

Recent advances in the field of Trade Theory

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Session 3:

Implications of the new-new theory for normative and positive trade policy analysis

Implications of new-new trade theory for trade policy analysis

- Motivations
- New-new trade policy (Ciuriak et al. 2011)
- Trade policy under firm-level heterogeneity (Demidova Rodriguez-Clare 2009)
- Technical Barriers to Trade under firm-level heterogeneity (Baldwin and Forslid 2010; Felbermayr and Jung 2011)

Implications of new-new trade theory for trade policy analysis

- Most of the traditional trade policy models build on traditional trade model considering country as an aggregate of firms (i.e. countries gain from exporting those goods that they are relatively efficient at producing)
- From the Ricardian model we know that economic welfare could be increased through the mutual specialization induced by a reduction (dismantling) of trade barriers
- The new trade theory (Krugman 1979) shifted the attention from the country to the industry level of analysis; allowing for new sources of welfare gain (efficiency gain from scale of production and increased varieties from imports)

Implications of new-new trade theory for trade policy analysis

- But, as we learned, **firms are very heterogeneous within both countries and industries**, and new trade policy models are needed
 - Firms rarely participate in international markets (export, FDI, imported intermediates); exporting only a small share of their production
 - Firms that participate to international markets are different than those that do not (they are larger, more productive and more capital and skill intensive)
 - Exporting firms grow faster than the others in terms of employment and output
 - Firms continuously enter/exit the foreign market
 - Trade liberalization increases average productivity by reallocating market shares and resources within industries from low-productivity firms to high-productivity firms

Implications of new-new trade theory for trade policy analysis

Ciuriak et al. (2011)

Just as firms are heterogeneous, so is the impact of trade policy, depending on the specific facts concerning the population of firms within an industry in a country and the broader economic policy context in which trade policy is implemented

- Traditionally, trade negotiators focus on the existing exported/imported goods and services, but as the new-new trade theory suggests, trade liberalization affects not only existing trade flows, but also the diversification of imported/exported goods
- Thus, the focus of trade negotiators must shift towards extensive margins
- Empirical evidence strengthens this view suggesting a positive impact of WTO membership on extensive margins and a negligible effect on intensive margins

Implications of new-new trade theory for trade policy analysis

Ciuriak et al. (2011)

- Given the existence of fixed and sunk cost to entry in a new foreign market, policy makers should focus on overcoming such costs
- It is often the case that tariffs are already low, but non tariff barriers are still high → the policy should shift to the expensive procedures for getting products across borders → increasing importance of trade facilitation
- Non tariff requirements for market access (conformance with product safety standards and licencing requirements for highly technical products, etc.) are likely to become crucial in trade negotiations

Implications of new-new trade theory for trade policy analysis

Demidova and Rodriguez-Clare (2009)

- In trade models with heterogeneous firms export subsidies can increase productivity by inducing reallocation of labor from less to more productive firms
- This paper shows also how an export subsidy may however reduce overall welfare in an heterogeneous firm model with a small open economy
- Intuition: welfare can be decomposed into four terms: productivity, terms of trade, variety and curvature, where the last is a term that captures heterogeneity across varieties
- An export subsidy generates an increase in productivity, but given the negative joint effect on the other three terms (terms of trade, variety, and curvature), welfare falls
- In contrast, an import tariff improves welfare in spite of the fact that productivity falls

Implications of new-new trade theory for trade policy analysis

Demidova and Rodriguez-Clare (2009)

- Consider an economy with L identical agents spending their income on a continuum of domestic and imported goods v and v' in quantities $q(v)$ and $q(v')$
- Each agent has the following preferences
$$U \left(\int_{v \in \Omega} q(v)^\rho dv + \int_{v' \in \Omega_m} q_m(v')^\rho dv' + \right)^{1/\rho}$$
- Where omegas are the sets of available domestic and imported goods, σ is the elasticity of substitution
- The model develops in a similar fashion as in Melitz (2003) with the main difference that government pays a consumption subsidy for domestic goods and the foreign government pays an ad valorem export subsidy

Implications of new-new trade theory for trade policy analysis

Demidova and Rodriguez-Clare (2009)

- There are four channels through which a trade policy can affect welfare (as per capita utility) in the economy

$$\frac{U}{L} = (\textit{productivity index}) * (\textit{TOT index}) * (\textit{variety index}) * (\textit{curvature})$$

- **Productivity index:** is measured as total output per worker
 - the total output depends on the total number of domestic firms and hence on the productivity threshold (remember the Melitz 2003 model), which among the other parameters, depends positively on the consumption subsidy

Implications of new-new trade theory for trade policy analysis

Demidova and Rodriguez-Clare (2009)

- ***Term of trade index***: is measured as the ratio of consumed over produced quantity
 - It takes into account the “importance of trade” : the ratio of the price of exports over price of imports is multiplied by the ratio of export share in production to the import share in consumption.
 - The index depends on both consumer and export subsidies
- ***Varieties index***: is simply given by the total amount of varieties consumed at home, that is the total mass of active firms in the economy
 - It depends on the productivity cut-offs for domestic producers and exporters
- ***Curvature***: takes into account both within and cross-country heterogeneity of firms

