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The Euro's effect on trade: An analysis of "old" and "new" EMU members

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Motivation

- ▶ Existing evidence on the euro's effect on trade is inconclusive. There still exist divergence views on the effect of currency unions on trade.
 - ▶ Different magnitude and significance of the estimated "euro effect" on trade according to;
 - ▶ Number of countries
 - ▶ Number of years
 - ▶ The sample of countries
(Baldwin, 2006; Rose, 2015)
- ▶ Research Question
 - ▶ What is at stake for other CEECs in transit to the EMU.
 - ▶ Is there any difference between the euro's effect on "old" and "new" EMU countries?



Main Results

- ▶ The aggregate euro's effect is statistically insignificant on bilateral export trade (Larch et al., 2017; Zymek et al., 2017; Cieslik et al., 2012b, 2014)
- ▶ A larger euro's effect on the "new" EMU members. For the "old" EMU members, the euro's effect is negative and insignificant.
- ▶ As in Mico, Stein & Ordenez (MSO, 2003), we found no evidence of trade diversion.



Literature Review

- ▶ Research in currency union effect on trade increased following Rose's controversial finding in Rose (2000).
 - ▶ CU induce trade between CU-members by over 300 per cent.
- ▶ Is this True? If not what could possibly be the problem? Baldwin (2006)
- ▶ Rose's CU effect now EZ effect as first done by Mico, Stein & Ordenez (2003) and estimated at 8-16 percent.



Lit. Review Cont...

What is the euro's effect on trade?

- ▶ Methodological change (Santos Silva and Tenreyro, 2006)
- ▶ Recent results using the Poisson estimator;
 - ▶ Cieslik, Michalek and Mycielski (2014) concluded that the euro has had no effect on trade.
 - ▶ Mika and Zymek (2017) also concluded that countries should not expect a significant euro's effect on their trade.
 - ▶ Larch et al., (2017) have also documented the statistical insignificance of the euro's effect on trade.



Methodology-Theory

- ▶ A gravity model given below as;
$$G_{ij} = \alpha \frac{GDP_i GDP_j}{Dist_{ij}^n}$$
 where $n \in \{0, 1\}$
- ▶ $n = 0$ frictionless trade
- ▶ $n = 1$ trade with frictions
- ▶ Anderson (1979), Anderson and Van Wincoop (2001) and Anderson (2016) lead to the traditional gravity model + “*multilateral resistance term*”
- ▶ Application of the above methodology used in MSO (2003), Rose (2015), Larch et al., (2017) among others.



Sample

- ▶ Data and Variables
 - ▶ Sample period: 1988 - 2015
 - ▶ Sample details: 38 countries

"Old" EMU	"New" EMU	EU/Non-EMU	Non-EU
Germany	Cyprus	UK	Australia
France	Estonia	Denmark	Canada
Italy	Latvia	Bulgaria	US
Spain	Lithuania	Sweden	Japan
Austria	Malta	Croatia	Switzerland
Portugal	Slovakia	Czech Republic	Norway
Greece	Slovenia	Hungary	Iceland
Belgium		Poland	India
Netherlands		Romania	China
Finland			New Zealand
Ireland			
Luxembourg			



Empirical Specification & Data Sources

Poisson Pseudo Maximum Likelihood (PPML)
specification- Santos Silva & Tenreyro (2006) ;

$$X_{ijt} = \exp\left\{\beta_0 + \beta_1 FTA_{ijt} + \beta_2 EU_{ijt} + \beta_3 EMU_{ijt} + \alpha_{it} + \delta_{jt} + \phi_{ij}\right\} \times \epsilon_{ijt} \quad (1)$$

EMU is further disaggregated into;

- ▶ EMU1= "Old" EMU countries
- ▶ EMU2= "New" EMU countries
- ▶ EMU3= "Old" + "New" country pair

DV- dummy for trade diversion



PPML Estimates- World (38) Sample

VARIABLES	WORLD (38) SAMPLE			
	Dependent Variable: Bilateral Export Trade			
	INCLUDES ZEROS		INCLUDES ZEROS	
	Model 1	Model 2	Model 1	Model 2
logGDPeGDPm			0.744*** (0.077)	0.748*** (0.076)
logEXe			0.384* (0.202)	0.381* (0.201)
logEXm			-0.077 (0.129)	-0.078 (0.129)
FTA	0.065 (0.051)	0.069 (0.051)	0.014 (0.093)	-0.001 (0.090)
EU	0.137** (0.061)	0.123** (0.059)	0.218 (0.170)	0.232 (0.168)
EMU	-0.031 (0.060)		0.415*** (0.105)	
EMU1		-0.062 (0.067)		0.459*** (0.115)
EMU2		0.397** (0.49) (0.156)		0.353*** (0.118)
EMU3		0.114 (0.072)		-0.012 (0.233)
Exporter_Year	YES	YES	NO	NO
Importer_Year	YES	YES	NO	NO
Country-pair FE	YES	YES	YES	YES
Year FE	NO	NO	YES	YES
Observations	36,026	36,026	35,008	35,008
R-squared	0.942	0.943		

***,**, * represent 1%, 5% and 10% significant level respectively



Sensitivity

How sensitive are our results?;

- ▶ Rose (2015)- "His number of observations argument". We use EU 28 sample.
- ▶ MSO (2003)- Evidence of trade diversion. We introduce another variable DV (dummy) in all estimation.
- ▶ The Maastricht Effect (Baldwin, 2006)



