

China's Changing Exports: Causes and Consequences

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Research organizations:

University of Northern British Columbia and Jiangsu Provincial Academy of Social Sciences

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Jiangsu Province, People's Republic of China

Authors:

Paul Bowles, Professor of Economics and International Studies, University of Northern British Columbia

Guoliang Hu, Director, Institute of Economic Research, Jiangsu Provincial Academy of Social Sciences

Yonggang Lyu, Institute of Economic Research, Jiangsu Provincial Academy of Social Sciences

Fiona MacPhail, Professor of Economics, University of Northern British Columbia

Baotai Wang, Professor of Economics, University of Northern British Columbia

Yuanpeng Zhang, Director, Institute of World Economy, Jiangsu Provincial Academy of Social Sciences

Final Technical Report

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Executive Summary

This project involved the collaboration of three researchers from the Economics Department at the University of Northern British Columbia, Canada, and three researchers from the Jiangsu Provincial Academy of Social Sciences, Nanjing, People's Republic of China. The collaboration built on and significantly expanded an existing relationship, both in terms of scope by including new members and intensity in terms of the activities undertaken. The research project has strengthened the collaboration between the researchers and the institutions and has laid the basis for continued collaboration. As a partnership grant, the project has enhanced and strengthened the relationships.

The research project itself involved interviews with 18 firms in Jiangsu province. Interviews were held with one or more senior executives in each of the firms. Depending on expertise and availability, these executives held positions as CEOs, Vice Presidents, Chief Accountants and Senior Engineers within the firm. Firm interviewee responses were analysed around four key areas. These are (i) the impacts of renminbi appreciation on the firms' profitability; (ii) firms' technical responses to renminbi appreciation; (iii) firms' political responses to renminbi appreciation; and (iv) firms' and governments' responses in terms of pursuing strategies of 'industrial upgrading'.

Standard economic analysis predicts that a currency appreciation would benefit importers and disadvantage exporters with firms engaged in relatively low levels of international trade left little impacted. In general terms, this is an accurate description of the interviewees' responses. However, it is also clear from our interviews that beneath this general statement lie a myriad of differences between firms. In order to examine these differences we drew upon insights provided by global value chain (GVC) and global production network (GPN) analyses.

Our analysis is the first that we are aware of that explicitly analyses the impacts of currency changes using a GVC/GPN framework. The impacts of renminbi appreciation were found to vary depending on whether firms were tightly integrated into GVCs where lead firms are instrumental in determining the distribution of appreciation's costs and benefits and whether, in the case of foreign-owned and joint venture lead firms, the chain was internally centralised or governed as independent profit centres.

We found strong evidence of firms engaging in three types of industrial upgrading (product, process, and functional upgrading) in response to currency appreciation and other pressures, notably, rising labour costs and slowing global growth. We also found strong evidence of multi-level state policy designed to spatially reconfigure the "strategic coupling" of local assets to facilitate industrial upgrading.

Despite these responses, we nevertheless view the outlook for Jiangsu's exporters as uncertain. The global economic slowdown has affected the composition of Jiangsu's exports in ways which suggest that continued industrial upgrading may be problematic.

These findings have increased the knowledge of the Chinese economy of the Canadian researchers, have been shared with the Asia Pacific Foundation of Canada and thereby informed the wider community, and have been useful for the Chinese researchers in formulating policy advice.

Research problem

The original stated research problem focused on examining and understanding China's new export phase. This was deemed important at several levels. Firstly, it is important for understanding the economic and social dynamics of China's development. Economically, export firms' movement up the value chain affects production and technology decisions. The ways in which firms address this affects how China's capacity for technological up-grading evolves over the medium term and whether China will overcome the 'middle income trap'. Firms' success in moving up the value chain in the short term will affect employment and growth levels. Socially, technological upgrading will affect labour recruitment and internal labour market policies. The reliance on migrant labour in coastal manufacturing may be reduced as a result of the increased human capital levels required for more advanced manufacturing. Internal labour markets may bias males (and urban residents) as research from around the world has shown that women tend to be trapped in lower level jobs and to tend be adversely affected when technological upgrading occurs.

At the end of the project, this research problem was still the focus of our work and the importance of the problem was, if anything, reinforced by the research. What did change, especially for the Canadian team members, was our realization of the complexity of the changes underway in the export sector and the trading sector more generally. Thus, while the problem the stayed the same, our ability to investigate its dimensions was over-stated in the original proposal. This arises from a variety factors including the difficulties of obtaining primary data and the patchy nature of some the necessary secondary data. This led us to focus more sharply on inter-firm, intra-firm and firm-government relations in our research. This limited our quantitative analysis and qualitative questions concerning internal job hierarchies and human resource policy.

