Appendix

A Country Names and Codes

Country	Code	Country	Code
Algeria	DZ	Latvia	LV
Argentina	AR	Lithuania	LT
Australia	AU	Luxembourg	LU
Austria	AT	Malta	MT
Belgium	BE	Mexico	MX
Brazil	BR	Morocco	MA
Bulgaria	BG	Netherlands	NL
Canada	CA	New Zealand	NZ
China	CN	Norway	NO
Colombia	CO	Pakistan	PK
Cyprus	CY	Philippines	PH
Czech Republic	CZ	Poland	PL
Denmark	DK	Portugal	PT
Estonia	EE	Romania	RO
Finland	FI	Singapore	SG
France	FR	Slovakia	SK
Germany	DE	Slovenia	SI
Greece	GR	South Africa	ZA
Hong Kong	HK	South Korea	KR
Hungary	HU	Spain	ES
Iceland	IS	Sweden	SE
India	IN	Switzerland	CH
Indonesia	ID	Thailand	TH
Ireland	IE	Turkey	TR
Israel	IL	Ukraine	UA
Italy	IT	United Kingdom	UK
Japan	JP	United States	US
		Venezuela	VE

Table 10: ISO Country Codes

Consider the following passthrough equation:

$$\Delta p_{i,t} = \alpha_i + \sum_{k=0}^{T} \beta_{i,k} \Delta e_{i,t-k} + \gamma_i X_{i,t} + \epsilon_{i,t}$$

1. $\Delta p_{i,t}$ represents changes in a domestic price index or unit values series for country i
2. $\Delta e_{i,t}$ represents changes in country i's exchange rate
3. $X_{i,t}$ reflects other covariates, such as country i's producer price index, country i's unemployment rate, and country i's GDP

The data appendix will discuss the construction of each of these in turn.

B Domestic Prices

For any given source and country, $\Delta p_{i,t}$ is computed as log quarterly differences:

$$\Delta p_{i,t} = \log p_{i,t} - \log p_{i,t-1}$$

The series names and sources are given below, by country. Due to the differencing operation, almost all series start in the second quarter.

B.1 Argentina

series	start	end	source	concept	unit
CPI	2014q2	2014q4	IFS	Consumer Prices, all items	2010=100
IPI	1993q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.2 Australia

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1976q4	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1960q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.3 Austria

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1966q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1960q2	2014q4	IFS	Import Prices, all commodities	2010=100

B.4 Brazil

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1976q4	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1960q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.5 Canada

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1961q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1960q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.6 Colombia

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1999q1	2014q4	Bank of the Republic	Consumer Prices, excluding primary food, utilities, and fuel	2010=100
IPI	1970q2	2009q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.7 Czech Republic

series	start	end	source	concept	unit
CPI	1993q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1996q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1992q2	2013q3	OECD	Import Prices, total	2000=100

B.8 Denmark

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1970q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1960q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.9 Estonia

series	start	end	source	concept	unit
CPI	1992q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1998q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1998q2	2014q4	Statistics Estonia	Import Prices, total	Dec 1997=100

B.10 Finland

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1960q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1960q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.11 France

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1970q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1990q2	2009q1	IFS	Goods, Deflator/Unit Value Imports	local currency

B.12 Germany

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1962q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1960q2	2014q3	IFS	Goods, Deflator/Unit Value Imports	local currency

B.13 Hong Kong

series	start	end	source	concept	unit
CPI	1981q1	2014q4	IFS	Consumer Prices, all items	2010=100
IPI	1969q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.14 Hungary

series	start	end	source	concept	unit
CPI	1976q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1990q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1979q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.15 Ireland

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1976q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1960q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.16 Israel

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1970q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1962q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.17 Italy

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1960q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1960q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.18 Japan

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1970q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1960q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.19 Latvia

series	start	end	source	concept	unit
CPI	1991q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1995q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1998q2	2014q4	Central Statistical Bureau of Latvia	Import Prices, unit value	2010=100

