Maintaining Competitive Neutrality Through International Coordination of Industrial Policy: Lessons from China's Electric Vehicle Policy



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For developing countries, industrial policy is an indispensable instrument of national economic growth. As long as a country remains a small player in the world of international trade, the effect of its own industrial policy on the international economy can safely be ignored. When a large country with a major presence in the global economy pursues industrial policy unilaterally, however, the result is a "production relocation externality": just as when a large country unilaterally imposes a tariff, the policy destroys the industrial base of other countries. These negative effects fall more heavily on emerging economies and small countries such as Vietnam, Turkey and India than on advanced economies such as Japan, the United States and European nations. What is needed is a stronger framework that prevents the scramble for markets that unilateral industrial policy sets in motion, and that allows the gains from economies of scale to be shared internationally.

Friction Economic & Industrial Policy

The economic friction between the US and China had already begun to take shape during the administration of President Barack Obama. Attributing the overwhelming cheapness of Chinese products to China's state-owned enterprise system and to unfair government support, the Obama administration imposed countervailing duties on a wide range of imports from China. Yet the argument that "invisible subsidies" constitute an unfair trade practice was not accepted by the WTO dispute settlement mechanism.

Subsequently, following the US-China negotiations under the first administration of President Donald Trump after the 2016 election, the two countries each raised their import tariffs on the other above the WTO most-favored-nation (MFN) rates. The administration of President Joe Biden then maintained these tariffs on China. The result was that the level of Chinese exports to the US was sustained, with goods rerouted through Mexico and Vietnam.

The Biden administration went further. Through the Inflation Reduction Act and the CHIPS Act it adopted an explicit agenda of industrial promotion, requiring that electric vehicles and other products be manufactured within the US, and implementing measures that excluded the use of Chinese-made automotive batteries. As discussed below, this was in effect an adoption, in a different guise, of the very methods that China had used in its industrial policy for electric vehicles.

Behind the US-China friction lies the fact that China, in the course of its rapid industrial growth, acquired economies of scale, and that as a consequence the capture of markets and the abuse of monopoly power – carried out in the name of economic efficiency – have reached a level that can no longer be overlooked. Precisely because industrial policy is a means of securing economies of scale, it has become the focal point of economic friction. This is exactly the same structure that produced the Japan-US economic friction of earlier decades.

In their analysis of Japanese industrial policy in 1987, Ryutaro Komiya summarized the problems that industrial policy creates and the means of avoiding friction as follows:

> *"(Industrial policy) becomes a problem when one country alone carries out extreme policy intervention and pushes aside industries already established in other countries – that is, when it secures its own gains by taking away the gains of others. Accordingly, international rules on policy intervention in research and development and in learning are necessary, and it is desirable to form an international consensus on horizontal specialization among countries, and on the international dispersion of production bases through direct investment and industrial cooperation, so that no single country monopolizes the advantageous industries."*

The instruments available under the current WTO-centered trade rules are insufficient to correct the economic frictions generated by economies of scale and need to be strengthened.

