

Growth-enhancing effect of openness to trade and migrations: What is the effective transmission channel for Africa?

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 - ★ Transfer of knowledge (Grossman and Helpman, 1991a,b)

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 - ★ Instrumental Variable (IV) technique using geographic characteristics as instruments in a gravity-type model:
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- ▶ These findings of Frankel and Romer (1999) were confirmed by several works (Frankel and Rose, 2002; Irwin and TerviÅ, 2002; Dollar and Kraay, 2003)

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 - ▶ Empirical evidence on world sample: once geographic characteristics are used to instrument both trade and migration, there is no significant impact of trade, while a strong positive effect of migration.

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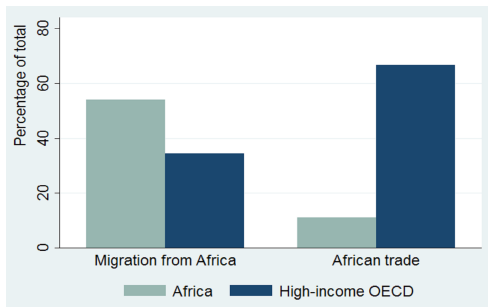
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 - ▶ Africa's trade is mainly realized with developed countries, intra-continental trade is low
 - ▶ Strong intra-continental migration and emigration to industrialized countries



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 - ★ South-South perspective (intra-African migration): relative homogeneity of skill between immigrants and natives
 - ★ North-South perspective (emigration to developed countries): two ambivalent effects on African economies, **adverse effect of brain drain** and **positive effect of “diaspora transfers”** (remittances, human capital of returning migrants, transfer of knowledge, transfer of norms in improving institutions)

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Gravity-based instruments

- Gravity regression

$$\begin{aligned}
 \ln W_{ij} = & \gamma_0 + \gamma_1 \ln Dist_{ij} + \gamma_2 \ln Pop_i + \gamma_3 \ln Pop_j + \gamma_4 \ln Area_i \\
 & + \gamma_5 \ln Area_j + \gamma_6 (\text{Landlocked}_i + \text{Landlocked}_j) + \gamma_7 \text{Border}_{ij} \\
 & + \gamma_8 \text{Colony}_{ij} + \gamma_9 \text{ComLang}_{ij} + \gamma_{10} \text{Comcur}_{ij} \\
 & + \gamma_{11} \text{Time}_{ij} + \gamma_{12} \ln Dist_{ij} \times \text{Border}_{ij} \\
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- ▶ W_{ij} = bilateral trade (exports + imports) between countries i and j divided by the GDP of origin country i , or bilateral immigration (emigration) the stock of migrants born in country j (i) and living in country i (j) as share of country i 's population
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- ▶ Pop and $Area$ = population and area and are included to account for country size
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- ▶ $Time_{ij}$ = time zone differences between the two countries

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Estimation methods for gravity

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Impact of total openness (with the world)

	Dependent variable=log (income per capita)			
	African openness with the world			
	LP (1)	LP (2)	NLP (3)	NLP (4)
Trade	2.80** (1.37)	0.45 (0.73)	3.89* (2.00)	2.82 (4.48)
Immig.	1.13 (7.72)	9.16*** (2.87)	-4.14 (11.61)	18.62 (16.83)
Ln pop.	-0.24 (0.18)	-0.23** (0.11)	-0.26 (0.22)	-0.15 (0.22)
Ln area	0.05 (0.11)	0.27** (0.12)	0.06 (0.14)	0.44 (0.45)
Dist. equator	0.05*** (0.01)	-0.01 (0.02)	0.05*** (0.02)	0.01 (0.04)
Constant	5.53*** (0.49)	7.57*** (0.60)	5.27*** (0.81)	6.37*** (1.91)
Observations	52	44	52	44
Colonial controls	No	Yes	No	Yes
Geo/climate controls	No	Yes	No	Yes
K-P F-stat	0.81	4.30	0.77	0.13
SW F-stat for Trade	8.58	11.92	3.28	0.34
SW F-stat for Mig.	3.18	4.47	2.41	0.35
SY 10% max IV size	7.03	7.03	7.03	7.03
SY 25% max IV size	3.63	3.63	3.63	3.63

Notes: LP (NLP) = linear (non-linear) predicted trade and migration based on the OLS (PPML) gravity estimates. *, **, and *** denote significance at the 10%, 5% and 1% confidence level, respectively. K-P F-stat = Kleibergen and Paap (2006) rk Wald F-stat test of jointly weak identification. SW F-stat = Sanderson and Windmeijer (2015) F-stat test of weak identification for each endogenous regressor separately. SY 10% max IV size and SY 25% max IV size are the Stock and Yogo (2005) critical values.

