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Abstract
Export processing zones (EPZs) can be defined as specific, geographically defined zones or areas that are subject to special administration and that generally offer tax incentives, such as duty-free imports when producing for export, exemption from other regulatory constraints linked to import for the domestic market, sometimes favourable treatment in terms of industrial regulation, and the streamlining of border clearing procedures. We describe a database of WTO Members that employ special economic zones as part of their industrial policy mix. This is based on WTO notification and monitoring through the WTO's trade policy review mechanism (TPRM), supplemented with information from the ILO, World Bank, and primary sources. We also provide some rough analysis of the relationship between use of EPZs and the carbon intensity of exports, and relative levels of investment across countries with and without special zones.

Special Tax Treatment as Trade Policy: A Database on Export Processing and Special Economic Zones

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Abstract: Many countries treat income generated via exports favourably, especially when production takes places in special zones known as export processing zones (EPZs). EPZs can be defined as specific, geographically defined zones or areas that are subject to special administration and that generally offer tax incentives, such as duty-free imports when producing for export, exemption from other regulatory constraints linked to import for the domestic market, sometimes favourable treatment in terms of industrial regulation, and the streamlining of border clearing procedures. We describe a database of WTO Members that employ special economic zones as part of their industrial policy mix. This is based on WTO notification and monitoring through the WTO's trade policy review mechanism (TPRM), supplemented with information from the ILO, World Bank, and primary sources. We also provide some rough analysis of the relationship between use of EPZs and the carbon intensity of exports, and relative levels of investment across countries with and without special zones.

Keywords: Free Trade Zones, Special Economic Zones, Tax Policy and Trade, Export Promotion

JEL codes: F14, F13, O24, O25

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1. Introduction

EPZs can be defined as specific, geographically defined zones or areas that are subject to special administration and that generally offer tax incentives, such as duty-free imports when producing for export, exemption from other regulatory constraints linked to import for the domestic market, sometimes favourable treatment in terms of industrial regulation, and the streamlining of border clearing procedures. Many countries treat income generated via exports favourably, especially when production takes places in special zones known as export processing zones (EPZs). Indeed the World Bank (2008) estimates that there are over 3500 SEZs in over 135 countries. Their combined economic activity accounts for 65 million jobs and over $500 billion of trade-related value added. Nevertheless, there is little evidence on the impact of such zones on trade performance, nor on how this impact varies based on underlying conditions.

In this paper, we introduce a database of WTO Members that employ special economic zones as part of their industrial policy mix. This is based on WTO notification and monitoring through the WTO's trade policy review mechanism (TPRM), supplemented with information from the ILO (2007), World Bank (2008), and primary sources. We also provide characterization of the population of countries using such policies, and some rough analysis of the relationship between use of EPZs and the carbon intensity of exports, and relative levels of investment across countries with and without special zones. The database described here also provides a mapping of the use of various economic zone schemes to corporate tax structures, trade tax structures, the quality of legal systems, and various measures of trade and investment performance.

We find that zone-based schemes are primarily used by countries that are both relatively poor on a per-capita income basis, and relatively small in terms of GDP. At first cut, we do not find compelling evidence that free trade zones affect the overall volume or the composition of trade. We do find evidence that zones attract more activity from MNEs, as measured by income to foreign direct investment. Interestingly, we also find a positive and significant relationship between use of special economic zones and the carbon intensity of exports (i.e. the CO2 embodied in exports). At sector level, there is some shift in the composition of trade from special economic zones (but not from free trade zones), especially with respect to motor vehicles and parts, and also textiles, clothing and footwear. In addition, there is some evidence that special economic

zones encourage local production of processed foods, and so serve as a non-tariff barrier in this sector.

2. Data Sources

The database includes both indicators of use of special zones by WTO Member States, as well as performance indicators that can be used to assess how such policies may map to outcomes like investment, trade composition, and the CO2 intensity of exports.

For the indicators of use of economic zones by WTO Member states, our primary source of data on zones is the most recent set of trade policy review mechanism (TPRM) exports from the World Trade Organization. We have also employed supplementary information (in part for cross checking) from the ILO, the NGO Know Your Country, and the World Bank. We note that the literature uses mixed, overlapping, and sometimes contradictory definitions of special economic zones. We employ the following definition here, and have categorized national regimes based on the primary form taken. First, we define two kinds of free trade zones. The first of these are export processing zone (EPZs), defined as designated areas where firms can import goods duty free for further processing and re-export. In EPZs, firms can also export to the domestic market, but in this case they must also pay import duties on the goods sold domestically. A second set of free trade zones allows for preferential (even duty free) sale to the domestic market from inside designated areas that otherwise function like EPZs. We designate these export and import processing zones, or EMPZs. A final set of zones we list here is special economic zones (SEZs) that, while not focused specifically on production for export, nonetheless provide a mix of preferential tax treatment, lower regulatory burdens, and preferred access to infrastructure services. Such zones are sometime s designed to attract foreign investment, or to encourage domestic investment, in certain regions or sectors. We do not focus on a related set of policies known as free ports. Almost all countries have designated areas immediately around ports that allow for free movement and warehousing before fully clearing customs. These are generally meant to lower transaction costs linked to trade, and are not usually sector specific.

The WTO reports on the existence of EPZs, EMPZs, and SEZs in its TPRM reports, and the WTO Members themselves submit questions to other Member delegations on the working of such regimes. A valid concern is the extent to which such zones may violate WTO rules limiting subsidies and prohibiting

export performance requirements. (See Creskoff and Walkenhorst 2013, and Waters 2013 for further discussion on this point). In the case of SEZs, lower regulatory burdens in pursuit of FDI may mean greater environmental impact from production in such zones. Another basic question is the actual effectiveness of such policies in terms of attracting foreign firms, boosting trade, and shifting the composition of trade.

3. Database Contents Overview

The database itself is supplied as in STATA format. Table A-1 provides a summary of the data contained in the database. The database represents a "rolling cross-section" in the sense that WTO Members are reviewed on a rolling basis, ranging from once to every 2 years to 4 years or even longer. In general though, these regimes have been in place since the early to mid 2000s and sometimes much earlier, though the specific rules and regulations governing the zones do change over time. With the exception of the CO2 intensity of exports, which is based on Fernandez Amador et al (2015), the data apart from the economic zone indicators come from the World Bank, or are derived from other data contained in the table below (scientific articles per million population, and multi-year averages).

Table A-2 provides summary statistics for the elements of the database. In total, we have data for 125 countries (see Table A-3). For most variables, the sample coverage is complete, though for some indicators, coverage is more limited. For such cases, we have also provided averages over available years, though other multi-year averages for a smaller span can also be generated from the data provided.

4. Analysis of Zones, Total Trade, and Investment

The data provided above provide not only indicators of countries that use economic zones for trade policy, but also a mapping to various indicators of outcomes that may follow from such policies. We provide an initial analysis here to highlight the type of questions raised in the recent literature on economic zones. For example, one reason for use of such policies is to attract foreign investment and production by multinational firms (UNCTAD 2000, Creskoff and

Walkenhorst 2013, Kway 2014). There is also the combined goals of encouraging a better mix and volume of exports, and of helping firms (domestic and foreign) overcome local regulatory burdens (Creskoff and Walkenhorst 2013, Zeng 2015, World Bank 2008).

Figures 1 to 4 provide some characterization of the set of countries that use free trade zones and special economic zones. In Figure 1 we provide a mapping of the per-capital income weighted use of free trade zones (both EPZs and EMPZs) classified by per-capita income. In Figure 2, we provide a mapping of the GDP weighted use of free trade zones (both EPZs and EMPZs) classified by GDP level. It is clear from the figures that free trade zones are primarily used by lower income economies, which are also characterized by relatively low levels of GDP. Figures 3 and 4 provide a similar mapping; again with per-capital income weighted use of special economic zones and GDP weighted use of special economic zones. The pattern that emerges is again one of smaller and lower income countries being more likely to employ such policies.