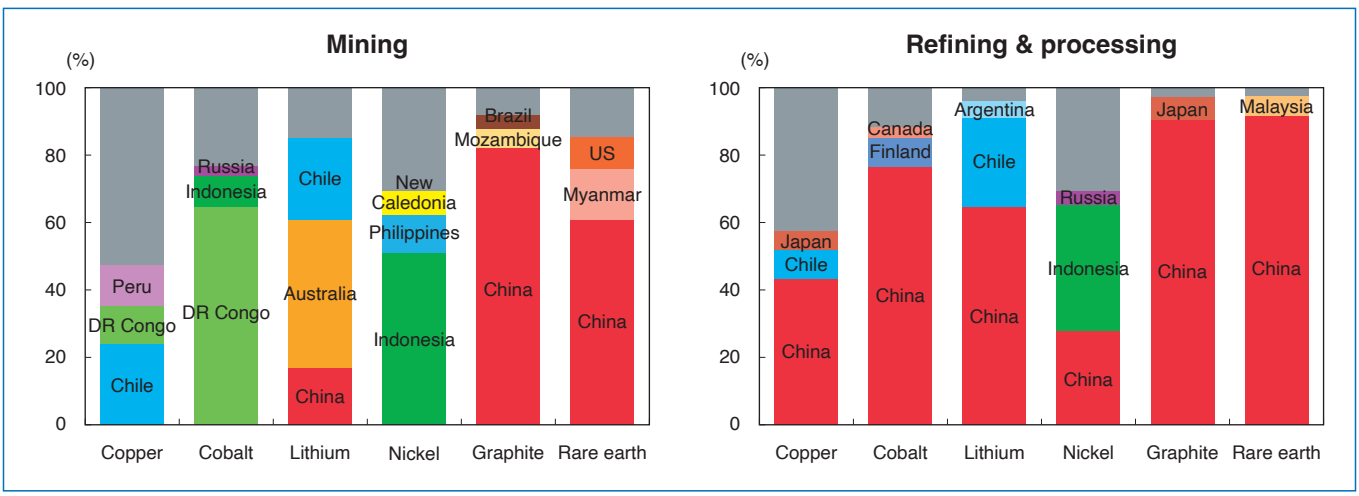
Economic Security & Trade Rules

In recent years, moreover, the need to raise awareness of economic security has been voiced repeatedly in Japan. Behind this lies the fact that China has built up enormous productive capacity across many industries, and that (1) it has strengthened its monopoly power in those industries; (2) the exercise of that monopoly power has produced the harms of monopoly in the economic sense – economic transactions have been halted arbitrarily or accidentally, and supply volumes have been cut; and (3) that monopoly power has increasingly come to be used as a means of political pressure.

As for (1), China now holds a dominant position across a wide range of industries. In rare earths, where geology limits the location of mining, its dominance is concentrated in the refining stage (*Chart 1*, from the 2025 White Paper on International Economy and Trade).

CHART 1

Country shares in the mining & refining of rare earths



Note: The data is from 2023. The category of rare earths only covers rare magnet elements. Original chart title: "Shares of mining and refining/processing of critical minerals" (Figure II-1-4-1). Left panel: mining; right panel: refining and processing. Columns from left to right: copper, cobalt, lithium, nickel, graphite, rare earths. Data for 2023; rare earths cover magnet rare-earth elements only. Compiled from IEA (2024).

Source: White Paper on International Economy and Trade 2025 (METI)

In steel, it accounted for roughly half of world production in 2024. The same pattern extends to masks and other medical products, consumer appliances such as televisions, air conditioners, and refrigerators, general-purpose semiconductors, solar panels, ships, electric vehicles, and pharmaceutical intermediates such as those for penicillin: in each, Chinese capacity supplies a large share of world demand.

In the second type of case, dependence on China's monopoly power combined with natural disasters and other shocks to produce economic hardship. Examples include the shortage of masks and medical supplies during the Covid-19 pandemic and the halt in automobile production when general-purpose semiconductors "evaporated" from the market following the US sanctions of around 2018.

The third concern, now widely shared, is "economic coercion": the use of monopoly power in an industry to achieve political aims. During the confrontation with Japan over the Senkaku Islands, China restricted exports of rare earths to put pressure on Tokyo in 2010. Japan challenged the restrictions at the WTO and prevailed, and China withdrew them in 2012. In 2025, China restricted rare-earth exports again, this time to gain leverage in tariff negotiations with the US and, in Japan's case, to retaliate for Prime Minister Sanae Takaichi's remarks on a Taiwan contingency.

There are also cases in which economic coercion has been exercised not through supply power but through monopoly power on the demand side, that is, by using the size of China's market as leverage. Estonia, which had built friendly relations with Taiwan, was subjected to a de facto sabotage of export procedures. Australia, which had criticized China's response to the pandemic, faced import restrictions on barley and wine.

In response to these developments, countries have pursued "supply-chain resilience" and "industrial policy" with the aim of reducing dependence on particular countries and securing the resilience of their own industries, and have begun to set out the pursuit of "strategic autonomy" and "strategic indispensability" as explicit goals.