B.20 Luxembourg

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1967q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1989q2	2003q2	OECD	Import Prices, total, unit value	2000=100

B.21 Mexico

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1980q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1970q2	2014q4	Banco de Mexico	Import Prices, all items	local currency

B.22 Netherlands

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1960q3	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1960q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	

B.23 New Zealand

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1969q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1960q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.24 Norway

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1970q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1960q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.25 Pakistan

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1979q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1970q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.26 Philippines

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	2011q3	2014q4	Philippine Statistics Authority	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1996q2	2006q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.27 Portugal

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1988q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1960q2	2010q4	IFS	Import Prices, all commodities	2010=100

B.28 Singapore

series	start	end	source	concept	unit
CPI	1961q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	2012q2	2014q4	Singapore department of Statistics	Consumer Prices, excluding accomodation and private road transport	2009=100
IPI	1974q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.29 South Africa

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	2002q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1960q2	2006q1	IFS	Goods, Deflator/Unit Value Imports	local currency

B.30 South Korea

series	start	end	source	concept	unit
CPI	1970q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1990q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1963q2	2012q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.31 Spain

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1976q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1960q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.32 Sweden

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1970q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1960q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.33 Switzerland

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1976q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1963q2	2014q4	IFS	Import Prices, all commodities	2010=100

B.34 Thailand

series	start	end	source	concept	unit
CPI	1965q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	2007q1	2014q4	Thailand Ministry of Commerce	Consumer Prices, excluding raw food and energy	2011=100
IPI	1961q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.35 Turkey

series	start	end	source	concept	unit
CPI	1969q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1994q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1982q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.36 United Kingdom

series	start	end	source	concept	unit
CPI	1988q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1970q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1960q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	local currency

B.37 United States

series	start	end	source	concept	unit
CPI	1960q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1960q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1985q2	2014q4	BLS	Import Prices, no petroleum	2000=100

B.38 Venezuela

series	start	end	source	concept	unit
CPI	2008q2	2014q4	IFS	Consumer Prices, all items	2010=100
CPI	1976q2	2014q4	OECD	Consumer Prices, all items non-food, non-energy	2010=100
IPI	1960q2	2014q4	IFS	Goods, Deflator/Unit Value Imports	local currency

C Exchange Rates

Let Ω represent the set of all countries and Γ represent the set of all currencies, and define the mapping $f : \Omega \to \Gamma$ (e.g. f maps the UK to the pound). For any given source and country, $\Delta e_{i,t}$ is computed as weighted log quarterly differences in bilateral exchange rates for $f(i)$:

$$\Delta e_{i,t} = \sum_{j \in \Omega/\{i\}} w_{ij,t-1} \Delta e_{f(i)f(j),t} \quad \text{where} \quad \Delta e_{f(i)f(j),t} = \log e_{f(i)f(j),t} - \log e_{f(i)f(j),t-1}$$

This computation is implemented using bilateral exchange rates vis-a-vis the US dollar, such that:

$$\log e_{f(i)f(j),t} = \log e_{f(i)f(USA),t} - \log e_{f(j)f(USA),t}$$

This can be rewritten:

$$\begin{aligned} \Delta e_{i,t} = & \quad \textstyle\sum_{j \in \Omega/\{i\}} w_{ij,t-1} \left(\log e_{f(i)f(USA),t} - \log e_{f(j)f(USA),t} \right. \\ & \qquad \left. - \log e_{f(i)f(USA),t-1} + \log e_{f(j)f(USA),t-1} \right) \\ = & \quad \textstyle\sum_{j \in \Omega/\{i\}} w_{ij,t-1} \left(\log e_{f(i)f(USA),t} - \log e_{f(i)f(USA),t-1} \right) \\ & \qquad - \textstyle\sum_{j \in \Omega/\{i\}} w_{ij,t-1} \left(\log e_{f(j)f(USA),t} - \log e_{f(j)f(USA),t-1} \right) \end{aligned}$$

