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Abstract

This paper constructs a new database based on China's WTO subsidy notifications (2001–2022) and provides the first systematic overview of China's industrial subsidies over the past two decades. Five findings emerge. First, subsidies expanded rapidly, but direct fiscal support stabilized around 0.8% of GDP after 2008. Second, China has employed more subsidies than its income level would suggest, with striking policy persistence. Third, subsidies and tax incentives for FDI have declined, while those targeting specific industries and promoting innovation have grown. Fourth, wealthier and more trade-oriented provinces provide more local subsidies. Finally, subsidies are concentrated in a few sectors, and measures based on counts versus values reveal different patterns. These patterns reveal how China's subsidy strategy has evolved, offering insights to state-led development in the 21st century.

JEL classification: F13; O25; H2
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1 Introduction

Since the late 1970s, China's industrial development has been driven not only by market-oriented reforms but also by the strategic use of industrial policies. While this view is widely acknowledged in both policy and academic circles, several fundamental questions remain unanswered: What has China done right—or wrong—in implementing such policies? Do they generate international spillovers, positive or negative? And what lessons, if any, do they offer for other countries? Despite the importance of these questions, basic empirical facts are often lacking. Certain policy areas, such as tariffs and FDI regulations, are relatively well studied, but systematic evidence on China's broader industrial policy landscape remains limited.

This paper focuses on industrial subsidies—the most direct and powerful tools governments use to shape economic activity. We digitize and clean China's WTO subsidy notifications from 2001 onward, creating the first systematic, non-estimated dataset based on official sources of China's industrial subsidies. To enhance accuracy, we manually amended missing information, cross-checked each notification with relevant domestic documents, and conducted validation exercises to demonstrate the data's reliability. The final dataset includes *direct subsidies* of four forms: financial appropriations, grants, and interest-discount programs administered by the central government—amounting on average to about 0.8% of China's GDP annually, a figure broadly consistent with OECD estimates—plus subsidy programs delivered through tax incentives. Subsidies issued by sub-central governments are also covered from 2015 onward.[1]

Combining this new dataset with other commonly used sources, we highlight five findings on China's industrial subsidies. First, China's use of subsidies has increased over time, but direct fiscal support stabilized at about 0.8% of GDP after 2008, potentially reflecting a greater reliance on indirect forms of support. Second, China is an active user of subsidies — employing them more actively than its level of development would predict — and shows notable policy persistence. On average, Chinese subsidy programs last more than 10 years, and over 10% persist for 20 years or

[1]The database does not include indirect subsidies. The controversies surrounding China's subsidy notifications are not about the act of notification itself, but rather about what else should be reported—a concern raised by several WTO members during dispute proceedings. Debates over subsidy definitions and China's compliance have centered on three themes: China's non-market economy status, the role of state-owned enterprises, and transparency. The first two issues have, in fact, been decided in favor of China's position by WTO dispute settlement panels (DS379, DS437). A full discussion of these debates requires more space than permitted here, so we provide a more detailed treatment in Online Appendix B.4 for interested readers.

longer. These durability points to a long-term strategic approach by the Chinese government and reflects strong institutional commitment and policy continuity across political cycles.

Third, the objectives of Chinese subsidies have shifted markedly. Programs promoting foreign direct investment (FDI) accounted for nearly 10% of total subsidies in 2001 but declined to 3.3% by 2022. By contrast, industry-specific subsidies grew from 7.9% in 2001 to 16.3% in 2022 (17.9% including regional reports). At both central and local levels, the most targeted areas are agriculture, specific industries, R&D, and environmental protection. This subsidy reallocation reflects China's strategic shift from attracting foreign investment to pursuing technological self-reliance and industrial sovereignty. The shift may represent both a cause and a consequence of China's escalating trade and technology tensions with Western economies.

Fourth, subsidies from sub-central governments vary significantly across space, with wealthier and more trade-oriented provinces receiving disproportionately more *local* government support. This subsidy allocation pattern mirrors broader fiscal disparities, as the richest regions spend several times more per capita than the poorest. This pattern suggests that subsidies from sub-central governments may reinforce rather than reduce regional disparities in China.

Finally, subsidies are concentrated in a few key sectors. Scientific research, agriculture, and manufacturing account for half of all projects. However, in terms of value, agriculture dominates, receiving 46.6% of total funds—approximately 40 trillion RMB over 21 years —followed by the construction and energy sectors. Notably, contrary to the prevailing policy debate centered around China's manufacturing subsidies, our data reveal a salient feature: many direct subsidies are fundamentally "infrastructure" in nature. Examples include trade subsidies in the form of support for exhibition centers and export fairs, and agricultural subsidies in the form of support for rural irrigation and wastewater systems. In addition, our findings also underscore the need to distinguish between subsidy counts and values.

Beyond the specific findings, a central contribution of this paper is the digitized dataset of China's subsidy programs. We hope this resource will enable further research on industrial policy, trade, and development.

Our work contributes to the literature on measuring industrial policy by providing detailed information on Chinese subsidy programs derived from a single, authoritative government source. Recent methodological advances have enabled new approaches to quantifying industrial policy.

Most notably, Juhász et al. (2022) introduced a text-based approach to measure industrial policy goals globally using Global Trade Alert data, enabling broad cross-country comparisons through innovative textual analysis methods. Fang et al. (2025) employed large language models (LLMs) to analyze 3 million Chinese policy documents, extracting structured information on policy objectives, targeted industries, and implementation mechanisms.[2]

Our dataset complements existing approaches with distinct advantages, though with a narrower scope. First, unlike the above-mentioned datasets, it is derived directly from standardized government reports, mitigating accuracy and consistency concerns common to LLM-based methods. Second, the reporting structure of our data is organized around large subsidy programs that often span multiple policies and departments. This program-level organization provides a more aggregated and complete perspective, preserving information—such as total subsidy values and policy continuity—that would otherwise be lost in policy-level data. Finally, while our dataset focuses on direct subsidies rather than the broader industrial policies, its results can be cross-validated against findings from text-based analyses. For example, our finding of an upward trend in subsidy incidence is broadly consistent with Juhász et al. (2022). Similarly, our evidence on cross-regional variation in local subsidies aligns with Fang et al. (2025), suggesting that different approaches capture similar trends despite methodological differences.

This paper also contributes to the relatively thin but important empirical literature on industrial policy. Recent studies often focus on specific sectors, such as Juhász (2018); Juhász et al. (2024) on textiles, Lane (2022) on heavy industries, and Hanlon (2020) on shipbuilding. Important China-focused studies include Kalouptsidi (2018); Barwick et al. (2025) on shipbuilding subsidies and Bai et al. (2021) on FDI-driven knowledge spillovers in the automobile industry. Additionally, recent quantitative work also examined the theoretical motivations for policy interventions (Liu, 2019; Bartelme et al., 2019). Our study complements this literature by providing a systematic overview of China's industrial subsidies since its WTO accession.

The rest of the paper is organized as follows. Section 2 describes the data, quality checks, and comparisons with other datasets. Section 3 presents the five facts. Section 4 concludes.

[2] In an early effort, DiPippo et al. (2022) and Criscuolo et al. (2022) tried to quantify subsidies but relied on estimates, and Criscuolo et al. (2022) also excludes China.

2 Data

2.1 Chinese Subsidy Notifications

This paper focuses on China's subsidy policies. China submits subsidy notifications to the WTO in compliance with the Agreement on Subsidies and Countervailing Measures (SCM). Reportable subsidies are those provided by governments or public bodies that constitute financial contributions or confer benefits, and are either specific to particular enterprises or industries (SCM Articles 1, 2, 25.2) or affect trade (GATT XVI:1). Although the SCM Agreement formally covers only goods-related subsidies, China indicates its notifications extend beyond this scope.

