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China

China's "New" Strategic Industries Will Not Produce 5% GDP Growth

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Endeavour Tian (etian@rhg.com), Logan Wright (lwright@rhg.com), Allen Feng (afeng@rhg.com)

China's "new" high-technology industries will not generate investment sufficient to power 5% GDP growth in the years ahead. New input-output tables released by the National Bureau of Statistics reveal these industries remain too small relative to traditional sectors such as property and infrastructure investment. China's past economic performance has clearly been overstated, and the economy will remain more dependent upon export growth than domestic investment in the future.

For China economics geeks like us, Christmas sometimes arrives in the form of a new dataset that allows us to take a different look at a persistently difficult question. So it was this year with the quiet November release of new NBS input-output tables for the year 2023. We had been waiting for these tables because they would provide the first official indicators of the upstream and downstream economic impacts of China's new strategic industrial policy priorities—the "new quality productive forces" that Beijing hopes will deliver stronger productivity growth to China's economy. Admittedly, the releases were still limited, as we received new data on the electric vehicle sector, batteries, and the power sector, but nothing new on artificial intelligence and robotics.

The critical macroeconomic question is whether the decline in the "old" drivers of China's economy—property and infrastructure investment—is likely to be larger or smaller than the potential growth from the "new" industries—electric vehicles, artificial intelligence, robotics, batteries, and other high-technology sectors. The most recent full NBS input-output table before this release was from 2017 (two more limited releases were available in 2018 and 2020 as well), before there was significant data specific to these industries. So the release of the 2023 table—which measures the upstream inputs and downstream final demand and value-added produced within particular industries—is one of the first datasets concerning whether Beijing's bet on new growth drivers is likely to pay off.

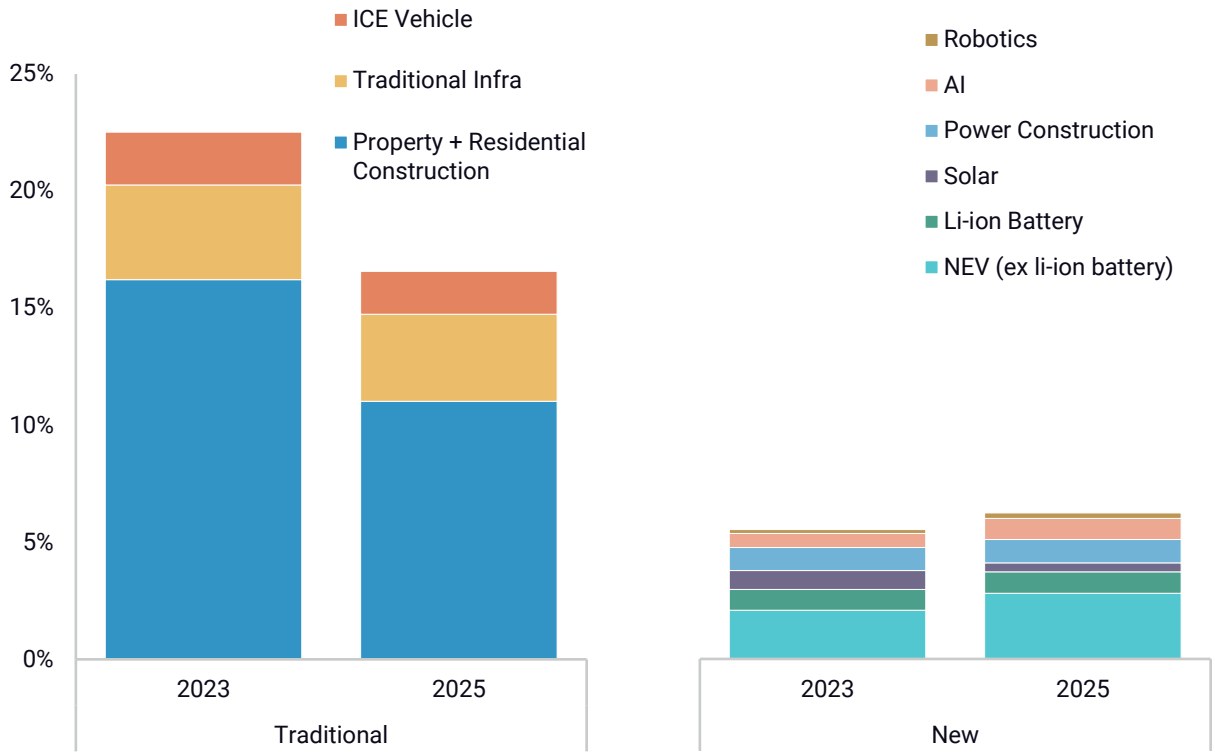
Based on this new dataset and secondary industry-specific sources that include Rhodium Group's Global Clean Investment Monitor, **the estimated decline in economic output from China's older industries has been around six times larger than the impact of the pickup in new growth drivers over the past two years, from 2023 to 2025.** Admittedly, there are considerable uncertainties around some of these industry-specific estimates of output, but these are unlikely to change the overall conclusion.