Identifying partner-varying impact of openness

	Dependent variable=log (income per capita)							
	Intra-African				Africa with non-industrialized countries			
	LP (1)	LP (2)	NLP (3)	NLP (4)	LP (5)	LP (6)	NLP (7)	NLP (8)
Trade	8.28 (10.26)	13.97 (13.00)	0.86 (2.85)	4.86 (3.90)	4.44 (2.87)	3.50 (3.40)	5.15 (4.60)	6.68*** (2.92)
Immig.	0.10 (4.69)	3.40 (4.56)	4.94 (5.20)	6.14 (4.03)	5.36 (6.00)	12.33** (5.22)	6.80 (16.22)	6.21 (10.34)
Ln pop.	-0.45** (0.21)	-0.39* (0.22)	-0.34** (0.14)	-0.27** (0.13)	-0.30* (0.16)	-0.15 (0.14)	-0.27 (0.22)	-0.24 (0.19)
Ln area	0.15 (0.16)	0.27 (0.19)	0.07 (0.10)	0.17 (0.11)	0.09 (0.11)	0.16 (0.10)	0.09 (0.14)	0.21* (0.12)
Dist. equator	0.05*** (0.02)	0.06*** (0.02)	0.05*** (0.01)	0.06*** (0.01)	0.06*** (0.01)	0.07*** (0.02)	0.06*** (0.02)	0.07*** (0.02)
Constant	6.08*** (1.24)	5.14*** (1.25)	6.65*** (0.64)	5.73*** (0.62)	5.63*** (0.71)	4.93*** (0.95)	5.39*** (0.81)	4.55*** (1.06)
Observations	52	50	52	50	52	50	52	50
Colonial/geo controls	No	Yes	No	Yes	No	Yes	No	Yes
K-P F-stat	0.953	0.847	6.171	4.468	1.814	2.123	0.225	3.337
SW F-stat for Trade	1.905	1.751	9.866	8.120	7.467	7.938	1.088	13.35
SW F-stat for Mig.	8.659	15.56	5.727	7.168	2.139	3.164	0.604	2.382
SY 10% max IV size	7.03	7.03	7.03	7.03	7.03	7.03	7.03	7.03
SY 25% max IV size	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63

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Identifying partner-varying impact of openness

	Dependent variable=log (income per capita)			
	Africa with industrialized countries			
	LP (1)	LP (2)	NLP (3)	NLP (4)
Trade	2.08** (0.89)	3.42** (1.38)	3.05*** (0.93)	4.51*** (1.43)
Emig.	34.52** (16.45)	-2.21 (18.41)	16.16 (11.04)	-9.01 (6.72)
Ln pop.	-0.26* (0.15)	-0.30** (0.12)	-0.25* (0.15)	-0.30** (0.14)
Ln area	0.29 (0.19)	0.12 (0.13)	0.15 (0.11)	0.08 (0.10)
Dist. equator	0.03* (0.02)	0.04*** (0.01)	0.04*** (0.01)	0.05*** (0.01)
Constant	4.86*** (1.10)	5.79*** (0.84)	5.46*** (0.52)	5.85*** (0.45)
Observations	52	50	52	50
Colonial/geo controls	No	Yes	No	Yes
K-P F-stat	3.738	1.695	9.923	4.850
SW F-stat for Trade	19.40	11.32	24.52	10.92
SW F-stat for Mig.	9.958	3.580	20.74	7.414
SY 10% max IV size	7.03	7.03	7.03	7.03
SY 25% max IV size	3.63	3.63	3.63	3.63

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- ★ $\alpha = 1/3$ in line with standard neoclassical approach

The channels of growth-enhancing impact of trade with developed countries

	$\ln Y/L$ (1)	$\frac{\alpha}{1-\alpha} \ln K/Y$ (2)	$\ln H/L$ (3)	$\ln A$ (4)
Trade	3.54** (1.52)	-0.37 (0.48)	0.58 (0.63)	4.00*** (1.54)
Ln pop.	-0.26** (0.13)	-0.08* (0.05)	-0.05 (0.04)	-0.16 (0.15)
Ln area	0.07 (0.09)	-0.00 (0.03)	0.02 (0.03)	0.07 (0.11)
Dist. equator	0.05*** (0.01)	-0.00 (0.00)	0.00 (0.00)	0.05*** (0.01)
Constant	-4.60*** (0.47)	0.26 (0.17)	-0.99*** (0.18)	-4.42*** (0.49)
Observations	45	45	47	44
Colonial/geo controls	Yes	Yes	Yes	Yes
K-P F-stat	19.373	9.373	15.35	9.246
SW F-stat	9.373	9.373	15.35	9.246
SY 10% max IV size	16.38	16.38	16.38	16.38
SY 25% max IV size	5.530	5.530	5.530	5.530

Notes: The explained variables are normalized by the value of the US. The predicted values of trade, exports and imports are those based on the non-linear estimation. *, **, and *** denote significance at the 10%, 5% and 1% confidence level, respectively. K-P F-stat = Kleibergen and Paap (2006) rk Wald F-stat test of jointly weak identification. SW F-stat = Sanderson and Windmeijer (2015) F-stat test of weak identification for each endogenous regressor separately. SY 10% max IV size and SY 10% max IV size are the Stock and Yogo (2005) critical values.

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 - ▶ No impact of migration (immigration and emigration), whatever the partner
 - ▶ Trading more with developed countries helps to promote growth in Africa, through the transfer of technologies

THANKS

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