The impact of profit shifting on national accounts: Revisiting US trade elasticities

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Introduction

Motivation

- tax avoidance by US multinationals is widespread and reaches substantial dimension
  - (tax avoidance: legal ≠ tax evasion, illegal)
- corporate tax avoidance: estimates in the literature
  - Zucman (2015): $130 bn. annually
  - Clausing (2016): $77 to $112 bn. Annually

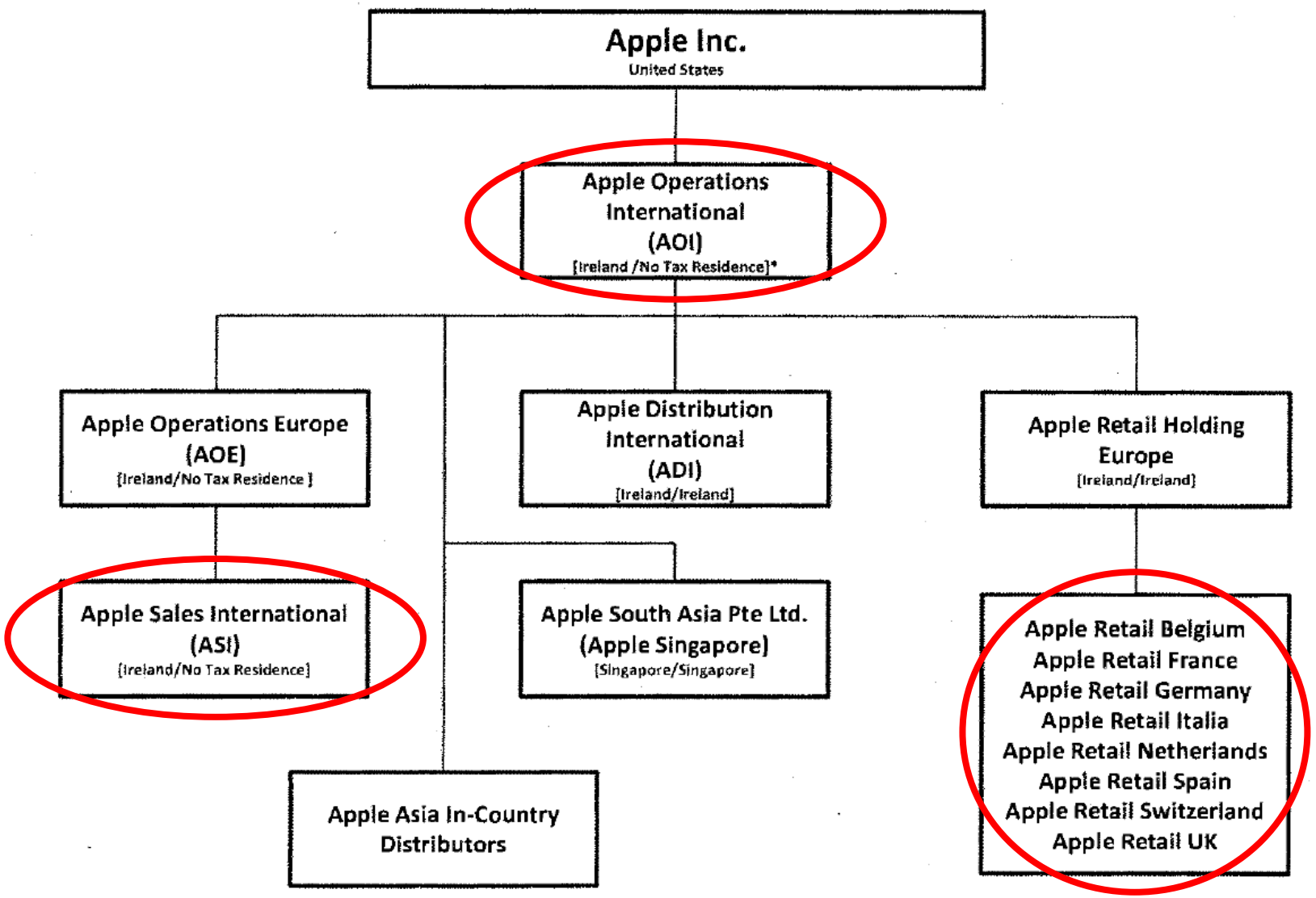
→ If manipulated transfer pricing is at the core of tax avoidance, trade data does not reflect economic reality!