Output in the property sector, some components of infrastructure investment, and conventional internal combustion engine (ICE) vehicles declined as a proportion of GDP

by around six percentage points, from 23% to 17%. The pickup in output from new energy vehicles (NEVs), lithium-ion batteries, solar technology, artificial intelligence, robotics, and new electric power construction was less than one percentage point of GDP, from 5.5% to 6.3%. The new growth drivers have a little more than one-third the impact of traditional industries, even with a much smaller property sector after four years of contraction.

Those results are summarized in Figure 1 below, with many more details about the calculations in individual industries in the appendix. For industries specified in the input-output tables themselves, we used the stated levels of final demand and value-added (GDP) straight from the tables. For others, we used secondary sources of output and financial data from industry associations and listed companies. For most industries, we did not include the value-added from related services sectors as these were not available, so our calculations remain narrow. The AI sector is a notable exception, as software output was included. Value-added from services related to the property sector was also included as this level is specified by the NBS, but most of the decline in property-related activity did not occur in the services component of the industry.

FIGURE 1
Estimated upstream and downstream economic output of traditional and "new" industrial sectors, 2023 and 2025
Percent of GDP



Source: National Bureau of Statistics 2023 Input-Output Tables, Rhodium Group Global Clean Investment Monitor, Rhodium Group calculations

