



Economic Corridors and Development Impact in Middle Income Countries: The Case of Thailand's Automotive Manufacturing Corridor

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Background

- Thailand has come to be known as the ‘Detroit of the East’.
- Production of motor vehicles and parts began in the 1960s and expanded from the early 1990s, but catered primarily to the highly protected domestic market.
- Production for export has been important only since the late 1990s.
- Roughly half of the industry’s final output is now exported.
- In 2015, production exceeded two million units, making it the world’s 9th largest automotive producer.



Main Research Questions

- What were the specific policy measures that enabled the above results to be achieved?
- What has been the economic and social impact of infrastructure investments and the resulting development of the automotive sector?
 - General equilibrium analysis
 - Measured in terms of desired outcomes: contribution to GDP growth and contribution to poverty reduction



Enabling Policies: Infrastructure (1)

- Infrastructure investments in the late 1980s centered on Laem Chabang, a high-capacity deep water port.
- This was accompanied by large-scale investments in transport infrastructure and utilities.
- Government encouraged development of industrial estates along the highway system connected to Laem Chabang port.
- The port, together with the industrial area immediately adjacent to it, might be considered a hub. But the highway system connected to it, with infrastructure investments in electricity and water located along this highway system, created the Eastern Seaboard Corridor.



Enabling Policies: Infrastructure (2)

- This transport and infrastructure corridor facilitated the establishment and growth of both final automotive assemblers, and manufacturers of parts and components.
- Within the corridor, industrial clusters can be identified, linking final manufacturers and parts suppliers.
- But the new port and the development of the economic corridor was not originally envisioned to be automotive industry-specific.
- Trade policy had a major role to play in this outcome.



Enabling Policies: Trade

- Heavy protection of the automobile assembly industry in the 1970s produced disappointing results.
- Beginning in the late 1980s, there was a shift to lower protection and more liberal local content and ownership requirements.
- The Asian Financial Crisis in 1997/98 speeded up the reform process.

Enabling Policies: Trade

- Policy reforms coincided with the decisions of major manufacturers to relocate their production internationally to lower cost venues.
- Internationally mobile parts manufacturers were permitted to enter the country and supply the major final product manufacturers.