Contribution and Findings

- contribution
  - going beyond impact of avoidance on tax base
  - create adjusted export of goods data
  - assess impact of data adjustment on export elasticities
- findings
  - income elasticities of exports substantially larger when reinvested earnings taken into account
  - improve model fit (forecasting!)

Corporate Tax Avoidance 101

Apple's Offshore Organizational Structure



*Listed countries indicate country of incorporation and country of tax residence, respectively.

key characteristics:

- AOI and ASI **no tax residence anywhere** (managed from US, registered in Ireland)
  - AOI exists for more than 30 years
- AOI and ASI **hold intellectual property (IP)** rights to market products outside Americas due to a cost sharing agreement

source: US Government Publishing Office (2013)

The cost sharing agreement I

- Apple US enters agreement with
  - Apple Sales International (ASI)
  - Apple Operations Europe (AOE)
- to share cost of development of new products.
- In exchange ASI and AOE receive joint ownership of Apple's intellectual property (outside the Americas).

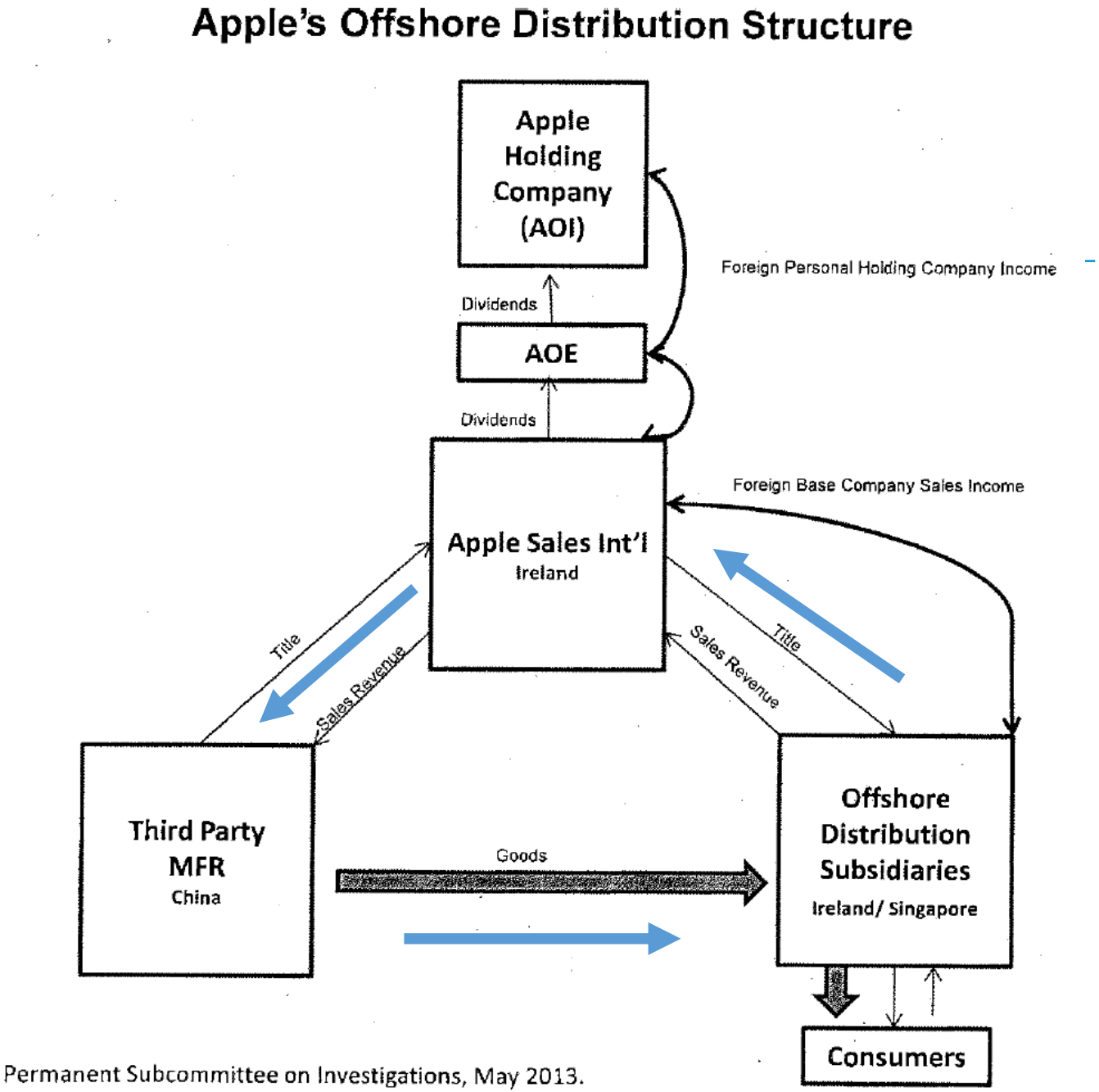
The cost sharing agreement II

- Apple's worldwide R&D efforts in 2011: $2.4 bn.
- Costs are split based on sales (in 2011):
  - 40% in Americas (Apple US): $1 bn.
  - 60% in RoW (ASI & AOE): $1.4 bn.
- sounds fair … ?!?

	Cost Sharing Payments By ASI	Earnings of ASI
2009	$ 600 million	$ 4 billion
2010	$ 900 million	$ 12 billion
2011	$ 1.4 billion	$ 22 billion
2012	$ 2.0 billion	$ 36 billion
TOTAL	**$ 4.9 billion**	**$ 74 billion**

How does it work?

1) Apple Sales Int'l (ASI) orders iPhone at Chinese manufacturer (MFR) for $180
2) goods belong to ASI
   MFR ships directly to local distributor (e.g. Germany)
3) upon arrival ASI sells to local distributor for $500
4) cost share agreement:
   ASI can keep the $320 profit



source: US Government Publishing Office (2013)

Summary and Generalization

- key element: transferring IP / sales rights to low tax jurisdiction
  - cost sharing agreement
  - sale of IP
  - licencing
