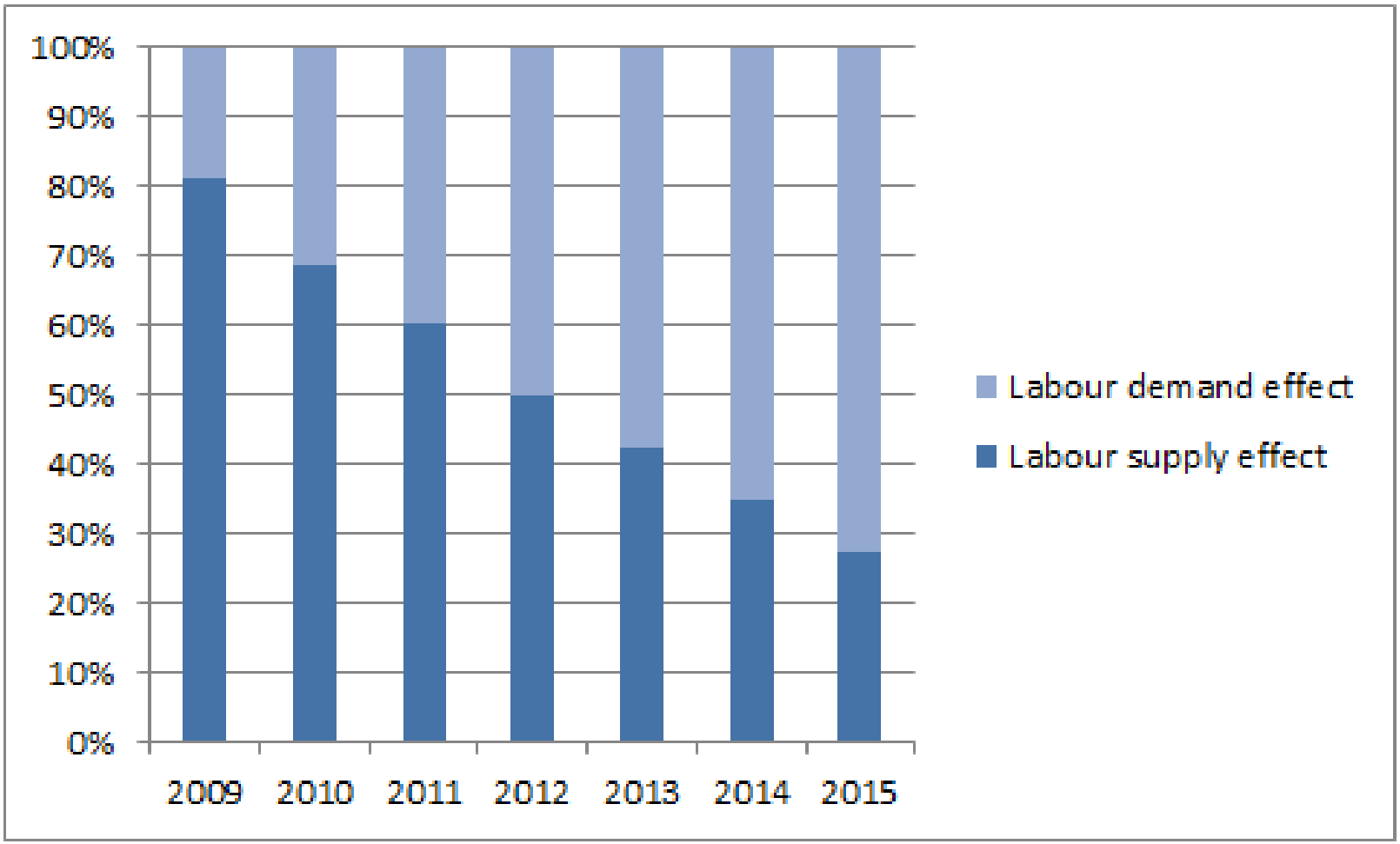
Average yearly variation as compared to the reference scenario

	2008-2010	2011-2015
GDP Growth differential p.p.	-2.3%	-3.6%
Emigration	-3.3%	0.9%
Total investment	-4.7%	-29.5%
Loc. labour demand var	-0.4%	-3.6%
Total Unemployment p.p.	1.1%	4.8%
Total activity rate	0.4%	1.0%
Remittances	-11.5%	-21.9%
Exchange rate	-1.2%	-9.0%

Results by skill

	2008	2009	2010	2011	2012	2013	2014	2015
Number of unemployed by skill								
Low skilled	3.2%	12.0%	17.0%	35.6%	33.7%	37.2%	40.1%	41.5%
Medium skilled	2.8%	10.0%	14.3%	28.2%	27.9%	31.2%	34.1%	35.8%
High skilled	1.5%	5.2%	7.8%	15.5%	16.4%	18.8%	21.0%	22.7%
Emigration by skill								
Low skilled	-0.6%	-4.1%	-3.5%	3.6%	1.3%	3.0%	4.4%	5.4%
Medium skilled	-0.8%	-4.6%	-4.1%	0.8%	-0.5%	1.0%	2.3%	3.3%
High skilled	-1.2%	-6.5%	-6.8%	-6.0%	-6.0%	-5.1%	-4.0%	-2.8%
Activity rate by skill								
Low skilled	0.3%	1.2%	1.5%	3.1%	2.1%	1.9%	1.4%	0.7%
Medium skilled	0.3%	1.3%	1.7%	3.8%	3.1%	3.1%	3.0%	2.6%
High skilled	0.2%	0.8%	1.2%	2.9%	2.6%	2.9%	3.1%	3.0%

Unemployment variation decomposition



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Robustness analysis

Constraints on migration and remittances in order to test their role on the unemployment variation.

	2008	2009	2010	2011	2012	2013	2014	2015
Double constraint	0.1	0.3	0.3	0.3	0.3	0.4	0.4	0.4
Constant migration	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Constant remittances	0.1	0.3	0.3	0.3	0.3	0.4	0.3	0.3

Conclusion

- Retrospective modeling in general equilibrium of the impact of the crisis to highlight the impact of migration on the labor market.
- We develop a novel general equilibrium framework formalizing the emigration decision and the evolution of the remittances rate.
- The simultaneity of the crisis in Tunisia and its partners worsened the employment situation through labor supply effects.
- We can clearly distinguish a difference in the results before and after the Tunisian uprising:
  - Labor supply effects are predominant in the first phase.
  - Labor demand effects take over with the Tunisian revolution

THANK YOU