

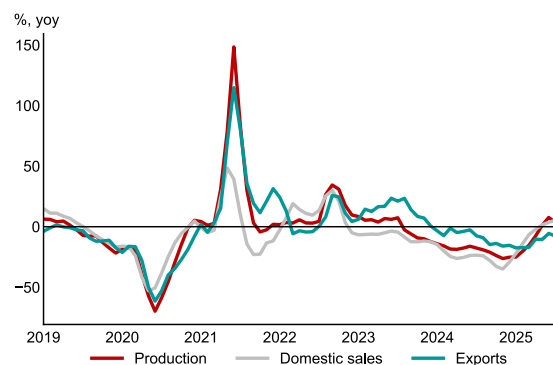
### 3. Thailand’s Automotive Sector at a Crossroads: Managing the Transition to EVs<sup>1</sup>

Thailand’s automotive sector is undergoing an important structural shift. As the global transition from internal combustion engine (ICE) vehicles to EVs gains pace, Thailand—Southeast Asia’s leading auto manufacturing and export hub—faces both new opportunities and short-term challenges. Policy efforts under through incentive programs have successfully attracted foreign direct investment and positioned the country as a growing EV production base. On the other hand, the transition has also resulted in challenges, including weaker domestic value-added linkages, labor market disruptions, and a reduced short-run contribution of the sector to GDP. This Selected Issue examines the recent development of the sector and the potential macroeconomic implications of Thailand’s EV transition, highlighting the need for timely, inclusive, and forward-looking policies to manage the transition.

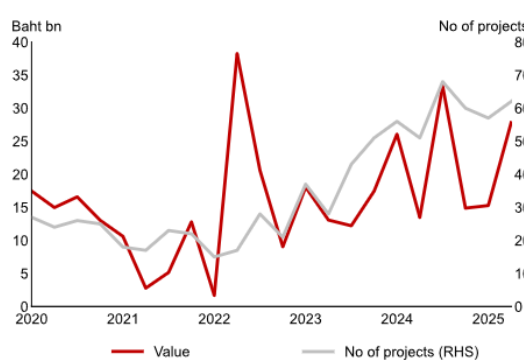
#### Thai Automotive Sector in Transition

**1. Thailand has long been the Southeast Asia’s automotive hub, but faces growing challenges.** Thailand’s automotive sector has long been a pillar of the economy, with the country evolving from an assembly-focused base in the 1980s to a globally competitive exporter of vehicles and parts. The sector accounted for more than 10 percent of GDP, employing over half a million people, and serving as a key driver of exports, investment, and private consumption. The sector’s recovery has been sluggish in the aftermath of the COVID-19 pandemic. Notably, both vehicle production and investment contracted sharply in later 2023 and 2024, weighed down by a combination of structural headwinds and cyclical factors (Figure A3.1).

**Figure A3.1. Motor Vehicle Production, Sales and Exports**      **Figure A3.2. FDI Application Approvals in Automotive Sector**



Source: The Federation of Thai Industries.



Source: The Board of Investment Thailand.

**2. Facing the changing landscape of competition, Thailand has embarked on a strategic transformation to position itself as a leading global hub for EV production.** A defining trend reshaping the landscape is the ongoing transition from ICE vehicles to EVs. This transformation is being propelled not only by intensifying global decarbonization imperatives but also by Thailand’s strategic ambition to upgrade its industrial base and sustain its regional leadership in the auto sector. Under the government’s “30@30” vision—which targets 30 percent of domestic vehicle production to be EVs by 2030—policymakers have introduced a wide-ranging set of

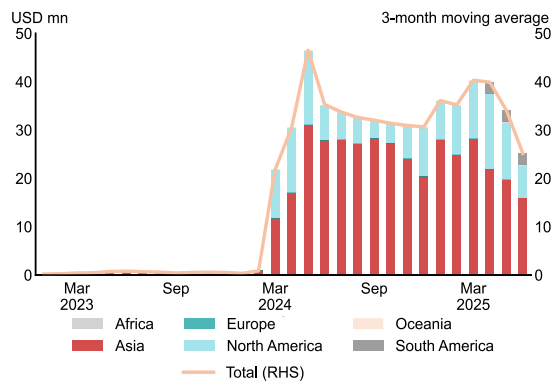
<sup>1</sup> Prepared by Xianguo Huang, Senior Economist.

initiatives to accelerate this transition and address emerging challenges. Measures among these include EV subsidy programs, investment incentives, aiming at stimulating demand and attracting FDI. These measures have led to a noticeable pickup in EV-related activity—accompanied by rising EV imports since 2022 and a growing pipeline of foreign investment commitments to establish local production facilities (Figure A3.2). Looking ahead, domestic EV manufacturing is expected to gain further traction in 2025-2026 as these investments begin to materialize.