Since weights sum to one, the final expression is:

$$\Delta e_{i,t} = \Delta e_{f(i)f(USA),t} - \sum_{j \in \Omega/\{i\}} w_{ij,t-1} \Delta e_{f(j)f(USA),t}$$

Bilateral exchange rates vis-a-vis the United States are gathered from the IFS from 1955q1 - 2014q4, as the period average for national currency per US dollar. Ω is defined as a set of 192 countries. This paper makes use of three types of exchange rates: dollar exchange rates, trade-weighted exchange rates, and invoicing currency exchange rates. Each is computed by changing how $w_{ij,t}$ is constructed.

C.1 Dollar Exchange Rates

For dollar exchange rates, $w_{iUSA,t} = 1$ and $w_{ij,t} = 0 \; \forall \; j \neq \text{USA}$.

Since $\Delta e_{f(USA)f(USA),t} = 0$, this simplifies to:

$$\Delta e_{i,t} = \Delta e_{f(i)f(USA),t}$$

C.2 Trade-Weighted Exchange Rates

Under the trade-weighted exchange rate, two metrics are calculated: the import-weighted exchange rate and the export-weighted exchange rate. In both cases, data comes from the IMF's Direction of Trade Statistics on the value of imports and exports from 1960q1 - 2014q4. Define trade flows from country $j, j \in \Omega$ to country $i, i \in \Omega$ at time t as $F_{ji,t}$. Import weights are thus calculated as:

$$w_{ij,t} = \frac{F_{ji,t}}{\sum_{k \in \Omega/\{i\}} F_{ki,t}}$$

and export weights are analogously defined:

$$w_{ij,t} = \frac{F_{ij,t}}{\sum_{k \in \Omega/\{i\}} F_{ik,t}}$$

D Invoicing Shares

The sources, content, and timespan for each country with invoicing data are listed in the table below. The paper builds off a similar dataset compiled first by Kamps (2006), and later augmented by Chinn and Ito (2014), hereafter called the "CIK" dataset. The table below notes whether the CIK dataset was used, and which other sources were utilized. Special attention is given to the US dollar and Euro, since these are overwhelmingly the most popular currencies.

Computation

Start with both the CIK data and the supplemental data. Define $M_{ij,t}$ to be the the average imports for country i in currency $j, j \in \Gamma$ at time t, and $X_{ij,t}$ analogously. Where the supplemental data and the CIK data both contain a value for (i, j, t), we utilize the supplemental data — since the

supplemental data comes directly from official sources, possibly with revisions since previously gathered.
Second, we compute M_{ij} from $M_{ij,t}$, and X_{ij} from $X_{ij,t}$. Cross-sectional averages are important given the patchy coverage over time. Defined formally:

$$M_{ij} = \frac{1}{\sum_t I\{M_{ij,t} > 0\}} \sum_t M_{ij,t}$$

$$X_{ij} = \frac{1}{\sum_t I\{X_{ij,t} > 0\}} \sum_t X_{ij,t}$$

Third, we compute w_{ij} from M_{ij} and X_{ij} as described previously.

European Union
Data provided by the ECB presents a special case, as countries present invoicing data in only one of three tiers: import and export currencies for trade with the world, trade outside of the Eurozone, and trade outside of the European Union. The former format is ideal, and requires no modification above and beyond the approach described previously. The latter two formats are more difficult, as without modification, the results will be biased. For instance, Germany's trade with its Eurozone neighbors — largely conducted in Euros — will be excluded, while Germany's trade with the US — largely conducted in dollars — will be included, overstating the share of German trade in dollars.
To deal with this, we cite conversations with Annette Kamps and Arnaud Mehl at the ECB, who informally argue that most intra-Eurozone trade is conducted in Euros. Thus, for the latter two cases, we augment the dataset with intra-Eurozone trade flows and assume they are 100% Euros. For countries with ex-Eurozone data, this is a sufficient fix.
For countries with ex-European Union data, this too is only a partial fix: it combines interpolated intra-Eurozone data with actual ex-EU data, but misses the countries that are in the EU but not the Eurozone. Rather than making strong assumptions, we let these countries hold an unassigned residual. Thus, the invoicing currency exchange rates for these countries should be treated with more caution.
The list of countries and types of data are presented below.

