Impact of mega trade deals on China: A computational general equilibrium analysis☆

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ABSTRACT

This paper explores the potential impacts on both China and other major countries of possible mega trade deals. We use a 13-country computational general equilibrium model with trade costs to investigate both tariff and non-tariff reduction effects. Simulation results reveal that China-Trans-Pacific Partnership (TPP) and Regional Comprehensive Economic Partnership (RCEP) will yield the highest welfare outcomes for China. For the US, China-TPP FTA will generate the highest welfare outcome. For the European Union, all China involved mega deals have negative impacts except China–US FTA. For Japan, RCEP will generate the highest welfare outcome. For both Korea and India, RCEP will generate the highest welfare outcome.

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1. Introduction

The term "mega deal" has been widely used in relation to large prospective trade deals between the US and Europe (the Transatlantic Trade and Investment Partnership, TTIP) and in Asia and the Pacific (Trans-Pacific Partnership, TPP) (see Stoler, 2013). Here we argue that the phenomenon of mega deal is much broader than just these two (TPP and TTIP). Big countries, like the US, the EU, China, Japan and India, engaged regional trade agreement (RTA) or bilateral free trade agreement (FTA) may all be able to conclude deals in the mega category.

As the second largest country and the biggest export country in the world, China's involved mega deals may have influential impacts both on herself and the world. Until now, China has been excluded from the TPP and TTIP negotiation, but China is active in both negotiating and trying to initiate new mega deals like Regional Comprehensive Economic Partnership (RCEP) and China–Japan–South Korea Free Trade Agreement (CJK FTA). Meanwhile, some other big mega deals may be negotiated in the future like China-TPP FTA and China–US FTA. This paper aims to explore the potential impacts on China of possible mega trade deals with computational general equilibrium methods, which will benefit policy makers and researchers to evaluate how mega trade deals influence China and some other main countries in the world.

The impacts of mega trade deals, stressed by traditional trade theory, include both the benefits of improved and more secure access to export markets abroad, and the benefits to both consumers and producers at home of increased specialization and improved variety and quality of products imported, reduced in price by the reductions in tariffs toward bilateral trading partners. There is a variety of theoretical research in the

literature, Lloyd and Maclaren (2004) summarize these researches. Given the ambiguities that still remain in the predictions of general equilibrium theory, the use of CGE models is a natural vehicle to explore the economic effects of RTAs. These models can be used to evaluate the effects of changes in trade policy resulting on production, employment, consumption, trade, prices and welfare. Related literatures include Brown et al. (1992), Baldwin (2008), Lee et al. (2009), and so on.

Among regional trade agreement literatures, some literatures pay attention to China related mega deals, but are largely analytical. For example, Song and Yuan (2012) analyze China's free trade agreement strategies. Malki and Thompson (2014) had analyzed Morocco and the US free trade agreement with a specific factor model. Only a few papers have used computational general equilibrium models to empirically simulate potential effects of China's FTAs. Jin et al. (2006) explore the effects of the FTA among China, Japan and South Korea. Tan and Cai (2010) use the GTAP model to quantitatively analyze the impacts of a China–New Zealand FTA on both sides. Petri et al. (2011) used a CGE model to study the effects of TPP and Asia-Pacific Integration and have paid attention to the impacts to China. Li and Whalley (2014) used an 11-country computational general equilibrium model to explore the effects of TPP to China. Jean et al. (2014) used general equilibrium methodology to explore the effects of EU-Chile free trade agreement. Until now, none of researches have focused on the combined influence of China's possible mega deals.

We use a 13-country Armington type global general equilibrium model. Each country produces two-goods (tradable goods and non-tradable goods) and has two-factors (capital and labor). The model captures trade costs and uses a monetary structure of inside money both so as to also endogenously determine trade imbalance effects from the trade initiative and also allow calibration to a base case capturing China's large trade surplus. We use a trade cost calculation method that recognizes limitations of data by using an estimation treatment that follows Wong (2012) and Novy (2012). We capture endogenously determined trade imbalances by incorporating both current consumption and expected future incremental consumption from saving into the model using an analytical structure adopted in Archibald and Lipsey (1960), and used more recently in Whalley et al. (2011) and Li and Whalley (2012, 2014). We calibrate the model to 2011 data and use counterfactual simulations to explore the effects.