Falling prices also mitigate impact of new industries

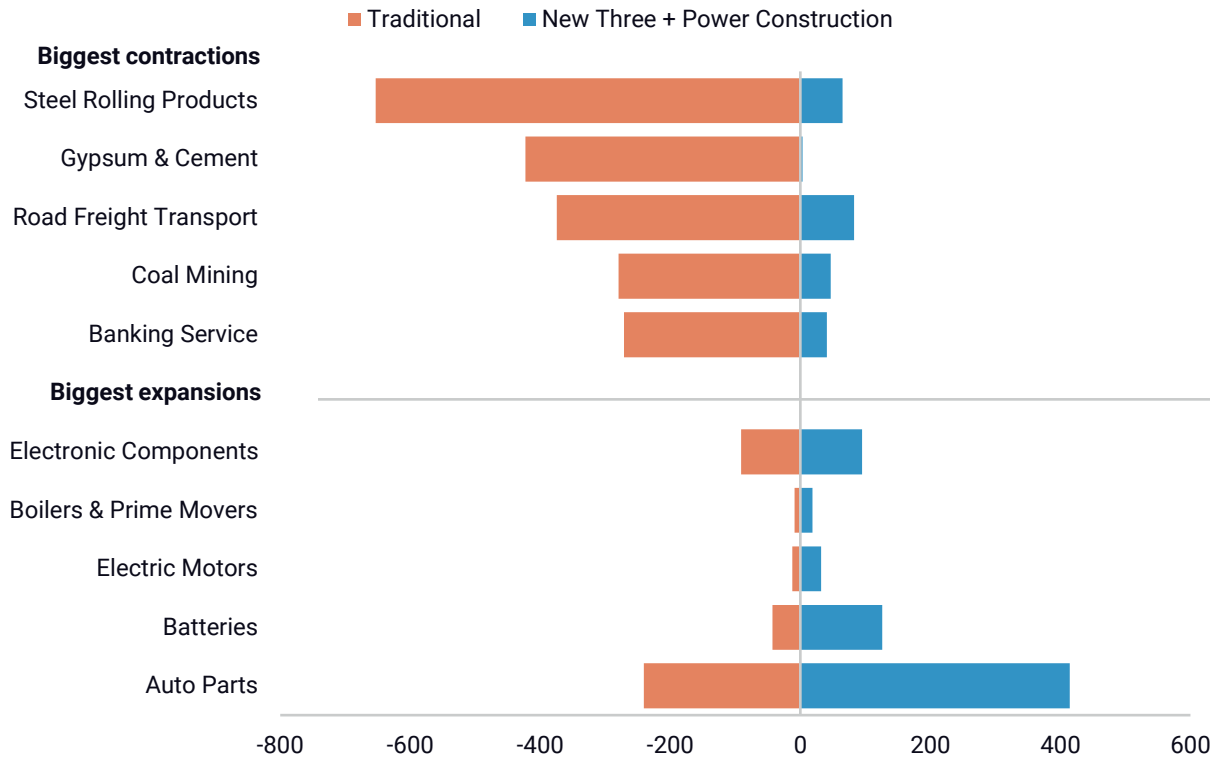
The auto industry offers a useful example that explains how the downstream impacts of China's new industries are simply smaller than those in traditional industries. Over the last five years, NEVs have rapidly replaced ICE vehicles, reaching around 55% of all new auto sales in China last year. The growth in the NEV sector has been significant, measured via our input-output calculations at around 895 billion yuan over the past two years. But the associated contraction in output from ICE vehicles has been a bit less than half of the expansion, at 357 billion yuan. Given lower average prices of NEVs, the total output associated with ICE vehicles was still estimated to be 232 billion yuan higher than that of NEVs in 2025.

The overall expansion of auto retail sales in China has been limited, averaging only 3.3% from 2021 to 2025, while prices have fallen, requiring aggressive subsidies to maintain sales (See August 2025, "China's Subsidies Are Fueling 'Involutionary' Competition in the Auto Sector"). The domestic auto industry is already facing global pushback against continued exports from China, and overcapacity is reducing the prospect for new investment in the future. Even though investment growth in the industry was stronger than most other sectors in 2025, growth in new production capacity in volume terms was limited. New investment is likely focused on improving existing production lines and automated driving systems. Some of this investment may be resilient even if auto sales and output decline in the future. But in the short term, sales and output in 2026 will likely weaken relative to 2025 as subsidies wind down.

Declining product prices reduced measured output in the lithium-ion battery and solar sectors to a far greater extent than the NEV sector. The lithium-ion battery sector reported limited growth of 25% in total output value from 2023 to 2025 relative to its total output volume, which more than doubled. The solar sector's total output value plunged by 38% from 2023 to 2025 despite growth in output volumes. Collapsing prices of oversupplied products also discouraged investment in the battery and solar sectors, which also halved.

Figure 2 below highlights the five largest contractions and the five largest expansions of intermediate goods demand for both traditional industries and China's new growth drivers.

FIGURE 2
Estimated change in intermediate goods demand to fulfill final demand in "traditional" versus "new" industrial sectors, 2025 vs. 2023, top five and bottom five sectors
Billion yuan



Source: National Bureau of Statistics 2023 Input-Output Tables, Rhodium Group calculations. New three includes electric vehicles, batteries, and solar.

Auto parts are the largest source of growth of these intermediate components. But the contractions in demand resulting from slowing property construction and infrastructure investment in other intermediate goods are simply far, far larger. Interestingly, banking services are one of the largest drivers of declines in intermediate goods as well, reflecting the weakness in credit demand and the decline in overall lending activity.

This isn't going to work

There are a few immediate implications of this analysis. **The first is that China's chosen economic development strategy will not produce Beijing's targeted rates of economic growth for the next five years, or longer.** Real GDP growth of 5%—Beijing's targeted level in recent years and likely its goal for 2026—would require at least 2 percentage points of growth from new fixed capital formation (investment) every year, which is around what China has been officially reporting in recent years.