Figure 1

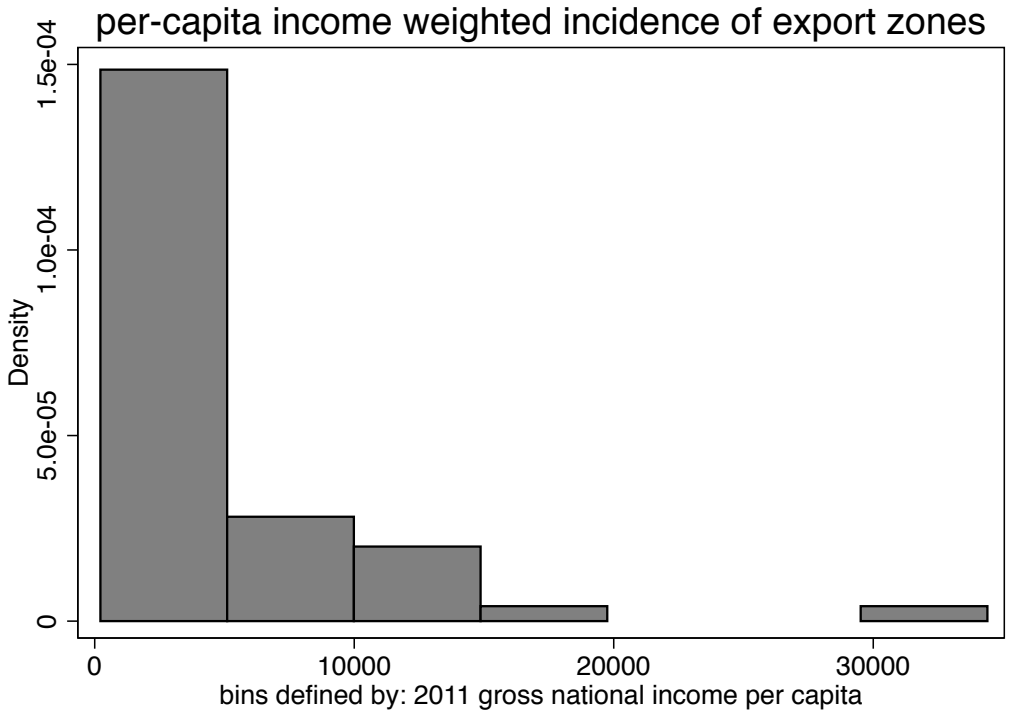

Figure 2

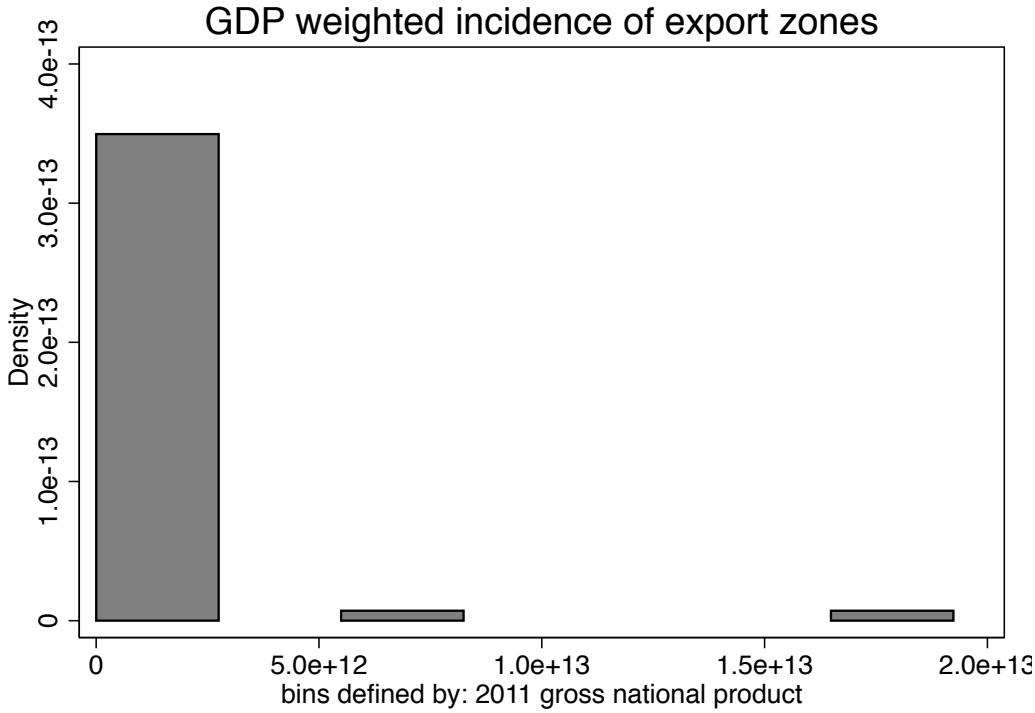

Figure 3

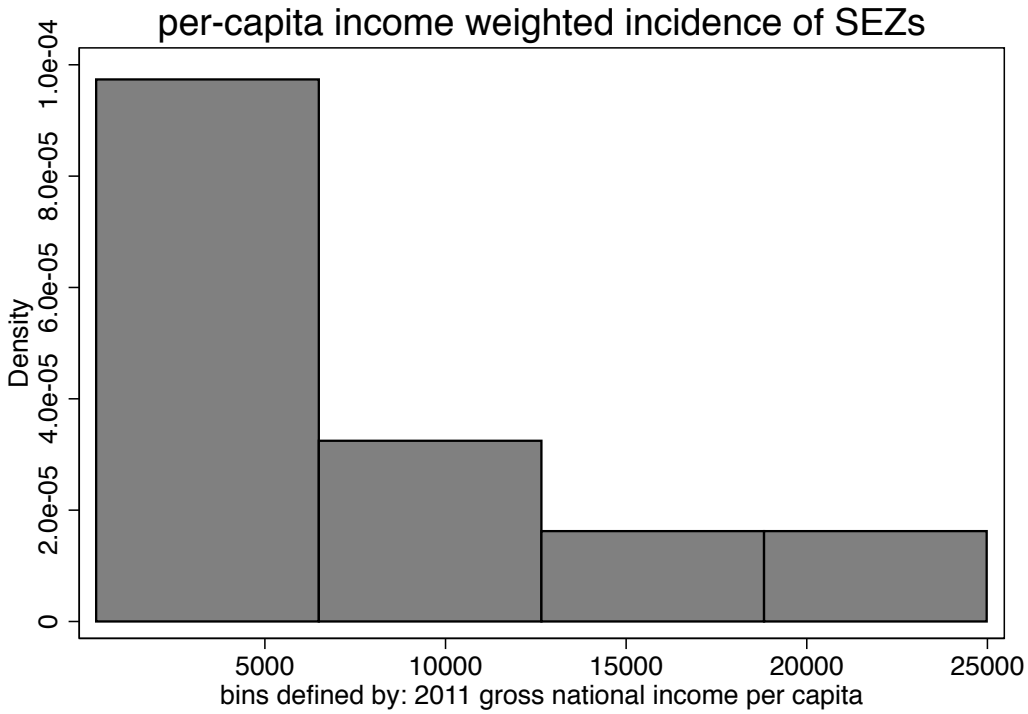

Figure 4

Consider next the extent to which we observe more MNE activity (or not) in countries with either trade or other forms of special economic zones. Table 1 below presents OLS regressions (with t-ratios based on robust standard errors) for a regression of the log of income earned by FDI (taken as an average over the sample period) as a function of taxes on profit, and income level and country size, but also the use of special zones. Not surprisingly, we see more MNE activity, as measured the income to FDI, in countries with higher incomes, in larger countries, and in regimes with lower tax rates. At the same time, we do observe more FDI income in countries with special economic zones, though we do not really see strong effects for countries with free trade zones.

