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Thailand's Automotive Manufacturing Corridor

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Questions 1

- According to the *The Economist,* Thailand is the 'Detroit of the East'. What does this mean, and is it accurate?

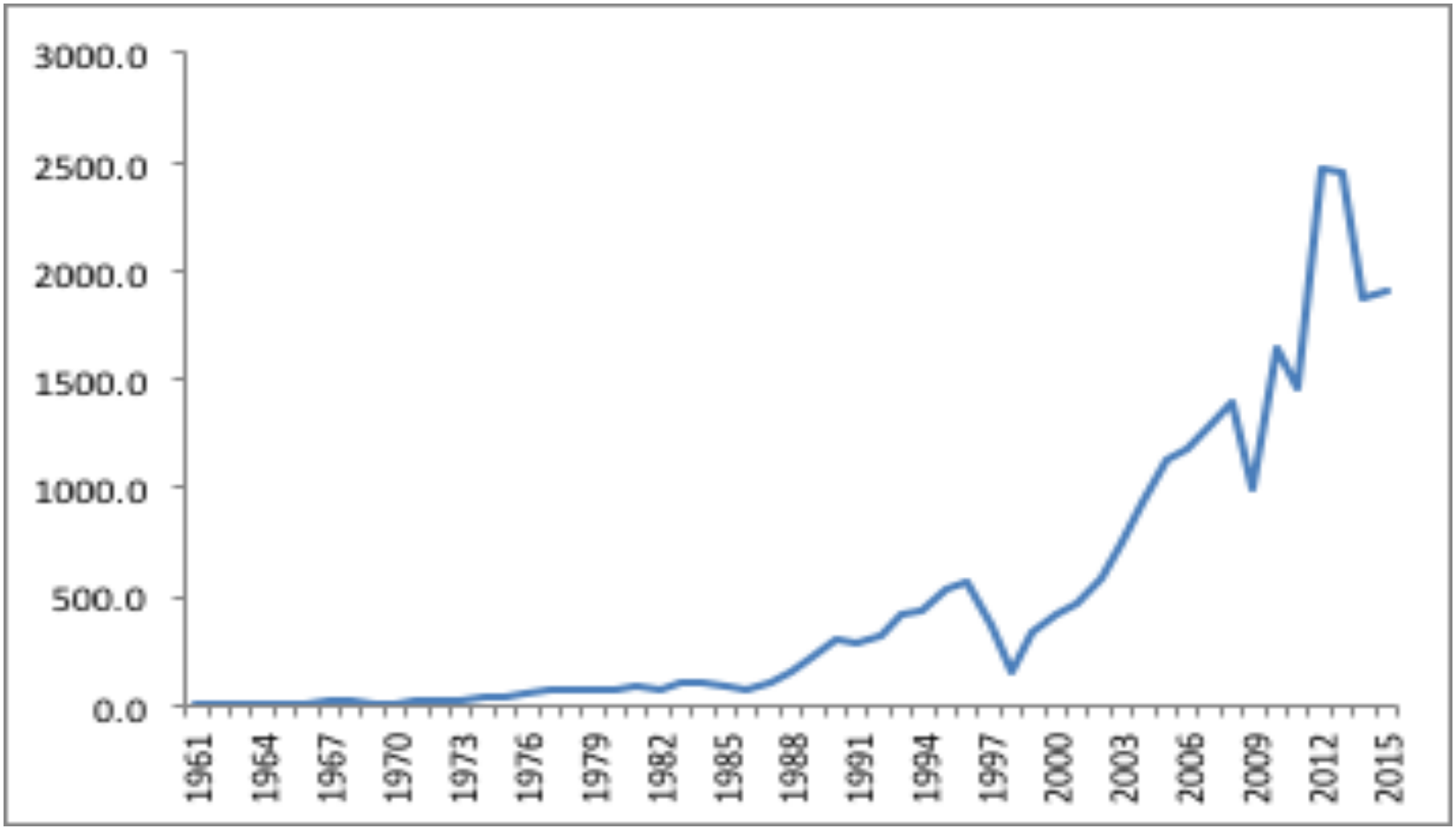
- What caused the expansion in the Thai automotive sector?
  - Infant industry protection?
  - Prudent investment in infrastructure?
  - Local content requirements or their abolition?
  - Abolition of restrictions on foreign ownership of final assembly and parts production?

- Did the export orientation of the industry help or hinder domestic linkages?