This limiting of research focus did, however, enable us to better understand the complexity of those relationships which were studied and to incorporate a framework capable of generating insights into our findings. In this way, the research team gained new insights which inform our work as academics (in the case of the Canadian team members) and policy advisors (in the case of Chinese team members).

Progress towards milestones

May 2014:

Research Ethics Board approval received from the University of Northern British Columbia to conduct the interviews for the project.

June 2014:

Dr. Fiona MacPhail visited Nanjing and conducted interviews with firms accompanied by Drs. Hu, Lv and Zhang of the Jiangsu Provincial Academy of Social Sciences.

Dr. MacPhail also presented a lecture to the Academy on her research regarding the impacts of migration on the “left behind” rural population in China. The lecture was attended by approximately 25 members of the Academy and generated a lively discussion.

December 2014:

Dr. Baotai Wang visited Nanjing and worked with Dr. Hu to identify relevant provincial documents and data sources.

February 13, 2015:

Submission of First Technical Interim Report.

April 2015:

Dr. Paul Bowles and Ms. Jingrui Li, graduate research assistant from UNBC, visited Nanjing. Interviews with firms were conducted with Drs. Hu, Lv and Zhang also participating.

Dr. Bowles and Ms. Li also met with Drs. Qu and Zheng of Nanjing University and discussed the project with them.

July and August 2015:

Preparation of first draft of report.

September 2015:

Dr. Hu and Dr. Zhang visited the University of Northern British Columbia. Drs. Hu and Zhang presented a seminar to faculty and students on the Chinese economy (see Appendix I).

Drs. Hu and Zhang reviewed a first draft of the report with Drs. Bowles and MacPhail.

November 2015:

Dr. Bowles and Dr. Wang visited Nanjing. They met with Dr. Hu and Zhang to further discuss the report and to collect and verify provincial export data. Drs. Bowles and Wang also had further discussion with Dr. Qu of Nanjing University as well as with researchers in Hong Kong.

December 9, 2015:

Submission of Second Technical Interim Report.

March 2016:

Dr. Bowles attended the International Studies Association in Atlanta where there were several panels on China and on the dynamics of Global Value Chains/Global Production Networks.

May 2016:

Dr. Bowles, Dr. MacPhail and Dr. Wang presented some highlights of the project at the Asia Pacific Foundation of Canada in Vancouver (see Appendix II). The presentation was attended by approximately 20 people including business people, students, Asia Pacific Foundation staff and a member of the Bank of Canada.

April and May 2016:

Preparation of final draft of report.

June 2016:

Submission of Final Technical Report.

During the period of the grant, Ms. Jingrui Li has been employed as a graduate research assistant as needed and has used the project to advance her own graduate thesis entitled "Technological Upgrading and Decent Work in the Manufacturing Sector: Evidence from Seven Coastline Provinces, China, 2002-2014". The thesis is supervised by Dr. MacPhail with Dr. Bowles and Dr. Wang as committee members. It is anticipated that the thesis will be defended in the Fall 2016 semester.

One or two academic articles based upon the research report are planned by various members of the team and will be submitted to journals during the next six months.

Synthesis of research results and development outcomes.

China's exporters have faced a number of significant challenges over the past decade. The appreciation of the renminbi since July 2005, rising labour costs, and the slowdown in the global economy following the global financial crisis of 2008 have all posed challenges.

Specifically, since 2005 the renminbi has appreciated approximately 30 per cent against the US dollar and 25 per cent against the euro. In Jiangsu average annual real wage increases have continued at high levels mirroring the national trend. The average annual real wage increase does show a significant drop in 2014 in Jiangsu; the average does hide some sectoral differences, however, with real wage increases in the private and foreign invested enterprise sector being particularly high in 2013. With respect to trade, In the 2000s, spurred by WTO entry, China's exports grew at 3 to 4 times the rate of GDP growth. After a sharp drop and rebound from the Global Financial Crisis, export growth rates have subsequently been closer to the country's GDP growth rate.

All three of these factors – renminbi appreciation, rising labour costs and slower global trade growth – have posed significant challenges to China's exporters. Firms have been forced within a short period of time to find new ways of remaining competitive and in an environment which has changed in major ways since the heady days of WTO entry a decade and half ago. How firms have been impacted and responded is analysed based on a sample of firms from Jiangsu province.