Table 2 reports on OLS results for the composition of exports. The first two columns focus on trade as a percent of GDP, while the second focus on the share of exports in high tech products. Basically, we find that country size (captured by population) and higher tariffs means less trade as a share of GDP (a standard set of results) but also no real correlation between trade shares and special economic zones. Indeed there is a significant negative relationship between free trade zones and trade intensity. This is consistent with the role of free trade zones as a short cut to overcoming regulatory burdens (in other words poor performers are more likely to turn to such solutions). This also suggests benefits

Table 1: FDI income

	ln(FDI income)	Ln(FDI income)
ln(population)	0.876	0.786
	(14.81)**	(11.99)**
ln(per capital income)	1.629	1.588
	(11.54)**	(12.66)**
ln(1+profit tax rate)	-1.035§	-0.991
	(1.86)	(2.22)*
Free trade zone		0.440
(EPZ and/or EMPZ)		(1.61)
Special economic zone		0.634
		(2.47)*
constant	-6.497	-5.134
	(3.82)**	(3.29)**
R^2	0.84	0.86
N	70	70

* $p<0.05$; ** $p<0.01$, § *p<.15, based on robust standard errors*

Table 2: Export Indicators

	Trade percent of GDP	Trade percent of GDP	High tech percent of exports	High tech percent of exports
ln(population)	-19.550	-18.930	0.890	0.721
	(5.33)**	(5.01)**	(1.38)	(1.05)
ln(per capita income)	0.464	-0.810	1.628	1.610
	(0.09)	(0.14)	(1.97)	(1.64)
ln(1+MFN tariff)	-4.810	-4.394		
	(3.12)**	(2.78)**		
port quality	9.133	8.553	1.543	1.457
	(0.92)	(0.86)	(0.93)	(0.89)
Free trade zone		-15.495		-0.716
(EPZ and/or EMPZ)		(2.12)*		(0.33)
Special economic zone		0.935		3.328
		(0.08)		(0.95)
constant	390.084	398.579	-25.115	-22.005
	(6.68)**	(6.57)**	(2.33)*	(1.99)*
R^2	0.42	0.43	0.12	0.14
N	75	75	107	107

* $p<0.05$; ** $p<0.01$, § *p<.15, based on robust standard errors*

from research on the relationship between institutional quality and use of free trade zones. The last two sets of columns focus on the technology intensity of exports and free trade zones. Here we find no real relationship at all. There is no real evidence that countries using free trade zones are better at exporting high tech products.

Finally, Table 3 reports results on the CO2 intensity of exports. Here, we use data based on Fernandez-Amador, who provide estimates of the CO2 embodied in exports for 2011. This reflects both direct and indirect embodied CO2 (involving intermediate linkages). What we find is that free trade zones do not themselves appear to have an impact on the carbon intensify of production for export. There is a clear Kuznets-curve at work (meaning a non-linear relationship between income levels and CO2 intensity). However, this is unaffected by use of free trade zones. At the same time, there is a clear, strong relationship between other types of special economic zones and the CO2 intensity of exports. Recall from our introduction that while not focused specifically on production for export, such zones nonetheless provide a mix of preferential tax treatment, lower regulatory burdens, and preferred access to infrastructure services. To the extent this also includes easier access to energy, and possible less strict rules governing CO2 intensive activities, this result suggest that the type of industry attracted to these zones seems to be associated with greater CO2 intensity in production for export.

Table 3: CO2 intensity of exports

	ln(CO2 in exports, MT)	ln(CO2 in exports, MT)
ln(GNI per capita)	4.344	3.968
	(5.19)**	(4.49)**
[ln(GNI per capita)]^2	-0.188	-0.165
	(3.78)**	(3.11)**
ln(population)	0.744	0.716
	(8.03)**	(7.62)**
Free trade zone		0.010
(EPZ and/or EMPZ)		(0.04)
Special economic		0.485
		(2.04)*
Constant	-25.394	-23.481
	(7.58)**	(6.71)**
R^2	0.78	0.79
N	109	109

* $p<0.05$; ** $p<0.01$

5. Gravity Analysis of Zones and Bilateral Trade

In this section we examine the relationship of bilateral exports to the use of export zones and special economic zones. To do this, we work with a gravity model of trade. The basic formulation of the gravity model follows from a range of theoretical models of trade, including Armington-based trade, monopolistic competition, and Eaton-Kortum type models (Anderson and Vanwincoop 2003, Head and Meyer 2014). It specifies bilateral trade flows as a function of importer characteristics, exporter characteristics, and pairwise variables that determine pairwise variation in trade costs. Such determinants of trade costs can be geographic, political, or institutional.

As observable variables in our regressions, we include the standard gravity variables: distance, common colony, common language, common border (contiguous), former colony and dummies for shallow, medium and deep free trade agreements (FTA).[1] Preferential trade agreements are free trade agreements and customs unions that have been agreed at least four years previously (Dür et al., 2014). Besides these traditional gravity regressors, we include two political economy variables, PE index 1 and PE index 2, measuring the pairwise similarity of the two trading partners. These variables reflect evidence that homophily is important in explaining direct economic and political linkages (De Benedictis and Tajoli, 2011). The two political economy variables are calculated as the two first principal components of the following four variables: the difference in polity, the functioning of governance difference, the corruption score difference, and the difference in civil society scores.

Following the theoretical gravity equation, tariffs and the international transport margin have the same coefficient and are thus included as one combined variable called Trade Cost in Table 4 below. Our data on tariffs and transport costs are taken from Bekkers et al (2015). Because importer fixed effects pick up most favoured nation (MFN) tariff rates, for variation in tariff we employ the log

[1] Following Egger et al. (2011), we instrument preferential trade agreements. As explanatory variables in the first stage regression we include the variables also present in the gravity equation (except for tariffs) as well as lagged trade network embeddedness (Easley and Kleinberg, 2010; De Benedictis and Tajoli, 2011; Zhou, 2011) and a variable for the economic mass of the two trading partners together, measured as GDP of the source country times GDP of the destination country.

Table 4: Gravity regressions

	TOT	B_T	CRP	ELE
trade costs	-4.493	-1.956	-5.848	-14.114
	(4.51)***	(3.56)***	(5.40)***	(5.29)***
ln(distance)	-0.227	-0.651	-0.419	-0.394
	(11.61)***	(29.23)***	(21.07)***	(17.41)***
PE index 1	0.146	-0.224	0.009	0.248
	(6.48)***	(5.00)***	(0.30)	(6.39)***
PE index 2	-0.081	0.056	-0.178	-0.079
	(3.09)***	(0.90)	(5.30)***	(1.57)
common colony	0.611	0.167	-0.041	0.714
	(3.90)***	(0.74)	(0.26)	(2.23)**
common ethnic language	0.249	0.418	0.296	0.517
	(2.97)***	(3.52)***	(2.63)***	(3.62)***
common border	0.793	0.228	0.536	0.455
	(10.06)***	(1.80)*	(6.47)***	(3.64)***
former colony	0.372	0.686	0.274	0.130
	(3.80)***	(4.29)***	(1.79)*	(0.79)
shallow FTA (DESTA=1,2)	0.782	-0.909	0.509	-0.134
	(3.59)***	(1.97)**	(2.03)**	(0.44)
medium FTA (DESTA=3,4,5)	0.359	-0.067	0.115	-0.497
	(1.98)**	(0.29)	(0.58)	(1.65)*
deep FTA (DESTA=6,7)	1.723	1.581	1.247	1.179
	(8.31)***	(4.05)***	(5.86)***	(3.24)***
European Union	1.241	0.474	0.612	0.685
	(10.40)***	(2.62)***	(4.78)***	(3.70)***
importer FTZ	0.051	0.345	0.146	-0.331
	(0.32)	(1.11)	(0.84)	(1.33)
exporter FTZ	-0.096	0.008	0.085	0.219
	(0.62)	(0.03)	(0.48)	(0.79)
importer SEZ	0.038	-0.304	-0.268	-0.423
	(0.26)	(1.30)	(1.52)	(1.40)
exporter SEZ	0.279	-0.202	-0.116	-0.056
	(1.80)*	(0.94)	(0.57)	(0.19)
N	9,783	9,783	9,783	9,783
pseudo R2	0.9370	0.9880	0.9774	0.9638