The notifications follow a standardized format, providing key information per program: subsidy title, active period, subsidy objective, relevant authorities, related policy documents, subsidy form, beneficiaries, values, and duration. Notification examples are provided in Appendix A.1, and the full list of questions is reported in Appendix A.2. Submissions are biennial and subject to committee review under Article 25. In addition, the counter-notification mechanism (Article 25.10) allows members to challenge non-reporting, creating a peer-monitoring system that discourages deliberate omissions. Although there are no explicit penalties, and smaller economies often struggle to submit due to capacity constraints, major economies—including the EU, U.S., and China—have submitted notifications for all years.[3]

China's notifications have covered central government programs since 2001 and, following an EU request, sub-central programs since 2015. We digitized the original files of all notifications, removed duplicates, improved information accuracy, and consolidated extensions of already active programs. Full details of the data construction process are provided in Appendix B.1 and B.2. In the end, this process yielded 1,256 unique programs—260 central and 996 local programs—which we then classified into one or more 1-digit Chinese industries.

[3]The WTO secretariat has no legal mandate to analyze the data itself. It digitized and released the 2019–2020 submissions in 2023 (Xiang and Mong, 2023), but soon discontinued the effort following opposition from certain members.

2.2 Subsidy Programs: Scale and Scope

The notified "programs" are not subsidy policies in the narrow sense. A central program, for example, has an average annual budget of 12.6 billion RMB. Tax incentives—such as the preferential treatment granted to foreign multinationals under the *Income Tax Law of the PRC for Enterprises with Foreign Investment and Foreign Enterprises (since 1991)* —are likewise reported as a single unified program. Each subsidy program in our database therefore represents a broad synthetic construct that may encompass multiple distinct sub-policies, which would appear as separate entries in other datasets such as the GTA or the PKU Law databases.

Appendix B.3 compares our data with other industry policy databases. One unique feature of our data is that, despite some gaps, it reports subsidy values or annual budgets for direct subsidies—information rarely available elsewhere, as government budgets are typically allocated at the project rather than policy level. Compared to the comprehensive legal database PKU Law used by Fang et al. (2025), our data reveals both overlaps and gaps: PKU Law lacks comprehensive coverage of pre-2000 subsidy policies that remained active afterward, and omits certain measures appearing in WTO notifications, particularly those that were highly specific or not formalized as legal documents. These patterns underscore the value of multiple data sources for understanding the Chinese subsidy policy landscape.

Throughout this paper, subsidies refer narrowly to those forms notified by China to the WTO: direct financial appropriations, grants, interest rate discounts, and preferential tax treatments. The first three are reported when programs enter central or sub-central budgets, while the last one is reported when it reflects explicit tax preferential schemes.[4] Implicit forms of support are not covered—an omission central to controversies over China's compliance. Broadly, the controversies concern three themes: how subsidies are defined in a non-market economy, the role of state-owned enterprises, and transparency. While acknowledging these controversies, we note that the first two have not been upheld in WTO dispute settlement (DS379, DS437), and the third largely reflects China's centralized policy structure. We discuss these issues in Appendix B.4. Importantly, compliance debates should not obscure the research value of the data, which provides unique insights into China's explicit subsidy practices.

[4]We thank staff members of China's Permanent Mission to the WTO for valuable information and clarification.

2.3 Assessing Data Reliability

In this subsection, we assess the quality and coverage of Chinese subsidy notifications. To assess quality, we verify whether the notification information aligns with the original Chinese policy documents. Using program names, responsible authorities, and legislative numbers, we successfully located the original documentation for *all* central programs and more than one-third of sub-central programs. We find strong alignment between the notification texts and the original documents. For local subsidies where original documents could not be found, these are typically either small programs—possibly never posted online—or older documents whose links are no longer active. When we include programs verified through indirect sources such as news reports, we can confirm the accuracy of at least 70% of China's notifications, accounting for 99% of the total reported subsidy value.[5]

To assess coverage, we ask whether all relevant subsidies are reported, or if there is strategic selective reporting. Since no comprehensive Chinese subsidy database exists for direct comparison, we conduct two exploratory checks. In the first check, we use the comprehensive legal repository PKU Law (`www.pkulaw.com`) to examine whether new preferential tax measures introduced in 2021 were reported to the WTO. We focus on tax measures because they are well documented in this legal database and constitute the largest notified category among central subsidies. We select 2021 because PKU Law's coverage improved over time and it marked the beginning of China's 14th Five-Year Plan (2021–2025). We identified 12 new preferential tax measures in PKU Law that clearly meet WTO notification requirements—all were reported.[6]

In the second check, we examine whether the Chinese government strategically underreports subsidies, particularly in sensitive or strategic industries. While we consider this unlikely (as we explain in Appendix B.4), we provide data-driven evidence by comparing Chinese notifications with subsidies cited in U.S. countervailing duty (CVD) cases against Chinese firms. To our knowledge, this constitutes the first systematic examination of this issue. Drawing on Federal Register notices and decision memoranda from the U.S. International Trade Administration (ITA), we digitized 3,559 subsidy mentions in CVD investigations. Because these mentions lack standardized

[5]For tax-preferential treatment, which has no value attached by nature, we successfully located all reported policies and verified their accuracy.

[6]One borderline subsidy that was not reported is "*The exemption of certain imported goods for universities, schools, scientific research institutions, and libraries*" (Chai Guan Shui [2021] No. 44; PKU Law reference CLI.4.5078350).

formatting, we manually reviewed each entry to determine whether it could be matched to our notification data. After excluding vague descriptions (e.g., "other subsidies"), we find that approximately 80% of subsidies cited in ITA investigations appear in our database.

Figure A.3-(a) presents a bag-of-words visualization of unmatched subsidy mentions by category, with Figure A.3-(b) providing a detailed breakdown. The most frequently cited unmatched practices are various forms of export credits, followed by IPO grants and stamp tax exemptions—measures that arguably do not meet the specificity requirement for WTO notification. Additionally, a substantial number of U.S. ITA citations involve policies not typically considered subsidies in the economic sense, such as labor rights protection policies, legal assistance provisions, and honorary awards to individuals.

Finally, to formally test for strategic underreporting, we match each U.S. investigation to its corresponding four-digit Chinese industry code using the associated HS codes reported on the U.S. ITA website.. We then compute industry characteristics for these sectors using data from the China Annual Industrial Survey (1998–2013) to test whether certain sectoral features are associated with a higher incidence of unreported mentions. The characteristics we consider include measures of sector size (number of firms, total employment, and value added), R&D intensity, the presence of MNEs or SOEs, and several indicators of government support—such as direct subsidies, the share of firms with government loans, and the share of firms located in industrial zones. Figure A.4 presents the results based on both logarithm levels and changes in the regressors. We first include one regressor at a time and then estimate a specification that includes all regressors jointly. The point estimates are imprecisely estimated across all explanatory variables and specifications, and they are economically close to zero in most cases.

In sum, in the second check, we find that about 80% of the policies mentioned in U.S. countervailing investigations are covered in China's subsidy notifications. Among the remaining unmatched mentions, we find no evidence that they are concentrated in industries with particular characteristics or development trends. In addition, a considerable share of the remaining 20% appear to have been included in the investigation reports primarily to strengthen the legal case, rather than to provide substantive evidence of subsidies designed to support specific industries.

The three validation exercises collectively suggest that the quality and coverage of Chinese subsidy notifications are satisfactory. We do not claim that the Chinese notifications capture *all*

subsidy information—no dataset on subsidies, to the best of our knowledge, can ensure complete coverage with certainty, especially given that the definition of subsidy varies across different research contexts. Rather, the purpose of these exercises is to lend credibility to the database and to show that it can serve as a useful resource, complementing other efforts, for understanding China's subsidy practices.