Jiangsu is China's second largest province in terms of GDP, accounting for over 10 per cent of the national total, is one of China's most populous provinces with a population of 79.6 million in 2014, and has the highest regional product per capita outside of Beijing, Tianjin and Shanghai (Statistical Yearbook of China, 2015). Jiangsu is one of China's most trade intensive provinces and is the second largest province in terms of total export value (after Guangdong). Jiangsu's share of China's exports jumped in immediate aftermath of China's WTO entry in 2001, reaching a peak in 2010 when it accounted for over 17 per cent of China's total exports. This has fallen since but, nevertheless, in 2014, Jiangsu still accounted for more than one in every seven dollars earned by China's exporters. Furthermore, in terms of the high tech exports, Jiangsu is one of the two leading provinces, along with Guangdong.

In order to investigate the impacts of, and responses to, the challenges outlined above we conducted interviews with a sample of firms. The sample was not randomly chosen but based on the active contacts of the team members from the Jiangsu Provincial Academy of Social Sciences and the willingness of firms to meet with a research team which included foreign scholars.

Notwithstanding these constraints, the firms were selected from a variety of industrial sectors, ownership types, and industrial zone locations. The firms also had a variety of engagement with international trade in terms of variables such as the percentage of output exported, the percentage of inputs imported, major external market destinations, and engagement in general versus processing trade.

Information was gathered from 18 firms over the period 2014-15, supplemented with data from an additional five enterprises interviewed previously in 2012. The sample consisted of 8 solely foreign-owned firms, 6 joint ventures, 6 private firms, 2 (domestic) shareholding firms and 1 state-owned enterprise. Of the solely foreign-owned firms, 2 were from Japan, 2 from the U.S., and 1 from each of the UK, Hong Kong, Singapore and South Korea. The joint ventures included 2 Sino-UK firms, 2 Sino-US firms, 1 Sino-Japanese firm and 1 Sino-Indian firm. All were located in Economic and Technology Zones.

Interviews were held with one or more senior executives in each of the 23 firms. Firm interviewee responses were analysed and organized around four key areas. These are (i) the impacts of renminbi appreciation on the firms' profitability; (ii) firms' technical responses to renminbi appreciation; (iii) firms' political responses to renminbi appreciation; and (iv) firms' and governments' responses to all three challenges in terms of pursuing strategies of 'industrial upgrading'.

In terms of how renminbi appreciation affected firms' profitability, we found a myriad of differences between firms. In order to examine these differences we drew upon insights provided by global value chain (GVC) analysis. GVC analysis has not, to our knowledge, been used previously to focus specifically on how the impacts of currency changes are bargained and distributed between firms. Our approach here is therefore novel but useful we believe in enabling us to examine the impacts of renminbi appreciation in ways which take account of the "complex and dynamic economic networks made up of inter-firm and intra-firm relationships" (Gereffi 2014: 10) which constitutes GVC analysis. Specifically, we examined how the appreciation of the renminbi affected firms differently, depending on where they are positioned within the GVC. This explained why some firms were forced to absorb all of the impacts of renminbi appreciation by more powerful lead firms while others were able to exercise a greater degree of market power themselves and to limit the costs of appreciation.

Firms adopted a number of technical responses to renminbi appreciation including the use of hedging and forward arbitrage contracts, the inclusion of exchange rate appreciation allowances in contracts with customers, and changes in the settlement currency with a switch to the renminbi especially in regional trade.

In terms of a political response to appreciation, our interviews show that while it may be the case that, in general, exporters have an interest in an undervalued exchange rate the intensity of that preference varies considerably between exporting firms depending on their position in GVCs. A coalition of interests, therefore, may be difficult to attain. In highlighting the role of firm heterogeneity in making political coalitions and policy action more difficult to achieve, our findings are more in line with what Jensen et al. (2015: 913) term the "new, new trade" theory which considers firm integration and global supply chain structures in determining political mobilization in the trade area.

Finally, in our interviews with firms, we asked the senior managers how they responded to the multiple challenges of renminbi appreciation, rising labour costs and slower global growth in order to determine if, and how, forms of upgrading were taking place. We found strong

evidence of firms engaging in product, process and functional upgrading. Many firms in our sample also identified a further way in which they were seeking to upgrade, namely, by increasing R&D staff (and expenditures) and adjusting their skilled labour complement. Firms in our sample reported that labour costs have been rising significantly and many firms identified a tightening of the labour market and the existence of a labour shortage especially for skilled personnel. Firms were engaged in not only forms of product upgrading but also of their labour forces. Some firms reported an increasing preference for local workers as migrant workers were more difficult to attract and as the education level of local workers was higher.