When such strategies are to be reflected in trade rules, two questions have been identified as the crux of the matter: (1) whether it is right to continue granting MFN tariff rates unconditionally to a country that holds high monopoly power in a particular industry; and (2) how the "market failure" whereby economies of scale damage the economic foundations of other countries should be corrected.

China's Industrial Policy: the Case of Electric Vehicles

What, then, is required when thinking about the direction in which trade rules should be updated? Before developing concrete ideas, I would like to present, as an example of the process by which a particular country builds monopoly power in a particular industry, China's policy towards electric vehicles (EVs) and the results that policy has produced.

China's EV and automotive-battery industries can be regarded as a success story in which the "catalogue-driven industrial policy" that China has cultivated through trial and error since the 1990s combined effectively with outstanding entrepreneurship. At the same time, they can be characterized as an industry in which all of the positive and negative features of Chinese industrial policy are condensed.

Chinese industrial policy has three distinguishing features: (i)

guidance of the direction of development through the presentation of catalogues; (ii) the active provision of subsidies; and (iii) the deliberate protection of domestic firms.

The first feature, catalogue-based industrial policy, is a mechanism peculiar to China. Since around 2005, the Chinese government has periodically updated a catalogue of recommended industries known as the Guiding Catalogue for Industrial Structure Adjustment, through which it indicates the direction of industrial development. To date, the 2005 edition, the 2011 edition, a revised version of the 2011 edition published around 2013, the 2019 edition and the 2024 edition have been released. Each has been published roughly one year before the start of a Five-Year Plan.

With the aim of strengthening the linkages among domestic industries, the catalogue identifies the "weak links" in the value chain and lists "encouraged industries" targeted for development, "restricted industries" in which entry is regulated in order to curb expansion, and "eliminated industries" that are required to cease operations because of pollution or other harms. By linking these organically, the catalogue has reinforced economies of scale in the form of Marshallian externalities (Liu, 2019)[1].

Chart 2 shows the system of technologies classified as encouraged, restricted or eliminated in the Guiding Catalogue editions relevant to the EV industry. Fields related to the electric vehicle industry appeared for the first time in the 2011 edition and have continued to be listed in the 2019 and 2024 editions.

The first point to note is that the targets of restriction or elimination are almost entirely confined to internal-combustion-engine vehicles. Highly polluting and energy-intensive technologies were designated for restriction. In the 2024 edition, moreover, the construction of new production lines for low-speed three- and four-wheeled electric vehicles was restricted.

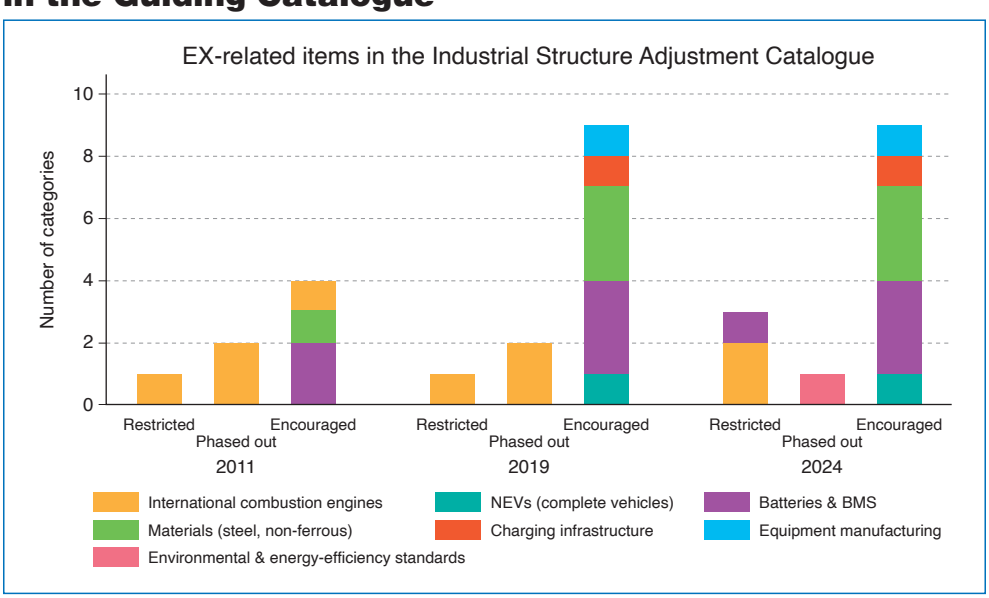
By contrast, the fields designated as encouraged industries span a wide range of technologies centered on the battery, the power source of the electric vehicle: cathode and anode materials and electrolytes for batteries; recycled lead; core technologies and equipment for the production, storage and transport of hydrogen energy and for fuel-cell manufacturing; storage batteries; battery management systems and their integration technologies; lightweight materials such as alloys; and steel products. The development of charging infrastructure, indispensable to the diffusion of EVs, and its "smartening" are also included in the list.