2.4 Other Data

We supplement the subsidy data with the following sources: (1) cross-country GDP per capita in 2018 from the IMF World Economic Outlook; (2) the WTO's own digitalization of 2021 subsidy notifications, which cover subsidies in place in 2019 and 2020 for all countries; (3) China's GDP data from 2001–2022 from the National Bureau of Statistics; (4) provincial GDP per capita and trade data from 2010–2014 from the National Bureau of Statistics, with trade openness calculated as imports plus exports over GDP and USD trade values converted to RMB using annual exchange rates.

3 Two Decades of China's Industrial Subsidies

Drawing on the data described above, we examine Chinese industrial subsidies over the past two decades. Our analysis produces five main findings presented below.

Fact 1. China's use of industrial subsidies has been increasing over time.

Figure 1-(a) plots the number of active subsidy policies each year, distinguishing central government programs (light-gray bars) from local government programs (dark-gray bars). Central government programs increased gradually from 85 in 2001 to 109 in 2014. After 2015, total notifications rose sharply, reaching 446 in 2022. However, this increase was driven primarily by a change in reporting methodology, as China began including sub-central government programs in response to an EU request within the WTO.

In comparison, subsidy values show a more substantial increase over time, as shown in Figure 1-(b). These values require further clarification: subsidy programs are reported under four

forms—direct financial appropriation (direct subsidies), interest discounts, grants, and preferential tax treatment. For the first three forms, which account for about 40% of central reporting incidence, the government reported budgetary values for roughly 80% of program-years, with the remaining 20% not available. Tax treatment, which accounts for the remaining 60%, by nature has no monetary value attached. Sub-central subsidies have slightly more missing values, but they are in much smaller scale, hence do not meaningfully affect aggregate trends.[7] We find no evidence that missing values are systematically concentrated in particular periods or sectors, and therefore use the reported values without imputation.

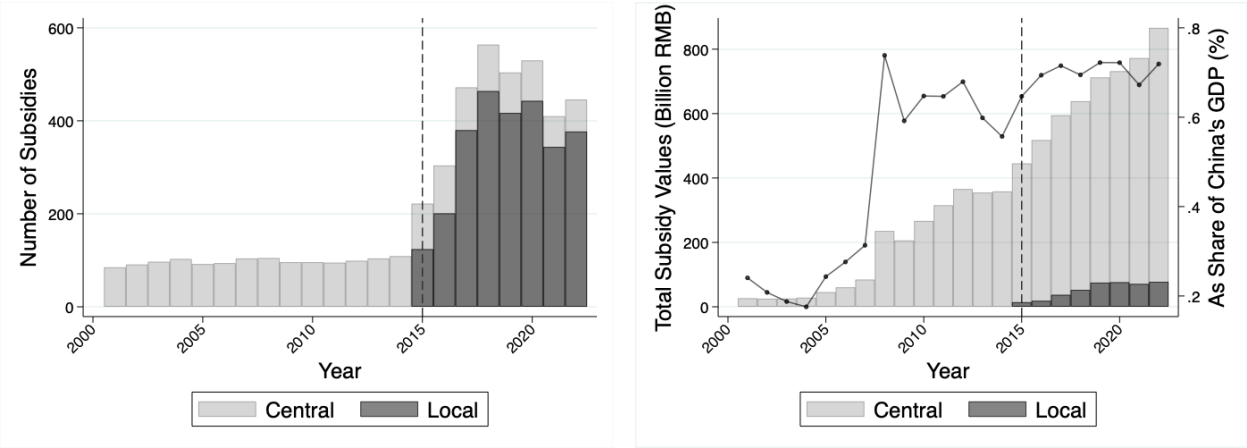
The increase in overall subsidy values was driven primarily by rising central government budgets. While absolute values grew in line with China's overall GDP growth, subsidies as a share of GDP followed a more complex trajectory. They rose sharply after 2004—likely reflecting a major expansion of rural support at that time—peaked around 2008, and have remained elevated since.[8] By 2019, subsidies amounted to roughly 0.8% of GDP, surprisingly not too far from the 0.9% estimate by DiPippo et al. (2022) for the directly comparable subsidy categories. Given that the values cover only about 40% of central subsidy projects, the number is also broadly align with Bickenbach et al. (2024), who estimate total Chinese industrial subsidies at around 221 billion euros, or 1.73% of GDP.

Fact 2. China subsidizes more than its development level predicts, with striking policy persistence.

In Figure 2-(a), we plot the number of industrial subsidies notified by countries in 2019 and 2020 against their 2018 GDP per capita. Similar to Juhász et al. (2022), we find that countries with higher GDP per capita tend to implement more industrial subsidies. A simple linear regression produces a coefficient of 0.79, with an R-squared of 0.26. However, as highlighted in red in Figure 2-(a), China employed industrial subsidies far more frequently than its economic level would suggest. Another notable outlier is the United States, which, according to the WTO subsidy database,

[7] The vast majority of subsidies reported by local governments are financial appropriations. Local reports contain more missing values, yet their budgets are orders of magnitude smaller than those of central programs (avg. 245 million vs. 12,600 million RMB). Using various extrapolations for the missing values, we find that they do not materially affect the findings presented in this paper. Accordingly, we report the data as is, while results incorporating extrapolated values are available upon request.

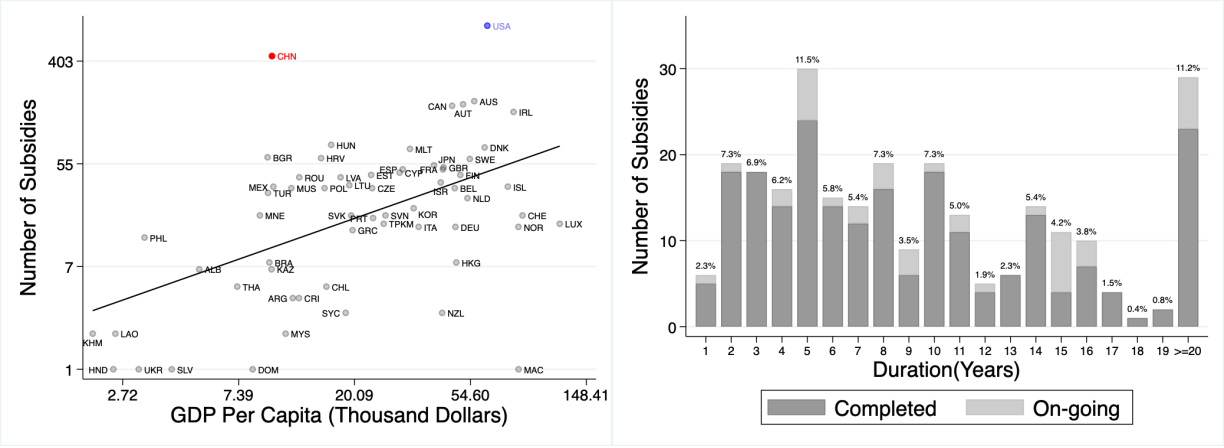
[8] From 2004, the Chinese central government significantly expanded subsidies for agriculture, rural areas, and farmers ("san nong"). See, for example, Huang et al. (2013) for details.



(a) Number of Subsidies (b) Total Values

Notes: This figure shows annual trends in the number and value of subsidies in China from 2001 to 2022, based on WTO notifications. Panel (a) reports the yearly count of central and, from 2015 onward, local subsidies. Panel (b) shows their total value, with the line chart indicating subsidy values as a share of GDP (right axis).