**3. EV 3.0 and EV 3.5, two major policy packages that are central to Thailand’s EV strategy, have provided a phased roadmap to build a comprehensive EV ecosystem.** The EV 3.0 program (2022–2023) focused on jumpstarting domestic demand through upfront purchase subsidies, import duty and excise tax reductions, and a 1:1 local production requirement (i.e., one locally produced EV for every imported unit). EV 3.5 (2024–2027) builds on this foundation by shifting the focus toward industrial deepening and localization. It introduces a phased tightening of local production ratios—rising to 2:1 in 2026 and 3:1 in 2027—and adds more stringent eligibility criteria for participating firms, including compliance with domestic product standards and increased technical documentation. The policy framework emphasizes broader local content obligations and encourages domestic higher-value addition through aligned tax incentives. EV 3.5 also broadens support to cover commercial EVs, such as trucks and buses, reflecting a transition from market seeding to industrial upgrading.

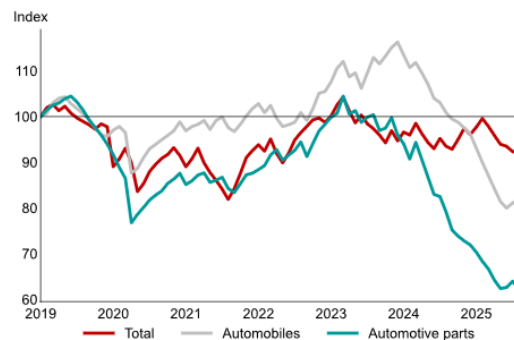
**4. These coordinated policy efforts have had tangible impacts—both in stimulating domestic EV adoption and in attracting major global manufacturers to invest in local operations.** A growing number of EV makers have entered the Thai market, initially relying on imports to meet rising demand, but increasingly shifting toward local assembly in response to policy incentives and production requirements. Thailand has also begun to emerge as an EV export base, albeit from a low starting point (Figure A3.3). For instance, a major EV player from China began exporting from its Thai manufacturing facility in August 2025, marking a key milestone in Thailand’s integration into regional EV supply chains. As more production lines come online the country’s EV export capacity is expected to expand significantly over the coming years.

**Figure A3.3. EV Exports**



Source: Global Trade Atlas.  
Note: The data of HS code 970380—vehicles with only an electric motor for propulsion, including various electric-powered passenger cars and other similar motor vehicles—is used.

**Figure A3.4. Industrial Sentiment**



Source: The Federation of Thai Industries.

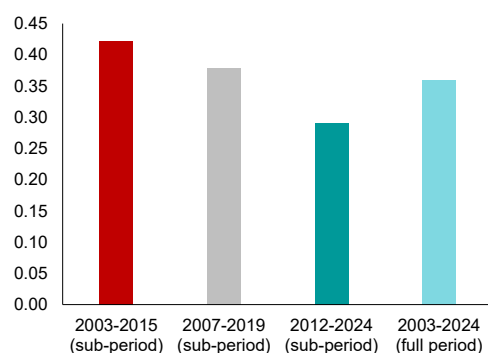
**5. However, the transition has not been without significant frictions.** The structural shift away from ICE technologies has placed significant pressure on traditional auto parts suppliers—particularly SMEs embedded in legacy value chains. Many of these firms are specialized in manufacturing components that are no longer required in EV production, such as engines, transmissions, and exhaust systems. As a result, they have experienced a sharp decline in orders and face growing uncertainty about their future viability. These challenges are compounded by sluggish domestic demand, as auto sales have remained soft amidst heightened household debt and uneven export performance due to global headwinds and intense competition. Together, they have weighed on business confidence as shown in persistently weak industrial sentiment (Figure A3.4).

**6. These developments highlight the dual nature of Thailand’s EV transition: a medium-term opportunity but also a near-term disruption.** The long-run gains—industrial upgrading, green growth, and enhanced global competitiveness—are widely acknowledged. Yet the short-term adjustment costs, including job displacement, uneven supply chain adaptation, and capital reallocation, are substantial and merit closer policy attention.