In this way, the catalogue is structured so as to fill in carefully each link of the value chain needed for the EV industry to take off. On the basis of this catalogue set out by the central government, individual government departments and local governments formulate their own specific plans.

Furthermore, financial institutions and investment funds refer to the catalogue when selecting borrowers and investment targets, and educational programs at universities and elsewhere are adjusted or newly established in line with the same policy direction. Because the entire industry enters in a synchronized fashion, the cost of entering a new industry falls even for inexperienced or small firms.

CHART 2

Technologies related to electric vehicles recommended in the Guiding Catalogue



Note: Chart title: "Classification of EV-related items in the Guiding Catalogue for Industrial Structure Adjustment". Vertical axis: number of categories. Within each year, the three bars are, from left to right, Restricted, Eliminated, and Encouraged. Legend: internal-combustion engines; charging infrastructure; finished NEVs; equipment manufacturing; batteries and BMS; environmental and energy-efficiency standards; materials (steel and non-ferrous).

Source: Compiled by the author from the 2011, 2019 and 2024 editions of the Guiding Catalogue for Industrial Structure Adjustment

The second feature is subsidy policy. To promote the diffusion of EVs, generous subsidies were paid to consumers, and at the same time receipt of those subsidies was made conditional on the purchase of lithium-ion batteries from designated firms. In addition, a system was introduced obliging automakers to produce a certain proportion of EVs.

Third, support for the lithium-ion battery sector took the form of blatant preferential treatment of nationals. As a condition for receiving consumer subsidies, lithium-ion batteries had to be procured from firms listed on a "whitelist". The whitelist published in 2017, the year the 13th Five-Year Plan began, contained 57 firms, all of them Chinese. This blatant national-preference policy was gradually modified, however: in 2019 wholly foreign-owned battery production was permitted, and in 2021 both the purchase subsidy scheme for new energy vehicles and the domestic-battery requirement were terminated.

The outcomes of these industrial policies for electric vehicles were twofold. On the one hand, two excellent companies with competitiveness on a global scale emerged. On the other hand, the large number of firms that entered in response to the encouragement policy created what can only be called excess capacity, which led to loss-making competition at home and a flood of exports abroad, and developed into economic friction with Europe.

BYD and CATL, both of which possessed superior accumulated technology in the battery field, grew into some of the world's largest automotive battery manufacturers in the short space of just five years. BYD was a company that had earned its profits from smartphone batteries and from contract manufacturing for Huawei; judging that the growth of those markets was reaching its limits, its chairman, Wang Chuanfu, decided to enter the automobile industry. The company then rode the tailwind of the 13th Five-Year Plan to establish its position as an automotive battery manufacturer. As of 2026, it is an excellent company that trades and conducts joint development with Toyota and Tesla in blade batteries, powertrains and EV platforms. It is by no means a bloated firm dependent on subsidies.

At the same time, however, the vigorous entry induced by catalogue-driven industrial policy generated excess production. Although 57 Chinese firms were listed on the nationally preferential whitelist described above, the firms that currently hold a meaningful share of the world market are limited to BYD and CATL. The remaining firms have failed to acquire sufficient competitiveness, yet exit has not proceeded, and excess production continues.