Electric vehicles have likely already reached their fastest rates of growth, and output in the industry may be slowing in the years ahead. Even if there is no contraction in property, infrastructure investment, ICE vehicles, or any other sector, the remaining "new" industrial sectors (excluding NEVs) would have to expand roughly sevenfold over the next five years to produce 2 percentage points of overall investment growth per year. For 2026 alone,

this would require around 2.8 trillion yuan in new investment on top of last year's levels, or around 120% more than the 2025 estimated level of 2.3 trillion yuan in total investment in these sectors (excluding the NEV sector). That may be possible in AI or robotics for a year or two given the low level of current investment in those sectors and the potential for faster productivity improvements in other industries, but it's probably not going to be sustained across all of China's new industrial sectors. Total output growth across all "new industries" (including NEVs) has only averaged 10% over the past two years. In addition, property and infrastructure investment collectively are certainly going to continue slowing, as credit growth decelerates and local government debt continues accumulating. ICE vehicle output will likely continue declining as well.

The new growth drivers will simply not produce enough output to drive 5% growth in the next five years. They are simply too small as a proportion of China's economy.

The second implication is that China's past economic performance has clearly been overstated, particularly since the decline of the property sector starting in 2022. We have made this case extensively (See December 2025, "China's Economy: Rightsizing 2025, Looking Ahead to 2026"), but the new analysis highlights that no other source of investment has offset the decline in property and infrastructure in particular. If these "new quality productive forces" have not produced the required economic offset so far, it remains to be seen what other industries could have possibly filled in the gap over the past four years.

The third implication is that China will remain even more reliant upon exports in the future, leaving the economy vulnerable to new trade restrictions. China's development strategy and economic growth targets remain dependent upon investment and exports, but there is no clear prospect for domestic investment to produce the necessary demand to reach targeted growth rates, even in newer industries. This means that Beijing will become even more dependent upon gaining market share in export markets, in both new and traditional industries. The likely impact will be additional exported deflationary pressures via goods prices from China. If reducing trade imbalances is a priority, Beijing's trading partners will need to consider broader restrictions on China's exports.

Fourth, China's shift to "new" industries will keep employment and consumption under pressure. Based on recent national economic census data, employment in the construction and property sectors increased from 72 million to 87 million from 2018 to 2023, or from 9% of total employment to 12%. With these traditional sectors collapsing over the last three years, associated job and income losses should be significant. At the same time, labor demand from higher-wage new industrial sectors was much weaker. Median employment per firm among A-share listed chip and cement companies we surveyed was 830 and 20,174 people respectively, even though average salaries were three times higher within chip firms relative to cement producers. Nor is there likely to be a meaningful redistribution of wealth through China's tax system, which depends heavily upon value-added taxes. The shift to newer industries is likely to be marked by lower levels of new employment and consumer spending.

The summary calculations of the associated economic impact of investment and output in new versus traditional industries are listed in Table 1 below, and the methodology is detailed in the appendix.

TABLE 1
Estimated calculations of final output and impact on GDP, new and traditional industries
Billion yuan unless otherwise specified

		2023	2025	CAGR
Total GDP		130,097	140,184	4%
Property + residential construction	**Final demand (I/O Table)**	**21,091**	**15,455**	**-14%**
Traditional infrastructure	**Final demand (I/O Table)**	**5,272**	**5,202**	**-1%**
ICE vehicles	**Total output (I/O Table)**	**2,931**	**2,574**	**-6%**
Total traditional		29,293	23,231	-11%
NEV (ex. li-ion battery)	**Total output + FAI**	**2,722**	**3,953**	**21%**
	NEV (excludes li-ion battery input)	1,130	1,987	33%
	Capacity FAI	1,515	1,840	10%
	Charging infrastructure	77	126	28%
Li-ion battery	**Total output + FAI**	**1,167**	**1,294**	**5%**
	Total output	918	1,145	12%
	Capacity FAI	249	148	-23%
Solar	**Total output + FAI**	**1,044**	**539**	**-28%**
	Total output	627	390	-21%
	Capacity FAI	417	149	-40%
Power construction	**Final demand (I/O Table)**	**1,290**	**1,402**	**4%**
Total New Three + power		6,222	7,189	7%
AI	**Total output + FAI**	**790**	**1,264**	**26%**
	Software output	525	792	23%

