"Primary agricultural commodity trade and labour market outcomes"

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Motivations

- Growing debate in the relationship between trade openness and labour market
- But the role played by different components of trade remains less investigated
- African countries are generally characterized by the large share of raw commodities in their exports

Objective

Assess empirically the impact of primary agricultural commodity exports on unemployment and employment.

Outline

- Relationship between Trade and unemployment
- Primary commodities transformation and unemployment
- Econometric specification and estimation
- The endogeneity bias
- Data and variables
- Econometric results
- Conclusion and policy implications

At least three arguments can be put forward to support the positive association between primary commodity exports and unemployment

- the transformation process of the raw products itself can be considered as additional activities in the economy
- the production of raw commodity as well as other products may be expanded
- the processing may increase private and public resources, and thus encourage investment in human capital, easing its integration into job market.

Econometric specification and estimation

- Our econometric model of interest is:

$$Unemploy_i = \alpha Trade_i + \gamma Trade_i \times Agriprim_i + \varphi Agriprim_i + X_i'\beta + \varepsilon_i$$

Where

- ***Unemployi*** is the logarithmic form of unemployment rate of country i.
- ***Agriprim*** the agricultural primary commodity exports to imports ratio (Export/Imports),
- Trade×Agriprim represents its interaction with total trade. γ is expected to be positive ($\gamma > 0$).
- ***X*** is the matrix of control variables commonly used in the literature.

Estimation strategy

We use instrumental variables approaches (2SLS and GMM) for which we consider two types of instruments:

- external instruments: Frankel and Romer (1999), Rose (2004)
- Internal instruments

The quality of these instruments is tested by accurate statistics.

Variables	Mean	Min.	Max.	Stand. Dev.	Sources
Unemployment rate	8.690	2.76	19.867	3.795	International Finance Statistics (IMF)
Employment rate	53.571	37.54	74.91	7.119	International Finance Statistics (IMF)
Trade	235.382	30.925	1270.393	204.668	UN COMTRADE Database
Agricultural Primary Commodity (Export/Import)	1.628	0.064	8.741	1.634	UN COMTRADE Database
Agricultural land (% Total land)	42.741	3.162	84.971	20.932	WDI
Labor Union	0.486	0.148	0.827	0.187	Botero et al. (2004)
Employment Law	0.458	0	0.7143	0.197	Botero et al. (2004)
Working Age Population	20.965	18.739	25.119	1.421	WDI
GDP (Constant $)	4.33e+11	3.04e+09	8.19e+12	1.20e+12	WDI
Labour Force Participation	68.508	49.058	83.682	6.960	WDI
Black Market Prenium	1.95	0	42	5.820	Fraser Institute
Agricultural Employment	9.061	0.291	40.281	10.073	WDI
Frankel and Romer instrument	0.222	0.039	1.372	0.191	Estimation based on data from CEPII
Remoteness	8.706	8.322	9.485	0.340	Estimation based on data from CEPII
Landlock	0.116	0	1	0.323	CEPII

Note: WDI refers to World Bank World Development Indicator and CEPII stands for CEPII Geography database

Table 1: Effect of Trade on Unemployment Rate

	(1) Total Trade (%GDP) (First stage)	(2) Unemployment Rate (2SLS)
Total Trade		-0.007***
		(3.23)
Labor Union	49.396	5.885***
	(0.41)	(2.58)
Employment Law	-96.549	-1.737
	(0.95)	(0.74)
Working Population	-124.292***	-1.661**
	(3.98)	(2.16)
Log GDP	96.351***	0.928
	(3.78)	(1.23)
Labor Participation	0.739	-0.229***
	(0.32)	(3.59)
Black Market Prenium	1.383	0.007
	(1.23)	(0.29)
Frankel and Romer instrument	720.258***	
	(9.19)	
Remoteness	105.262*	
	(1.71)	
Landlock	48.202	
	(0.99)	
Constant	-104.031	41.209***
	(0.14)	(5.25)
Observation	55	55
R^2	0.75	0.26
Partial R^2	0.57	
Fisher Stat P-Value	0.000	
Hansen OID p-value		0.182

Table 2: Effect of Total Trade on Unemployment Rate: Role of the share of Exports and Imports of Primary agricultural commodity ratio