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$
PPML estimates, all including source and destination fixed effects.
TOT total goods trade; B_T beverages & tobacco; CRP chemicals, rubber, plastics, ELE electrical machinery; MTL metals; MVH motor vehicles; ; OMC other machinery; PRA primary agriculture; forestry, fisheries; PRE primary energy; PRF processed foods; P C petrochemicals; TCF textiles, clothing, footwear, other light manufactured goods.
PE index 1 and PE index 2 are composite variables of similarity in political economy indicators as discussed in text.

Table 4 continued : Gravity regressions

	MTL	MVH	OMC	PRA
trade costs	-7.721	-3.232	-13.594	-3.543
	(5.75)***	(2.98)***	(6.91)***	(3.15)***
ln(distance)	-0.493	-0.469	-0.350	-0.713
	(25.67)***	(18.59)***	(17.99)***	(30.63)***
PE index 1	0.055	-0.021	0.109	0.152
	(2.49)**	(0.46)	(3.33)***	(4.50)***
PE index 2	0.091	-0.092	-0.141	0.038
	(1.53)	(1.92)*	(3.87)***	(0.64)
common colony	0.106	-0.806	-0.031	-0.234
	(0.36)	(2.21)**	(0.14)	(1.25)
common ethnic language	0.316	0.153	0.372	0.517
	(2.95)***	(1.07)	(3.69)***	(4.59)***
common border	0.809	0.521	0.579	0.663
	(9.91)***	(4.36)***	(5.98)***	(4.55)***
former colony	0.445	-0.341	0.296	0.137
	(3.00)***	(1.71)*	(2.34)**	(1.08)
shallow FTA (DESTA=1,2)	0.142	0.167	1.092	-0.738
	(0.46)	(0.39)	(4.31)***	(1.87)*
medium FTA (DESTA=3,4,5)	-0.256	0.566	-0.298	-0.150
	(1.05)	(2.41)**	-(1.74)*	(0.74)
deep FTA (DESTA=6,7)	0.694	1.772	1.459	2.144
	(2.36)**	(5.11)***	(4.27)***	(6.16)***
European Union	0.159	1.002	-0.092	1.047
	(1.25)	(6.73)***	(0.75)	(6.24)***
importer FTZ	-0.049	-0.211	-0.069	-0.448
	(0.23)	(0.73)	(0.33)	(1.66)*
exporter FTZ	-0.090	-0.476	0.049	0.041
	(0.41)	(1.58)	(0.20)	(0.16)
importer SEZ	-0.161	0.978	0.049	0.679
	(0.62)	(4.36)***	(0.23)	(2.75)***
exporter SEZ	0.104	0.785	0.284	-0.485
	(0.50)	(2.60)***	(1.22)	(2.38)**
N	9,783	9,783	9,783	9,783
pseudo R2	0.9797	0.9779	0.9774	0.9865

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$
PPML estimates, all including source and destination fixed effects.
TOT total goods trade; B_T beverages & tobacco; CRP chemicals, rubber, plastics, ELE electrical machinery; MTL metals; MVH motor vehicles; ; OMC other machinery; PRA primary agriculture; forestry, fisheries; PRE primary energy; PRF processed foods; P C petrochemicals; TCF textiles, clothing, footwear, other light manufactured goods.
PE index 1 and PE index 2 are composite variables of similarity in political economy indicators as discussed in text.

Table 4 continued : Gravity regressions

	PRF	PRE	P_C	TCF
trade costs	-6.266	-3.180	-12.186	-5.060
	(9.59)***	(3.38)***	(4.10)***	(5.33)***
ln(distance)	-0.600	-0.610	-0.548	-0.590
	(34.99)***	(23.25)***	(10.47)***	(24.62)***
PE index 1	0.045	0.212	0.038	0.174
	(1.66)*	(6.66)***	(1.20)	(5.88)***
PE index 2	-0.043	-0.022	0.126	-0.032
	(1.24)	(0.31)	(1.99)**	(0.91)
common colony	-0.189	0.317	0.196	0.281
	(0.74)	(1.07)	(0.76)	(0.79)
common ethnic language	0.418	0.491	0.382	0.256
	(5.12)***	(2.59)***	(2.41)**	(2.27)**
common border	0.782	1.019	1.005	0.898
	(10.14)***	(4.21)***	(4.21)***	(9.77)***
former colony	0.074	0.752	0.332	0.240
	(0.73)	(3.35)***	(1.78)*	(2.04)**
shallow FTA (DESTA=1,2)	0.629	-1.453	0.916	0.508
	(2.32)**	(2.36)**	(1.58)	(1.44)
medium FTA (DESTA=3,4,5)	-0.331	0.361	1.679	-0.361
	(2.49)**	(0.93)	(3.57)***	(2.27)**
deep FTA (DESTA=6,7)	1.249	1.712	4.035	1.122
	(5.92)***	(4.24)***	(9.86)***	(3.71)***
European Union	0.469	0.641	-0.985	0.331
	(3.90)***	(1.96)*	(1.44)	(2.80)***
importer FTZ	-0.052	0.607	-0.179	0.305
	(0.29)	(2.23)**	(0.44)	(1.28)
exporter FTZ	0.155	-0.255	0.196	-0.110
	(1.07)	(0.91)	(0.70)	(0.55)
importer SEZ	-0.364	-0.651	0.246	-0.197
	(1.89)*	(2.33)**	(0.68)	(0.91)
exporter SEZ	-0.049	-0.753	-0.445	0.375
	(0.26)	(2.58)***	(1.44)	(2.11)**
N	9,783	9,783	8,150	9,783
pseudo R2	0.9887	0.9456	0.8621	0.9856

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$
PPML estimates, all including source and destination fixed effects.
TOT total goods trade; B_T beverages & tobacco; CRP chemicals, rubber, plastics, ELE electrical machinery; MTL metals; MVH motor vehicles; ; OMC other machinery; PRA primary agriculture; forestry, fisheries; PRE primary energy; PRF processed foods; P C petrochemicals; TCF textiles, clothing, footwear, other light manufactured goods.
PE index 1 and PE index 2 are composite variables of similarity in political economy indicators as discussed in text.

difference between the MFN tariff rate and the preferential tariff rate due to FTAs.

Trade data includes trade with self, or domestic absorption, and our combination of international and domestic trade data comes from the COMTRADE and GTAP databases, and is for the year 2011. Data for tariffs come from the World Bank/UNCTAD WITS database. Distance data are based on the physical length of shipping routes (see Bekkers et al 2015). Other socio-economic data are from Dür et al. (2014), the CEPII database (Mayer and Zignago, 2011), and the Quality of Governance (QoG) expert survey dataset (Teorell et al., 2011).

