Em Análise

The effect of developing countries' competition on regional labour markets in Portugal

Tiago Monteiro Pereira[1]

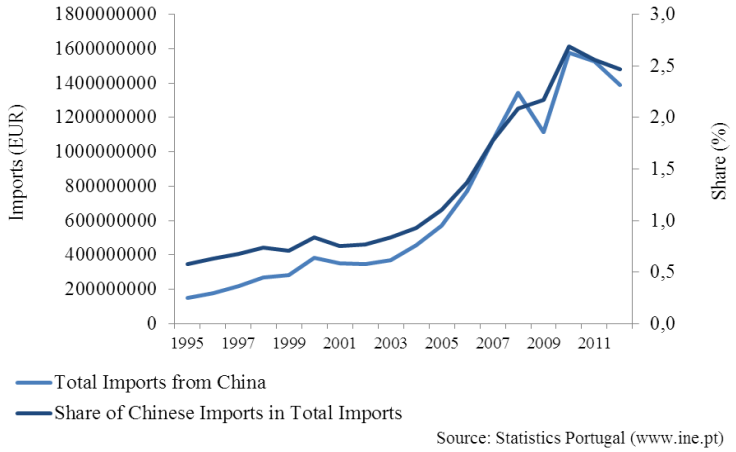
Introduction

Portuguese trade with developing countries rose 564% in the last 20 years and China became in 2014 the 8th most important importer among all trade partners. At the same time, Portugal witnessed its manufacturing employment decreasing 34%. Using a sample of persons employed in enterprises between 2004 and 2012, I show whether regions more exposed to Chinese import competition face a larger decline in manufacturing employment. My results show that an increase of 1000 EUR in imports per worker throughout the period considered causes a decrease in the share of manufacturing employment in the working age population by approximately 0.12 percentage points.

1- Portuguese Trade with China

Looking at the figure 1.1, one observes a sharp rise of Chinese imports of approximately 836% between 1995 and 2012, especially after 2001, when China had access to the World Trade Organization.

Figure 1.1. Chinese Imports in Portugal, 1995-2012



Source: Statistics Portugal (www.ine.pt)

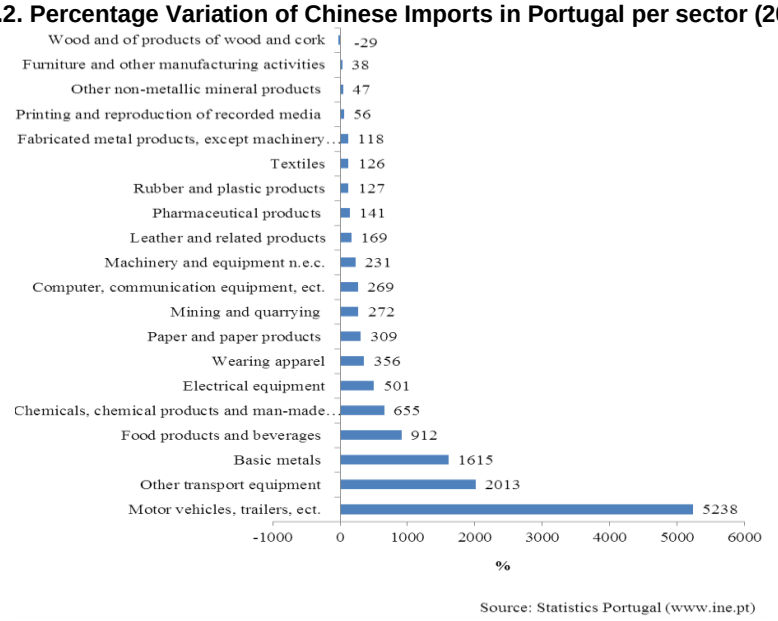
Although during the same period, exports to China increased much more (approximately 2983%), the absolute value of imports is higher, with Portugal showing a continuous trade deficit with China. In fact, the trade deficit increased almost 640% between 1995 and 2012 and imports from China represented in 2012 already 2.5% of total imports, with China becoming the eighth most important importer (vs 17th in 1995).

Considering imports per sector, and observing figure 1.2, one may conclude that the sectors with the highest growth between 2000 and 2012 are motor vehicles, other transport equipment and basic metals. However, when one considers the weight of each sector in total imports (figure 1.3) one observes that the sectors with the highest growth are not the most representative. In more detail, it is communication and computers sector which signifies the most in total Chinese imports , both in 2000 and in 2012 (16% and 17%, respectively). Moreover, one can note that while in 2000, furniture and other manufacturing goods were the second most important sector, representing 14%; in 2012, the second most important is electrical equipment (11%). Another notable fact is that basic metals which weighted only 2% in 2000, twelve years later were worth 10%. Textiles, leather and wearing apparel kept approximately the same share. It is also important to highlight that the total manufacturing sector accounts for almost 95% of all Chinese imports.