In the latter half of the 2010s, the overseas expansion of China's EV-related industries consisted mainly of exporting automotive batteries as components to finished-vehicle manufacturers in Europe and elsewhere. As domestic EV production capacity became excessive, however, from around 2021 the export of finished vehicles themselves intensified. The result was a direct contest for markets with European finished-vehicle manufacturers such as those in Germany; the EU, unable to withstand this, imposed additional tariffs of up to 63% on Chinese-made EVs. China has challenged these at the WTO.

According to the research by Jia, Barwick and co-authors (Barwick, P.J., et al. (2025))[2], (1) consumer subsidies raised social welfare, in the sense that they gave consumers access to inexpensive electric vehicles and allowed firms to earn profits. On the other hand, (2) because China's nationally preferential "whitelist" policy was applied in the early stage of production, when battery costs were extremely high, it enabled Chinese firms to capture exclusively the economies of scale generated by the learning curve and to bring down production costs rapidly.

As a result, batteries from Japan's AESC and Panasonic and South Korea's LG and Samsung, which at the time held the advantage in quality, were progressively replaced by Chinese batteries that had not yet reached maturity. For consumers, this initially meant being forced to use products of lower quality; for the Japanese and South Korean firms, it meant that their markets were taken away by subsidies.

In my view, Japan and South Korea should have challenged this nationally preferential whitelist policy as a violation of the WTO agreements at the time it was implemented. *Chart 3* shows the extent to which (1) consumer subsidies in the US, Europe and China and (2) the scale effects of the learning curve expanded EV sales in the world's top 13 countries. Even without subsidies, the price reductions brought about by learning-driven cost cuts have had a strong effect in boosting sales; but without subsidies, world EV sales would have grown considerably more slowly.

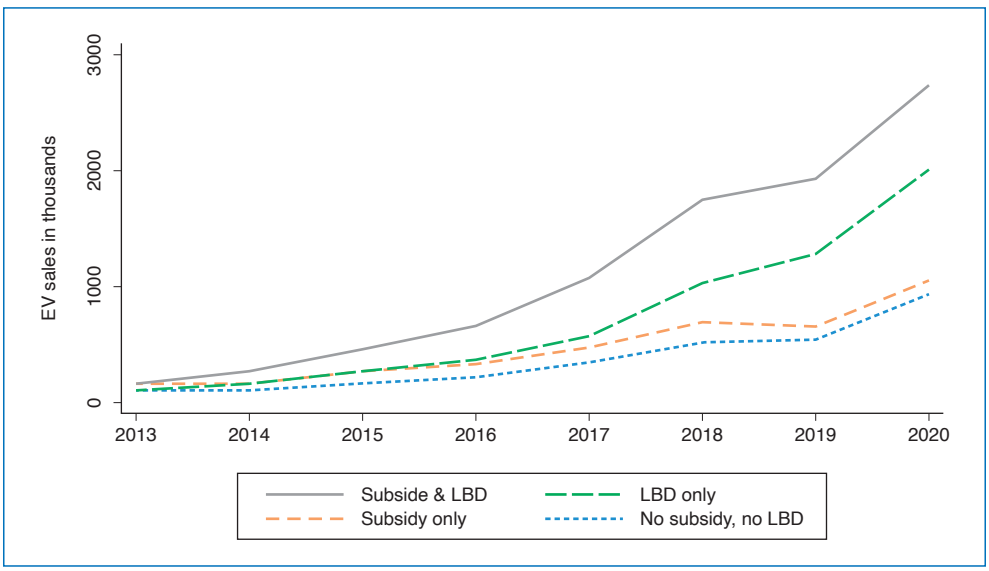
Compared with a world in which neither learning effects nor subsidies existed, learning effects alone are estimated to have expanded sales volume by 90%, and the addition of consumer subsidies to have led to an expansion of 204%. Consumer subsidies have been provided not only in China but also in the US and Europe (notably Norway); yet whereas US subsidies raised world EV sales by roughly 900,000 units, Chinese subsidies raised them by roughly 4.5 million units – an impact five times as large. *Chart 4* shows that China's nationally preferential whitelist policy resulted in the "capture" of the markets of Japanese and South Korean firms.