We estimate a gravity model of trade using a sample of 110 countries in 2011, crossed against our data on economic zones. This yields 9,783 country pairs where we have not only trade and zone data but also the other pairwise variables discussed above and listed in Table 4.Following Santos Silva and Tenreyro (2006, 2011), we employ a Poisson pseudo-maximum likelihood (PPML) estimator for trade for each manufacturing sector listed in Table 4.

The standard gravity equation coefficients in Table 4 all have the expected sign and relative magnitude (based on recent literature). Tariffs reduce trade, with an overall tariff elasticity of around -4.5, with a range at sector level from -2.0 to -14.1. As we have separated shipping costs from other aspects of distance, our distance elasticity is on the low end of current estimates, but still negative and generally highly significant. Free trade agreements have varied effects, depending on the level of ambition represented by the agreement. Relatively deep agreements generate more trade that shallow FTAs. In addition, intra-EU trade is substantially higher than trade between third countries.

For our purpose, what is important is the last four variables in the table. Because we have exporter and importer fixed effects, our basic economic zone indicators are subsumed by these fixed effect terms. Instead, what we have included here is an interaction between economic zones and a pairwise indicator for dyads that are not part of a free trade agreement or customs union. In other words, these four variables reflect dyads where either the exporter or importer has a form of economic zone, but trade is otherwise governed by non-preferential rules. The FTZ term includes both EPZs and EMPZs, and the SEZ term is then for special economic zones. From Table 4, when we look at total trade, there is weak evidence of more trade when the exporter has an SEZ, but there is no sign of additional aggregate trade from free trade zones. Turning to sector results, we

do see additional trade for certain sectors. In manufacturing, use of SEZs by both exporter and importers leads to more trade in motor vehicles and parts. In addition, SEZs in exporting countries have a significant positive relationship with exports of light manufactures (textiles, clothing, and footwear). For food products (primary agriculture and processed foods) results are mixed, with more imports of primary food and less of processed foods where we have SEZs in the importing country. For primary energy, we have more significantly more imports where we also have free trade zones.

Overall, there is no real sign of changes in overall export performance with free trade zones, though we do have evidence in a shift in the composition of trade, with motor vehicle and textile and clothing trade benefiting from SEZs. This suggests that overall export effects from SEZs in the total trade (first column in the table) are driven by textiles and clothing, and by motor vehicles and motor vehicle parts. There is also effective diversion of trade away from imported processed food and toward domestic processed food, along with a parallel increase in primary food (with lower value added) trade.

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Table A-1 **Summary Description of Variables in the Database**

variable name	description
iso3	3 digit alphanumeric ISO code for each country
name	country name
apptmfg09	applied tariff or manufacturing trade weighted, 2009
apptmfg10	applied tariff or manufacturing trade weighted, 2010
apptmfg11	applied tariff or manufacturing trade weighted, 2011
apptmfg12	applied tariff or manufacturing trade weighted, 2012
apptmfg13	applied tariff or manufacturing trade weighted, 2013
apptmfg091	applied tariff or manufacturing trade weighted, 2009-13
bribesf10	percent of firms reporting bribes, 2010
bribesf11	percent of firms reporting bribes, 2011
bribesf12	percent of firms reporting bribes, 2012
bribesf13	percent of firms reporting bribes, 2013
bribesf14	percent of firms reporting bribes, 2014
bribesf1014	percent of firms reporting bribes, 2010-14
cburden10	Burden of customs procedure, WEF (1=extremely inefficient to 7=extremely efficient), 2010
cburden11	Burden of customs procedure, WEF (1=extremely inefficient to 7=extremely efficient), 2011
cburden12	Burden of customs procedure, WEF (1=extremely inefficient to 7=extremely efficient), 2012
cburden13	Burden of customs procedure, WEF (1=extremely inefficient to 7=extremely efficient), 2013
cburden14	Burden of customs procedure, WEF (1=extremely inefficient to 7=extremely efficient), 2014
cburden1014	Burden of customs procedure, WEF (1=extremely inefficient to 7=extremely efficient), 2010-14
ccostm2010	Cost to import (US$ per 20 foot container), 2010
ccostm2011	Cost to import (US$ per 20 foot container), 2011
ccostm2012	Cost to import (US$ per 20 foot container), 2012
ccostm2013	Cost to import (US$ per 20 foot container), 2013
ccostm2014	Cost to import (US$ per 20 foot container), 2014
ccostm1014	Cost to import (US$ per 20 foot container), 2010-14
ccostx2010	Cost to export (US$ per 20 foot container), 2010
ccostx2011	Cost to export (US$ per 20 foot container), 2011
ccostx2012	Cost to export (US$ per 20 foot container), 2012
ccostx2013	Cost to export (US$ per 20 foot container), 2013
ccostx2014	Cost to export (US$ per 20 foot container), 2014
ccostx1014	Cost to export (US$ per 20 foot container), 2010-14
co2kt07	CO2 emissions total in kt, 2007

Table A-1	**Summary Description of Variables in the Database**
variable name	description
co2kt08	CO2 emissions total in kt, 2008
co2kt09	CO2 emissions total in kt, 2009
co2kt10	CO2 emissions total in kt, 2010
co2kt11	CO2 emissions total in kt, 2011
co2kt0711	CO2 emissions total in kt, 2007-11
co2exp11	CO2 emissions contained in exports MT, 2011
co2pcap07	CO2 emissions per capita in kt, 2007
co2pcap08	CO2 emissions per capita in kt, 2008
co2pcap09	CO2 emissions per capita in kt, 2009
co2pcap10	CO2 emissions per capita in kt, 2010
co2pcap11	CO2 emissions per capita in kt, 2011
co2pcap071	CO2 emissions per capita in kt, 2007-11
co2pct07	CO2 emissions intensity (kg per 2011 PPP $ of GDP), 2007
co2pct08	CO2 emissions intensity (kg per 2011 PPP $ of GDP), 2008
co2pct09	CO2 emissions intensity (kg per 2011 PPP $ of GDP), 2009
co2pct10	CO2 emissions intensity (kg per 2011 PPP $ of GDP), 2010
co2pct11	CO2 emissions intensity (kg per 2011 PPP $ of GDP), 2011
co2pct0711	CO2 emissions intensity (kg per 2011 PPP $ of GDP), 2007-11
empz	dummy for country with export and import processing zone (from 2011-2015 TPRM report cycle)
epz	dummy for a country with export processing zone (from 2011-2015 TPRM report cycle)
fdiinc09	Primary income on FDI, payments (current US$), 2009
fdiinc10	Primary income on FDI, payments (current US$), 2010
fdiinc11	Primary income on FDI, payments (current US$), 2011
fdiinc12	Primary income on FDI, payments (current US$), 2012
fdiinc13	Primary income on FDI, payments (current US$), 2013
fdiinc0913	Primary income on FDI, payments (current US$), 2009-2013
fdipct09	Foreign direct investment, net inflows (% of GDP), 2009
fdipct10	Foreign direct investment, net inflows (% of GDP), 2010
fdipct11	Foreign direct investment, net inflows (% of GDP), 2011
fdipct12	Foreign direct investment, net inflows (% of GDP), 2012
fdipct13	Foreign direct investment, net inflows (% of GDP), 2013
fdipct14	Foreign direct investment, net inflows (% of GDP), 2014
fdipct0913	Foreign direct investment, net inflows (% of GDP), 2009-13
gdpusd10	GDP (current US$), 2010
gdpusd11	GDP (current US$), 2011
gdpusd12	GDP (current US$), 2012
gdpusd13	GDP (current US$), 2013
gdpusd14	GDP (current US$), 2014