Figure 1: Annual Trends in Chinese Subsidies



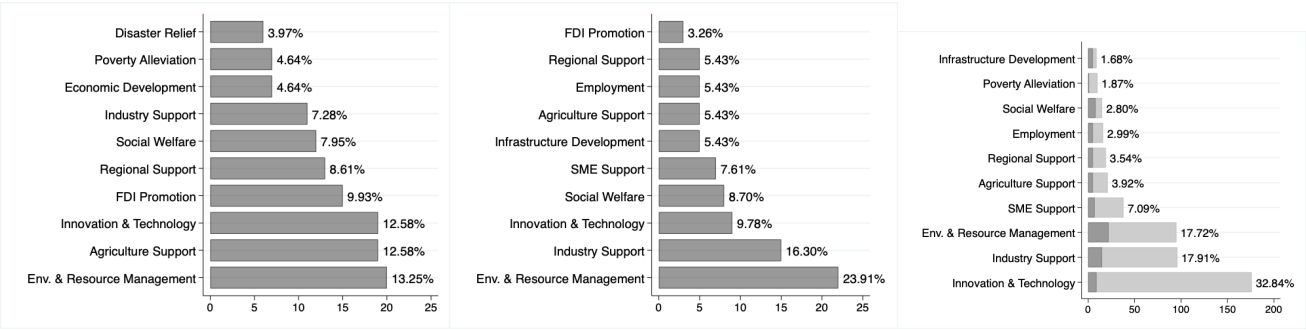
(a) International Comparison (b) Duration of Chinese Programs

Notes: Panel (a) shows the relationship between the number of subsidies and GDP per capita across countries in 2019. Both variables are displayed on a logarithmic scale, with axis labels reflecting the original (pre-log) values. Panel (b) plots the duration of central subsidy programs in China that were active at any point between 2001 and 2022.

Figure 2: Duration and Number of Subsidies

was the most frequent user of industrial subsidies in 2019-2020.

Together with the active use of subsidies, we find remarkable persistence in Chinese subsidy programs. Figure 2-(b) shows the distribution of program durations, distinguishing between on-going programs (which may be renewed after their initial period) and completed programs. We focus only on central programs, as sub-central government reporting began only in 2015, and those programs are on a much smaller scale. On average, a subsidy program lasts more than 10



(a) Central Gov., 2001 (b) Central Gov., 2022 (c) Central + Local, 2022

Notes: This figure shows trends in the number and share of subsidies by objective. Panels (a) and (b) report central government subsidies in 2001 and 2022, respectively, while Panel (c) includes both central and local subsidies in 2022. Percentages indicate each objective's share of total subsidies for the given year and government level.

Figure 3: Changes in Objectives: 2021 vs. 2022

years (mean duration of 10.37 years, including ongoing ones). Around 80% of programs lasted five years or more, and about 10% persisted for over 20 years, with a sizable share of these still ongoing. This persistence suggests the long-term strategic approach of the Chinese government to industrial policy, where subsidies are treated as sustained investments rather than temporary interventions. The extended duration of these programs also points to strong institutional commitment and policy continuity across political cycles.

Fact 3. Over time, subsidies aimed at promoting FDI have declined, while those targeting specific industries and promoting innovation and scientific development have risen.

Figure 3 reports the top 10 most frequently mentioned subsidy objectives in 2001 and 2022 (for both central government subsidies and the central and local combined in 2022). Notably, subsidies aimed at promoting FDI constituted nearly 10% of total subsidies in 2001, but this share plumbed to 3.3% by 2022 when focusing on central government subsidies, and to less than 1% when accounting for both central and local government reports.

In contrast, subsidies supporting specific industries rose from 7.9% in 2001 to 16.3% (17.9% with both local and central reports) in 2022, more than doubled over the period. Additionally, innovation and technology support emerged as a dominant focus, with nearly half of all subsidies in 2022 citing it as one of their objectives, accounting for over 30% of the total mentions.

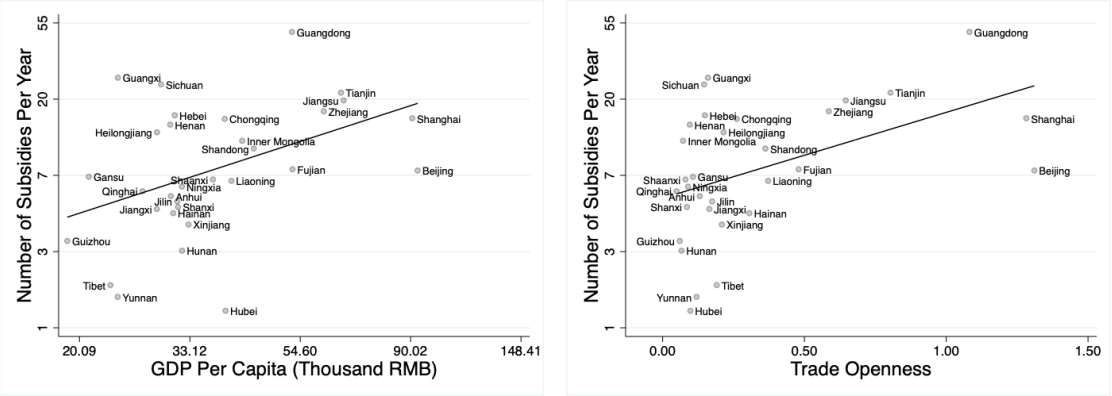
While this shift in subsidy objectives may appear surprising to some, it highlights an important yet often-overlooked fact: China's strategic pivot from trade and FDI liberalization toward

technological self-reliance and industrial sovereignty reflects deliberate long-term planning. The latter have been long-standing objectives that have gained prominence as China's development has entered a more advanced stage. Viewed in this light, trade and FDI liberalization may have been an intermediate stage in achieving this ultimate goal rather than an end in itself. Critically, industry policy has played a vital role in driving these transitions. The timing and scale of these policies may help explain, at least in part, China's evolution from an economy dependent on foreign capital and technology to an emerging technological power emphasizing domestic innovation and strategic autonomy —a shift that also both responds to, and helps explain, the intensified trade and technology tension between China and Western economies.

Fact 4. Within China, wealthier and more trade-oriented regions receive more subsidies from local governments.

One benefit of the WTO notification database is that it reports sub-central subsidies since 2015. In Figure 4-(a), we plot the average number of local subsidy policies (2015–2022) against the average GDP per capita (2010–2014) across 31 Chinese provinces. We find that wealthier regions receive more local subsidies. Figure 4-(b) plots the average number of subsidy policies (2015–2022) against trade openness (2010–2014), defined as the ratio of provincial imports and exports to GDP. A similar pattern emerges: regions more open to trade receive significantly more local subsidies. This aligns with prior research showing that firms in wealthier regions benefit more from subsidies as local governments have greater fiscal capacity (e.g., Raiser (1998) and Deng et al. (2025)).

Fact 4 is consistent with the cross-national pattern in Juhász et al. (2023) and the cross-regional pattern in Fang et al. (2025), despite methodological and data differences, lending credibility to each other. Within China, the cross-regional pattern mirrors the cross-country case in Figure 2-(b) but with a steeper slope: regressing log local subsidies on pre-period GDP per capita yields a coefficient of 0.94 (R-squared = 0.19). The magnitude is surprising, as one would expect smaller disparities within a country. Overall, Fact 4 suggests that subsidies provided by local governments may exacerbate, rather than reduce, regional disparities. Nevertheless, it worth to remember that local subsidies are much smaller than central programs—and their allocation does not necessarily mirror the overall spatial distribution of support. To some extent, it also reflects the conflicting interests between central and regional authorities.



(a) Development Level (b) Trade Openness Level

Notes: This figure illustrates provincial differences in subsidy use. Panel (a) plots the average number of subsidies (2015–2022) against average GDP per capita (2010–2014) across 31 provinces, and Panel (b) against trade openness (imports + exports over GDP, 2010–2014). Both variables are shown on a logarithmic scale with pre-log axis labels.