Increase in Output and Exports

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

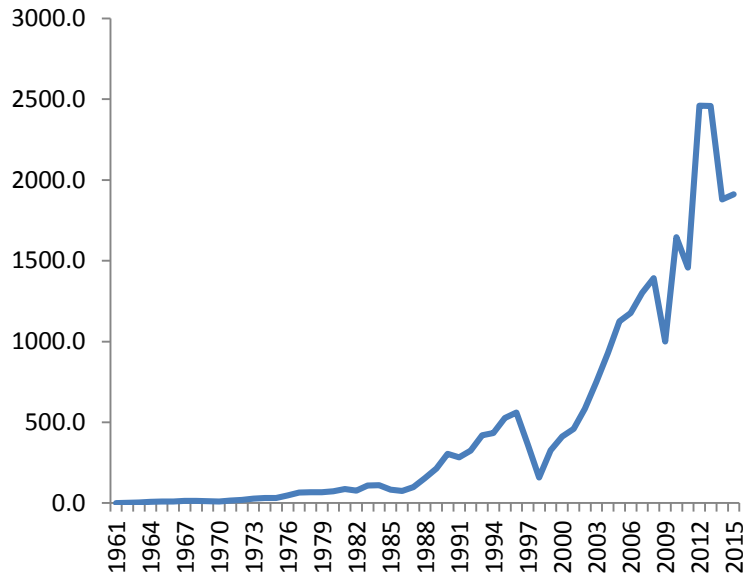
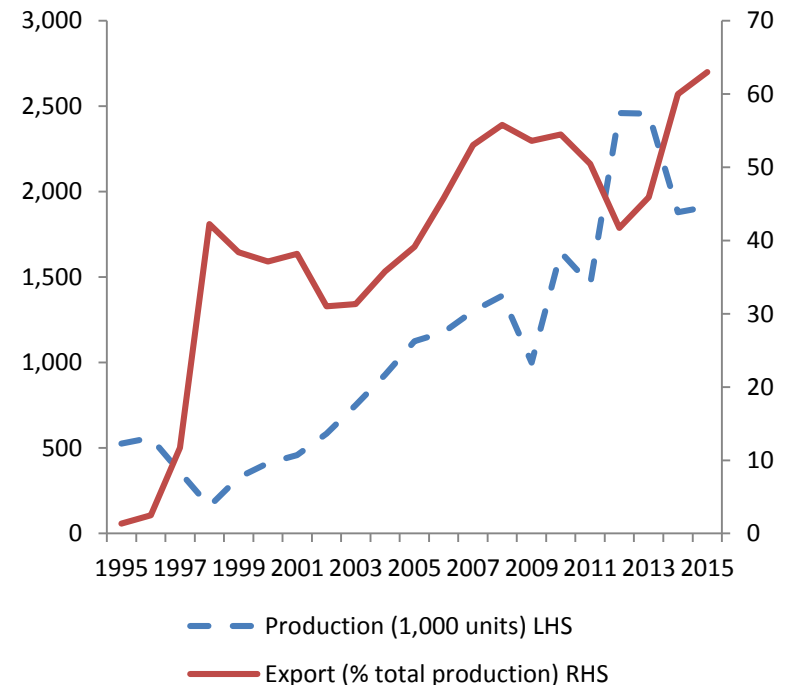
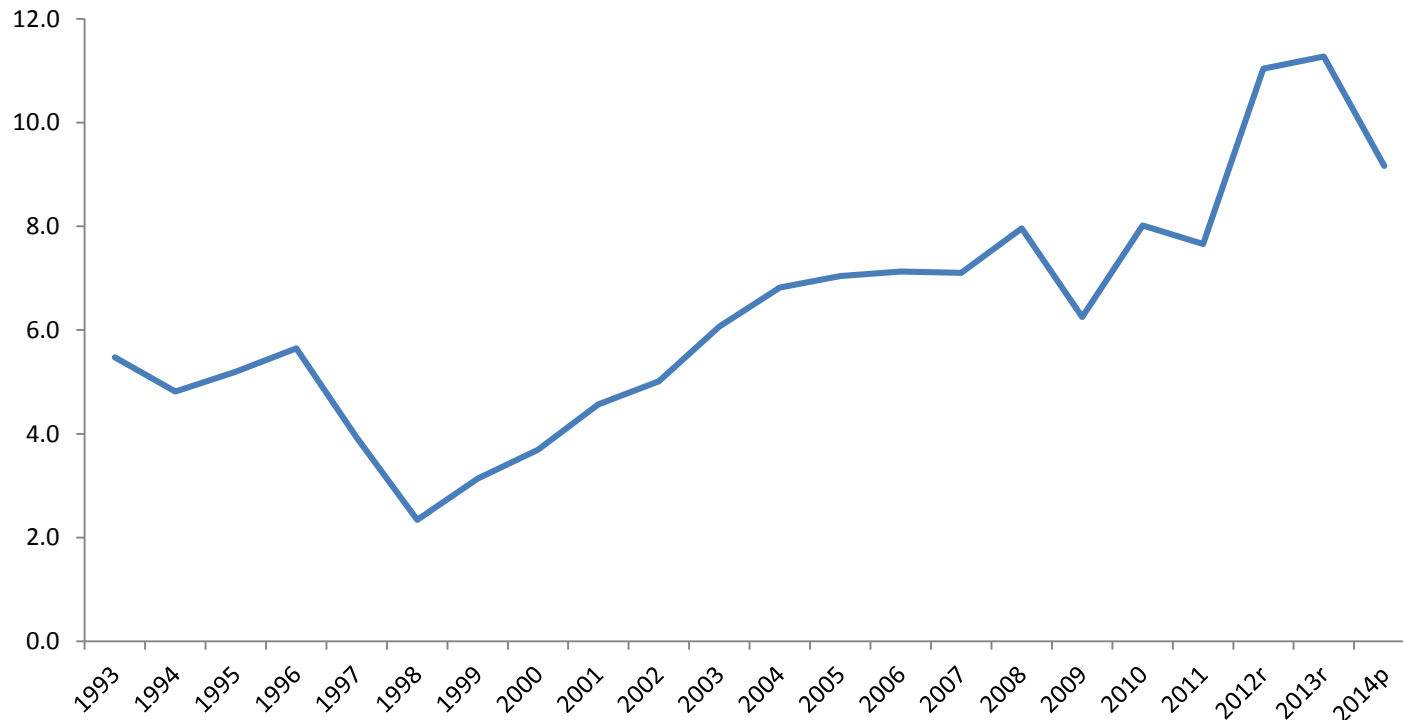


Figure 2. Thailand: Export share of automotive output, 1995 to 2015



Sources: The Thai Automotive Industry Association; The Federation of Thai Industries; and Automotive Intelligence Unit, Thailand Automotive Institute, Bangkok.