	AI infrastructure investment / Hardware total output	201	408	42%
	AI chip designer & foundry FAI	64	64	0%
Robotics	**Total output + FAI**	**201**	**329**	**28%**
	Total output	186	308	29%
	FAI	16	21	15%
Total AI & robotics		991	1,592	27%
Total "New" Industries		7,213	8,781	10%

Source: National Bureau of Statistics 2023 Input-Output Tables

Appendix: Methodology of output calculations

Lithium-ion battery sector

FINAL DEMAND / GDP / TOTAL OUTPUT ESTIMATES

Connection to input-output (I/O) table: The lithium-ion battery sector is part of the battery sector in the I/O table. We first estimate the total output of lithium-ion batteries from information independent from the I/O table. Then we assume the ratios between total output, GDP, and final demand of the lithium-ion battery sector will follow the same trends as that of the battery sector within the I/O table (for instance, if the proportion of final demand within total output is rising, then we linearly project the 2025 proportion based on the existing trends in 2018, 2020, and 2023; if there is no trend, we'll take the average of historical proportions as the 2025 proportion) to derive the final demand and GDP from the lithium-ion battery sector.

Methodology: Lithium-ion battery total output was estimated by multiplying the output volume and prices derived from sales data of lithium-iron phosphate (LFP) and nickel cobalt manganese (NCM) batteries, power and energy storage batteries, and domestic sales and exports. Data was sourced from MySteel and the General Administration of Customs. Based on estimated total output values, we further calculated the corresponding GDP and final demand with reference to trends in historical proportions of GDP and final demand within total output of the battery sector in I/O tables in 2018, 2020, and 2023.

Caveats: Net exports of upstream products that Customs reported were negative by $1.1 billion in Jan-Nov 2025. The import data for lithium ores is incomplete: Spodumene import and export data is only available from 2025 and data concerning other ores was not disclosed. It's also difficult to determine the volume of upstream products that ended up in inventory compared to final demand and intermediate usage, and thus they were excluded.

INVESTMENT ESTIMATES

Connection to I/O table: These estimates have no direct connection to the I/O table.

Methodology: Investment estimates include the downstream lithium-ion battery sector as well as upstream sectors of lithium carbonate, lithium hydroxide, LFP cathodes and precursors, NCM cathodes and precursors, and anode manufacturing. The investment value is estimated by multiplying capacity growth (using data from MySteel) and the unit investment needed for each product covered (using data from Rhodium Group's Global Clean Investment Monitor).

Caveats: Mining activities related to lithium ores and other raw materials are not included. Due to data availability, some capacity data series we used include active capacity instead of total capacity. There could be some variance in active capacity growth and real capacity growth. Unit-level investment is cited from preliminary data within Rhodium Group's Global Clean Investment Monitor, with two caveats worth noting: limited coverage of projects updated in 2025 and potential overstatement if an integrated project produces multiple products.

Solar sector

GDP / TOTAL OUTPUT ESTIMATES

Connection to I/O table: The solar sector is part of the power transmission, distribution, and control equipment sector in the I/O table. We first estimate solar products' total output values from information independent from the I/O table. Then we assume the ratios between total output, GDP, and final demand of the solar sector will follow the same trends as the power transmission, distribution, and control equipment sector within the I/O table. For instance, if the proportion of final demand within total output is rising, then we linearly project the 2025 proportion based on the existing trend in 2018, 2020, and 2023. If there is no trend, we'll take average of historical proportions as the 2025 proportion to derive final demand and GDP for the solar sector.

Methodology: Output value of the solar sector is estimated by summing the value of solar module output which was not exported and net exports of the upstream polysilicon, silicon wafer, and solar cell sectors and the downstream solar module sector (here using data from MySteel and Customs). Based on estimated total output values, we further calculate corresponding GDP and final demand with reference to trends in historical proportions of GDP within total output of the power transmission, distribution and control equipment sector in I/O tables in 2018, 2020, and 2023.