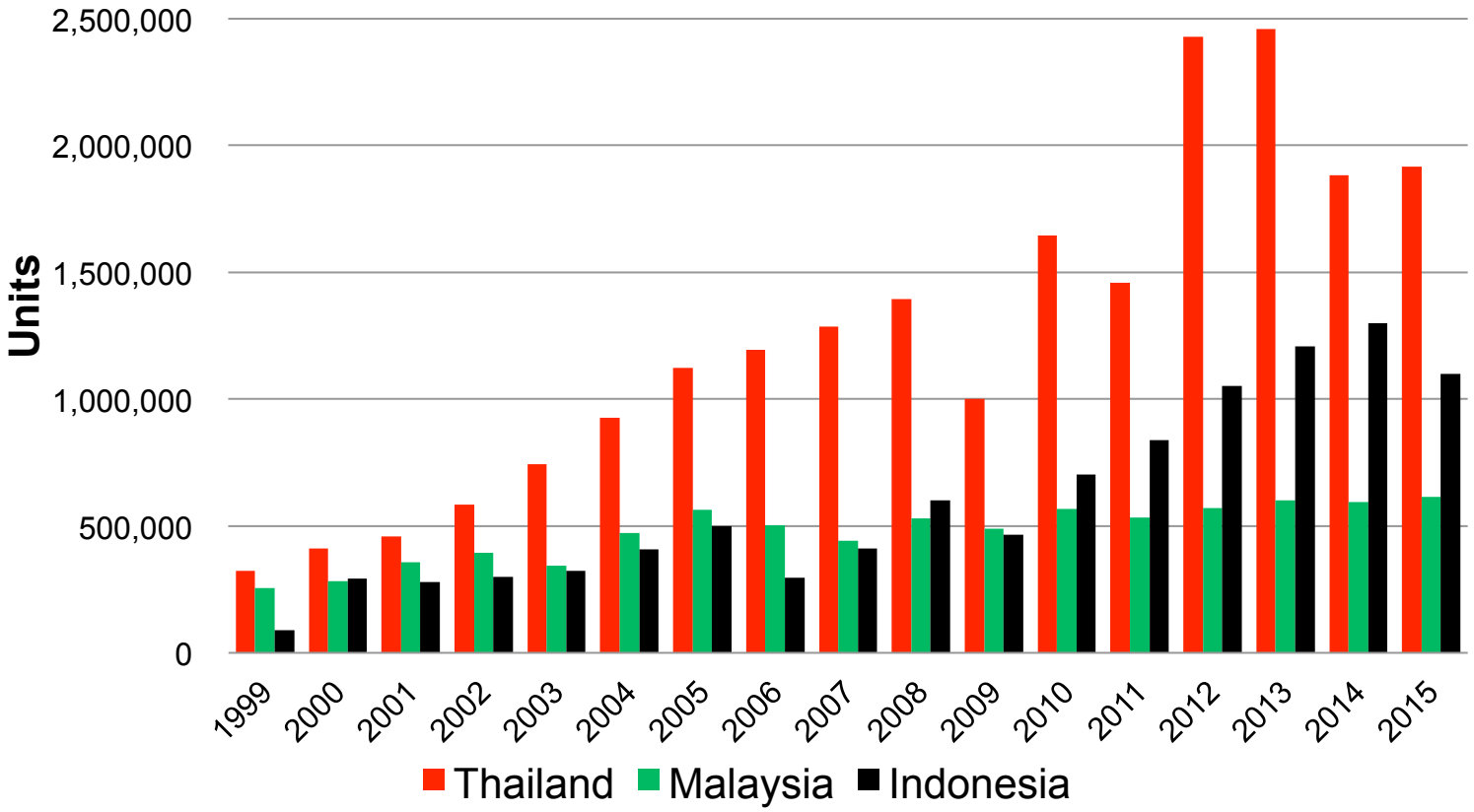
Questions 2

- Did infrastructure improvements raise labor productivity?
- Is there evidence of technology spillovers from foreign to domestic firms?
- Did the expansion of the automotive sector contribute to poverty reduction, and if so by how much?

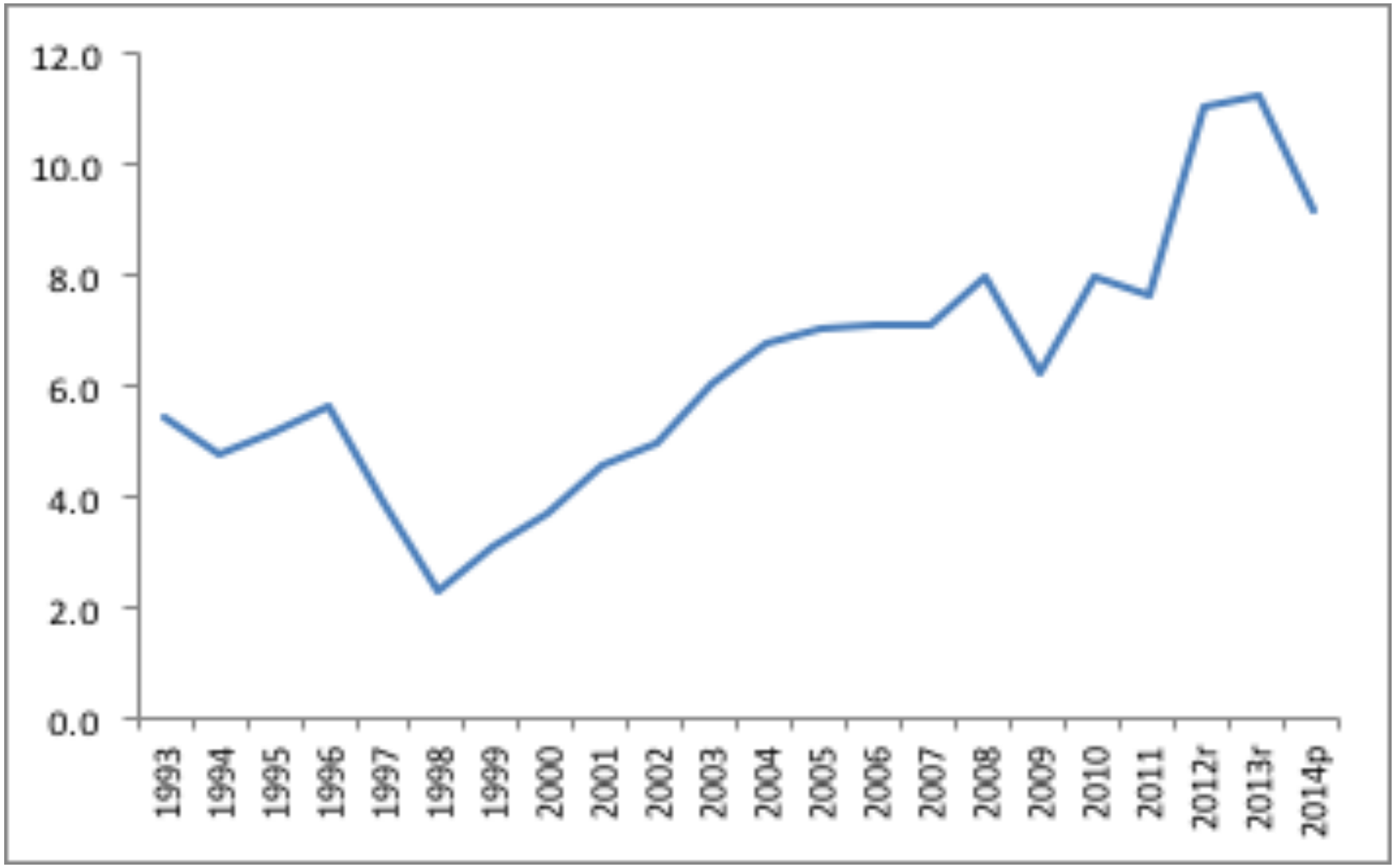
Thailand: Vehicle production (1,000 units) 1960–2015