- US vs non-US income:
  - Apple mainly keeps foreign income abroad
  - ASI pays for all R&D it could shift even US income to Ireland
  - other multinationals do that!

Untaxed Profits in the National Accounts

How untaxed profits are recorded

- subsidiaries with undistributed profits increase parents' net worth (e.g. Apple Operations International)
- System of National Accounts (SNA) and BEA's International Transaction Accounts (ITA):
  - treat them as if these profits were distributed to parents
  - "reinvested earnings"
  - imputed income flow in the current account (primary income)
- Balance of Payments Manual 6:

11.42 Reinvested earnings represent the direct investors' proportion, in terms of equity held, of the earnings that foreign subsidiaries and associates do not distribute as dividends. The undistributed earnings of branches are also considered to be reinvested earnings.

Table 1.1. U.S. International Transactions
[Millions of dollars]

Release Date: September 19, 2017 - Next Release Date: December 19, 2017

Line		Seasonally adjusted				Seasonally adjusted	
		2016				2017	
		I	II	III	IV	I	II
	Current account						
1	**Exports of goods and services and income receipts (credits)**	**765,167**	**785,067**	**799,153**	**807,854**	**834,604**	**836,784**
2	Exports of goods and services	539,449	547,832	560,837	559,954	576,226	578,823
3	Goods	353,770	360,399	371,043	370,493	383,601	382,979
4	Services	185,680	187,433	189,794	189,461	192,625	195,844
5	Primary income receipts	193,140	203,360	2(			
6	Investment income	191,504	201,725	2(			
7	Compensation of employees	1,637	1,635				
8	Secondary income (current transfer) receipts [1]	32,577	33,875				
9	**Imports of goods and services and income payments (debits)**	**884,377**	**893,267**	**9(**			
10	Imports of goods and services	665,528	671,608	6(			
11	Goods	541,377	546,845	5(			
12	Services	124,151	124,763	1:			
13	Primary income payments	155,082	160,614	1(			
14	Investment income	150,170	155,602	1(			
15	Compensation of employees	4,911	5,012				
16	Secondary income (current transfer) payments	63,767	61,044				