By favoring Chinese firms at the stage when initial average costs were extremely high, the whitelist policy created a market for Chinese-made batteries by taking away the market for batteries made by Japanese and South Korean firms (*Chart 4,* panels (a) and (b)). Had only consumer subsidies been implemented in the first five years, with national-preference support introduced in the following five years, the results show that the market as a whole would have expanded while the markets of the Japanese and South Korean firms were preserved, and Chinese firms too would have secured a market (*Chart 4*, panels (c) and (d)).

The learning curve represents an efficiency that any country and any firm can acquire by accumulating experience, and to regulate or prohibit it as such would be inefficient for the world economy. What this research demonstrates, however, is that a national-preference

CHART 3

The market-expanding effects of subsidies & learning-by-doing



Note: This chart illustrates total EV sales across the top 13 EV countries under various scenarios. The solid black line at the top represents observed EX sales with both LBD and consumer subsidies in effect. The second green line shows EX sales with LBD but no subsidies, while the third dash-dot orange line represents EV sales with subsidies but no LBD. The dotted blue line at the bottom shows EV sales with neither LBD nor subsidies. LBD greatly amplifies the sales-expansion effect of subsidies.

Source: Jia-Barwick et al. (2025)

policy succeeds only by taking markets away from other countries; it has a zero-sum effect, forcing consumers to use lower-quality products at the outset, and it distorts social welfare.

Key Points for Rebuilding Trade Rules, & Japan

As the foregoing shows, when a particular country builds an outsized industrial supply capacity in a particular industry, the asymmetric effects produced by economies of scale intensify economic friction.

At the time of the Japan–US friction, Japanese researchers pointed out that international rules were needed to correct the negative, zero-sum effects of economies of scale, but the problem remains unresolved. As perspectives for improving the situation, I would like to make the following points.

The first concerns how to correct the "market failure" whereby economies of scale damage the economic foundations of other countries. Three points deserve attention.

(1) Where the proportion of loss-making firms among market participants in a particular industry within a country exceeds a certain threshold, an "anti-dumping" duty should be imposed on that country's exports of the product as a whole, at a rate effective in curbing the output of the loss-making firms, so as to restrain their exports and shrink domestic production. Identifying the loss-making producers more precisely and imposing "countervailing duties" on them would, in theory, have the same restraining effect.