Table A-1	**Summary Description of Variables in the Database**
variable name	description
gdpusd1014	GDP (current US$), 2010-14
gnipc10	GNI per capita, converted to U.S. dollars using the World Bank Atlas method, 2010
gnipc11	GNI per capita, converted to U.S. dollars using the World Bank Atlas method, 2011
gnipc12	GNI per capita, converted to U.S. dollars using the World Bank Atlas method, 2012
gnipc13	GNI per capita, converted to U.S. dollars using the World Bank Atlas method, 2013
gnipc14	GNI per capita, converted to U.S. dollars using the World Bank Atlas method, 2014
gnipc1014	GNI per capita, converted to U.S. dollars using the World Bank Atlas method, 2010-14
htech09	High-technology exports (% of manufactured exports), 2009
htech10	High-technology exports (% of manufactured exports), 2010
htech11	High-technology exports (% of manufactured exports), 2011
htech12	High-technology exports (% of manufactured exports), 2012
htech13	High-technology exports (% of manufactured exports), 2013
htech0913	High-technology exports (% of manufactured exports), 2014
jrnart07	Scientific and technical journal articles published, 2007
jrnart08	Scientific and technical journal articles published, 2008
jrnart09	Scientific and technical journal articles published, 2009
jrnart10	Scientific and technical journal articles published, 2010
jrnart11	Scientific and technical journal articles published, 2011
jrnart0711	Scientific and technical journal articles published, 2007-11
jrnartpm07	Scientific and technical journal articles published per million population, 2007
jrnartpm08	Scientific and technical journal articles published per million population, 2008
jrnartpm09	Scientific and technical journal articles published per million population, 2009
jrnartpm10	Scientific and technical journal articles published per million population, 2010
jrnartpm11	Scientific and technical journal articles published per million population, 2011
jrnartpm071	Scientific and technical journal articles published per million population, 2007-11
leg10	Strength of legal rights index (0=weak to 12=strong), 2010
leg11	Strength of legal rights index (0=weak to 12=strong), 2011
leg12	Strength of legal rights index (0=weak to 12=strong), 2012
leg13	Strength of legal rights index (0=weak to 12=strong), 2013

Table A-1	**Summary Description of Variables in the Database**
variable name	description
leg14	Strength of legal rights index (0=weak to 12=strong), 2014
leg1014	Strength of legal rights index (0=weak to 12=strong), 2010-14
mdays10	Time to import (days), 2010
mdays11	Time to import (days), 2011
mdays12	Time to import (days), 2012
mdays13	Time to import (days), 2013
mdays14	Time to import (days), 2014
mdays1014	Time to import (days), 2010-14
mfgpct10	Manufacturing, value added (% of GDP), 2010
mfgpct11	Manufacturing, value added (% of GDP), 2011
mfgpct12	Manufacturing, value added (% of GDP), 2012
mfgpct13	Manufacturing, value added (% of GDP), 2013
mfgpct14	Manufacturing, value added (% of GDP), 2014
mfgpct1014	Manufacturing, value added (% of GDP), 2010-14
mfntmfg09	MFN tariff on manuactured goods, 2009
mfntmfg10	MFN tariff on manuactured goods, 2010
mfntmfg11	MFN tariff on manuactured goods, 2011
mfntmfg12	MFN tariff on manuactured goods, 2012
mfntmfg13	MFN tariff on manuactured goods, 2013
mfntmfg091	MFN tariff on manuactured goods, 2009-13
nrpat09	Patent applications, nonresidents 2009
nrpat10	Patent applications, nonresidents 2010
nrpat11	Patent applications, nonresidents 2011
nrpat12	Patent applications, nonresidents 2012
nrpat13	Patent applications, nonresidents 2013
nrpat0913	Patent applications, nonresidents 2009-13
polpct05	Percent of population exposed to ambient concentrations of PM2.5 measuring greater than 2.5 microns in diameter that exceed the WHO guideline value, 2005
polpct10	Percent of population exposed to ambient concentrations of PM2.5 measuring greater than 2.5 microns in diameter that exceed the WHO guideline value, 2010
polpct0510	Percent of population exposed to ambient concentrations of PM2.5 measuring greater than 2.5 microns in diameter that exceed the WHO guideline value, 2005-10
polsmall05	Percent of population exposed to ambient concentrations of PM2.5 measuring less than 2.5 microns in diameter that exceed the WHO guideline value, 2005
polsmall10	Percent of population exposed to ambient concentrations of PM2.5 measuring less than 2.5 microns in diameter that exceed the WHO guideline value, 2010

Table A-1	**Summary Description of Variables in the Database**
variable name	description
polsmall051	Percent of population exposed to ambient concentrations of PM2.5 measuring less than 2.5 microns in diameter that exceed the WHO guideline value, 2005-10
pop07	Population, number of people, 2007
pop08	Population, number of people, 2008
pop09	Population, number of people, 2009
pop10	Population, number of people, 2010
pop11	Population, number of people, 2011
pop12	Population, number of people, 2012
pop13	Population, number of people, 2013
pop14	Population, number of people, 2014
portq10	Quality of port infrastructure, WEF (1=extremely underdeveloped to 7=well developed and efficient by international standards), 2010
portq11	Quality of port infrastructure, WEF (1=extremely underdeveloped to 7=well developed and efficient by international standards), 2011
portq12	Quality of port infrastructure, WEF (1=extremely underdeveloped to 7=well developed and efficient by international standards), 2012
portq13	Quality of port infrastructure, WEF (1=extremely underdeveloped to 7=well developed and efficient by international standards), 2013
portq14	Quality of port infrastructure, WEF (1=extremely underdeveloped to 7=well developed and efficient by international standards), 2014
portq1014	Quality of port infrastructure, WEF (1=extremely underdeveloped to 7=well developed and efficient by international standards), 2010-14
ptax10	Total tax rate (% of commercial profits), 2010
ptax11	Total tax rate (% of commercial profits), 2011
ptax12	Total tax rate (% of commercial profits), 2012
ptax13	Total tax rate (% of commercial profits), 2013
ptax14	Total tax rate (% of commercial profits), 2014
ptax1014	Total tax rate (% of commercial profits), 2010-14
rndpct08	Research and development expenditure (% of GDP), 2008
rndpct09	Research and development expenditure (% of GDP), 2009
rndpct10	Research and development expenditure (% of GDP), 2010
rndpct11	Research and development expenditure (% of GDP), 2011
rndpct12	Research and development expenditure (% of GDP), 2012
rndpct0812	Research and development expenditure (% of GDP), 2008-2012

Table A-1	**Summary Description of Variables in the Database**
variable name	description
rpat09	Patent applications, residents 2009
rpat10	Patent applications, residents 2010
rpat11	Patent applications, residents 2011
rpat12	Patent applications, residents 2012
rpat13	Patent applications, residents 2013
rpat0913	Patent applications, residents 2009-13
sez	dummy for a country with special industrial zones (except EPZs and EMPZs) (from 2011-2015 TPRM report cycle)
trdpctgdp10	Trade (% of GDP), 2010
trdpctgdp11	Trade (% of GDP), 2011
trdpctgdp12	Trade (% of GDP), 2012
trdpctgdp13	Trade (% of GDP), 2013
trdpctgdp14	Trade (% of GDP), 2014
trdpctgdp1014	Trade (% of GDP), 2010-14
xdays10	Time to export (days), 2010
xdays11	Time to export (days), 2011
xdays12	Time to export (days), 2012
xdays13	Time to export (days), 2013
xdays14	Time to export (days), 2014
xdays1014	Time to export (days), 2010-14