Table 4.1. U.S. International Transactions in Primary Income
[Millions of dollars]

Release Date: September 19, 2017 - Next Release Date: December 19, 2017

Line		Seasonally adjusted			
		2016			
		I	II	III	IV
1	**Primary income receipts (table 1.1, line 5)**	**193,140**	**203,360**	**204,524**	**212,953**
2	**Investment income**	**191,504**	**201,725**	**202,885**	**211,316**
3	Direct investment income	101,499	111,393	112,413	118,733
4	Income on equity	95,896	105,601	106,007	111,990
5	Dividends and withdrawals	26,844	30,435	31,797	31,823
6	Reinvested earnings	69,052	75,165	74,210	80,167
7	Interest	5,603	5,792	6,406	6,743
8	U.S. parents' receipts	4,301	4,328	4,388	4,652
9	U.S. affiliates' receipts	1,302	1,464	2,018	2,090

How untaxed profits could/should be recorded

- If Apple were not selling iPhones to Germany via an Irish shell company, it would sell them via Apple Inc. (US parent).

1) Apple Inc. ~~Sales Int'l (ASI)~~ orders iPhone at Chinese manufacturer (MFR) for $180
2) goods belong to Apple Inc. ~~ASI~~
   MFR ships directly to local distributor (e.g. Germany)
3) upon arrival Apple Inc. ~~ASI~~ sells to local distributor for $500
4) Apple Inc. ~~cost share agreement: ASI can keep the~~ makes profit of $320

BEA (2014), Paragraph 10.18:

"**Merchanting** is defined as the purchase of goods by a resident of the compiling economy from a nonresident combined with the **subsequent resale** of the same goods to another nonresident **without the goods entering the compiling economy**."

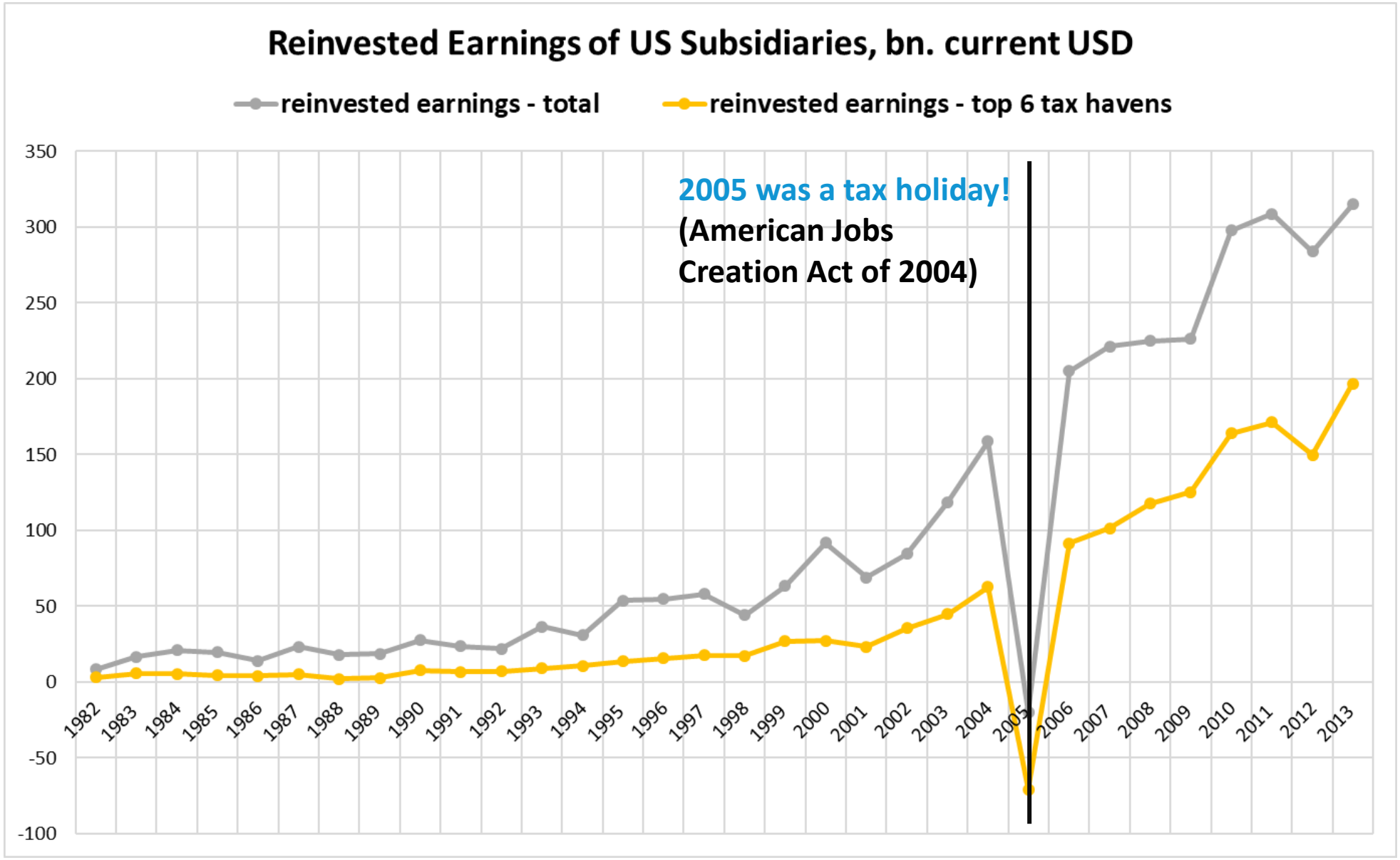
"Merchanting arrangements are often used for international wholesale and retail trade operations, but they may also be used in commodity dealing and for **managing global manufacturing processes**."