Caveat: We could not account for upstream sector output which could end up within inventories.

INVESTMENT ESTIMATES

Connection to I/O table: These estimates have no direct connection to the I/O table.

Methodology: Investment estimates include the downstream solar module sector as well as upstream sectors of polysilicon, silicon wafer, and solar cell manufacturing. The investment value is estimated by multiplying capacity growth (using data from MySteel) and unit investment needed for each product (using data from the Global Clean Investment Monitor).

Caveat: Due to data availability, some capacity data series we used reflect active capacity instead of total capacity. There could be some variance in active capacity growth and real capacity growth. Unit investment is cited from preliminary data within Rhodium Group's Global Clean Investment Monitor, with the same two caveats that were previously mentioned: limited coverage of projects updated in 2025 and potential overstatement if an integrated project produces multiple products.

Auto sector

FINAL DEMAND / GDP / TOTAL OUTPUT ESTIMATES

Connection to I/O table: The ICE vehicle and NEV manufacturing sectors are listed in the 2023 I/O table. The 2023 values come directly from the I/O table. For 2025, we first estimate final demand values of ICE vehicles and NEVs from information independent from the I/O table. Then we calculate the divergence between our series of estimates and I/O table final demand values in 2023 and assume the same level of divergence in proportional terms will occur in 2025, in order to adjust our 2025 estimates. Then we assume the ratios between total output, GDP, and final demand of the ICE vehicle and NEV sectors to be at the same level as those in the 2023 I/O table to derive their total output and GDP for these sectors in 2025.

Methodology: Final demand for the ICE vehicle and NEV sectors is estimated by summing their passenger car retail sales values, commercial vehicle domestic sales values, and net exports (based on data from CPCA, CAAM, NDRC price monitor, and Customs). Then the values are adjusted based on the divergence of the estimates compared to final demand values in the 2023 I/O table. This step is necessary (especially for NEVs) due to the overstatement of retail sales through zero-mile second-hand cars, which were not actually sold to end users or could end up in exports, resulting in double counting. Based on estimated final demand values, we further calculate corresponding total output and GDP for the sector with reference to the ratios of GDP and total output to final demand of the ICE vehicle and NEV sectors in the 2023 I/O table.

Note: Lithium-ion battery input in NEV production is estimated by multiplying domestic prices of power batteries and the volume of power batteries installed in vehicles. It was removed while summing up the total contribution to GDP of the "new three" + power construction industries to avoid double counting.

INVESTMENT ESTIMATES

Connection to I/O table: These estimates have no direct connection to the I/O table.

Methodology: Auto sector FAI is based on the NBS 2017 value and the annual growth rates disclosed by the NBS thereafter. All FAI is assigned to the NEV sector, given that capacity additions of ICE vehicles were very limited in recent years given the prolonged decline of ICE car sales. It's worth noting that capacity growth estimated based on Marklines OEM plant data showed a significant drop in NEV capacity growth in 2025 compared to 2023. However, FAI data for the sector showed significant growth in investment. This could be attributed to more spending on production line automation (including robotics development) and automated driving system development (testing facilities and compute infrastructure for model training). Spending in these areas is not necessarily only limited to applications in NEV manufacturing, but these upgrading features should be mainly focused on NEVs given that launches of most new auto models are NEVs.

Charging infrastructure investment estimates are based on assumed average power produced by private and public charging piles, investment per watt, and data concerning the numbers of charging piles installed (based on MySteel data and industrial estimates in media reports).

AI and robotics sectors

TOTAL OUTPUT ESTIMATES

Connection to I/O table: These estimates have no direct connection to the I/O table.

Methodology: The total output estimates are based on indicators disclosed by MIIT, China Academy of Information and Communications Technology (CAICT), and industrial associations.

INVESTMENT ESTIMATES

Connection to I/O table: These estimates have no direct connection to the I/O table.