Data Type	Country
Total	Cyprus
	Greece
	Portugal
	Slovenia
	Spain
	Sweden
Ex-Eurozone	Belgium
	France
	Germany
	Italy
	Luxembourg
	Netherlands
	Slovakia
Ex-European Union	Austria
	Finland
	Ireland

It is worth noting that not all EU countries are represented on the list. For instance, the UK provides its data separately. Separately, some EU countries (e.g. Sweden) provide invoicing data directly, which can be used to augment the estimates.

Country	USD	EUR	Local	Others	Years	CIK	Additional Sources
Algeria	×	×			2003-2004	×	
Argentina	×	×	×	BRL, CAD, GBP, JPY	2010-2014		INDEC
Australia	×	×	×	GBP, JPY, NZD	1999-2012	×	Australia Bureau of Statistics
Austria	×	×			2006-2012	×	ECB
Belgium	×	×			2000-2012		ECB
Brazil	×	×	×	AUS, CAD, CHF, DKK, GBP, JPY, NOK, SEK	2007-2011		Ministry of Development, Industry and Foreign Trade
Bulgaria	×	×			1999-2011	×	
Canada	×	×	×		2001-2009	×	Canadian Customs Administration
China			×		2009-2012	×	
Colombia	×	×	×	VEF	2007-2015		Casas
Cyprus	×	×			2003-2012	×	ECB
Czech Republic	×	×	×		1999-2011	×	
Denmark	×	×	×		1999-2012	×	
Estonia	×	×			2001-2011	×	
Finland	×	×			2006-2012	×	ECB
France	×	×			1999-2012		ECB
Germany	×	×			2002-2012	×	ECB
Greece	×	×			2001-2012		ECB
Hungary	×	×	×		1999-2012	×	
Iceland	×	×	×	CAD, DKK, GBP, JPY, NOK, SEK	1999-2014		Statistics Iceland
India	×	×		GBP, JPY	2005-2014	×	Reserve Bank of India
Indonesia	×	×	×		1999-2012	×	
Ireland	×	×			2006-2012		ECB

Country	USD	EUR	Local	Others	Years	CIK	Additional Sources
Israel	×	×	×	JPY	2000-2014	×	Israel Central Bureau of Statistics
Italy	×	×			2001-2012	×	ECB
Japan	×	×	×		2000-2012	×	MITI
Latvia	×	×			2000-2011	×	
Lithuania	×	×	×		1999-2012	×	
Luxembourg	×	×			2000-2012	×	ECB
Malaysia	×				2000-2000	×	
Malta	×	×			2000-2010	×	
Morocco		×			2003-2003	×	
Netherlands	×	×			1999-2012	×	ECB
Norway	×	×	×	DKK, GBP, JPY, SEK	1999-2014	×	Statistics Norway
Pakistan	×	×			2001-2003	×	
Peru	×				2012-2012		Cental Bank of Peru
Poland	×	×	×		1999-2009	×	
Portugal	×	×			2000-2012		ECB
Romania	×	×			1999-2011	×	
Slovakia	×	×			1999-2012	×	ECB
Slovenia	×	×			2000-2012	×	ECB
South Africa	×	×	×		2003-2003	×	
South Korea	×	×	×	JPY	1999-2014		The Bank of Korea
Spain	×	×			1999-2012	×	ECB
Sweden	×	×	×	CHF, CNY, DKK, GBP, JPY, NOK, PLN	2000-2012	×	Central Bank of Sweden, ECB
Switzerland	×	×	×		2013-2013		Swiss Federal Customs Authority
Thailand	×	×	×	GBP, JPY, SGD	1999-2014		Bank of Thailand