"In principle, for goods shipped under merchanting arrangements, **purchases and resales are recorded at the time economic ownership of the goods changes**."

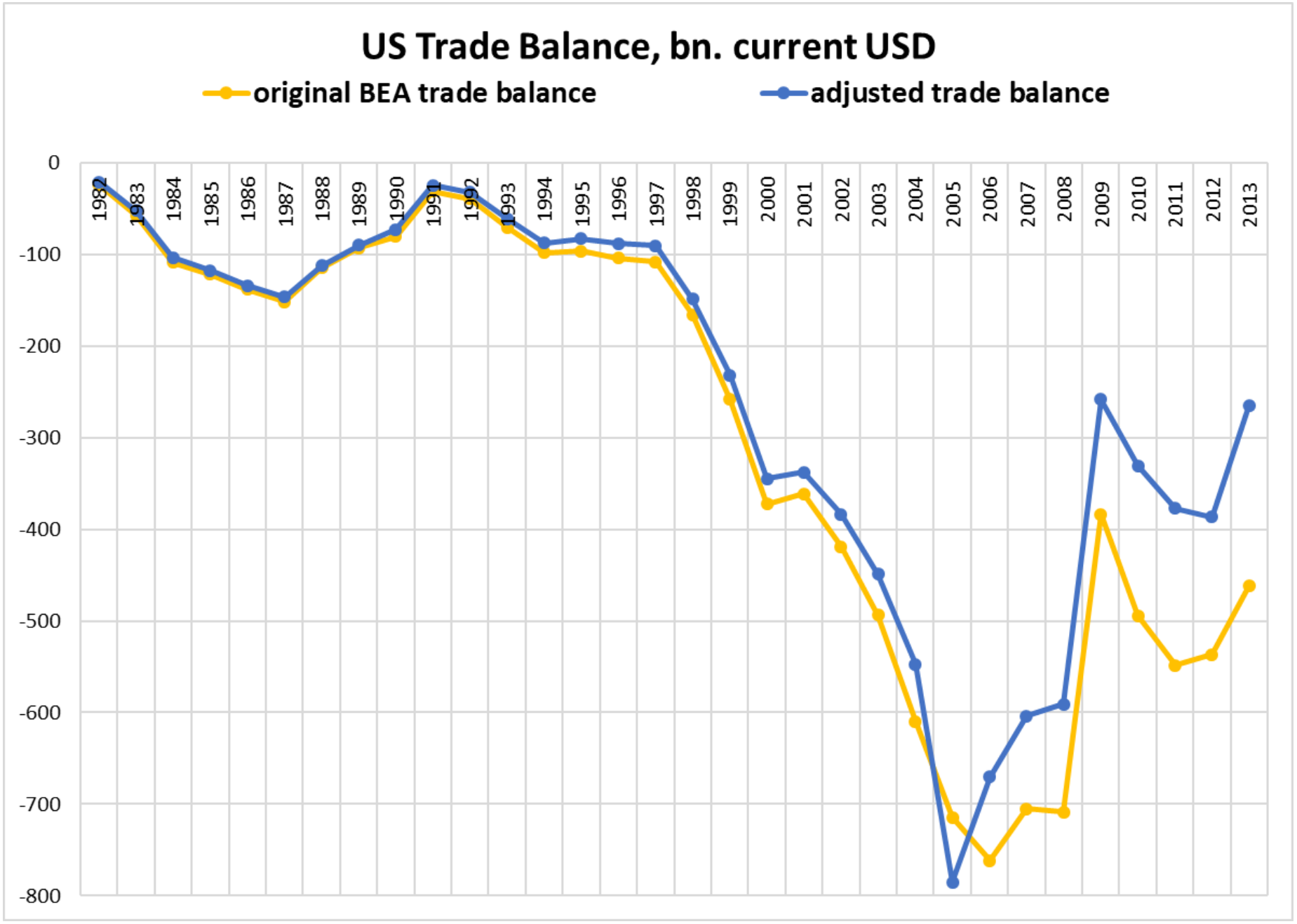
Paragraph 10.19:

"BEA currently measures merchanting as the **margin between proceeds from the sale of the goods and the cost of acquiring the goods sold**. Data on this margin are collected as "net merchanting receipts" on BEA's surveys of selected international services transactions and **presented as net exports of goods under merchanting**."

Adjusting US Export Data



top 6 tax havens (Zucman 2015): Ireland, Netherlands, Luxembourg, Switzerland, Bermuda + Caribbean and Singapore
source: BEA Balance of Payments and Direct Investment Position Data



top 6 tax havens: Ireland, Netherlands, Luxembourg, Switzerland, Bermuda + Caribbean and Singapore

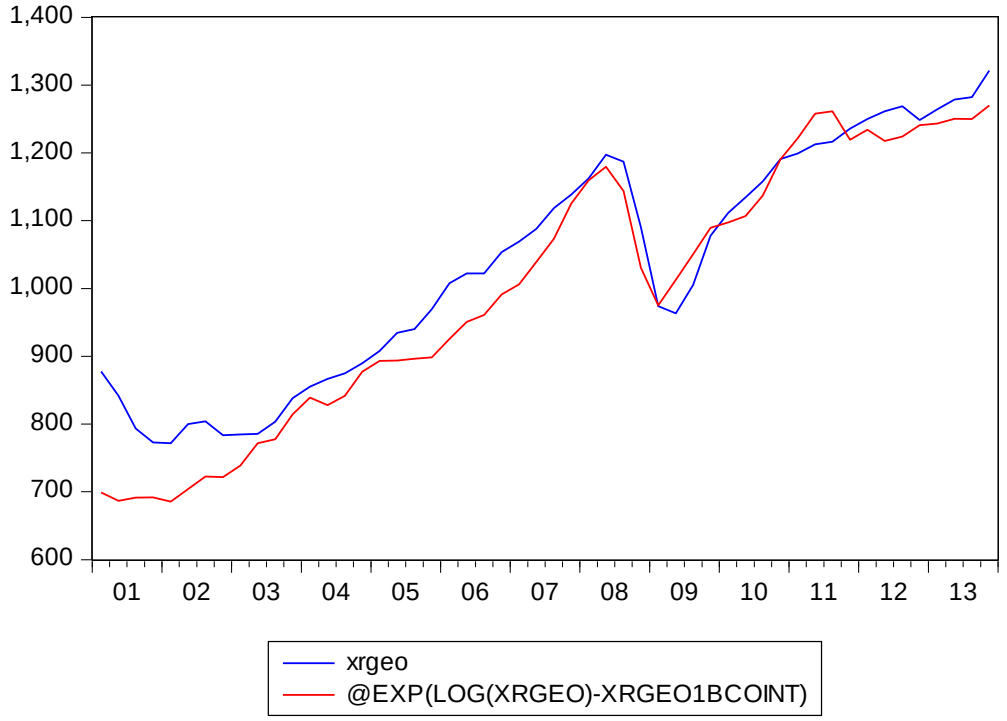
source: BEA Balance of Payments and Direct Investment Position Data