Our simulation results show that almost all mega deal member countries will gain and nearly all mega deal non-member countries will lose. The more that non-tariff barriers are eliminated by each mega deal, the more significant impacts the mega deal have on all countries. All mega deals will benefit China in terms of welfare, trade, export and import. Comparatively, RCEP and China-TPP will generate the highest welfare outcome in our model, the next highest is China–Japan–Korea FTA, and then China–US FTA. For the US, China-TPP will generate the highest welfare outcome, the next highest is China–US FTA. For the EU, all China involved mega deals will generate negative welfare outcome except China–US FTA. For Japan, RCEP will generate the highest welfare outcome and the next highest is China-TPP. For Korea, RCEP will generate the highest welfare outcome and the next highest is China–Japan–Korea FTA. For India, RCEP will generate the highest welfare outcome and the next is China–India FTA.

This paper uses computational general equilibrium simulation methods to explore possible mega trade deal impacts on both China and other main big countries. The contributions of the paper lie in three aspects. This first is we evaluate the impacts of mega trade deals to China and some other main countries in the world which are important but rare. The second is we divide trade costs into tariff and non-tariff barriers and calculate trade costs between countries empirically with gravity model methodology. This can comprehensively explore the FTA effects from both tariff and non-tariff reduction. The third is to use an inside money structure to form an endogenous trade imbalance model which is more consistent with reality given China's large imbalances in trade.

Table 1
Existing and prospective mega trade deals for China, US and EU.
Source: Compiled by authors.

China	The EU	The US
In place		
ASEAN-China;	EU-Mexico;	US-Canada-Mexico NAFTA;
China–Australia;	EU-Korea	US-Australia;
China–Korea		US-Korea;
		TPP
Under negotiation or discussion		
RCEP (negotiating);	EU-ASEAN;	US-EU (TTIP);
China–Japan–Korea (negotiating);	EU-US (TTIP);	US-Japan (under TPP);
China–India (discussing);	EU-India;	US-ASEAN (under TPP);
China–US (discussing)	EU-Japan;	US-China (discussing)
	EU-Canada	

2. China's possible mega deals

The description of a trade deal as "mega" refers both to regional trade agreements (RTAs) between large countries or groups of countries and the barrier coverage of such deals. The commitment to multilateral WTO negotiation, now weakened by experience in the Doha Round, has so far largely precluded large–large bilateral or regional negotiations. Combined with a focus of restoring growth in the OECD, this picture is changed by the TPP negotiations, the EU-US TTIP, China's emerging mega trade deals (including RCEP), and deals under discussion of others including Japan and ASEAN. Table 1 lists existing and prospective mega deals for China, the US and the EU.

We can simply label all deals between countries above a certain size as a mega deal, but in reality, there are the 'large' mega deals both directly involving the EU, the US, China, Japan, and ASEAN, and deals involving the midsize economies (Canada, Brazil, Turkey, for example). As large economies, China, the US and the EU involved regional trade agreements (RTAs) are the most noticeable. For China there are ongoing negotiations with India, and Japan/Korea, and ASEAN + 6 on a RCEP (Regional Comprehensive Economic Partnership), as well as possible future involvement in the Trans-Pacific Partnership (TPP) negotiation and even a possible US-China deal. For the US, there are the TPP negotiations and negotiations with the EU on a TTIP for which China is not a party. For the EU there are negotiations under way with the US on TTIP, an India negotiation, and an ASEAN negotiation.

In this paper we focus on the impacts of China's possible mega deals. We firstly need to explore China's RTAs in place to have a general idea about the situation. Table 2 lists the regional agreements in place for China which could also provide part of the precedent working background for prospective mega deals with other partners. Nearly all the agreements listed in each case are with smaller entities, and the

Table 2
Regional trade agreements in place for China.
Source: Compiled by authors based on information from "China FTA Network" (http://fta.mofcom.gov.cn/).

RTA	Type	Date concluded
China–Pakistan		November 2006
China–Chile FTA	Bilateral-with developing countries	November 2005
China–Peru FTA		April 2009
China–Costa Rica FTA		April 2010
China–New Zealand FTA		April 2008
China–Singapore FTA		October 2008
China–Iceland FTA	Bilateral-with developed countries	April 2013
China–Switzerland FTA		July 2013
China–South Korea FTA		June 2015
China–Australia FTA		June 2015
China–ASEAN FTA	Multilateral	November 2004
CEPA		March 2003
ECFA	Domestic FTAs	June 2010
China pilot free-trade zone		September 2013