Country	USD	EUR	Local	Others	Years	CIK	Additional Sources
Turkey	×	×	×	CHF, GBP, JPY, NOK, SEK	1999-2014	×	Turkish Statistical Institute
Ukraine	×	×	×		2001-2007	×	
United Kingdom	×	×	×		1999-2012	×	
United States	×	×			2003-2003	×	Bureau of Labor Statistics

E Controls

This section details other covariates in the $X_{i,t}$ term.

E.1 Producer Prices

One covariate is the change in the trade-weighted producer price index, defined as:

$$\Delta p_{i,t}^{PPI} = \sum_{j \in \Omega} w_{ij,t-1} \Delta p_{j,t}$$

where $p_{j,t}$ represents the domestic PPI in country j and changes are defined as differences in logs. We gather domestic PPI data on 85 countries from the IFS, spanning 1960q2 - 2014q4. Weights are constructed from trade data; as before, trade data comes from the IMF's Direction of Trade Statistics from 1960q1 - 2014q4.

Unlike with exchange rates, PPI data is not widely available; although the largest countries are in the dataset. Let $\hat{\Omega}$ represent the set of 85 countries for which PPI data exists, $\hat{\Omega} \subset \Omega$, and again define trade flows from country $j, j \in \Omega$ to country $i, i \in \Omega$ at time t as $F_{ji,t}$. We compute a "completeness measure" m_i:

$$m_i = \frac{\sum_{j \in \hat{\Omega}/\{i\},t} F_{ji,t}}{\sum_{j \in \Omega/\{i\},t} F_{ji,t}}$$

For all but one country (Iran), $m_i > 0.8$; and for 55 countries, $m_i > 0.9$. So our PPI metric, while imperfect, should work for most countries. Thus, we compute the weights against country $j, j \in \hat{\Omega}$ as:

$$w_{ij,t} = \frac{F_{ji,t}}{\sum_{k \in \hat{\Omega}/\{i\}} F_{ki,t}}$$

E.2 GDP

The change in (real) GDP is another covariate, pulled from the IFS for all countries in the sample from 1950q2 - 2014q4, although the initial coverage is limited. The variable is defined as:

$$\Delta GDP_{i,t} = \log GDP_{i,t} - \log GDP_{i,t-1}$$

F Computing Import Content Using Input-output Tables

Two measures of import content of consumption are constructed in a similar way as in Burstein et al.(2005). The first measure, the direct import content, is defined as the fraction of imported final goods in total consumption. The second measure, the total import content, is defined as the sum of imported final goods and imported intermediate inputs used to produce final consumption goods as a fraction of total consumption. Data for computing import content are from OECD domestic input-output (i-o) tables. The following parts of an OECD i-o table are used for our calculation.

Define c as a 49×1 column vector consisting of data from row Ind1 to row Import under column Households Final Consumption. The direct import content is then given by

$$\frac{(0, \ldots, 1)c}{(1, \ldots, 1)c}.$$

	Intermediate				Final Demand
Industry	Ind 1	Ind 2	$\cdots$	Ind 48	Households Final Consumption
Ind 1					
Ind 2					
$\vdots$					
Ind 48					
Import					
Industry Output					

Note: Different from Burstein et al.(2005), we use a later version of oecd i-o tables, which have more detailed industry classification codes and report values in euro for euro zone countries.

To compute the total import content, we first construct matrix A, which expresses the domestic industry inputs and imported input as a fraction of each industry's output. The last column of matrix A consists of all 0's since no domestic industry inputs are used to produce imported goods. The total import content is obtained by

$$\frac{(0,\ldots,1)(I-A)^{-1}c}{(1,\ldots,1)c},$$

where is I is the identity matrix.