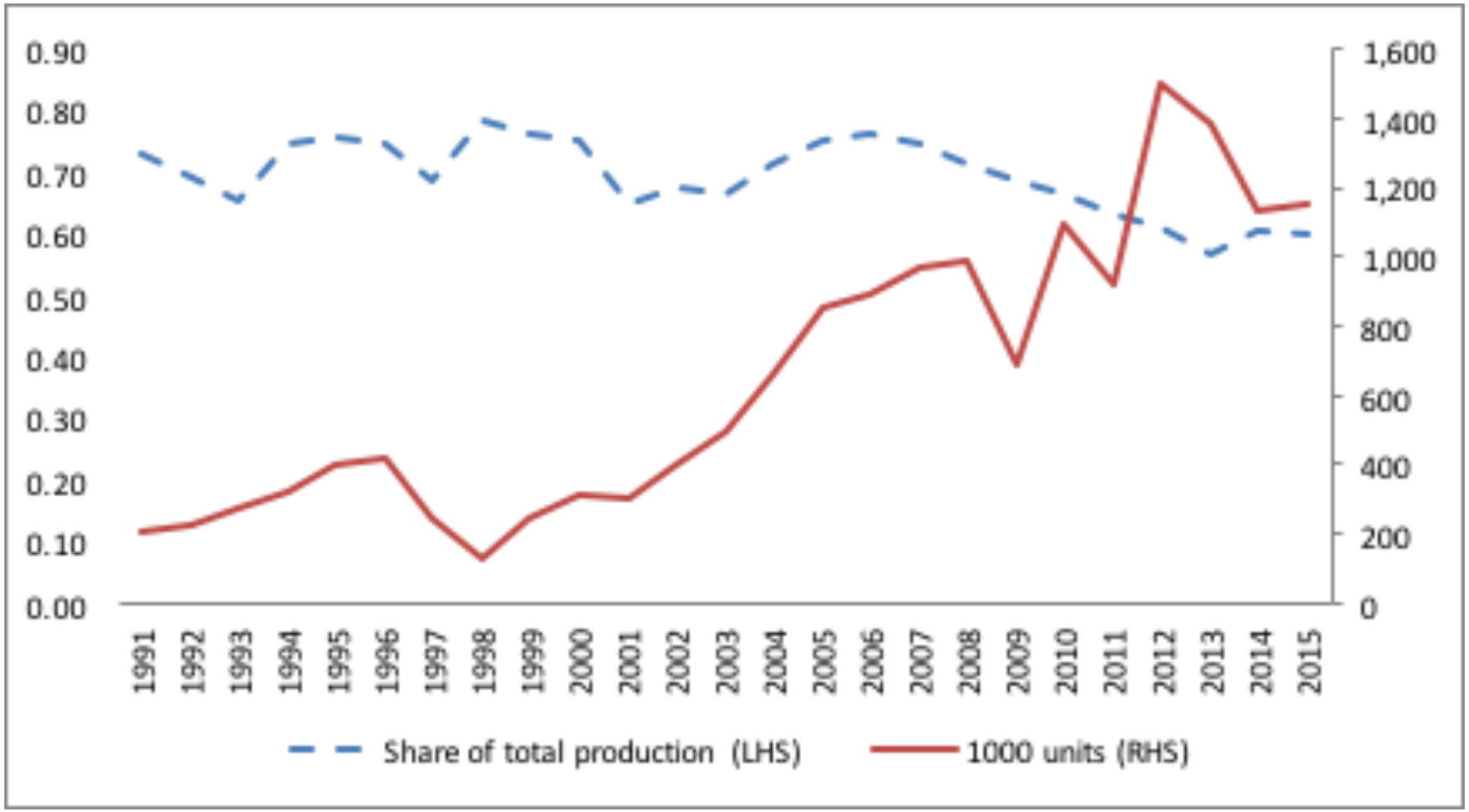
Thailand, Malaysia and Indonesia: Automobile production, 1999-2015



Thailand: Value added share - automotive sector / total manufacturing 1993–2014 (per cent)