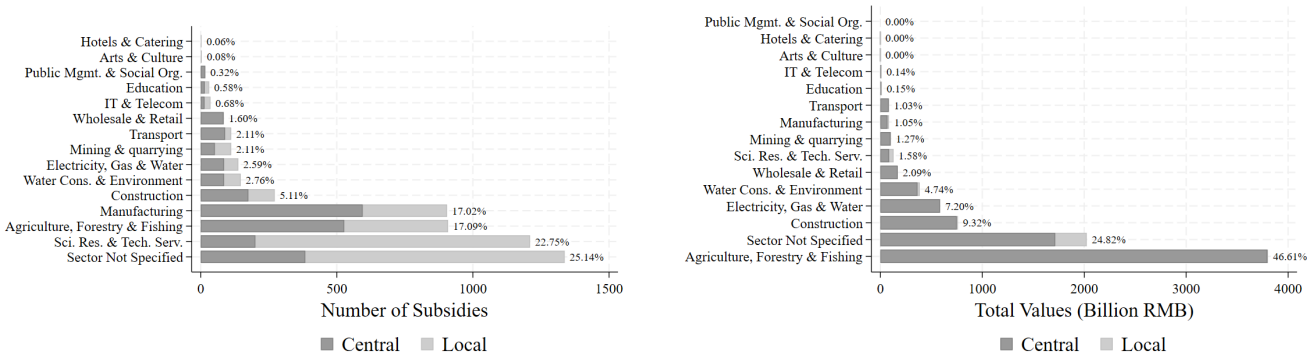
Figure 4: Number of Subsidies and Local Government Indicators

Fact 5. Subsidies are concentrated in a few sectors; measures of intensity based on counts versus values yield significantly different results.

Our final analysis examines the sectoral distribution of subsidies. Figure 5 presents the results in two panels. Panel (a) shows the *number* of subsidies across sectors, while Panel (b) shows total subsidy *values* (in billion RMB). Both panels distinguish central and local government notifications, with percentages indicating each sector's share of the total. By count, the largest categories are "Scientific Research and Technical Services," "Agriculture, Forestry and Fishing" (Agriculture in short), and "Manufacturing." Along with "Sector Not Specified," they together accounts for over 80% of unique program-years.

By value, however, the picture is quite different. Agriculture dominates, receiving nearly 40 trillion RMB between 2001 and 2022, likely a lower bound given missing data. The second-largest recipient is "Construction," reflecting China's emphasis on infrastructure investment. However, our data show that construction subsidies extend far beyond traditional infrastructure such as roads, railways, or ports, encompassing a wide range of projects that improve the operational environment for various sectors. Examples include subsidies for exhibition centers and export fairs (trade infrastructure), rural irrigation and wastewater systems (agricultural infrastructure), and innovation spaces near universities or innovation parks (R&D infrastructure).

In contrast, direct subsidies for "Scientific Research and Technical Services," though frequent, are small in value (1.6% of the total), as over 80% come from local governments, which operate



(a) Number of Subsidies

(b) Total Values

Notes: This graph shows the distribution of both the number and value of subsidies by sector, based on program-year from 2001 to 2022. In Panel (a), the percentages represent each sector's share of the total number of subsidies during this period, while in Panel (b), the percentages reflect each sector's share of the total value of subsidies.

Figure 5: Subsidies by Sectors

at smaller scale. Direct manufacturing subsidies are also modest, reflecting both the prevalence of indirect support (tax incentives, interest discounts) and relatively low per-policy values. On average, a manufacturing subsidy is less than twice the size of one for R&D and under 1/20 the size of one for agriculture.

China's decentralized, small-scale support for manufacturing or R&D activities contrasts with the traditional "big push" often emphasized in the literature and the perception that Chinese industrial policy is typically large-scale. Instead, it seems to align more closely with the insight of Juhász et al. (2024), who argue that technological upgrading is costly and best pursued incrementally, and with Bloom et al. (2019), who emphasize the importance of flexible toolkits. Overall, our findings underscore the importance of distinguishing between subsidies directly targeting production activities versus those supporting related infrastructure, and between subsidy counts versus subsidy values, as these distinctions can yield different policy insights.

4 Conclusion

This paper constructs a new database based on China's WTO subsidy notifications (2001–2022) and provides the first systematic overview of China's industrial subsidies over the past two decades. The analysis yields five key findings. First, China's use of industrial subsidies has been increasing over time, especially after 2004. Second, China has employed more subsidies than its

income level would suggest, with striking policy persistence. Third, subsidies and tax incentives for FDI have declined, while those targeting specific industries and promoting innovation have grown. Fourth, subsidy intensity varies across regions, with wealthier and more trade-oriented provinces providing more local support. Finally, subsidies are concentrated in a few sectors, and measures based on counts versus values reveal different patterns.

We hope these findings, along with the dataset we have assembled, will provide useful insights into China's industrial policies and facilitate further research. Promising directions include examining subsidies for infrastructure, exploring regional variations in relation to central–local dynamics, and studying how China's development path has shaped shifting subsidy objectives. Comparative analyses with other countries, such as the United States, or systematic evaluations of the general equilibrium effects of subsidies would also be valuable.

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Appendix for: "Five Facts About China's Industrial Policy: 2001 to 2022" (Not for Publication)