	(1) Total Trade (%GDP) (First stage)	(2) Primary Commodity (Firststage)	(3) (Trade)x(Primary Commodity) (First stage)	(4) Unemployment Rate (2SLS)
Total Trade				-0.007*
				(1.77)
Agricul. Primary Commodity				-1.894
				(1.29)
(Trade)x(Agricul. Primary Commodity)				0.014*
				(1.66)
Labor Union	-46.822	-1.495	-420.905	10.967***
	(0.32)	(1.34)	(1.11)	(2.86)
Employment Law	-61.542	0.040	-181.487	-0.637
	(0.55)	(0.03)	(0.66)	(0.19)
Working Population	-136.231***	-0.105	-368.080***	4.835
	(3.53)	(0.19)	(3.43)	(1.62)
Log GDP	102.363***	-0.438	208.477**	-4.287*
	(3.28)	(0.83)	(2.39)	(1.75)
Labor Participation	2.222	0.024	5.412	-0.265***
	(0.95)	(0.83)	(0.87)	(3.88)
Black Market Prenium	1.473	-0.025	-4.670	0.017
	(1.13)	(0.70)	(1.55)	(0.48)
Log Agricultural Employ	19.002	-0.422	66.102	-3.403***
	(1.06)	(0.89)	(1.10)	(2.64)
Frankel & Romer instrument (Total trade)	1279.807**	8.262*	411.880	
	(2.20)	(1.85)	(0.35)	
Landlocked	17.990	-1.341***	-324.103***	
	(0.46)	(2.72)	(2.84)	
Frankel & Romer instrument (trade x Agricul. Primary Commodity)	-712.471	-15.252**	-1251.819	
	(0.95)	(2.50)	(0.84)	
Frankel & Romer instrument (Agricul. Primary Commodity)	115.664	2.460***	170.434	
	(1.06)	(2.97)	(0.76)	
Constant	757.240*	10.963***	3940.254***	7.397
	(1.74)	(2.73)	(3.47)	(0.38)
Observation	54	54	54	54
R^2	0.89	0.75	0.74	0.86
Partial R^2	0.56	0.40	0.23	
Fisher Stat P-Value	0.00	0.00	0.00	
Hansen OID p-value				0.430

Table 3: Effect of Total Trade on Employment, Youth Unemployment and Long term Unemployment Rates: Role of the share of Primary agricultural commodity

	Employment Rate (2SLS)		Youth Unemployment Rate (2SLS)		Long term Unemployment Rate (2SLS)	
	(1)	(2)	(3)	(4)	(5)	(6)
Total trade (%GDP)	0.007**	0.081**	-0.015***	-0.134*	0.055	-0.323**
	(2.43)	(1.97)	(3.26)	(1.89)	(0.57)	(2.24)
Agricul. Primary Commodity		5.448**		-7.904		-21.809**
		(2.07)		(1.63)		(2.15)
(Trade)x(Agricul. Primary Commodity)		-0.017**		0.028*		0.084*
		(1.97)		(1.89)		(1.77)
Labor Union	-6.143*	-2.610	7.700	-1.137	33.971*	35.523**
	(1.81)	(0.33)	(1.23)	(0.07)	(1.95)	(2.14)
Employment Law	-1.148	2.733	2.004	-3.479	-15.838	-4.191
	(0.37)	(0.42)	(0.34)	(0.33)	(0.81)	(0.39)
Working Population	3.547***	8.529**	-0.241	-10.146	11.782	-35.395
	(3.97)	(2.03)	(0.13)	(1.30)	(0.63)	(1.25)
Log GDP	-2.231**	-4.760	-2.127	3.324	-11.622	16.173
	(2.38)	(1.61)	(1.16)	(0.59)	(0.82)	(0.78)
Labor Participation	0.737***	0.523***	-0.435***	0.041	-0.869	-1.387**
	(12.20)	(4.32)	(3.88)	(0.13)	(1.45)	(2.52)
Black Market Prenium	0.006	0.015	-0.006	-0.013	3.179	0.988
	(0.16)	(0.16)	(0.09)	(0.12)	(1.48)	(0.47)
Log Agricultural Employ	1.233**	2.339	-1.147	-0.292	-3.536	-16.222*
	(2.36)	(1.26)	(1.21)	(0.08)	(0.40)	(1.93)
Constant	-29.282***	-96.194**	94.475***	202.354***	53.827	646.479***
	(4.37)	(2.29)	(5.59)	(2.67)	(0.26)	(2.65)
Observation	60	60	57	57	38	38
R_square	0.99	0.98	0.87	0.41	0.86	0.73
Hansen OID p-value	0.93	0.72	0.32	0.90	0.34	0.26

Table 4: Effect of Export on Unemployment, Youth Unemployment and Employment Rates: Role of the share of Total Primary commodity