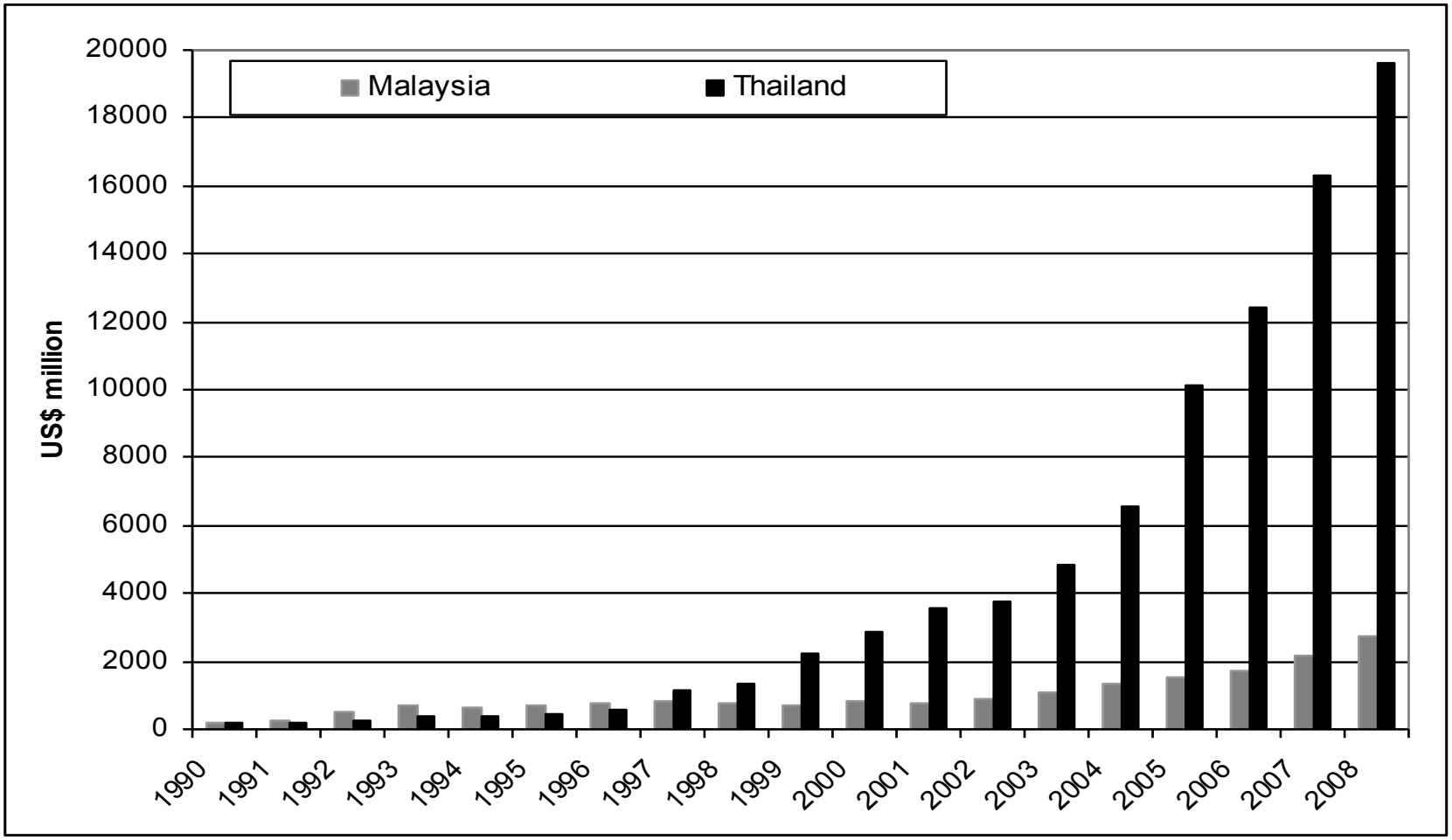


Thailand: Commercial vehicle production and its share of total vehicle production, 1991–2015



Thailand: Vehicle exports, 1995 to 2015

Thailand and Malaysia: Automotive exports, 1990-2008 (US$ million)



Thailand: International trade of the automotive industry, 1999–2014

	Total exports (US$m)	Share of total exports (%)		Total imports (US$m)	Share of total imports (%)		Trade balance (US$m)
		Vehicles	Auto parts		Vehicles	Auto parts	
1999	3,018	42.5	57.5	2,446	22.8	77.2	572
2000	3,744	44.1	55.9	3,378	15.4	84.6	366
2001	3,884	49.5	50.5	3,281	11.4	88.6	602
2002	4,325	45.5	54.5	3,741	11.0	89.0	584
2003	5,683	46.7	53.3	4,789	12.8	87.2	895
2004	7,732	47.6	52.4	5,516	12.0	88.0	2,216
2005	10,529	49.4	50.6	6,266	12.7	87.3	4,263
2006	13,118	50.7	49.3	6,458	12.0	88.0	6,660
2007	16,521	49.8	50.2	7,481	13.5	86.5	9,040
2008	20,709	52.1	47.9	9,324	16.4	83.6	11,385
2009	15,639	49.3	50.7	7,490	15.9	84.1	8,149
2010	24,332	53.3	46.7	12,115	15.1	84.9	12,217
2011	25,547	46.2	53.8	13,593	14.9	85.1	11,954
2012	31,106	52.8	47.2	18,831	14.9	85.1	12,275
2013	33,180	52.7	47.3	17,427	13.1	86.9	15,752
2014	33,593	51.1	48.9	13,495	14.4	85.6	20,098

Thailand: Composition and destination of vehicle exports, 2013–14
(share of vehicle exports by value (%)