Implications of new-new trade theory for trade policy analysis

Demidova and Rodriguez-Clare (2009)

- Two distortions in the economy:
 1. Domestic distortion created by the mark-up: domestic goods are sold at a price above the opportunity cost, whereas imported goods are sold at a price equal to the opportunity cost, so in the equilibrium there is too little consumption of domestic relative to foreign varieties
- This distortion is neutralized with one of the following three policies:
 - i. A consumption subsidy that allows consumers to pay a price equal to the producer's marginal cost
 - ii. An import tariff, which makes consumers pay the same “mark-up” on imported varieties as the one they pay for domestic varieties
 - iii. An export tax , which makes exporting less attractive to producers, so that resources are shifted toward domestic production and the quantity of each consumed variety rises

Implications of new-new trade theory for trade policy analysis

Demidova and Rodriguez-Clare (2009)

- Two distortions in the economy:
 2. Foreign producers generate an increase in consumer-surplus by their entry into the domestic market. Since consumers do not take into account that their spending on imports increases entry by foreign producers, then the mass of the imported varieties is below its optimal value
- This distortion is neutralized with one of the following three policies (opposite to those in the previous case)
 - i. Consumption tax
 - ii. Export subsidy
 - iii. Import subsidy
- Since the mark-up distortion dominates the consumer-surplus distortion, the resulting optimal policies are a consumption subsidy, an export tax, and an import tariff

Implications of new-new trade theory for trade policy analysis

Demidova and Rodriguez-Clare(2009): the effects of trade policies

Let's assume that the government has currently set the optimal consumption subsidy; what are the **effects of an introduction of an export subsidy?**

- Increasing export subsidy allows less productive firms to export, thus the cut-off for exporters decreases and the mass of exporter firms increases
- To clear trade balance same things happen for the foreign exporters, mass of importing firms increases
- Labor demand at home increases bringing up wages. It makes harder to produce for the domestic market because it increases the cut-off for the domestic production reducing the mass of domestic producers
- Increased mass of importers and decreased mass of domestic producers compensate themselves

Implications of new-new trade theory for trade policy analysis

Demidova and Rodriguez-Clare(2009): the effects of trade policies

- The increased number of exporting firms makes the competition more severe, and only most productive firms survive
- Labor is reallocated from less to more productive firms, and the average productivity increases (which is the same selection effect as in the Melitz model), increasing the first component of the per-capita utility
- But the other three terms of the per-capita utility fall ending up with a welfare loss associated to an export subsidy (with the consumption subsidy already in force)

Implications of new-new trade theory for trade policy analysis

Demidova and Rodriguez-Clare(2009): the effects of trade policies

Let's assume that the government has currently set the optimal consumption subsidy; what are the **effects of an introduction of an import tariff?**

- In this case the productivity index is reduced after the introduction of an import tariff
- The intuition behind this results is that an import tariff shifts consumer spending towards domestic varieties, allowing low productive firms to break even and pulling resources away from higher productivity exporters
- However, since the import tariff is an optimal policy in the presence of the two distortions in the economy (see above), overall welfare increases

Implications of new-new trade theory for trade policy analysis

Technical Barriers to Trade under firm-level heterogeneity : Baldwin and Forslid (2010)

- Using a simplified standard Melitz (2003) model the authors focus on various positive and normative aspects of trade liberalization with heterogeneous firms
- Authors analyse the effects of lower trade costs and the effects of lower regulatory barriers to trade (beachhead costs)
- They find that lower marginal trade costs (when countries are symmetric in size) lowers the minimum level of marginal costs to enter the domestic market and rises the minimum level of marginal cost for enter the foreign market (i.e. it becomes harder to produce domestically and easier to export)
- In terms of number of varieties produced in an economy, a reduction in trade costs end up with a lower number of varieties available in each country

Implications of new-new trade theory for trade policy analysis

Technical Barriers to Trade under firm-level heterogeneity : Baldwin and Forslid (2010)

- The intuition for this anti-variety effect is that freer trade makes it easier for firms to export (both domestic and foreign ones) and thus raises the fraction of foreign-made varieties that are imported to Home
- But this effect is offset by the drop in the domestically produced varieties given by the reduction in the cut-off marginal cost level for domestic firms
- On the other hand, a reduction in beachhead costs (costs due to technical barriers to trade) by better regulation in standards harmonization can facilitate entry in foreign markets. In terms of the model it means that the fixed cost for introduce a new product in the domestic market becomes equal to the cost of introduce a new product in the foreign country (i.e. $F_D = F_X$)

Implications of new-new trade theory for trade policy analysis

Technical Barriers to Trade under firm-level heterogeneity : Baldwin and Forslid (2010)

