

# Drivers of revealed comparative advantage in the wine sector

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## Outline

- Motivation
- Methodology
- Data
- Results
- Conclusions



## Motivation

- Increasing competition at the global wine markets
- New global players
- Limited research on comparative advantage (CA) of wine
  - Anderson (2013), van Rooyen et al. (2010)
- Research aims:
  - Identify the dynamics of CA
  - Convergency of CA
  - Drivers of CA



## Measuring comparative advantage 1.

- $B = (X_{ij} / X_{it}) / (X_{nj} / X_{nt})$ 
  - (Balassa 1965)
  - $X$  is the export,  $i$  is a country,  $j$  is a commodity,  $t$  is a set of commodities, and  $n$  is a set of countries
  - $B > 1$  comparative advantage,  $B < 1$  comparative disadvantage
- $RTA = (X_{ij} / X_{it}) / (X_{nj} / X_{nt}) - (M_{ij} / M_{it}) / (M_{nj} / M_{nt})$ 
  - (Vollrath 1991)
  - $M$  is the import
  - $RTA > 0$  comparative advantage,  $RTA < 0$  comparative disadvantage



## Measuring comparative advantage 2.

- $ARCA = (X_{ij} / X_{it}) - (X_{nj} / X_{nt})$ 
  - Hoen and Oosterhaven (2006)
  - ARCA index ranges between -1 and +1 with 0 demarcation point
- $NRCA = E_{ij}/E - (E_i/E) * (E_j/E)$ 
  - Yu et al (2009)
  - $E$  denotes total world trade,  $E_{ij}$  describes country  $i$ 's actual export of commodity  $j$  in the world market,  $E_i$  is country  $i$ 's export of all commodities and  $E_j$  denotes export of commodity  $j$  by all countries
  - NRCA index ranges from -1/4 to +1/4 with 0 demarcation point



## Empirical approach

- Test the convergence in CA
  - First, and second generation panel unit root tests
  - Rejection of null, stationarity, convergence
- Explain drivers of CA
  - Panel models
    - Heteroscedasticity
    - Autocorrelation
    - Cross sectional dependence
  - Panel corrected standard error (PCSE) model



## Empirical model

- $RCA_{it} = \alpha + \beta_1 \ln GDP/capita_{it} + \beta_2 \ln GDP_{it} + \beta_3 \ln agricultural\ employment_{it} + \beta_4 \ln grape\ land_{it} + \beta_5 \ln exchange\ rate_{it} + \beta_6 WTO_t + u_i + \varepsilon_{it}$

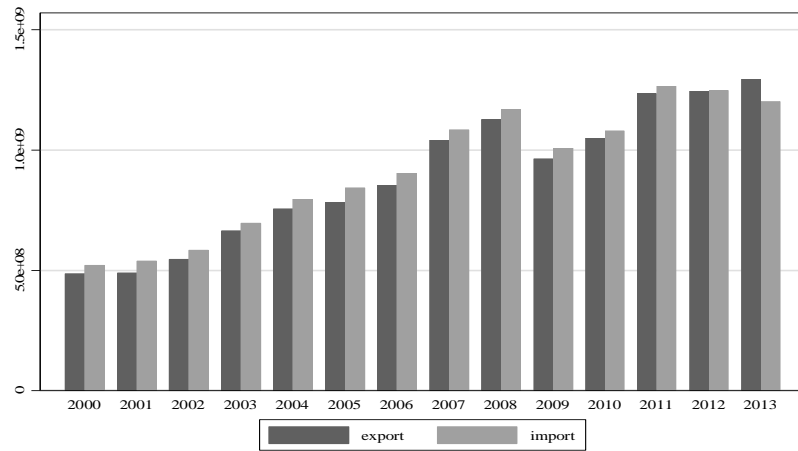


## Data

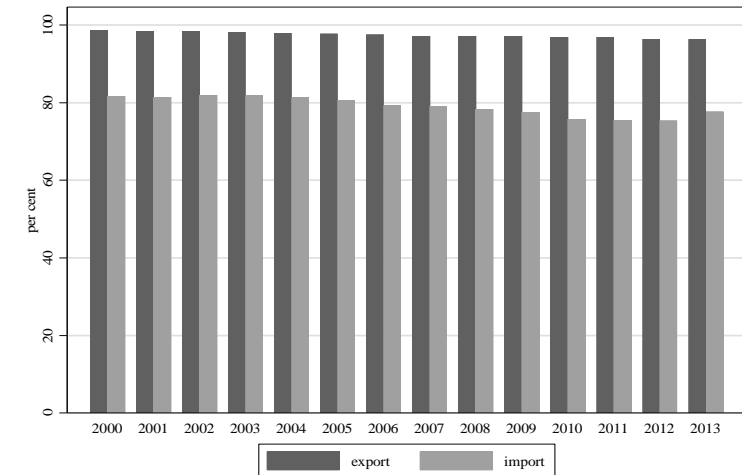
- 38 countries, 2000-2013
- Trade data is based in HS-6 code (2204) WITS
- WDI
  - GDP per capita at PPP at constant 2005 international \$
  - GDP at PPP at constant 2005 international \$
  - Employment in agriculture in per cent of total employment
  - Exchange rate between the US dollars and local currencies
- FAO
  - harvested grape area
- WTO dummy