	ASEAN 10	Japan	China	Korea	Australia	N. Zealand	India	US	EU-15	Total value (US$m)
Tractors	80.5	0.3	0.1	0.1	0.9	0.1	5.4	11.1	0.1	256
Buses	84.4	0.2	0.5	0.1	0.0	0.0	1.5	0.1	0.4	30
Passenger vehicles	36.3	6.0	0.4	0.0	21.3	1.6	0.0	2.8	3.2	6,575
Commercial vehicles	15.0	0.1	0.0	0.0	24.0	3.6	0.0	0.0	4.6	10,469
All vehicles	24.1	2.4	0.2	0.0	22.6	2.8	0.1	1.2	4.0	17,330

Thailand: Composition and destination of vehicle imports, 2013–14
(share of vehicle imports by value (%)

	ASEAN 10	Japan	China	Korea	Australia	N. Zealand	India	US	EU-15	Total value (US$m)
Tractors	1.1	43.1	14.8	6.0	0.0	0.1	8.0	2.1	15.8	290
Buses	11.1	34.4	14.5	21.2	0.0	0.0	1.2	0.0	16.2	243
Passenger vehicles	42.7	20.4	0.9	0.6	0.1	0.0	0.1	2.0	31.2	1,328
Commercial vehicles	44.7	25.1	6.7	1.3	0.1	0.0	7.5	0.7	9.0	250
All vehicles	33.6	25.7	5.1	3.8	0.1	0.0	2.1	1.6	24.8	2,112

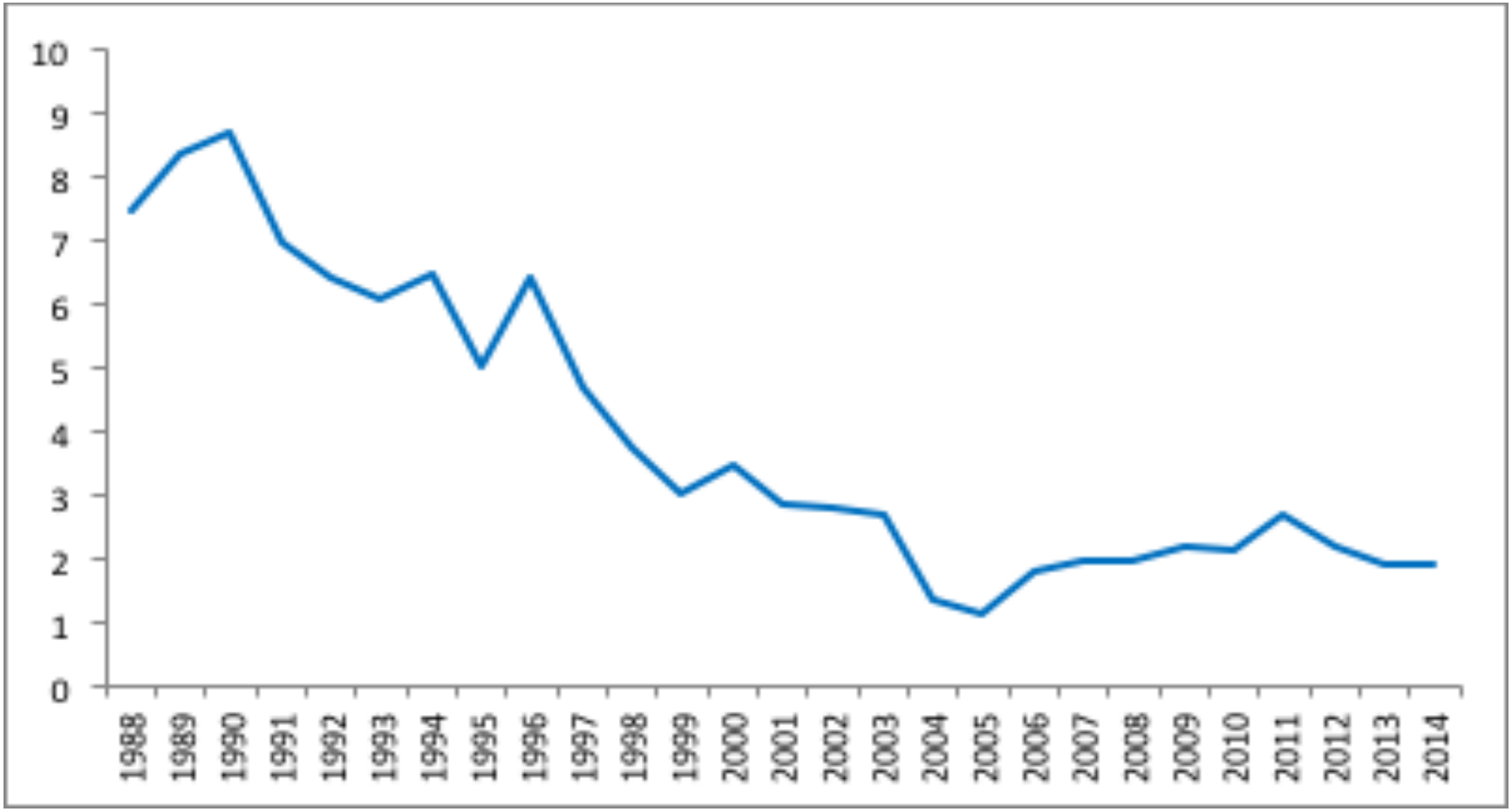
Thailand: Export pattern for automotive parts, 2013–14

ASEAN 10	31.1
Indonesia	10.7
Malaysia	9.2
Philippines	2.9
China	3.5
China, Hong Kong SAR	1.1
Japan	10.9
Rep. of Korea	0.8
Australia	3.5
Oceania	3.8
India	4.5
US	10.3
EU 15	6.6

Thailand: Import pattern for automotive parts, 2013–14

ASEAN 10	13.1
Indonesia	5.4
Malaysia	1.8
Philippines	3.6
China	12.7
China, Hong Kong SAR	0.1
Japan	52.0
Rep. of Korea	2.5
Australia	0.4
Oceania	0.4
India	2.1
US	3.6
EU 15	9.2

Value of imported parts per locally assembled car ($ ’000 / unit)



Why did the import content of vehicles decline?