Figure 3. Increase in value added share of total manufacturing, 1993–2014 (percent)



Source: National Economic and Social Development Board, Bangkok.

Cross-Country Comparison

Figure 4. Automobile Production in Thailand, Malaysia, and Indonesia: 1999-2015 (units)

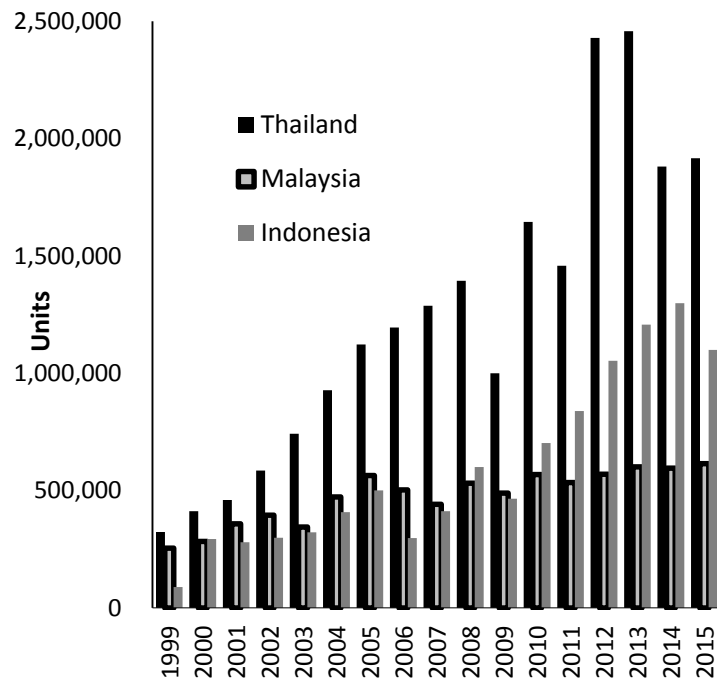
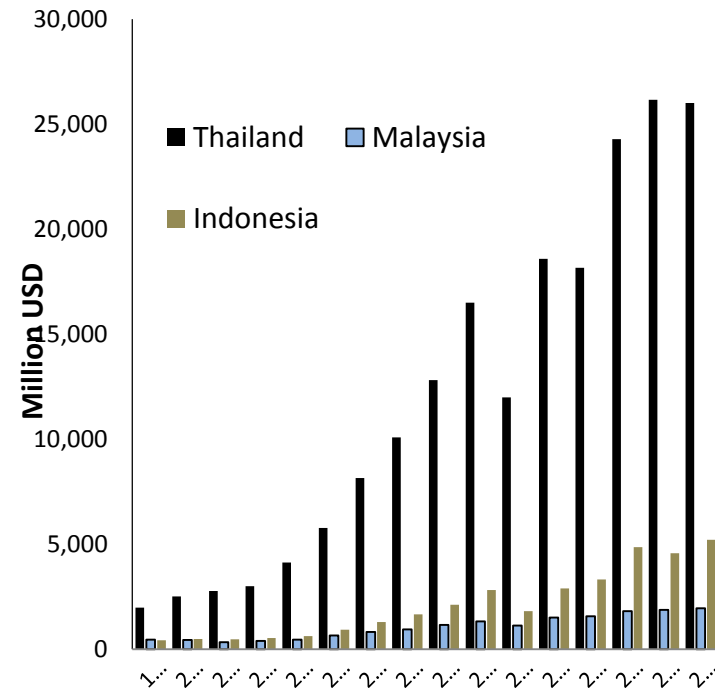


Figure 5. Thailand, Malaysia and Indonesia: Export Value of Automobiles (million USD)



Source: Authors' compilation from UN Comtrade database, using the WITS (World Integrated Trade Solution) website (<http://wits.worldbank.org/>).