original export data

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(YFEU28FW)	1.474873	0.471825	3.125893	0.0033
LOG(EX)	-1.013373	0.405577	-2.498594	0.0166
C	-1.465224	5.991750	-0.244540	0.8080

Breusch-Godfrey AR: fails 2-8; Bounds F-stat: 10.6 (crit: 5)

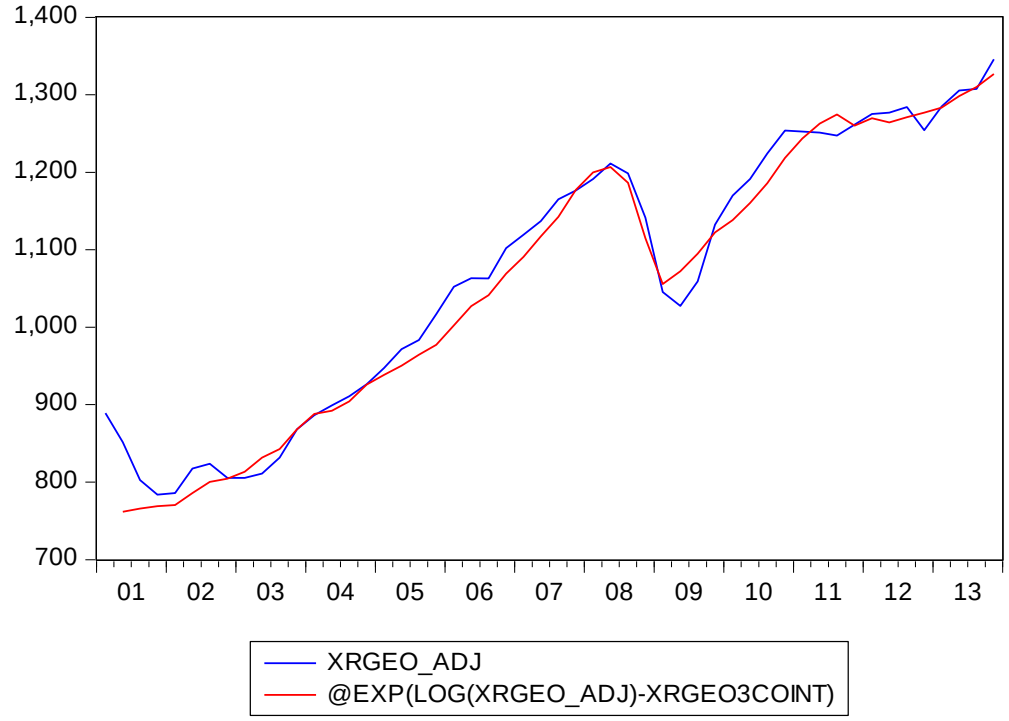


adjusted exports

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(YFEU28FW)	1.972570	0.199085	9.908168	0.0000
LOG(EX)	-0.387659	0.148936	-2.602852	0.0133
C	-8.741764	2.447711	-3.571403	0.0010

Breusch-Godfrey AR: passes 1-8; Bounds F-stat: 12 (crit: 5)



gap: 2013Q4 1322 bn vs 1270 bn (52bn)

Conclusion

Conclusion

Summary

- corporate tax avoidance substantial
  (more serious towards current end of sample)
- substantially larger income elasticities of exports (1.5 vs 2)

Conclusion

- **national accounts data as it is does not fit all purposes equally!**

Literature

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Xing, Y. and Detert, N. (2017). Global Value Chains and the Missing Exports of the United States. GRIPS Discussion Paper 17-06.

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