Methodology: The investment estimates are based on the financial data of listed companies in selected sectors (AI chip design and foundries, robot production, and robot part manufacturing). Their investment is estimated by calculating annual additions in the total of fixed assets and construction in progress (adding back depreciation and impairment loss). Then we assume companies invest at levels comparable to their market share in sales. Total investment is thus estimated by dividing listed company investment by their domestic market share. AI infrastructure investment is treated differently since its value was given by CAICT as part of AI sector output.

Caveat: AI chip imports were not deducted.

Traditional and power construction sectors

PROPERTY ESTIMATES

Connection to I/O table: The property sector is comprised of the property service and residential housing construction sectors of the I/O table. The 2023 values come directly from the I/O table. For 2025, we first estimate the values of final demand and GDP for property services and residential housing construction sectors from information independent of the I/O table. Then we calculate the divergence between our estimates and the I/O table values in 2018, 2020, and 2023 and assume the level of divergence in 2025 will follow the previous trends. For instance, if the divergence from the I/O table values is rising, then we linearly project the 2025 change based on the existing trend in 2018, 2020, and 2023. If there is no trend, we'll take the average of historical differences to adjust our 2025 estimates.

Methodology: The 2025 values of the property service and residential housing construction sectors are estimated based on real estate construction investment and real estate sector GDP disclosed by NBS respectively, which are then adjusted based on their divergence against final demand values in the 2018, 2020, and 2023 I/O tables.

Caveat: The property sector's total final demand should be understated given the omission of commercial property construction, installations, and equipment purchases.

TRADITIONAL INFRASTRUCTURE ESTIMATES

Connection to I/O table: The traditional infrastructure sector is comprised of three sectors of the 2023 I/O table: railway, road, tunnel and bridge engineering construction; water conservancy, water transportation engineering and marine engineering construction; and wiring, pipeline engineering construction and energy saving and environmental protection projects. The 2023 values come directly from the I/O table.

For 2025, we first estimate final demand values of the three sectors from information independent from the I/O table. Then we calculate the divergence between our estimates and the I/O table values in 2018, 2020, and 2023 and assume the level of divergence in 2025 will follow the previous trends. For instance, if the divergence from the I/O table values is rising, then we linearly project the 2025 change based on the existing trend in 2018, 2020, and 2023; if there is no trend, we'll take the average of historical differences to adjust our 2025 estimates. Then we assume the ratios between total output, GDP, and final demand of the three sectors will follow the same trends as those in the I/O table to derive total output and GDP for these sectors in 2025.

Methodology: The 2025 values of the three sectors are estimated based on highway, railroad, waterway, pipeline, water conservancy, and environmental protection investment disclosed by the Ministry of Transport and NBS respectively, which are then adjusted based on their divergence against final demand values in the 2018, 2020, and 2023 I/O tables.

Caveat: The traditional infrastructure sectors listed above are different from and narrower than the NBS definition.

POWER CONSTRUCTION ESTIMATES

Connection to I/O table: The power construction sector is listed in the 2023 I/O table. The 2023 values come directly from the I/O table. For 2025, we first estimate final demand values for the power construction sector from information independent from the I/O table. Then we estimate the divergence between our series of estimates and the final demand values in the I/O table in 2023, and assume the same level of divergence in proportional terms will occur in 2025, in order to adjust our 2025 estimates. Then we assume the ratios between total output, GDP, and final demand of the power construction sector will be set at the same level as those in the 2023 I/O table to derive total output and GDP for the sector in 2025.

Methodology: The 2025 value is estimated based on electricity construction investment disclosed by the China Electricity Council, which is then adjusted based on its divergence against the level from the 2023 I/O table.

Caveat: Lithium-ion battery input was not deducted while summing up the impact of the "new three" and power construction sectors. This is due to limited data on the volume of lithium-ion batteries installed, but batteries still remained a small input (2% within total output in 2023).

Estimates of 2025 full-year data

2025 full-year numbers are predicted based on existing data trends in Jan-Nov or Q1-Q3. Then the growth rates for the previous month or quarter are estimated assuming y/y, q/q, or m/m growth rates persist, whichever are a better fit within the historical series.

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