	(1) Unemployment Rate (2SLS)	(2) Employment Rate (2SLS)	(3) Youth Unemployment Rate (2SLS)	(4) Long term Unemployment Rate (2SLS)
Total Trade (%GDP)	-0.011***	0.019***	-0.018***	-0.020
	(4.15)	(3.73)	(2.80)	(0.16)
Primary Commodity	-2.301**	2.853***	-2.103	-10.085
	(2.01)	(3.42)	(1.63)	(1.06)
(Trade)x(Primary Commodity)	0.011*	-0.009***	0.008***	0.023
	(1.71)	(3.73)	(2.79)	(0.66)
Labor Union	8.294***	-2.578	-1.624	38.318**
	(2.85)	(0.61)	(0.18)	(2.24)
Employment Law	-4.396	-1.846	0.751	-27.402
	(1.38)	(0.49)	(0.11)	(1.35)
Working Population	3.846*	2.110	1.883	5.224
	(1.82)	(1.63)	(0.88)	(0.35)
Log GDP	-3.988**	-0.692	-4.393**	-7.022
	(2.11)	(0.52)	(2.15)	(0.62)
Labor Participation	-0.271***	0.717***	-0.188	-1.134*
	(3.81)	(9.00)	(0.81)	(1.81)
Black Market Prenium	0.012	-0.184*	0.101	2.448
	(0.11)	(1.65)	(0.49)	(1.27)
Log Agricultural Employ	-3.281***	2.897***	-0.703	-5.019
	(3.51)	(3.08)	(0.38)	(0.49)
Constant	28.166**	-35.104***	82.211***	149.566
	(2.49)	(4.22)	(4.27)	(0.68)
Observation	54	61	58	38
R^2	0.82	0.99	0.77	0.87
Hansen OID p-value	0.56	0.23	0.25	0.46

Table 5: GMM estimation of the effect of Export on Unemployment and Youth Unemployment Rates: Role of the share of Total Primary commodity

	(1) Unemployment Rate	(2)	(3) Youth Unemployment Rate	(4)	(5) Long Term Unemployment Rate	(6)	(7) Employment Rate	(8)
	Dynamic panel-data estimation, two-step system GMM							
Lag Dependent Variable	-0.208	0.295	-0.237	0.007	0.531	0.333	-0.217	-0.105
	(0.88)	(0.98)	(0.77)	(0.04)	(1.35)	(1.37)	(0.85)	(1.37)
Total Trade (%GDP)	-0.012*	-0.030***	-0.027*	-0.023**	-0.031*	-0.157***	0.012**	0.008***
	(1.80)	(2.92)	(1.76)	(2.46)	(1.80)	(3.48)	(2.50)	(2.66)
Agricul. Primary Commodity		-1.460		-1.773*		-22.211***		0.450
		(1.15)		(1.83)		(2.61)		(0.99)
(Trade)x(Agricul. Primary Commodity)		0.012*		0.013**		0.072***		-0.007***
		(1.80)		(2.56)		(3.36)		(2.67)
Log Working Population	0.350	0.574	0.727	0.342	0.713	-1.689	0.121	0.535*
	(1.15)	(1.14)	(1.17)	(0.87)	(0.84)	(0.74)	(0.25)	(1.67)
Log GDP	-0.516	0.662	-3.007	-2.629**	-3.374	-6.117**	1.431	1.880***
	(0.86)	(0.37)	(1.21)	(2.29)	(0.79)	(2.55)	(1.22)	(5.13)
Labor Participation	-0.247***	-0.161	-0.539***	-0.042	-0.955	-0.896	0.240	0.369***
	(3.05)	(1.03)	(2.88)	(0.14)	(1.16)	(1.10)	(1.28)	(3.50)
Log Agricultural Employ	-0.853	-1.062	-2.217	-3.917**	-5.323*	-7.565	1.176*	1.495***
	(1.33)	(0.54)	(1.20)	(2.20)	(1.72)	(0.70)	(1.73)	(2.69)
Constant	18.193	-33.236	93.550	75.24***	122.553	399.389***	46.225	-10.292
	(0.73)	(0.54)	(1.27)	(3.15)	(0.98)	(3.36)	(0.79)	(0.43)
Observation	415	346	359	359	214	214	334	334
Number of Countries	75	74	76	76	41	41	71	71
AR(2) p-value	0.954	0.226	0.801	0.257	0.151	0.144	0.939	0.127
Hansen p-value	0.243	0.849	0.392	0.535	0.147	0.762	0.622	0.750
Instrument Number	27	27	27	34	24	32	27	48

Conclusion

- This paper extends the empirical side of the relation between trade openness on labour market outcomes by arguing that the effect depends on the composition of trade, and focusing on the role played by agricultural primary commodity.
- It is found that high share of primary commodity is associated with high unemployment rates and low employment rates.

Policy Implications

- The commodity-based industrialization should be promoted to reduce the high and challenging young unemployment rate. As recognized by the Istanbul Programme of Actions, poor countries should adopt and strengthen, as appropriate, sector and commodity-specific policies, measures and strategies to enhance productivity and vertical diversification, ensure value-addition and increase value-retention (United Nations, 2011, paragr. 66b).
- This can be possible through the transformation of raw products before exporting them. In addition to the creation of value addition, this will result in low unemployment rate.

Thank you for your attention !