A Appendix: Additional Tables and Figures **1**

A.1 Examples of Central and Sub-central Notifications 1

A.2 List of Questions in G/SCM/6/Rev.1 and Constructed Variables 3

B Appendix: Data Construction Details **6**

B.1 Chinese Policy Identification and Duration 6

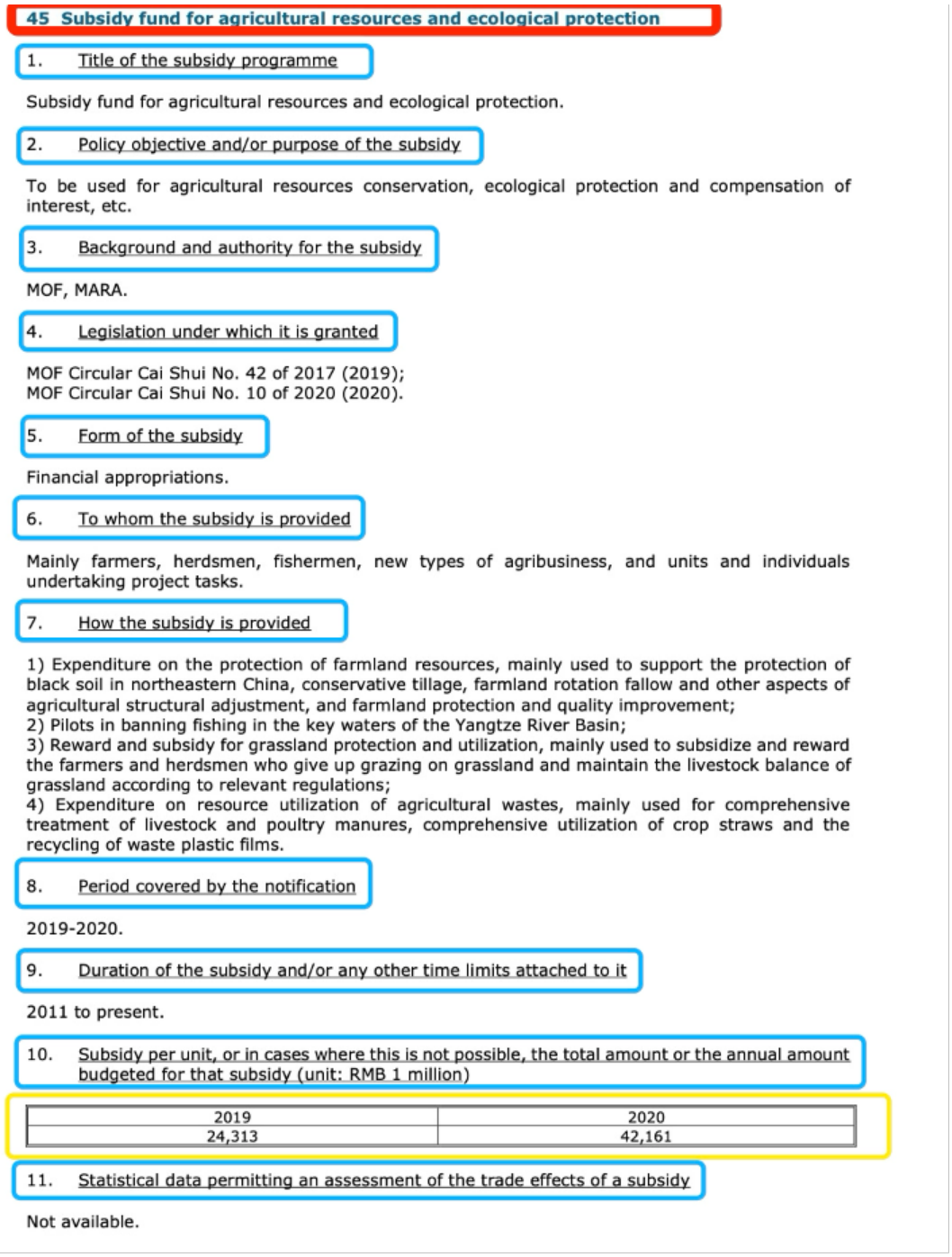
B.2 Classifications 7

B.3 Comparison with Other Databases 8

B.4 Controversies over Subsidy Notification and China's Compliance 9

A Appendix: Additional Tables and Figures

A.1 Examples of Central and Sub-central Notifications



45 Subsidy fund for agricultural resources and ecological protection

1. Title of the subsidy programme

Subsidy fund for agricultural resources and ecological protection.

2. Policy objective and/or purpose of the subsidy

To be used for agricultural resources conservation, ecological protection and compensation of interest, etc.

3. Background and authority for the subsidy

MOF, MARA.

4. Legislation under which it is granted

MOF Circular Cai Shui No. 42 of 2017 (2019);
MOF Circular Cai Shui No. 10 of 2020 (2020).

5. Form of the subsidy

Financial appropriations.

6. To whom the subsidy is provided

Mainly farmers, herdsmen, fishermen, new types of agribusiness, and units and individuals undertaking project tasks.

7. How the subsidy is provided

1) Expenditure on the protection of farmland resources, mainly used to support the protection of black soil in northeastern China, conservative tillage, farmland rotation fallow and other aspects of agricultural structural adjustment, and farmland protection and quality improvement;
2) Pilots in banning fishing in the key waters of the Yangtze River Basin;
3) Reward and subsidy for grassland protection and utilization, mainly used to subsidize and reward the farmers and herdsmen who give up grazing on grassland and maintain the livestock balance of grassland according to relevant regulations;
4) Expenditure on resource utilization of agricultural wastes, mainly used for comprehensive treatment of livestock and poultry manures, comprehensive utilization of crop straws and the recycling of waste plastic films.

8. Period covered by the notification

2019-2020.

9. Duration of the subsidy and/or any other time limits attached to it

2011 to present.

10. Subsidy per unit, or in cases where this is not possible, the total amount or the annual amount budgeted for that subsidy (unit: RMB 1 million)

2019	2020
24,313	42,161

11. Statistical data permitting an assessment of the trade effects of a subsidy

Not available.

Notes: This example is from G/SCM/N/372/CHN.

Figure A.1: Example of Notification

As shown in Figure A.1, the original notification provides three types of information: 1). heading under which multiple subsidy program is organized (highlighted in red); 2). Questions that structure the notification for each program (highlighted in blue); 3). Some responses are presented in tabular format (highlighted in yellow). In some sections, the entire presentation may be in tabular form, such as local-level Chinese subsidy notifications. An example is provided in Figure A.2.

II. SUBSIDIES AT THE SUB-CENTRAL GOVERNMENT LEVEL

1. BEIJING MUNICIPALITY

No.	Programme Authority	Programme Title	Policy objective	Legal Basis	Form of subsidy	To whom the subsidy is provided	How the subsidy is provided	Duration of the subsidy programme	Period covered by the notification	Total Amount or Annual Budget (RMB 10,000 Yuan)		Trade Effects
										2019	2020	
1	Beijing Municipality	Fund for Energy Conservation, Emission Reduction and Environmental Protection	To promote energy conservation and emission reduction	Jing Cai Jing Yi No. 1917 of 2017	Financial appropriations	Eligible enterprises	Grant	2017 to present	2019-2020	107143.02	11239.68	Not available
2	Beijing Municipality	Fund for Resolving of Overcapacity in Coal Sector and Resettlement and Relocation of Employees	To resolve overcapacity in coal sector	Jing Cai Jing Yi No. 2276 of 2016	Financial appropriations	Eligible enterprises	Grant	2016-2020	2019-2020	5000	5000	Not available
3	Beijing Municipality	Fund for New Energy Passenger Vehicles	To save energy and protect the environment	Jing Cai Jing Yi No. l296 of 2018	Financial appropriations	Eligible enterprises	Grant	2017 to present	2019-2020	38975	49520	Not available
4	Beijing Municipality	Fund for Construction of Charging Infrastructures of Electric Vehicles	To save energy and protect the environment	Jing Zheng Ban Fa No. 36 of 2017	Financial appropriations	Eligible enterprises and projects	Grant	2018 to present	2019-2020	Amounts varied		Not available
5	Beijing Municipality	Fund for Promotion and Using of Pure Electric Vehicles in Taxi Industry	To save energy and protect the environment	Jing Cai Gong Yong No. 1325 of 2019	Financial appropriations	Eligible taxi operators	Reward	July 2019 - December 2021	2019-2020	29520	73800	Not available
6	Beijing Municipality	Fund for Promotion and Using of New Energy Light Trucks	To save energy and protect the environment	2020 Plan of Beijing Municipality on Incentives for Operation of New Energy Light Trucks	Financial appropriations	Eligible road freight transport operators	Reward	2020 to present	2019-2020	Not applicable	Amounts varied	Not available

Notes: This example is from G/SCM/N/372/CHN.

Figure A.2: Example of Entire Programs in Tabular Form

A.2 List of Questions in G/SCM/6/Rev.1 and Constructed Variables

Table A.1: Notification Questions and Extracted Variables from the Text

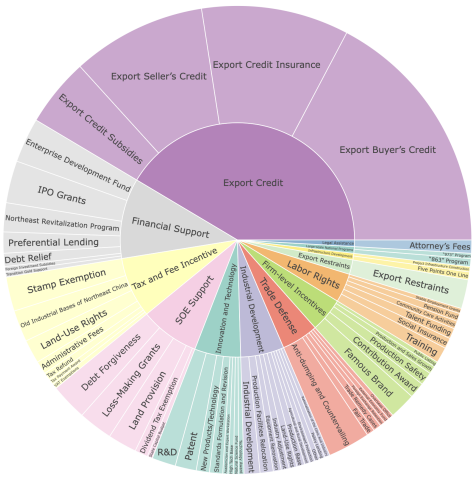
No.	Question[A.1]	Variables
1	Title of the subsidy programme, if relevant, or brief description or identification of the subsidy.	title
2	Period covered by the notification. The period to be covered by the notification should be the most recently completed calendar or fiscal year. In the latter case, the start and end dates of the fiscal year should be specified.	notification period
3	Policy objective and/or purpose of the subsidy.	objective; sector
4	Background and authority for the subsidy (including identification of the legislation under which it is granted).	authority; legal document; central government dummy; province
5	Form of the subsidy (i.e., grant, loan, tax concession, etc.).	form of subsidy
6	To whom and how the subsidy is provided (whether to producers, to exporters, or others; through what mechanism; whether a fixed or fluctuating amount per unit; if the latter, how determined).	beneficiary; sector
7	Subsidy per unit, or in cases where this is not possible, the total amount or the annual amount budgeted for that subsidy (indicating, if possible, the average subsidy per unit in the previous year). Where provision of per unit subsidy information (for the year covered by the notification, for the previous year, or both) is not possible, a full explanation.	subsidy value