Table A-2	**Summary Stats**				
variable name	Obser-vations	mean	standard deviation	minimum	maximum
apptmfg09	109	5.607431	4.595057	0	21.82
apptmfg0913	119	5.352856	4.276585	0	21.82
apptmfg10	90	4.874889	3.656506	0	17.02
apptmfg11	80	5.00025	4.324482	0	19.96
apptmfg12	83	4.677831	4.156878	0	20.08
apptmfg13	85	4.295765	3.720574	0	16.54
bribesf10	22	15	14.94205	1.3	57.2
bribesf1014	65	16.93923	15.7537	0	69.4
bribesf11	3	11.03333	4.735329	6.9	16.2
bribesf12	2	12.9	1.838477	11.6	14.2
bribesf13	33	19.54545	18.98414	0	69.4
bribesf14	6	20.66667	11.65807	1.9	30.3
cburden10	112	4.274054	0.8351157	2.195435	6.469531
cburden1014	117	4.158759	0.8443867	2.019087	6.200627
cburden11	115	4.193657	0.8384854	2.3	6.2
cburden12	114	4.162332	0.8500485	2.1	6.2
cburden13	116	4.136298	0.8810744	1.8	6.2
cburden14	113	4.137365	0.9042364	1.7	6.1
ccostm1014	125	1556.614	1054.094	439.4	6402
ccostm2010	124	1486.295	969.8366	439	6115
ccostm2011	125	1508.881	985.598	435	6115
ccostm2012	125	1549.039	1045.009	420	6360
ccostm2013	125	1607.49	1123.972	440	6360
ccostm2014	125	1635.538	1187.634	440	7060
ccostx1014	125	1320.54	763.0666	457.6	4567.4
ccostx2010	124	1265.229	695.2325	450	4364
ccostx2011	125	1284.913	710.0433	450	4378
ccostx2012	125	1313.545	756.1753	435	4465
ccostx2013	125	1359.321	817.8339	450	4475
ccostx2014	125	1383.013	867.6265	460	5165
co2exp11	110	160945	387339.9	239.0757	3080361
co2kt07	125	305468.8	1227546	187.017	1.04E+07
co2kt0711	125	322362.5	1333959	194.351	1.15E+07
co2kt08	125	311202.9	1253299	190.684	1.07E+07
co2kt09	125	315418.6	1311400	190.684	1.13E+07
co2kt10	125	331802.8	1391650	194.351	1.20E+07
co2kt11	125	347919.4	1492580	209.019	1.30E+07

Table A-2	**Summary Stats**				
variable name	Obser-vations	mean	standard deviation	minimum	maximum
co2pcap07	125	5.436339	7.481315	0.0224556	56.60904
co2pcap0711	125	5.233886	6.858508	0.0217772	47.76151
co2pcap08	125	5.352871	7.105728	0.0221101	49.66898
co2pcap09	125	5.038894	6.584101	0.0213611	45.61237
co2pcap10	125	5.166408	6.621039	0.0210502	43.02411
co2pcap11	125	5.17492	6.620358	0.0219089	43.89304
co2pct07	124	0.2519761	0.1480553	0.0315043	0.8112582
co2pct0711	124	0.2455131	0.1420483	0.0301233	0.7868402
co2pct08	124	0.2452761	0.1409907	0.0305784	0.7752108
co2pct09	124	0.2428208	0.14017	0.0295534	0.8019502
co2pct10	124	0.2450565	0.1434212	0.0290229	0.8462445
co2pct11	124	0.2424359	0.1452744	0.0299576	0.777914
empz	125	0.088	0.2844349	0	1
epz	125	0.408	0.4934408	0	1
fdiinc09	78	3.69E+09	1.25E+10	0	1.06E+11
fdiinc0913	78	5.05E+09	1.96E+10	0	1.70E+11
fdiinc10	78	5.08E+09	1.87E+10	0	1.60E+11
fdiinc11	78	5.98E+09	2.37E+10	0	2.04E+11
fdiinc12	78	5.58E+09	2.00E+10	0	1.72E+11
fdiinc13	78	4.93E+09	2.37E+10	0	2.06E+11
fdipct09	125	4.194097	5.398766	-3.509585	38.51661
fdipct0913	125	5.45053	11.23991	-3.122206	113.3604
fdipct10	125	7.443029	38.57791	-16.15452	430.6151
fdipct11	125	5.505078	7.666047	-2.904237	45.28994
fdipct12	125	5.137085	7.261301	-6.181242	37.73236
fdipct13	125	4.973364	9.045509	-9.20125	61.59165
fdipct14	58	7.438034	29.06069	-3.767384	220.0027
gdpusd10	125	6.35E+11	2.14E+12	8.47E+08	1.66E+13
gdpusd1014	125	7.17E+11	2.46E+12	8.93E+08	1.97E+13
gdpusd11	125	7.08E+11	2.38E+12	9.04E+08	1.92E+13
gdpusd12	125	7.30E+11	2.52E+12	9.12E+08	2.06E+13
gdpusd13	125	7.48E+11	2.58E+12	8.91E+08	2.08E+13
gdpusd14	115	8.23E+11	2.78E+12	8.07E+08	2.14E+13
gnipc10	123	14374.91	18255.82	200	77360
gnipc1014	124	15526.99	19291.17	238	82940
gnipc11	123	14852.69	18751.09	220	79320
gnipc12	124	15659.67	19437.02	240	84410
gnipc13	123	16095.12	20227.18	260	90670

Table A-2	**Summary Stats**				
variable name	Obser-vations	mean	standard deviation	minimum	maximum
gnipc14	104	13782.87	18672.78	250	90420
htech09	112	10.1868	11.69044	0	65.53303
htech0913	117	9.883357	10.29317	0.0815999	52.62172
htech10	109	9.957782	11.21924	0.058687	55.25732
htech11	111	10.47701	10.74853	0.0002464	47.23403
htech12	103	10.42868	10.51433	0.0013268	48.85869
htech13	101	10.66799	11.26213	0	52.44547
jrnart07	124	7283.919	25751.65	0	209898
jrnart0711	124	7688.236	27188.1	1.04	210460.6
jrnart08	124	7571.488	26772.11	0.5	212883
jrnart09	124	7668.877	27112.82	1.1	208600.8
jrnart10	121	5992.826	20923.96	1.3	198336.6
jrnart11	121	6299.541	22356.78	0.3	212428.6
jrnartpm07	124	167.6446	286.3286	0	1217.78
jrnartpm08	124	171.7514	288.6188	0.1201238	1220.554
jrnartpm09	124	169.898	284.6538	0.2912615	1223.193
jrnartpm10	121	162.4128	279.8697	0.236368	1230.276
jrnartpm11	121	167.7473	285.6816	0.2973168	1266.19
leg10	124	5.626728	2.479564	0	10
leg1014	125	5.480717	2.399077	0	10.8
leg11	125	5.910286	2.344539	0	10
leg12	125	5.925793	2.351794	0	10
leg13	125	4.890483	2.656729	0	12
leg14	125	5.07531	2.838801	0	12
mdays10	124	21.99827	14.82101	4	73
mdays1014	125	21.23955	14.48669	4	75.4
mdays11	125	21.43286	14.52539	4	73
mdays12	125	21.18428	14.52325	4	75
mdays13	125	20.99172	14.61588	4	82
mdays14	125	20.69462	14.38655	4	82
mfgpct10	111	14.31472	5.875499	1.780836	35.62372
mfgpct1014	111	14.21746	5.754999	1.606814	33.81772
mfgpct11	109	14.35468	5.921182	1.639543	33.99419
mfgpct12	108	14.13249	5.86388	1.550553	33.97727
mfgpct13	105	14.02555	5.835491	1.456324	32.94228
mfgpct14	78	14.46748	8.125081	2.445844	66.25285
mfntmfg09	109	7.059908	4.504663	0	22.02
mfntmfg0913	120	6.764753	4.173853	0	22.02