Following the relaxation of restrictions on foreign entry of input suppliers (1997), MNE final assemblers preferred domestically located, but foreign, tier-1 input suppliers.

Very few of then existing Thai input suppliers survived this period, but those that did mainly became tier-2 suppliers.

New Thai firms developed to become the new tier-2 suppliers and the abolition in 2000 of local content requirements did not impede this process.

Number of plants by sales volume in 1996, 2006 and 2011.

Panel A: Auto Parts Plants

	1996		2006		2011	
	# Plants	% of total	# Plants	% of total	# Plants	% of total
More than 10,000 million baht	0	0.0	1	0.2	1	0.2
1,000-10,000 million baht	10	4.9	58	11.6	52	11.0
100-1,000 million baht	64	31.5	126	25.3	139	29.4
10-100 million baht	95	46.8	172	34.5	144	30.5
1-10 million baht	34	16.7	99	19.9	101	21.4
less than 1 million baht	0	0.0	42	8.4	35	7.4
Total	203		498		472	

Panel B: Car Assembly Plants

	1996		2006		2011	
	# Plants	% of total	# Plants	% of total	# Plants	% of total
More than 10,000 million baht	9	18.4	10	18.2	5	11.4
1,000-10,000 million baht	9	18.4	1	1.8	4	9.1
100-1,000 million baht	2	4.1	9	16.4	11	25.0
10-100 million baht	13	26.5	17	30.9	17	38.6
1-10 million baht	16	32.7	9	16.4	7	15.9
less than 1 million baht	0	0.0	9	16.4	0	0.0
Total	49		55		44	

Basic Facts about Auto Parts Plants in the Censuses

		1996	2006	2011
Number of plants	Foreign	59	133	94
	Domestic	144	365	378
Age (years)	Foreign	7.3	11.6	16.4
	Domestic	11.1	13.1	15.6
Output (mil baht)	Foreign	453.3	1225.1	941.7
	Domestic	169.4	213	362.7
Employment (workers)	Foreign	210	322.2	386.5
	Domestic	136.8	114.5	143.9

Location of Thailand's automotive corridor within Southeast Asia

Chronology of Policies on Thai Automotive Industry 1960 -2014

Phase 1. Import substitution: 1960-1990

1961	1960 Industrial Investment Promotion Act provides incentives for the local assembly of automobiles.
1969	Ministry of Industry set up Automotive Development Committee (ADC). 20% increase in tariffs on CBU vehicles. New rates: passenger cars 50%; pick-ups 40%; and trucks 30%.
1971	MOI restricted the number of locally assembled passenger car, pick-ups and trucks models. Announced local content requirement (LCR) measures to become effective in 1974: domestically assembled vehicles had to use locally produced parts to at least 25% of the total value of the vehicle.
1978	Banned CBU imports and increased import duty on completely knocked down (CKD) kits to 80% Suspended approval of new assembly plants to reduce over capacity. Tariffs of CBU passenger cars and CKD passenger cars were increased to 150% and 80% respectively.
1982	LCR requirement for all vehicles set at 45%
1985	Mandatory local-content list imposed Ban on imported CBU vehicles with engine capacity over 2,300cc lifted.
1986	LCR for passenger cars lifted to 54%. List for compulsory and non-compulsory parts introduced.
1990	Replaced quantitative import restrictions (including the ban on imports of CBUs under 2.3 liters) on passenger cars with tariff.