Continued on next page

No.	Question	Variables
8	For the information cited in items 3 to 7 above, the notification does not necessarily have to have an independent heading corresponding to each item, and may provide information on multiple items in one heading (e.g. provide information on items 3 and 4 under one heading). In this case, the notification must clearly specify what items are covered by which heading.	/
9	Duration of the subsidy and/or any other time limits attached to it, including date of inception/commencement.	start year; end year
10	Statistical data permitting an assessment of the trade effects of the subsidy. The specific nature and scope of such statistics is left to the judgement of the notifying Member. To the extent possible, relevant and/or determinable, however, it is desirable that such information include statistics of production, consumption, imports and exports of the subsidized product(s) or sector(s):	/
10(a)	for the three most recent years for which statistics are available;	/
10(b)	for a previous representative year, which, where possible and meaningful, should be the latest year preceding the introduction of the subsidy or preceding the last major change in the subsidy.	/

[A.1]The information requested in points 1-9 below must be provided in full: (a) for all subsidies in the case of full notifications; (b) for subsidies notified for the first time in update notifications. In the case of subsidies which have previously been notified, the information provided in update notifications under points 3, 4, 5, 6 and 8 may be limited to indicating any modifications (or the absence thereof) from the previous notification.

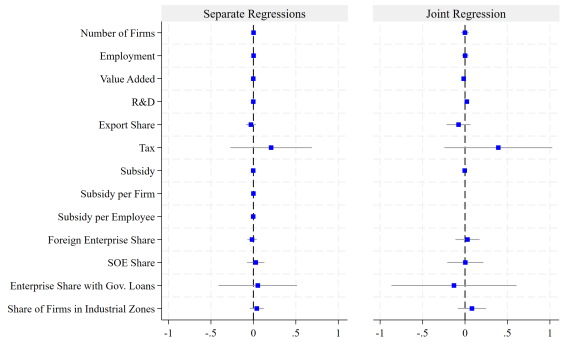
(a) Major categories



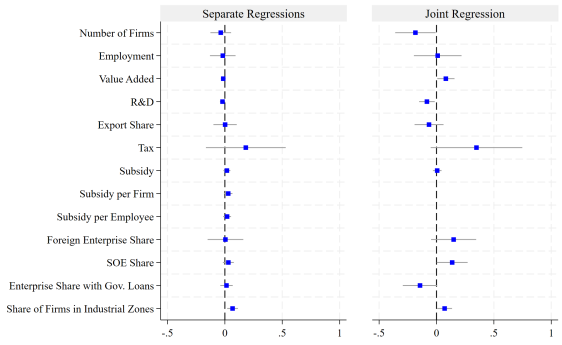
(b) Detailed breakdown

Notes: The left panel displays the frequency of mentioned subsidy practices, grouped by category, in U.S. countervailing investigation decision memos against China that could not be linked to China's WTO subsidy notifications. The right panel provides a more detailed breakdown of the frequency of specific mentions within these categories.

Figure A.3: Unmatched Mentions in U.S. Countervailing Duty Cases Against China



(a) Industrial Characteristics (Levels)



(b) Industrial Characteristics (Changes)

Notes: The left panel (a) reports regressions of the share of unmatched mentions by industry-year on lagged industrial characteristics. The right panel (b) reports regressions of the share of unmatched mentions on the industry's annualized growth rate over the preceding five years.; when fewer than five years of data are available, the most recent period is used. For both panels, the first column presents coefficients from bivariate regressions including one regressor at a time, while the second clumne includes all regressors jointly. Explanatory variables expressed as values (rather than shares) are log-transformed. Coefficients are shown as blue dots, with 95% confidence intervals in gray.

Figure A.4: Unmatched Mentions and Industrial Characteristics

B Appendix: Data Construction Details

B.1 Chinese Policy Identification and Duration

This paper focuses on China's subsidy policies. China submitted its first subsidy notification to the WTO in 2006, reporting programs active in any of the years from 2001 to 2004. Subsequent notifications were submitted in 2011 and 2015, detailing subsidies for the periods 2005 to 2008 and 2009 to 2014, respectively. Since 2018, China has adopted a biennial reporting schedule and begun to include information on subsidy programs at both central and sub-central levels.

The Chinese government provided the start and end years for each program. However, in subsequent notification periods, some subsidies may have terminated earlier than planned, been renewed, or reappeared as new programs. Additionally, local governments sometimes confuse the active period of a program with the notification period. To address these discrepancies, we located the original Chinese legal documents for the subsidy programs in question, using the program's name, issuing authorities, and relevant legislation numbers. Upon reviewing these documents, we classified programs as a single subsidy program if they appeared to be extensions of an existing one—for example, if they referred to document numbers of an earlier program as the preceding policy—or if they shared the same name, format, policy content, and a similar set of issuing authorities and targeted beneficiaries. In total, we identified 1,256 unique subsidy programs: 260 at the central government level and 996 at the local government level.[A.2]

The notified "programs" are not subsidy policies in the narrow sense. A central program, for example, has an average annual budget of 12.6 billion RMB. Tax incentives—such as the preferential treatment granted to foreign multinationals under the *Income Tax Law of the PRC for Enterprises with Foreign Investment and Foreign Enterprises (since 1991)* —are likewise reported as a single unified program. In practice, each notified program is a broad synthetic construct that may encompass many distinct sub-policies that would appear separately in other datasets (such as the GTA). This distinction should be kept in mind when interpreting our results.

For each program, we then cross-compare the WTO subsidy notifications with the original Chinese documents to verify and correct the start and end years. Unless specified otherwise, the unit of observation throughout the paper is *a unique subsidy policy in a given year*.

[A.2] We did not encounter cases that were significantly difficult to classify in this process, as the same policies are typically communicated using very similar, if not identical, official language. In many instances, these policies also share the same "starting year" in WTO notifications.

B.2 Classifications

For most variables extracted from the notification documents, we found that either consistent information was provided (e.g, variables related to issuing authorities and subsidy forms), or in cases of ambiguity, we can refer back to the original Chinese documents to make corrections (e.g, subsidy duration and values). Nevertheless, despite having recognizable text patterns, some of the information the government reported did not fit into any of the existing classification schemes.

For this paper, the relevant information falling into the last category concerns the objectives of the subsidies and their targeted sectors. For objectives, we use question 3 of the subsidy notification: *"Policy objective and/or purpose of the subsidy."* From the information provided, we identified and classified 19 distinct objectives, ranging from IP protection to environmental protection and resource management. The complete list is shown in Table A.2.

Table A.2: List of Subsidy Objective

Number	Subsidy Objective
1	Environmental And Resource Management
2	Innovation And Technology
3	Industry Support
4	Agriculture Support
5	Small Business Support
6	Social Welfare
7	Regional Support
8	Poverty Alleviation
9	Employment
10	Foreign Investment Promotion
11	Economic Development
12	Infrastructure Development
13	Disaster Relief And Recovery Support
14	Overcapacity Reduction
15	National Security And Public Safety
16	International Trade Promotion
17	Domestic Investment Promotion
18	Financial Market Development
19	Intellectual Property (IP) Protection

We then construct two crosswalks. The first crosswalk links each subsidy to one or more objectives, based on the text in question 3, *"Policy objective and/or purpose of the subsidy,"* associated with that subsidy.