Table A-2	**Summary Stats**				
variable name	Obser-vations	mean	standard deviation	minimum	maximum
mfntmfg10	90	6.218889	3.909898	0	17.19
mfntmfg11	80	6.70325	4.225582	0	19.96
mfntmfg12	83	6.393494	4.18106	0	20.08
mfntmfg13	86	5.895581	3.651491	0	16.73
nrpat09	77	11200.66	39113.38	3	239890
nrpat0913	98	9992.902	39433.76	1	271390.4
nrpat10	78	11822.53	41785.17	4	256588
nrpat11	86	11417.79	42262.97	3	276482
nrpat12	84	12180.71	44682.33	1	282792
nrpat13	90	11871.49	45330.85	1	301200
olsmall0510	124	18.39477	14.63214	4.739997	72.60052
polpct05	124	70.14965	38.92181	0	100
polpct0510	124	69.25441	38.93874	0	100
polpct10	124	68.35918	39.49466	0	100
polsmall05	124	18.44882	14.2922	4.99448	69.93466
polsmall10	124	18.34072	15.05213	4.475548	79.51939
pop07	125	6.55E+07	2.47E+08	286196	2.16E+09
pop08	125	6.62E+07	2.49E+08	293544	2.17E+09
pop09	125	6.68E+07	2.51E+08	301016	2.19E+09
pop10	125	6.75E+07	2.53E+08	308595	2.20E+09
pop11	125	6.81E+07	2.55E+08	316280	2.22E+09
pop12	125	6.88E+07	2.57E+08	324060	2.23E+09
pop13	125	6.95E+07	2.59E+08	331900	2.25E+09
pop14	125	7.02E+07	2.61E+08	339758	2.26E+09
portq10	112	4.380745	1.113921	1.396544	6.817346
portq11	115	4.343683	1.122244	1.5	6.8
portq12	114	4.374149	1.093617	1.5	6.8
portq13	116	4.336479	1.084006	1.3	6.8
portq14	113	4.252753	1.164242	1.3	6.8
portq15	117	4.313822	1.097025	1.399309	6.772957
ptax10	124	46.62074	39.77295	9.3	339.1
ptax1014	125	44.26342	29.06836	11.3	239.44
ptax11	125	45.79137	38.1812	9.3	339.1
ptax12	125	45.42246	37.67333	11.3	339.1
ptax13	125	42.59423	26.30269	11.3	275.4
ptax14	125	40.92908	16.9099	11.3	137.3
rdpctg~1014	122	95.0637	60.89091	24.73145	444.8954
rnartpm0711	123	165.8357	282.0283	0.2377954	1231.599

Table A-2	**Summary Stats**				
variable name	Obser-vations	mean	standard deviation	minimum	maximum
rndpct08	77	1.097149	1.063528	0.02039	4.40296
rndpct0812	92	1.032979	1.008352	0.052195	4.087152
rndpct09	72	1.146799	1.053512	0.01748	4.16801
rndpct10	71	1.199587	1.022765	0.0435	3.96501
rndpct11	63	1.280805	1.096521	0.0481	4.03919
rndpct12	35	1.726763	0.9790616	0.17267	3.92627
rpat09	74	23204.84	91880.72	1	667812
rpat0913	96	22655.04	106716	1	878128
rpat10	78	23938.55	98044.78	2	731535
rpat11	83	25587.48	111571.1	1	857546
rpat12	81	29697.88	130825.2	3	986803
rpat13	86	32035.88	149912.6	1	1146944
sez	125	0.16	0.3680813	0	1
trdpctgdp10	122	90.56186	58.40269	22.51171	432.9496
trdpctgdp11	122	96.14681	60.74505	23.71042	447.0583
trdpctgdp12	120	96.37971	62.21953	25.26741	449.9926
trdpctgdp13	115	95.18638	64.32619	26.3758	455.2767
trdpctgdp14	96	92.56155	60.3623	25.7919	439.1999
xdays10	124	20.05328	11.82556	6	63
xdays1014	125	19.32388	11.44896	6	63
xdays11	125	19.56029	11.57889	6	63
xdays12	125	19.23945	11.53355	6	63
xdays13	125	19.0133	11.35179	6	63
xdays14	125	18.82552	11.25126	6	63

Table A-3 Countries in database

ISO3	name	ISO3	name
AGO	Angola	KEN	Kenya
ALB	Albania	KGZ	Kyrgyzstan
ARE	United Arab Emirates	KHM	Cambodia
ARG	Argentina	KOR	Korea
ARM	Armenia	KWT	Kuwait
AUS	Australia	LKA	Sri Lanka
AUT	Austria	LTU	Lithuania
BDI	Burundi	LUX	Luxembourg
BEL	Belgium	LVA	Latvia
BEN	Benin	MAR	Morocco
BFA	Burkina Faso	MDA	Moldova
BGD	Bangladesh	MDG	Madagascar
BGR	Bulgaria	MDV	Maldives
BHR	Bahrain	MEX	Mexico
BLZ	Belize	MLI	Mali
BOL	Bolivia	MLT	Malta
BRA	Brazil	MNG	Mongolia
BRN	Brunei	MOZ	Mozambique
CAN	Canada	MRT	Mauritania
CHE	Switzerland	MUS	Mauritius
CHL	Chile	MWI	Malawi
CHN	China	MYS	Malaysia
CIV	Cote d'Ivoire	NER	Niger
CMR	Cameroon	NGA	Nigeria
COD	Dem. Rep. of the Congo	NIC	Nicaragua
COL	Colombia	NLD	Netherlands
CPV	Cape Verde	NPL	Nepal
CRI	Costa Rica	NZL	New Zealand
CYP	Cyprus	OMN	Oman
CZE	Czech Republic	PAK	Pakistan
DEU	Germany	PAN	Panama
DJI	Djibouti	PER	Peru
DNK	Denmark	PHL	Philippines
DOM	Dominican Republic	PNG	Papua New Guinea
ECU	Ecuador	POL	Poland
EGY	Egypt	PRT	Portugal
ESP	Spain	PRY	Paraguay
EST	Estonia	QAT	Qatar
FIN	Finland	ROM	Romania

Table A-3 Countries in database

ISO3	name		ISO3	name
FJI	Fiji		RUS	Russia
FRA	France		RWA	Rwanda
GAB	Gabon		SAU	Saudi Arabia
GBR	United Kingdom		SEN	Senegal
GHA	Ghana		SGP	Singapore
GIN	Guinea		SUR	Surinam
GMB	Gambia		SVK	Slovak Republic
GNB	Guinea Bissau		SVN	Slovenia
GRC	Greece		SWE	Sweden
GTM	Guatemala		TGO	Togo
HKG	Hong Kong		THA	Thailand
HND	Honduras		TUN	Tunisia
HRV	Croatia		TUR	Turkey
HTI	Haiti		TWN	Taiwan
HUN	Hungary		TZA	Tanzania
IDN	Indonesia		UGA	Uganda
IND	India		UKR	Ukraine
IRL	Ireland		URY	Uruguay
ISR	Israel		USA	United States
ITA	Italy		VEN	Venezuela
JAM	Jamaica		VNM	Vietnam
JOR	Jordan		ZAF	South Africa
JPN	Japan		ZMB	Zambia
			ZWE	Zimbabwe