Chronology of Policies on Thai Automotive Industry 1960 -2014

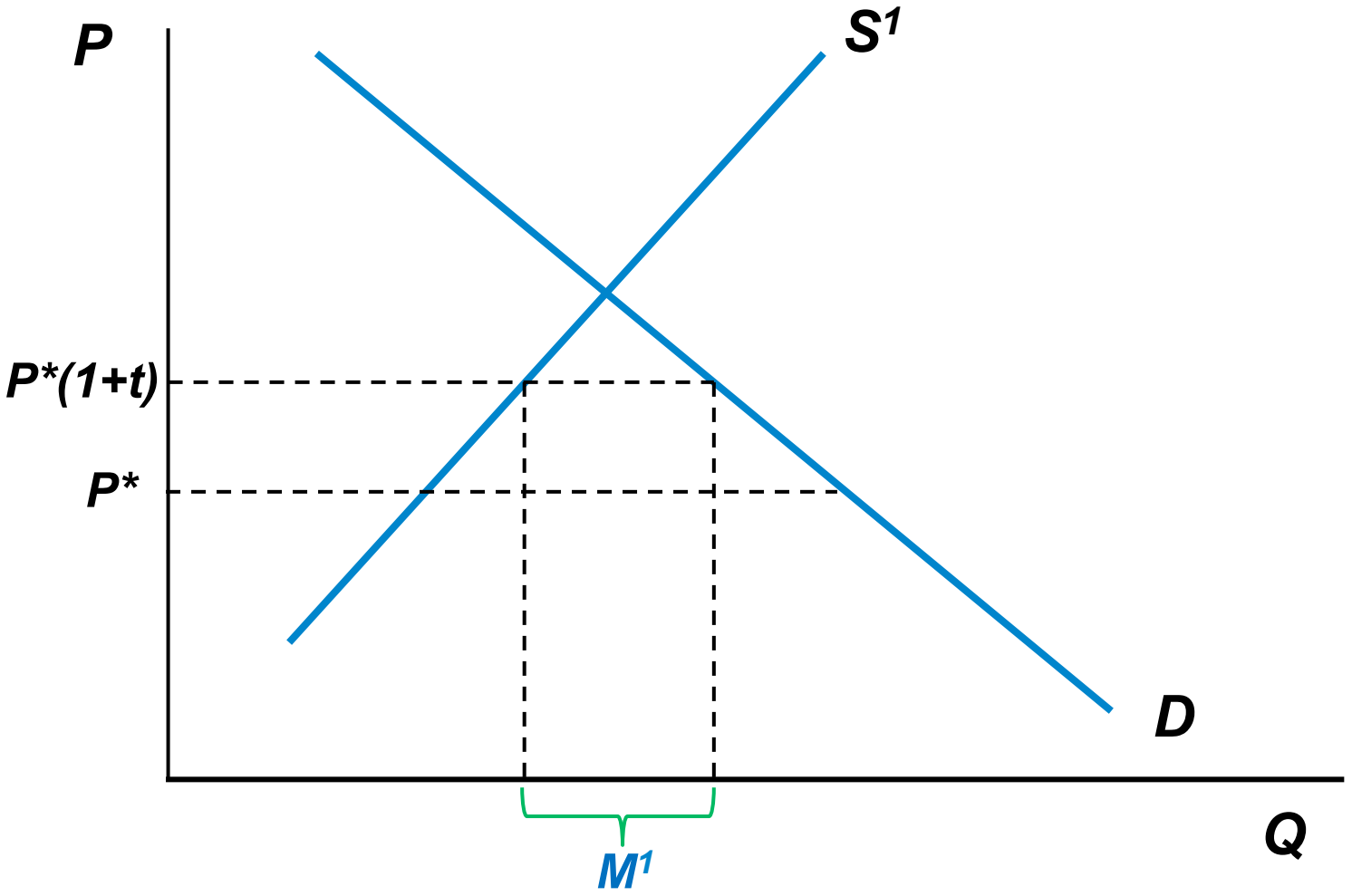
Phase 2. Increasing openness, especially on input supplies: 1991-2014

1991	**Reduced tariffs on all types of CBUs and CKD kits: CBUs over 2.3 liters from 300% to 100%; CBUs under 2.3 liters from 180% to 60%; CKDs for cars, pickups and vans from112% to 20%.** **Required use of locally produced diesel engines for 1-ton pickup trucks**
1993	**Ban on new assembly plants lifted.**
1995	**Reduced CKD tariffs from 20% to 2%.**
1997	**Abolished local ownership requirement on foreign-invested projects (announced 1993; implemented 1997).**
1999	**Raised tariffs on CKD vehicles from 20% to 35% to cushion against the potential adverse impact of impending LCR abolition.**
2000	**Abolished LCR requirement.**
2003	**Tariff preferences under the ASEAN Free Trade Agreement (AFTA) came into full effect: import duties applicable to intra-ASEAN trade down to 0--5%**
2007	**Launch of 'Eco-car project Phase 1' by providing investment incentives for producing small passenger vehicles. The key investment incentive is low excise tax rate (17% as opposed to 30 % for usual passenger vehicles). 5 carmakers were approved; Toyota, Nissan, Mitsubishi, Suzuki and Honda.**
2014	**Launch of 'Eco-car project Phase 2'. Another 5 firms were approved: Nissan, Toyota, Mitsubishi, Ford and GM. 4 more are to be approved: Honda, Suzuki, MG and Volkswagen.**

Source: Compiled from various government policy reports and press releases.

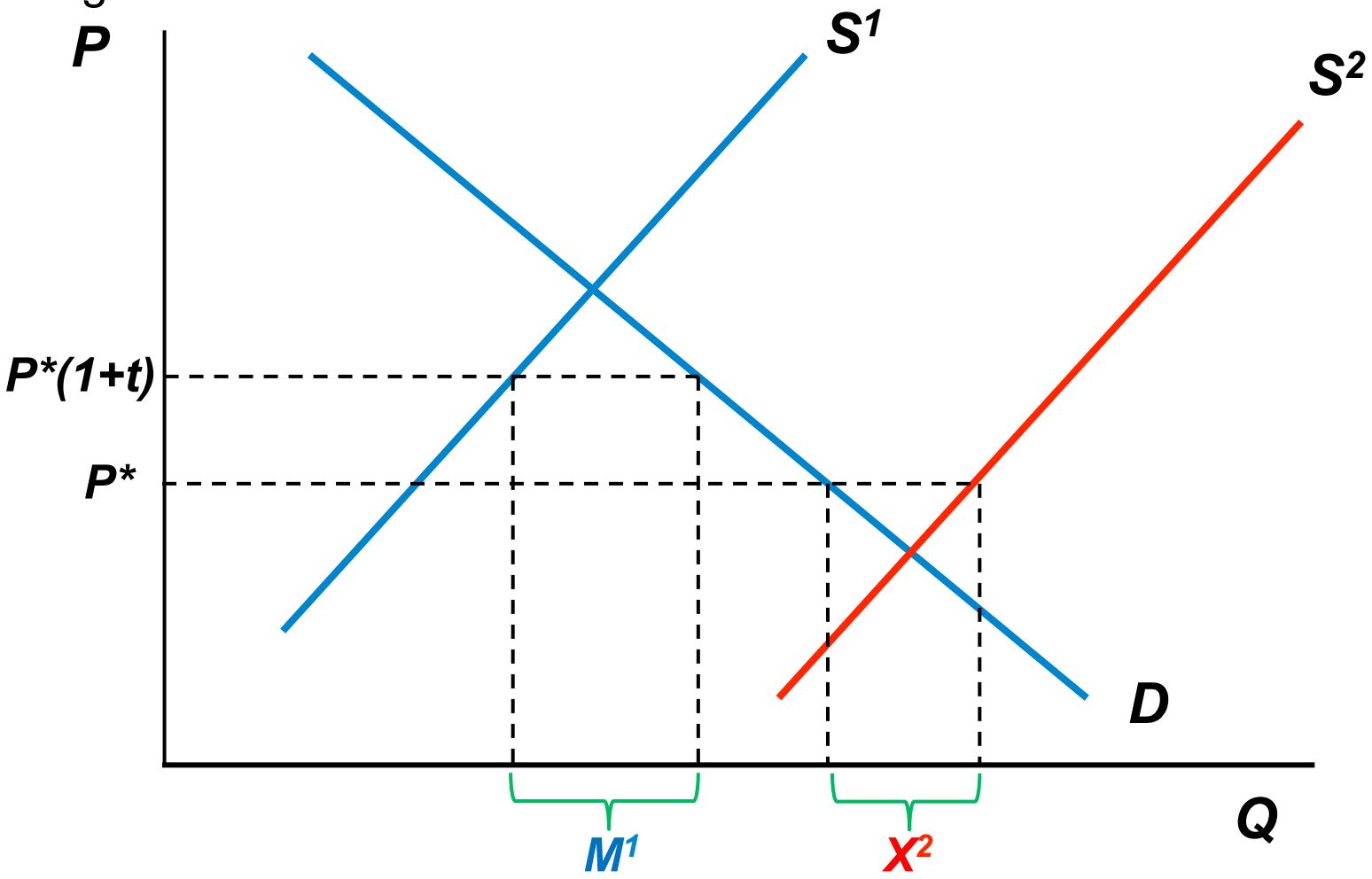
The two phases of the Thai automotive industry