Sensitivity 1

VARIABLES	EU (28) SAMPLE			
	INCLUDES ZEROS		INCLUDES ZEROS	
	Model 1	Model 2	Model 1	Model 2
logGDPeGDPm			0.398 (0.291)	0.425 (0.288)
logEXe			0.156** (0.078)	0.157** (0.078)
logEXm			0.124** (0.060)	0.126** (0.059)
FTA	-0.086 (0.077)	-0.053 (0.077)	0.002 (0.041)	-0.014 (0.037)
EU	0.119 (0.090)	0.103 (0.088)	0.236*** (0.071)	0.247*** (0.070)
EMU	0.006 (0.034)		0.253*** (0.085)	
EMU1		-0.098* (0.057)		0.314*** (0.100)
EMU2		0.473*** (0.131)		0.383** (0.161)
EMU3		0.160*** (0.061)		-0.043 (0.223)
Exporter_Year	YES	YES	NO	NO
Importer_Year	YES	YES	NO	NO
Country-pair FE	YES	YES	YES	YES
Year FE	NO	NO	YES	YES
Observations	18,794	18,794	18,086	18,086
R-squared	0.986	0.986		

***, **, * represent 1%, 5% and 10% significant level respectively.



Conclusion

- ▶ The euro's effect on trade is statistically insignificant using a sample of 38 countries for the period 1988-2015.
- ▶ The "New" EMU countries seem to trade more among themselves than they do trade with "old" EMU countries.
- ▶ No evidence of trade diversion.
- ▶ Our results are robust to Rose's small sample argument.



Supplementary 1

VARIABLES	Dependent Variable: Bilateral Export Trade					
	EXCLUDE ZEROS OECD (30)		INCLUDE ZEROS OECD (30)		INCLUDE ZEROS WORLD (38)	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
FTA	0.005 (0.059)	0.012 (0.060)	-0.023 (0.061)	-0.014 (0.061)	0.066 (0.051)	0.067 (0.051)
EU	0.097 (0.069)	0.104 (0.069)	0.070 (0.072)	0.078 (0.072)	0.138** (0.061)	0.114** (0.058)
EMU	-0.162*** (0.061)	0.027 (0.088)	-0.135** (0.062)	0.109 (0.089)	0.013 (0.114)	
EMU1						-0.271* (0.157)
EMU2						0.216 (0.181)
EMU3						-0.018 (0.079)
DV		0.108* (0.062)		0.140** (0.063)	0.024 (0.079)	-0.111 (0.087)
Exporter_Year	YES	YES	YES	YES	YES	YES
Importer_Year	YES	YES	YES	YES	YES	YES
Country-pair FE	YES	YES	YES	YES	YES	YES
Observations	21,985	21,985	22,203	22,203	36,026	36,026
R-squared	0.943	0.943	0.943	0.943	0.942	0.943

***, **, * represent 1%, 5% and 10% significant level respectively.



Supplementary 2

	Period:1993-2015					
	Dependent Variable: $X_{ijt} \geq 0$					
	WORLD (38)		EU (28)		OECD (30)	
FTA	0.033 (0.053)	0.040 (0.053)	-0.129 (0.091)	-0.091 (0.091)	-0.024 (0.075)	-0.014 (0.076)
EU	0.088 (0.073)	0.044 (0.070)	0.054 (0.125)	0.014 (0.120)	0.069 (0.098)	0.071 (0.099)
EMU	-0.158** (0.074)		0.007 (0.038)		-0.201** (0.084) 0.071 (0.086)	
EMU1			-0.226*** (0.086)		-0.131* (0.067)	
EMU2			0.389** (0.156)		0.475*** (0.130)	
EMU3			0.102 (0.070)		0.167*** (0.060)	
DV					0.161** (0.076)	
Exporter_Year	YES	YES	YES	YES	YES	YES
Importer_Year	YES	YES	YES	YES	YES	YES
Country-pair FE	YES	YES	YES	YES	YES	YES
Observations	31,754	31,754	16,964	16,964	19,554	19,554
R-squared	0.949	0.949	0.986	0.986	0.944	0.944

***, **, * represent 1%, 5% and 10% significant level respectively.



Supplementary 3

VARIABLES	Dependent Variable: X _{i(jt)} >0 World (38) SAMPLE			
	FE		FE	
	Model 1	Model 2	Model 3	Model 4
logGDPeGDPm	0.997*** (0.032)	0.987*** (0.032)	1.007*** (0.013)	0.998*** (0.032)
logEXe	0.074*** (0.023)	0.072*** (0.023)	0.0749*** (0.009)	0.0729*** (0.023)
logEXm	0.102*** (0.022)	0.100*** (0.022)	0.103*** (0.011)	0.101*** (0.022)
FTA	0.009 (0.037)	0.014 (0.037)	0.020 (0.020)	0.024 (0.037)
EU	0.252*** (0.044)	0.243*** (0.044)	0.256*** (0.022)	0.247*** (0.044)
EMU	0.020 (0.030)		0.0637*** (0.014)	
EMU1		-0.103*** (0.037)		-0.054 (0.040)
EMU2		0.530*** (0.120)		0.552*** (0.120)
EMU3		0.166*** (0.046)		0.193*** (0.046)
DV			0.109*** (0.013)	0.100*** (0.029)
Country-Pair FE	YES	YES	YES	YES
Period FE	YES	YES	YES	YES
Observations	33,463	33,463	33,463	33,463
R-squared	0.645	0.644	0.645	0.646

***, **, * represent 1%, 5% and 10% significant level respectively.