### Assessing the Impact of the Transition

**7. To assess the short-run implications of the automotive sector’s transition to EVs, an empirical exercise is conducted based on a growth elasticity framework.** Specifically, the analysis estimates the elasticity of real GDP growth with respect to a composite indicator of automotive sector activity ( $X_t^{auto}$ ), using a quarterly regression model that controls for both domestic and external macroeconomic conditions. The core explanatory variable  $X_t^{auto}$  is a sectoral activity index constructed via Principal Component Analysis (PCA), drawing from three key indicators: vehicle production, domestic vehicle sales, and automotive exports. This index captures the common underlying trends across these dimensions and serves as a summary measure of overall sectoral dynamics, and  $D_t^{ev}$  helps to the interaction term capturing differential impact.

**Figure A3.5. Elasticity of Real GDP Growth to the Auto Sector**



Source: AMRO staff estimates  
Note: p-value smaller than 0.01 for all estimates above.

**Table A3.1. Regression Results with EV Transition**

Variable	HAC	Bootstrap
$\alpha$	0.6319***	0.6319***
$X_t^{auto}$	0.3902***	0.3902***
$X_t^{auto} \times D_t^{ev}$	<b>-0.3177**</b>	<b>-0.3177*</b>
$x_{1,t}^d$	0.0802	0.0802
$x_{2,t}^d$	-0.2441**	-0.2441***
$x_{3,t}^d$	-0.3307	-0.3307
$x_{1,t}^g$	0.3247***	0.3247*
$D_t^{covid}$	-1.1711***	-1.1711

Source: AMRO staff estimates  
Note: The list of variables includes a constant term, the automotive sector index, an interaction term for the EV transition, consumer confidence, the household debt-to-GDP ratio, the interest rate, world real GDP, and a COVID-19 dummy variable.

**8. The results confirm that Thailand’s automotive sector remains a macro-critical driver of real GDP growth, but its contribution has moderated in recent years.** Sub-period analysis reveals a declining elasticity over time, coinciding with the onset of structural transformation in the sector (Figure A3.5). In particular, the inclusion of an interaction term for the 2022–2024 EV transition period indicates a statistically significant weakening of the sector’s GDP impact during this phase, suggesting potential transitional frictions and the overall positive impact from the automotive sector has declined (Table A3.1).

#### Safeguarding the Transition Path

**9. The structural shift from ICE to EV technologies is reshaping Thailand’s automotive value chain.** At the center of this transformation lies the move toward simpler EV architectures that require fewer components and are less reliant on traditional tier-2 and tier-3 suppliers. This shift has weakened domestic value-added linkages and triggered disruptions—particularly among SMEs and workers whose skills are tied to legacy ICE production. The adjustment burden has been particularly acute for smaller suppliers and mid-skilled labor, underscoring the urgent need for targeted support to preserve productive capacity and mitigate worker displacement.

**10. Policy-driven acceleration has helped seize emerging opportunities, but short-run frictions require proactive management.** Thailand’s EV 3.0 and 3.5 incentive programs have successfully fast-tracked the transition, helping the country capture a critical window of opportunity. These policies have spurred a wave of foreign direct investment, particularly from Chinese automakers, and positioned Thailand as a rising EV production base. However, the rapid pace of change has also intensified adjustment pressures on incumbent firms, workers, and legacy supply chains. If poorly managed, these frictions risk undermining the sector’s short-term contribution to growth. Yet delaying the transition could likely be even more costly, potentially resulting in a permanent loss of competitiveness, investment, and supply chain integration to more proactive regional peers over the longer term.

**11. An inclusive and coordinated policy framework could be further strengthened to support those most affected by the transition.** While EV 3.0 and 3.5 have laid a strong foundation, industrial and labor policies must evolve in tandem with the structural shift. Key areas of focus include scaling up reskilling and upskilling programs for displaced workers, establishing transition funds to support vulnerable SMEs, and providing tailored financing and technical assistance to help firms adapt to new production technologies and standards. Proactive support is essential—not only to cushion short-term disruptions, but also to build long-run resilience and competitiveness across the value chain.

**12. In conclusion, Thailand’s EV transition marks more than just a sectoral shift—it represents a structural inflection point for the broader economy.** The transition touches multiple dimensions of economic development and can potentially redefine the country’s comparative advantage in global value chains. As the automotive sector accounts for a large share of GDP, exports, and manufacturing employment, the transition from ICE to EVs has cascading effects across upstream suppliers, the workforce and investment flows. The short-run frictions—such as dislocated SMEs, lagging demand, and adjustment costs—are real but manageable. Yet the long-term gains in investment, technological upgrading, and integration into the

future mobility ecosystem are substantial—particularly if Thailand aims to retain its leadership as Southeast Asia’s automotive hub. With timely, coordinated, and inclusive policies, the country has a narrow but critical window to convert this transformation into a broader engine of productivity, innovation, and sustainable growth.

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