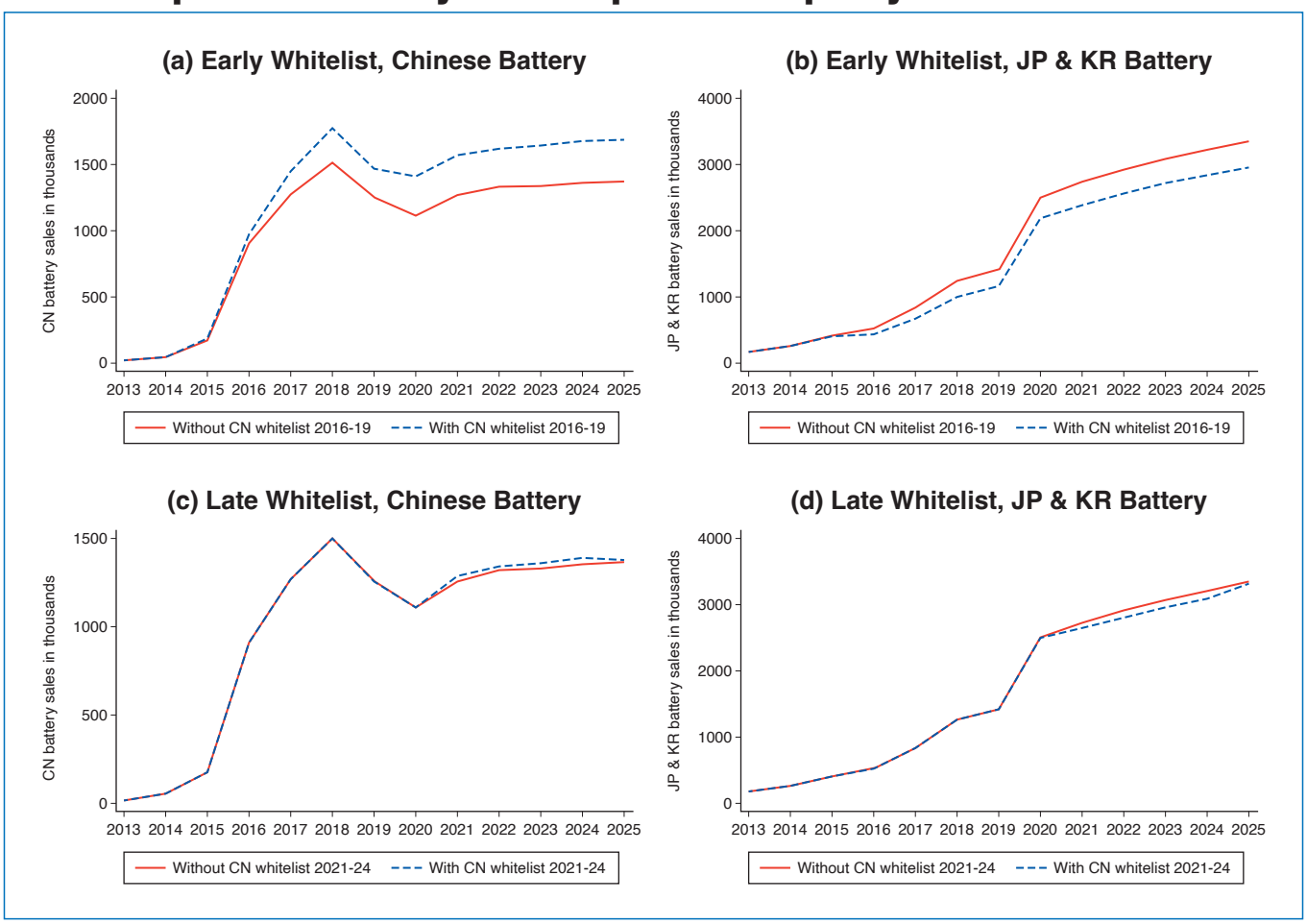
(2) Against moves to abuse politically the power of scale held by a country with a globally dominant position in a particular industry, consideration should be given to raising, by an additional margin, the special duty rates applied under the trade remedy measures permitted by current WTO rules – anti-dumping duties, countervailing duties and safeguards. In the EV case discussed above, scale effects amplified the harm caused by subsidies roughly threefold. In setting the level of additional duties, the amplifying effect of economies of scale needs to be taken into account explicitly.

(3) The principle of national treatment stipulated in current WTO rules should be enforced rigorously, and objections to national-preference policies should be raised more actively. As the case of EV batteries shows, nationally preferential policies in the nascent stage of an industry have an especially large market-capturing effect. Even where infant-industry promotion is undertaken, one option would be to introduce the idea of "time management": first achieving a certain expansion of market size through consumer subsidies, and only then introducing measures to foster domestic industry.

Second, once mechanisms to deter such abuses of scale have been built, it is important to put in place a framework for sharing the gains from scale internationally. Concretely, one could link the promotion of international horizontal specialization through zero-tariff measures in particular industries, and the international

CHART 4

Market capture induced by national-preference policy



Notes: Panel (a) illustrates EV battery production by Chinese suppliers under scenarios with and without China's observed whitelist policy in 2016-2019. Panel (b) presents battery production by non-Chinese suppliers under the same scenarios. Panel (c) and (d) repeat the exercise and depict the impact on forward-simulated buttery production if the whitelist policy was implemented between 2021 and 2024 instead.

Source: Jia-Barwick et al. (2025)

dispersion of production bases through direct investment, with tariff measures that correct for the gains from scale. Such efforts should first be advanced through bilateral negotiations and regional free trade agreements such as the CPTPP, and then extended into the general rules of the WTO.

By updating trade rules along these lines and making active use of them, it becomes possible to prevent the capabilities that Japanese firms have built up over the years from being irrationally destroyed, while at the same time creating an environment in which they can concentrate on fostering emerging industries. In securing the economic security of Japanese firms, the role played by trade rules and intergovernmental negotiation is exceedingly large.

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