Model and Method

- Drawing on an existing general equilibrium model of the Thai economy, the paper analyzes:
 - (i) the effect that infrastructure development had on automotive output, exports, and employment, and
 - (ii) the effect that these industry outcomes had on poverty incidence within Thailand.
- Based on the interviews with industry participants, it is estimated that infrastructure improvements reduced the costs of export-oriented firms by around 15%.



Model and Method

- The analysis simulates the effect of taking away the cost reductions. The shock is thus a 15% *increase* in industry costs, occurring through a *reduction* in productivity.
- The estimation is done at two levels.
- First, the productivity reduction applies only to final vehicle assemblers (Simulation A).
- Second, it applies to all automotive firms, including parts and components firms (Simulation B).



Simulated macroeconomic effects (percent change, unless stated)

	Simulation A: Final assembly only	Simulation B: Final assembly plus parts
Real GDP	-0.144	-0.907
Real household consumption	-0.487	-1.537
GDP Price Index	-0.504	-0.428
Consumer price Index	-0.446	-0.667
Wages:		
Paid skilled	-0.542	-1.147
Paid unskilled	-0.361	-0.749
Unpaid skilled	-2.206	-5.071
Unpaid unskilled	-0.6	-1.021
Average capital rental	-0.734	-1.601
Output of petroleum	-1.303	-1.254
Government revenue	-0.624	-0.82
Government expenditure	-0.5	-0.992
Government budget balance (million baht)	-923.848	871.308

Source: Authors' calculations, using the *JamlongThai* model of the Thai economy.



Simulated effects on automotive sector (percentage point change)

	Simulation A: Final assembly only	Simulation B: Final assembly plus parts
Output	-8.17	-24.92
Producer price	5.92	25.33
Consumer price	3.29	14.53
Domestic consumption	-20.05	-39.30
Export	-12.56	-46.221
Import	4.52	14.46

Source: Authors' calculations, using the *JamlongThai* model of the Thai economy.



Simulated effects on poverty headcount (percentage point change)

	Simulation A: Final assembly only	Simulation B: Final assembly plus parts
National	0.02	0.18
Urban	0.03	0.32
Rural	0.02	0.17
Regional:		
Bangkok and southeast	0.59	1.77
Central	0.01	0.06
North	0.01	0.05
Northeast	0.06	0.27
South	0.01	0.05

Note: Positive numbers in the table mean increases in the simulated level of poverty incidence. Changes in poverty incidence are reported above as the difference between the simulated level of poverty incidence (post-shock) and the initial level (pre-shock), both expressed in percentage form. For example, in 2007 (the year of the model's database) the initial (pre-shock) level of poverty incidence for the total population was 14.36%. In Simulation B the reported change in national poverty incidence above is 0.18 percentage points, meaning that the simulated level (post-shock) is $14.36 + 0.18 = 14.54\%$. That is, it is estimated that without the effect of the productivity enhancing effect that infrastructure investments had on the automotive industry, in 2007 poverty incidence would have been 0.18 percentage points higher, at 14.58% of the population.

Source: Authors' calculations, using the *JamlongThai* model of the Thai economy.



