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The Chinese Export-Oriented Technology Strategy and Its Impact on U.S. Trade

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The extraordinary rise of China as an advanced technology superstate dates from the turn of the century and is now in full bloom, driven by rapid export growth and an unprecedented trade surplus in the technology-intensive manufacturing sector.<sup>1</sup> And the impact of this soaring Chinese trade surplus on U.S. trade has been an off-setting rapid rise in the U.S. trade deficit.

In 2000, U.S. exports of manufactures were \$650 billion, almost three times larger than the \$220 billion of Chinese exports. From 2000 to 2013, however, Chinese manufactured exports grew 844%, to \$2,077 billion, or 85% larger than the \$1,124 billion of U.S. exports, which were up by only 73%, and by late 2014 Chinese exports were more than double U.S. exports.

The rapidly rising Chinese surplus and U.S. deficit for manufactures is even more disturbing, since a rising U.S. deficit has net adverse impact on U.S. production and jobs. From 2009 to 2014, the Chinese surplus more than doubled, from \$450 billion to \$998 billion, which rounds to an amazing \$1 trillion, while the U.S. deficit soared from \$321 billion in 2009 to \$563 billion in 2014, which equated to a net loss of 1.7 million American manufacturing jobs. Moreover, \$372 billion, or 66%, of the global U.S. deficit in 2014 was with China.

These are the basic facts about the dramatic changing of places between the United States and China as the number one exporter of manufactures. What is less well known, but critical for assessing the Chinese technology-centered national economic strategy, is the increasing concentration of Chinese exports in high-technology industries, as shown in Tables 1 and 2 for the ten largest high-technology export industries, which in 2014 accounted for 67% of total U.S. manufactured exports and 51% of Chinese exports. Table 1 presents U.S. and Chinese exports for the 10 industries in 2009 and 2014. Over just five years, Chinese exports rose 82%, or by \$510 billion, to \$1,135 billion, while U.S. exports were up only 46%, or by \$244 billion, to \$769 billion. Thus the changing of places, with China now the number one exporter, strongly carries over to high-technology industries.

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<sup>1</sup> For the origins, see Ernest H. Preeg, *The Emerging Chinese Advanced Technology Superstate* (MAPI and the Hudson Institute, 2005).

**Table 1**  
**U.S. and Chinese Exports of High-Technology Industries**  
**(\$ billions)**

|   | 2009       |            | 2014       |              | 09-14       |             |
|---|------------|------------|------------|--------------|-------------|-------------|
|   | U.S.       | China      | U.S.       | China        | U.S.        | China       |
| Medicines and pharmaceutical products           | 44         | 9          | 49         | 13           | +5          | +4          |
| Power generating machinery and equipment        | 30         | 19         | 44         | 37           | +14         | +18         |
| Machinery specialized for particular Industries | 40         | 17         | 54         | 40           | +14         | +23         |
| General industrial machinery and equipment      | 49         | 50         | 79         | 102          | +30         | +52         |
| Office and data processing equipment            | 39         | 147        | 50         | 222          | +11         | +75         |
| Telecommunications and sound recording          | 36         | 159        | 53         | 280          | +17         | +121        |
| Electrical machinery and appliances             | 85         | 134        | 114        | 279          | +29         | +145        |
| Road vehicles                                   | 70         | 29         | 132        | 71           | +62         | +42         |
| Other transport equipment                       | 87         | 30         | 132        | 32           | +45         | +2          |
| Professional and scientific instruments         | 45         | 31         | 62         | 59           | +17         | +28         |
| <b>Ten industry total*</b>                      | <b>525</b> | <b>625</b> | <b>769</b> | <b>1,135</b> | <b>+244</b> | <b>+510</b> |

\*SITC 54, 71-72, 74-79, 87

Source(s): U.S Census Bureau, FT-900, and China's Customs Statistics (Monthly Exports and Imports)

The full story of the export competitiveness rise for Chinese high-technology industries, however, is revealed by the performance of the individual industries. The only two industries where the United States maintains a large lead are road vehicles, centered on the deeply trade-integrated North American automotive industry within NAFTA dating back to the U.S.-Canada free trade Auto Pact of 1965, and other transport equipment, thanks largely to Boeing. The United States also has a lead in medicines and pharmaceutical products, although the trade is relatively smaller.

The Chinese lead centers on the IT industries –office and data processing equipment, telecommunications and sound recording, and electrical machinery and appliances. Chinese exports for the three industries grew by \$341 billion, six times the \$57 billion U.S. growth, while Chinese exports in 2014 of \$781 billion were 3.6 times larger than the \$217 billion of U.S. exports. In the three machinery industries, listed 2

through 4, Chinese exports grew by \$93 billion, versus \$58 billion for the United States, shifting from a large \$33 billion U.S. lead in 2009 to a \$2 billion Chinese lead in 2014. And for professional and scientific instruments, Chinese export growth converted the \$14 billion U.S. lead in 2009 to a much smaller \$3 billion lead in 2014, with five year growth of \$28 billion by China compared to \$17 billion by the United States.

These are the striking figures for the rapidly growing Chinese lead over the United States for exports of high-technology industries. Unfortunately, the corresponding figures for trade balances in these ten industries, presented in Table 2, are even more detrimental for U.S. export competitiveness. For all ten industries, the United States had a deficit of \$131 billion in 2009, which more than doubled to \$289 billion in 2014, while the Chinese surplus of \$156 billion in 2009 also more than doubled to \$322 billion in 2014.