The second crosswalk assigns each subsidy to one or more 1-digit sectors in the China Industry Classification (GB/T4754), using the subsidy name and text from Question 3 and Question 6 (*"To whom and how the subsidy is provided"*). We first match subsidies to sectors based on text similarity between sector descriptions and the subsidy information, then manually verify all assignments. Of the 1,256 subsidy programs, around 20% do not target specific sectors but instead focus on specific regions or firms, such as *"Special subsidies for impoverished areas in Gansu Province and Ningxia Hui Autonomous Region."* or *"Firms with over 50% disabled employees."* In these cases, we classified the target sectors as "Not Specified."

B.3 Comparison with Other Databases

World Bank (2022) surveys available subsidy data, noting that most information is collected by authoring institutions—the IMF, OECD, World Bank, and WTO—though coverage usually spans only one or a few industries. Beyond these, three organizations independently compile subsidy-related data: CEP's Global Tax Expenditure Database (aggregate, country-level estimates of revenue forgone from preferential tax treatments), the IEA's World Energy Outlook (subsidy estimates for coal, oil, gas, and electricity, but excluding other sectors), and the Global Trade Alert (GTA) database, which records a broad range of policy interventions, including subsidies. Building on the GTA, Juhász et al. (2022) develop an automated text-based classification of industrial policies, enabling large-scale cross-country comparisons.

Other contributions have drawn on country-specific sources. Most relevantly, Fang et al. (2025) applied large language models to analyze three million Chinese policy documents from `www.pkulaw.com`, extracting structured information on policy objectives, targeted industries, and implementation mechanisms. Their PKU Law–based approach highlights the richness of domestic legal and regulatory texts, which is particularly valuable for analyzing regional policy variation within China, since WTO notifications did not cover regional subsidies until 2015.

Our dataset provides a complementary perspective: each subsidy notification should be viewed as an umbrella program encompassing multiple sub-policies. A single program typically links to several policy documents, and cross-validation with PKU Law reveals both overlaps and gaps. While PKU Law is extremely comprehensive, it does not aim to capture all policy implemented in China. Broadly speaking, we observe two main cases where the relevant information may not appear. The first concerns subsidy policies launched before 2000 but still active afterward: although PKU Law includes some earlier materials, comprehensive coverage only began after 2000. The second concerns certain regional measures that appear in WTO notifications but not in PKU Law, likely because they were highly specific or not formalized as legal

documents. These patterns underscore the value of drawing on multiple sources to build a more complete picture of Chinese subsidies.

Another unique feature of China's WTO notifications is that they provide information on the values or annual budgets of subsidy programs involving direct financial appropriations, grants, and interest-discount (tax incentives, by their nature, do not have budgets). Such financial details are rarely available in individual policy documents, as funding is typically allocated at the project rather than the policy level.

B.4 Controversies over Subsidy Notification and China's Compliance

General Concerns over Subsidy Notification

Although China has submitted notifications in all years, the overall compliance rate among WTO members remains relatively low (Tu and Li, 2020). A frequently invoked concern is that without enforcement mechanisms for non-compliance, and given the potential risk of triggering countervailing duty investigations, members may face incentives favoring under-reporting. We argue that this concern, while understandable, does not align well with either the institutional context or empirical evidence, for three reasons.

First, the WTO's counter-notification mechanism under Article 25.10 creates a peer-monitoring system that raises the costs of non-reporting. Any member can formally bring another's omissions to the attention of the Subsidies Committee, increasing transparency and scrutiny. The reputational costs of discovered omissions may exceed those of proactive disclosure, particularly for major trading nations under close scrutiny, such as China.

Second, the informational disconnect between WTO notifications and countervailing duty investigations undermines strategic under-reporting incentives. Taking China as an example, its WTO notifications report subsidies at aggregated levels. Countervailing investigations, however, require product- or firm-specific information: benefit amounts, recipient companies, and allocation mechanisms. So in practice, U.S. investigations against Chinese products often rely on corporate financial statements, government gazettes, and company administrative records rather than WTO notifications.[A.3] This informational mismatch makes strategic omissions at the notification level of limited value.

Third, actual notification patterns suggest that non-compliance often reflects capacity constraints rather than strategic concealment. Many developing countries have actively sought WTO technical assistance

[A.3] See, for example, U.S. countervailing duty investigations on Chinese solar panels, steel, and aluminum (Federal Register notices, 2010–2024).

to improve notification quality, and the Chair of the WTO Committee on Subsidies and Countervailing Measures has emphasized capacity limitations as a key factor in non-compliance.[A.4]

Controversies over China's Compliance

Controversies surrounding China's WTO subsidy notifications focus on three areas. First, debates arise over what constitutes a subsidy given China's "non-market economy" status, where government involvement extends beyond traditional market-based models. Second, state-owned enterprises create ambiguity about whether their activities represent commercial behavior or implicit subsidies. Third, concerns center on the comprehensiveness and timeliness of China's reporting. These debates reflect the challenge of applying WTO frameworks—designed primarily for market economies—to China's distinctive economic system, as well as differing interpretations between China and its trading partners on compliance requirements (Bown and Hillman, 2019; Wu, 2016).

These areas help clarify what critics mean when claiming that China's notification quality is inadequate. While these arguments—primarily from the United States—raise legitimate concerns, it is notable that the first two have not been upheld in WTO dispute settlement proceedings (see DS379 and DS437). Regarding transparency concerns, the criticisms warrant closer examination. On reporting delays: the United States did raise counter-notifications about China's late submissions in the early years following China's WTO accession. However, these initial delays largely reflected capacity constraints and unfamiliarity with notification procedures rather than strategic non-compliance. China subsequently established special working groups to ensure timely reporting and submitted multiple supplementary notifications until 2016 to complete gaps in earlier reports.

On the alleged lack of detail: this criticism reflects fundamental differences in how China and its critics structure subsidy policies. Chinese subsidies are typically not enacted through discrete legislative acts or narrowly-defined programs as in some Western systems. Reporting at the level of major central government initiatives is therefore appropriate to China's policy framework. Moreover, China's notifications include policy reference numbers that allow interested parties to access detailed implementing regulations.

A further question arises: poor reporting quality compared to what? In preparing the 2023 notification database,[A.5] Xiang and Mong noted that China ranks among the most thorough reporters in terms of comprehensiveness, detail, and consistency—standing out for reporting quality even if falling short of

[A.4] WTO, "Transparency and subsidy notification compliance spotlighted at committee meeting," WTO News, October 29, 2024.

[A.5] The WTO digitized subsidy notifications for all members for one year (2023) but did not continue this initiative.

some ideal standards. This contrast prompted us to consult various scholars familiar with WTO policy, WTO officials responsible for digitizing the 2023 notifications, and the Chinese officials who handle subsidy reporting at China's WTO mission. We find that aside from the Chinese staff responsible for data collection, none had systematically reviewed what China actually notified. The widespread criticisms thus lack empirical grounding, reflecting instead demands for expanded subsidy definitions and more detailed reporting—demands that may in some cases serve political purposes beyond compliance concerns.[A.6] As Bown and Hillman (2019) observes, China attracts disproportionate scrutiny not necessarily because its compliance is uniquely deficient, but because its economic size makes it a focal point of trade concerns."

Conclusion

We hope the discussion above clarifies controversies surrounding China's WTO subsidy notifications. What constitutes a subsidy and what constitutes "sufficient detail" will remain contested among members with differing interests and capacities. However, these normative debates should not obscure the research value of the notification data themselves.

[A.6] For example, despite frequent criticism of China's reporting practices from the U.S., we find that the notification quality submitted by the U.S. itself is relatively low. In its 2023 notifications, the U.S. ranks highest among major economies for the percentage of mandatory questions left unanswered. Navarra (2023) also found evidence of substantial underreporting by the U.S., although this finding should be interpreted with caution because the datasets used for comparison employed different subsidy measurement methods from those used in WTO notifications.