Moving Forward: The Eastern Economic Corridor

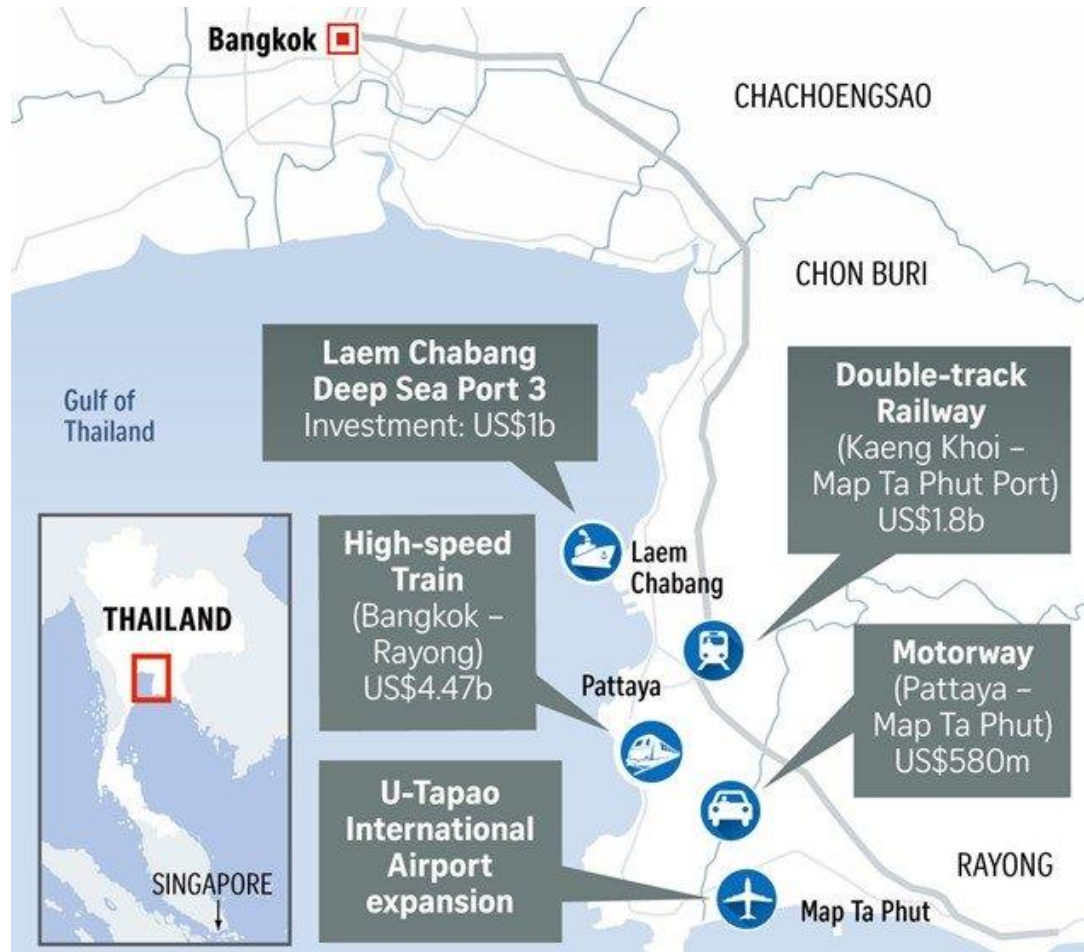
- In 2016, the Thai government announced an extension of the existing economic corridor concept.
- The new scheme, called the Eastern Economic Corridor (EEC), will span more than 13,000 sqm and cover the provinces of Rayong, Chachoengsao, and Chon Buri.
- The EEC will target investments of US\$ 43 billion during the next five years, mostly through foreign direct investments.
- Planned completion date is 2021.

Major Features of the EEC

- EEC will focus on four core areas of development: (1) increased and improved infrastructure; (2) business, industrial clusters, and innovation hubs; (3) tourism and; (4) creation of new cities through smart urban planning.
- The scheme will target the development of 10 industries, including next-generation automotive production.
- EEC will focus on foreign investors and includes a package of incentives that go beyond what is currently offered.



Priority Infrastructure Investments



Summary of Findings and Lessons Learned (1)

- Investments in transport and other infrastructure reduced costs for manufacturers and contributed greatly to the development of the automotive sector.
- However, infrastructure investments were a necessary but insufficient condition for the emergence of an export-oriented automotive sector.
- Complementary interventions also played a key role, such as changes to trade and industrial policy, as well as an exogenous shock- AFC.



Summary of Findings and Lessons Learned (2)

- The new EEC builds on the success of the Eastern Seaboard Scheme and recognizes the role of complementary interventions, including:
 - Multi-modal transport infrastructure and logistics development, to expedite the movement of goods and services.



Summary of Findings and Lessons Learned (2)

- Regulatory reforms, trade facilitation and institutional changes, to (i) improve the investment climate and facilitate the establishment of enterprises; and (ii) enable goods and services to move seamlessly within and beyond the corridor.
- Multi-sector industrial and spatial planning, to encourage cluster development and maximize agglomeration effects.





Thank you!