[1] 'BSc in Economics (NOVA School of Business and Economics, 2013) and Master in Economics (Université catholique de Louvain, 2015). Presently, trainee of PEPAC-MNE in economic diplomacy at the Portugueses Embassy in Brussels. The opinions expressed in this article represent the views of the author and do not necessarily correspond to those of the Ministry of Economy.

This pattern may be explained by the fact that China became more and more competitive in giving low-wage assembly services and it changed its exports from apparel and textiles toward electronic, machinery and other sophisticated goods.

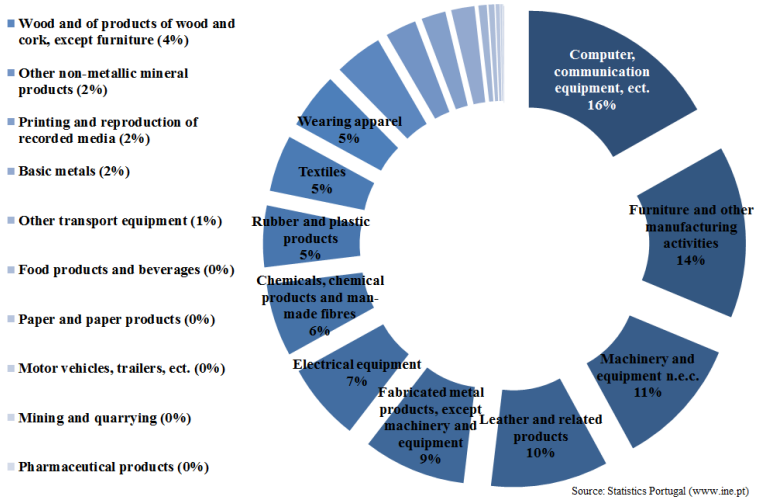
Figure 1.2. Percentage Variation of Chinese Imports in Portugal per sector (2000-2012)



Source: Statistics Portugal (www.ine.pt)

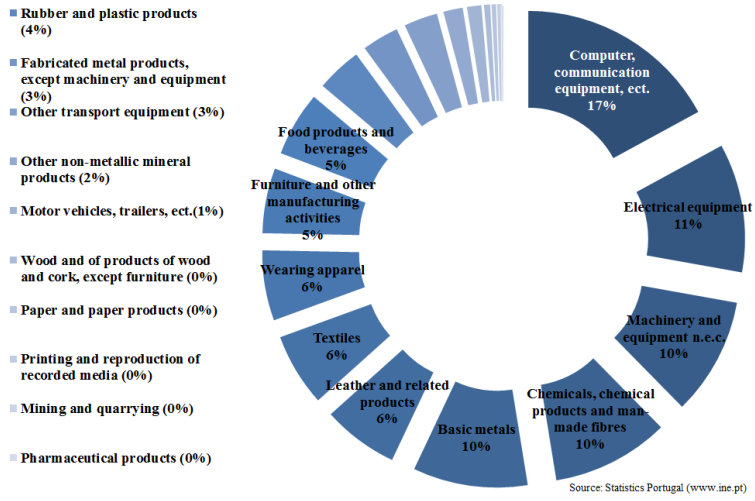
Figure 1.3. Share of Imports per sector in Total Imports from China

(Share of Imports in 2000)



Source: Statistics Portugal (www.ine.pt)

(Share of Imports in 2012)

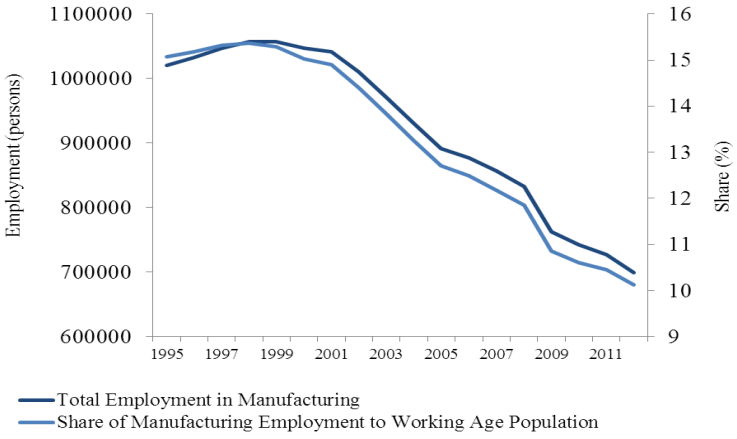


Source: Statistics Portugal (www.ine.pt)

2- Employment in Manufacturing

Portugal witnessed a significant decrease in the manufacturing employment. Looking at figure 2.1, one can verify that total manufacturing employment rose slightly between 1995 and 1999, but in 2000, it started to decrease sharply, dropping nearly 34%; the same pattern is seen when taking into account the share of manufacturing employment to working age population, with a drop of approximately 5 percentage points between 2000 and 2012. Moreover, 57% of this negative variation is explained by the textiles, wearing apparel and leather products sectors, followed by the wood and paper products, and printing sectors (12%).