**Table 2**

**U.S. and Chinese Trade Balances in High-Technology Industries**

**(\$ billions)**

|   | 2009        |             | 2014        |             | 09-14       |             |
|---|-------------|-------------|-------------|-------------|-------------|-------------|
|   | U.S.        | China       | U.S.        | China       | U.S.        | China       |
| Medicines and pharmaceutical products           | -16         | +2          | -28         | -6          | -12         | -8          |
| Power generating machinery and equipment        | -9          | +1          | -22         | +13         | -13         | +12         |
| Machinery specialized for particular Industries | +16         | -8          | +7          | +1          | -9          | +9          |
| General industrial machinery and equipment      | -1          | +4          | -14         | +50         | -13         | +46         |
| Office and data processing equipment            | -52         | +105        | -68         | +164        | -16         | +59         |
| Telecommunications and sound recording          | -83         | +124        | -99         | +211        | -16         | +87         |
| Electrical machinery and appliances             | -7          | -65         | -45         | -67         | -38         | -2          |
| Road vehicles                                   | -58         | +1          | -126        | -18         | -68         | -19         |
| Other transport equipment                       | +66         | +16         | +95         | +1          | +29         | -15         |
| Professional and scientific instruments         | +13         | -24         | +11         | -27         | -2          | -3          |
| <b>Ten industry total*</b>                      | <b>-131</b> | <b>+156</b> | <b>-289</b> | <b>+322</b> | <b>-158</b> | <b>+166</b> |

\*SITC 54, 71-72, 74-79, 87

Source(s): U.S Census Bureau, FT-900, and China's Customs Statistics (Monthly Exports and Imports)

And again looking at the individual industries, the only large increase in the U.S. surplus was for other transport equipment, up by \$29 billion, while for the three IT industries the U.S. deficit rose by \$70 billion, to \$212 billion, while the Chinese surplus surged by \$144 billion, to \$308 billion, and for the three machinery industries the U.S. deficit was up by \$35 billion while the Chinese surplus rose by \$67 billion.

This is the dramatic story of the Chinese export-oriented growth strategy, centered on the technology-intensive manufacturing sector that provides the large majority of civilian R&D and new patents, and with the \$1 trillion trade surplus in 2014 now accounting for half or more of Chinese manufacturing production.

One other technology-oriented sector integrated with manufacturing deserves mention, particularly because it has been subject to misleading commentary, and that is trade in business services. Some observers, including Chinese officials, have stated that a rising U.S. trade surplus in business services could go a long way to offset the growing U.S. deficit in manufactures, but such optimism is no longer justified, if it ever was. The U.S. surplus in business services has leveled off since 2010, up only \$4 billion to \$43 billion in 2013, while the EU surplus (in trade with non-members) rose by \$47 billion, the Indian surplus rose by \$27 billion, and the Chinese surplus rose by \$9 billion, to \$42 billion, and is now comparable to the U.S. surplus.

Especially troubling for the United States is recent trade in the computer and information services sector shown in Table 3. The United States has a rising trade deficit in the sector, up from \$4 billion in 2009 to \$8 billion in 2013, while the Chinese surplus rose from \$4 billion to \$10 billion, the Indian surplus rose from \$31 billion to \$47 billion, and the EU surplus rose from \$24 billion to \$36 billion. A most unpromising outlook for U.S. export competitiveness, which together with the surging Chinese surplus and U.S. deficit for IT manufactures presented in Table 2, raises questions about the impact on U.S. trade from the U.S.-China agreement at the November 2014 economic summit in Beijing to negotiate a plurilateral Information Technology Agreement.

**Table 3**  
**Trade in Computer and Information Services**  
(\$ billions)

|                      | 2009 | 2010 | 2011 | 2012 | 2013 | 09-13 |
|----------------------|------|------|------|------|------|-------|
| <b>Exports</b>       |      |      |      |      |      |       |
| EU                   | 42   | 49   | 57   | 56   | 62   | +20   |
| United States        | 13   | 14   | 16   | 17   | 18   | +5    |
| India                | 34   | 41   | 44   | 47   | 50   | +16   |
| China                | 7    | 9    | 12   | 14   | 15   | +8    |
| <b>Trade Balance</b> |      |      |      |      |      |       |
| EU                   | +24  | +30  | +37  | +36  | +36  | +12   |
| United States        | -4   | -5   | -9   | -8   | -8   | -4    |
| India                | +31  | +38  | +42  | +45  | +47  | +16   |
| China                | +4   | +6   | +8   | +11  | +10  | +6    |

Source: WTO, [International Trade Statistics](#).

Beyond the impact on U.S. trade, the Chinese export-oriented growth strategy is having game-changing consequences for the international trade and financial systems, which are deeply linked, particularly for price-sensitive manufactures and business services. I have addressed these issues, including proposals to restore a fair and balanced, rules-based economic system in a just completed study, *The Decline of U.S. Export Competitiveness for Manufactures and Its Consequences for the World Economic Order*, available by request to [epreeg@mapi.net](mailto:epreeg@mapi.net).

I conclude here only by emphasizing that the most important international policy issue influencing the rising trade imbalances for manufactures is the IMF obligation not to manipulate currencies to gain an unfair competitive advantage in trade, with manipulation defined as protracted, large-scale official purchases of foreign exchange, which have the direct and immediate effect of holding the currency below its market-based level. China has made \$4 trillion of official purchases over the past dozen years, while in the process accumulating \$4 trillion of reserve holdings.

Such Chinese purchases have been protracted and large scale by any conceivable definition, and yet the U.S. government is in a state of total denial. The Secretary of the Treasury, as required, has been reporting to the Senate Banking Committee every six months that no IMF member, including China, has been manipulating its currency to gain an unfair competitive advantage in trade. I disagree.