I. Import substitution



The two phases of the Thai automotive industry

2. Exporting



Econometric analysis of Industrial Census data

Using Industrial Census data for 1996 and 2006, it is found that:

- Foreign automotive firms are significantly more capital intensive than local firms.
- Labor productivity is significantly higher in foreign firms and the differential increased over time. Technological spillovers do not seem to be significant.
- In the eight provinces receiving improved infrastructure as part of the Eastern Seaboard scheme, labor productivity was significantly higher than in the other 68 Thai provinces, for both final assembly and parts supplier firms. This was found for both foreign and domestic firms.

General equilibrium analysis of impacts on poverty

Based on interviews with industry sources, Eastern Seaboard infrastructure improvements are estimated to have reduced average costs in the automotive sector by around 15%.

The impact of these cost reductions is then estimated using the *JamlongThai* general equilibrium model of the Thai economy.

The findings estimate that this cost reduction:

- Raised GDP per year by about 1%
- Raised real skilled wages by 1.15% and real unskilled wages by 0.75%
- Raised automotive exports by 46%
- Reduced poverty incidence by 0.2% of the population, or 120,000 people

It is important that these estimates relate only to cost reductions in the automotive sector, and do not include cost reductions in other sectors resulting from improved infrastructure.

Lessons from Thailand's experience: 1

- Thailand is not really the 'Detroit of the East' because the industry is largely foreign-owned. Nevertheless, growth of the automotive sector generated hundreds of thousands of manufacturing jobs that would not otherwise have existed.

- All this occurred at the cost of environmental degradation (esp. in the Eastern Seaboard) that might have been avoided with better regulation.

- The decision to re-orient policy on the automotive sector (late 1980s to early 1990s) coincided with the decisions of major manufacturers to relocate their production internationally to lower cost venues. It was not a coincidence.

- Development of the infrastructure supporting an efficient export gateway (Laem Chabang port and the associated Eastern Seaboard corridor) was a necessary condition for this to happen.

- But this infrastructure development was not automotive industry-specific.

Lessons from Thailand's experience: 2

- Thailand avoided the failed 'national car' policies of some of its neighbors, permitting full foreign ownership of vehicle manufacturing, but it did not eliminate its high rates of protection of final vehicles.

- Thailand liberalized input supplies, by abolishing local content requirements, becoming an export platform, ironically facilitating higher, not lower, local content.

- Following the relaxation of restrictions on foreign entry of input suppliers (1997), MNE final assemblers preferred domestically located, but foreign, tier-1 input suppliers.

- Very few of then existing indigenous input suppliers survived this period, but those that did mainly became tier-2 suppliers.

- New indigenous firms developed to become the new tier-2 suppliers and the abolition in 2000 of local content requirements did not impede this process.

Lessons from Thailand's experience: 3

- Until 1997 (Asian Financial Crisis) the Eastern Seaboard scheme (ESS) might reasonably have been considered a failure. Its subsequent success depended on policy reforms, ironically precipitated by the crisis and on decisions by Japanese auto makers regarding global cost minimization.

- These events could not reasonably have been anticipated. Could an *ex ante* benefit-cost analysis, say in 1985, have given a useful economic assessment? The scheme has been a success, but it might easily have been otherwise.

- Is the ESS an example of an 'economic corridor' or an 'expanded gateway'? The view taken here is that the gateway (seaport and airport) is an essential component of the ESS, but that the ESS also includes infrastructure investments that are different in kind from a 'gateway'. These include the upgraded highway, electricity network, water supply and telecommunications infrastructure that raised productivity in export-oriented automotive production. The term 'gateway' does not capture this component of the scheme and 'corridor' is more accurate.

Thanks for listening