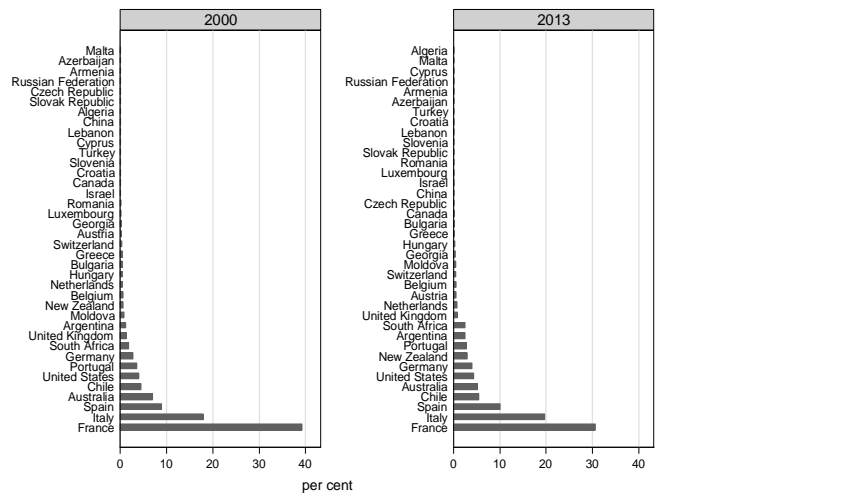
## The development of world wine trade (1000 \$)



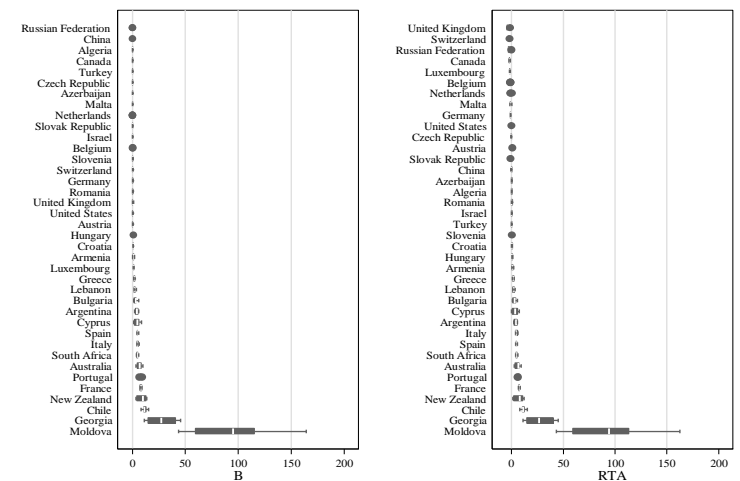
## The share of sample countries in the world wine trade



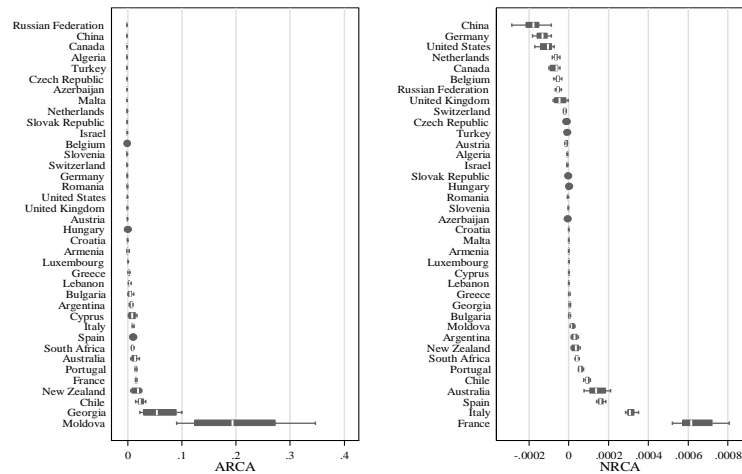
## The share of sample countries in the world wine trade



## Boxplots for B and RTA indices by country



## Boxplots for ARCA and NRCA indices by country



## Panel unit root tests for CA

	without trend			with trend		
	IPS	ADF	PP	IPS	ADF	PP
RCA	0.8277	0.4140	0.0648	0.5152	0.4051	0.0053
RTA	0.9139	0.7599	0.0876	0.9856	0.7940	0.0632
ARCA	0.8099	0.9362	0.6317	0.3112	0.5200	0.0650
NRCA	0.7871	0.8142	0.7177	0.3712	0.4583	0.1796



## Pesaran (2007) panel unit root test for CA

	without trend			with trend		
	0	1	2	0	1	2
lags						
RCA	0.995	0.948	1.000	0.935	0.994	0.988
RTA	0.995	0.948	1.000	1.000	1.000	1.000
ARCA	0.517	0.010	0.166	0.981	0.767	0.966
NRCA	0.917	0.823	0.989	0.977	0.934	1.000



## Regression results

	RCA	RTA	ARCA	NRCA
lnGDP/capita	0.053	-0.390	0.000	0.203***
lnGDP	-2.612***	-2.428***	-0.005***	-0.173***
agricultural employment	0.414***	0.412***	0.001***	-0.017***
lnrapeland	1.333***	1.335***	0.003***	0.245***
lnxrate	-0.245*	-0.263**	-0.001**	-0.030***
WTO membership	12.830***	12.595***	0.027***	-0.063
constant	41.851*	40.872*	0.081*	0.489
N	532	532	532	532
R <sup>2</sup>	0.237	0.248	0.206	0.185



## Conclusions

- Besides traditional (Italy, France, Spain, Portugal, Greece), and the New World (Argentina, Australia, Chile, New Zealand, South Africa) Georgia and Moldova exhibit CA
- Divergence in comparative advantage at the world markets
- GDP and exchange rates negatively influence CA
- Agricultural employment, grape area harvested and WTO memberships have positive impacts on the CA

## Limitations

- Our data do not take into account the quality of wine product
- Our models assume that wine products across countries are homogenous goods
- Do not consider further factors on the demand side of wine trade