- Authors find that reducing beachhead cost increases the number of consumed varieties in both small and large countries
- Finally, authors find an interesting Stolper and Samuleson effect in a heterogeneous firms set up: freer trade makes the owner of the X-types firms better than the owner of the D-type firms

Implications of new-new trade theory for trade policy analysis

Technical Barriers to Trade under firm-level heterogeneity : Felbermayr and Jung (2011)

- In this paper authors focus on TBT, analysing two different deregulation scenarios inspired by the recent EU policies:
 1. *T-neutral deregulation*: regulatory costs for domestic and foreign firms are reduced equiproportionally so the relative competitive position of foreign firms remains unchanged
 2. *Incremental mutual recognition*: reduces the entry costs of foreign firms only (de facto it makes additional licensing of goods for exporting gradually redundant)
- The aim is to understand the effect of the two former deregulation policies on productivity levels by final goods producers

Implications of new-new trade theory for trade policy analysis

Technical Barriers to Trade under firm-level heterogeneity : Felbermayr and Jung (2011)

T-neutral deregulation

- In this scenario the fixed cost for entry in the domestic (F_D) and foreign market (F_X) are reduced equiproportionally leaving unchanged their ratio (T)
- It does not affect the probability of export which depends on the ratio T ; moreover the entry cutoff levels shift proportionally
- But the industry productivity increases in presence of high external economies of scale and very concentrated productivity distribution (high Pareto distribution parameter)

Implications of new-new trade theory for trade policy analysis

Technical Barriers to Trade under firm-level heterogeneity : Felbermayr and Jung (2011)

Incremental mutual recognition

- In this scenario the fixed cost for entry in the domestic (F_D) market remains unchanged but the entry cost for the foreign market (F_X) is reduced, so their ratio reduces
- It increases the cutoff level for domestic production but decreases the one for exporting → there will be a reallocation of market shares
- The new exporters causes a loss of market share to incumbent exporters and domestic firms
- Since the new exporters are firms with medium levels of productivity, the net effect on average productivity is ambiguous

Implications of new-new trade theory for trade policy analysis

Technical Barriers to Trade under firm-level heterogeneity : Felbermayr and Jung (2011)

After a calibration exercise author find mixed evidence on productivity gains from harmonization

Table 1 Productivity gains and losses from harmonization

Industry	(1) $\Delta\% T_h$	(2) $\Delta\% p_h^x$	(3) $\Delta\% \tilde{\varphi}_h$	(4) $\Delta\% M_h^d$	(5) $\Delta\% M_h$	(6) $\Delta\% A_h$
Chemicals	-24.0	54.4	-10.6	-12.0	23.2	0.0
Rubber and plastics	-24.4	73.0	-7.6	-18.7	22.2	3.8
Leather and footwear	-42.9	211.9	-11.5	-35.3	42.6	7.4
Lumber and wood	-62.1	488.2	-12.0	-43.1	61.7	7.5
Paper products	-23.6	70.6	-8.8	-18.5	21.4	6.3
Textile	-47.1	227.4	-13.5	-33.7	48.6	5.0
Apparel	-37.9	253.1	-9.6	-44.1	33.3	15.8
Non-ferrous metals	-29.1	68.2	-10.8	-13.2	29.8	1.2
Machinery except electrical	-51.7	225.7	-16.5	-29.7	61.2	-5.0
Electrical machinery	-45.3	214.7	-15.9	-34.2	48.7	-2.1
Road vehicles	-48.3	151.4	-19.0	-18.5	58.2	-4.0
Transport equipment	-48.0	173.1	-18.4	-24.2	57.4	1.6
Scientific/measuring equip.	-70.8	588.9	-25.0	-41.2	97.0	-4.5
Optical/photographic equip.	-68.2	586.7	-21.8	-44.4	85.8	-0.9

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- The cut to $T=1$ is largest for industries with high status quo degrees of competitive disadvantage of importers; it is low for industries with low protection to start with
- The reduction in T induces more firms to export, since less productive firms start to export, there will be a reduction of the average productivity level ($\Delta\% \tilde{\varphi}_h < 0$)
- Due to the increased competition the least productive input producers are forced to exit, thereby there will be a decreasing mass of firms operating domestically $\Delta\% M_h < 0$

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Technical Barriers to Trade under firm-level heterogeneity : Felbermayr and Jung (2011)

- Finally the net effect of harmonization on industry productivity critically depends on the characteristics of the sectors (productivity distribution and economies of scale)
- It is positive and high for apparel and it is low for knowledge intensive industries (scientific equipment and machinery)
- In these industries the rise in input diversity can not make up for the drop in average productivity of input producers, and the net effect on industry productivity is negative

Implications of new-new trade theory for trade policy analysis

What we learned

- New New trade model and the heterogeneity of firms need to reconsider the traditional trade policy literature
- Trade policies such as tariffs, subsidies, etc. have more than simple traditional *Term of Trade effect*. They potentially affect:
 - The probability to survive for a firm competing in the domestic market
 - The probability of entry the foreign market
 - The average industry productivity level