In the face of rising labour costs, there has also been an additional spatial component to upgrading in the recalibration of the 'strategic coupling' of local assets (such as low cost labour and land, infrastructure and institutions) and global lead firms in the face of changing conditions. That is, there has been a relocation of industries based on market incentives and government policies. Within Jiangsu, government policies were complementing market forces in leading the more labour-intensive firms to relocate from the southern to the northern part of the province.

To conclude how successful firms and policy has been in responding to the three challenges we reviewed some broad provincial trade trends and, informed by our interview data, reflected (and speculated) on what they might mean for the future.

Changes in trade composition provide one important area which can be interpreted for these purposes. First we considered changes in the ratio of processing trade to total trade (i.e. processing trade plus general trade). Processing trade consists of exports which are manufactured in China using predominantly imported materials while general trade refers to goods manufactured in China for export but using domestic materials. In dollar terms, both categories of trade have increased approximately tenfold over the past decade in Jiangsu. However, there has been a marked change in the composition of trade with the processing trade increasing substantially in the period after WTO entry in 2001 but falling significantly following the 2008 global financial crisis. Since the processing trade brings only limited benefits, in terms of economic development, based as it is on the application of low cost labour to imported materials destined for re-export, we view this change in composition as a positive one. The general trade, by making use of domestic inputs might be expected to have greater linkages and spin-offs and therefore provide greater developmental benefits.

A second trend, however, points to a more problematic future. The share of high tech exports in Jiangsu's total exports has declining since around 2009, when it peaked at over 50 per cent, and now is less than 40 per cent of total exports. The downward trend in the share of high tech exports in Jiangsu's total exports may, at least partially, be a reflection of changes in the global composition of demand as the EU and, to a lesser extent, the US take a smaller share of Jiangsu's total exports.

In terms of the three challenges which we identified at the outset, therefore, it can be argued that the appreciation of the renminbi has run its course and that this challenge has now lessened. It can also be argued that there is some sign that the double-digit real wage increases

are now moderating, at least according to official statistics, although our firm level interviews did not reflect this. However, the third and temporally latest challenge, that of slowing global growth, appears to be more enduring and presents a serious challenge. This points to an uncertain future for Jiangsu's exporters with wider implications for economic development and growth.

Gereffi, G., (2014), "Global Value Chains in a Post-Washington Consensus World", *Review of International Political Economy*, 21, 1, 9-37.

Jensen, J., Quinn D., and Weymouth, S., (2015), "The Influence of Firm Global Supply Chains and Foreign Currency Undervaluations on US Trade Disputes", *International Organization*, 69, 4, 913-47.

National Bureau of Statistics (NBS), (2015), *Statistical Yearbook of China*, Beijing: China Statistics Press.

Methodology

The data used in this study consisted of both primary and secondary materials. Primary data was collected in interviews with 18 firms. Depending on expertise and availability, interviewees held positions as CEOs, Vice Presidents, Chief Accountants and Senior Engineers within the firm. Interviews were based on a set of open-ended questions and lasted between one and two hours. Interviews were mostly conducted in Chinese with translation in English provided by team members and/or student translators. The 18 firms in the sample were not randomly chosen but based on the active contacts of the team members from the Jiangsu Provincial Academy of Social Sciences and the willingness of firms to meet with a research team which included foreign scholars. Notwithstanding these constraints, the firms were selected from a variety of industrial sectors, ownership types, and industrial zone locations. The firms also had a variety of engagement with international trade in terms of variables such as the percentage of output exported, the percentage of inputs imported, major external market destinations, and engagement in general versus processing trade.

Secondary data was obtained from a variety of national and provincial level statistical sources as well as studies published in English and in Chinese publications.

Project Outputs

At least one academic journal submission is planned from the research project. At the time of the project award, open access dissemination was not a grant requirement. However, if unused funds can be retained for this purpose then any publication(s) will either be published in an open access journal or published in an open access form by a journal which offers this option upon payment.

A graduate thesis will be produced and most likely defended in Fall 2016. This will be publically available through the University of Northern British Columbia library.

Problems and Challenges

A number of challenges emerged in the course of the research. Some of these were administrative in that the start of the grant was delayed and making budget transfers to China were also subject to delay. Partnerships rely on trust and, fortunately, this project built on a pre-existing relationship and so that the delays could be explained and understood. Had this been a project between new partners, these delays may have caused more serious challenges to the research partner relationship.

One member of the Chinese partner's team was denied a visa to visit Canada and so was unable to take part in one of the planned activities. Also inhibiting the research was the difficulty of finding enterprises in China which were willing to host research teams which included non-Chinese members.

Administrative Reflections and Recommendations

The scope, duration and budget for the project were appropriate.