Figure 2.1. Manufacturing Employment in Portugal, 1995-2012



Source: Statistics Portugal (www.ine.pt)

As one can observe, the shape of the manufacturing employment accompanies the shape of the Chinese imports. Therefore, using a methodology proposed by Autor et al. (2012), I am going to study whether this decline in the manufacturing employment can be explained by the import competition from China.

3- Building the Treatment Variable

In order to study the impact of the developing countries on the Portuguese labour market I am going to use a methodology from the study of Autor et al. (2012).

To build the treatment variable, the authors developed a model based on a monopolistic competition approach and they considered one region as a small open economy. With the view to measure the monopolistic competition model, Autor et al. applied a gravity structure wherein they took into account variations in trade quantities as an alternative to the Heckscher-Ohlin approach for trade prices. Next, they assumed two channels in which China may affect region i: the export-supply channel related to the competition in the markets where each region sells its production (as a function of changes in labour costs, trade costs and the number of varieties made in China); and the import-demand shocks in China captured by the expenditure of each industry (j). Consequently, the labour-market outcomes, which are the change in wages, the change in employment of traded goods and the change in employment of non-traded goods, correspond to the sum of the two channels. Substituting employment in the U.S. by employment in Portugal, the treatment variable becomes:

$$\Delta ImpComp_{it} = \sum_{j} \frac{Emp_{ijt}}{Emp_{Pjt}} \frac{\Delta Imp_{Cjt}}{Emp_{it}}$$

Wherein $\Delta \mathrm{Imp}_{\mathrm{Cjt}}$ indicates the variation of Chinese imports to Portugal by industry j between 2004 and 2012, $\mathrm{Emp}_{\mathrm{it}}$ is the total employment in each NUTSIII in 2004 and $\frac{\mathrm{Emp}_{\mathrm{ijt}}}{\mathrm{Emp}_{\mathrm{Pjt}}}$ is the share of employment in each NUTSIII and industry j in total employment of industry j in 2004 as well. In other words, the treatment variable captures the import competition from China per worker and the variation in the treatment variable across regions comes entirely from the variation in local industry employment at the start of the period t (2004). Therefore, the labour market is more exposed to imports competition if imports grow at a larger scale during the period of time studied.

Calculating the treatment variable I found the following results in figure 3.1 and 3.2.

Figure 3.1. Chinese Import Competition per worker (EUR) by NUTSIII region, 2004-2012

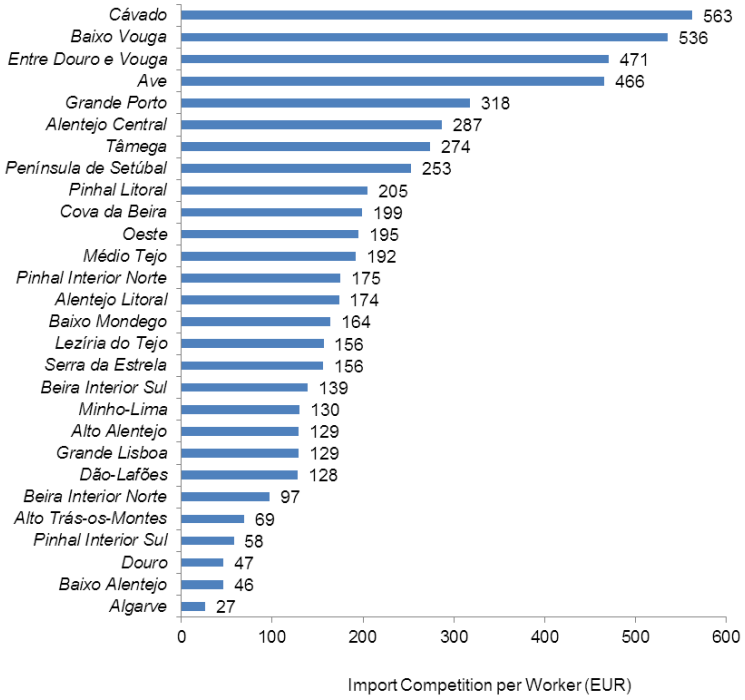
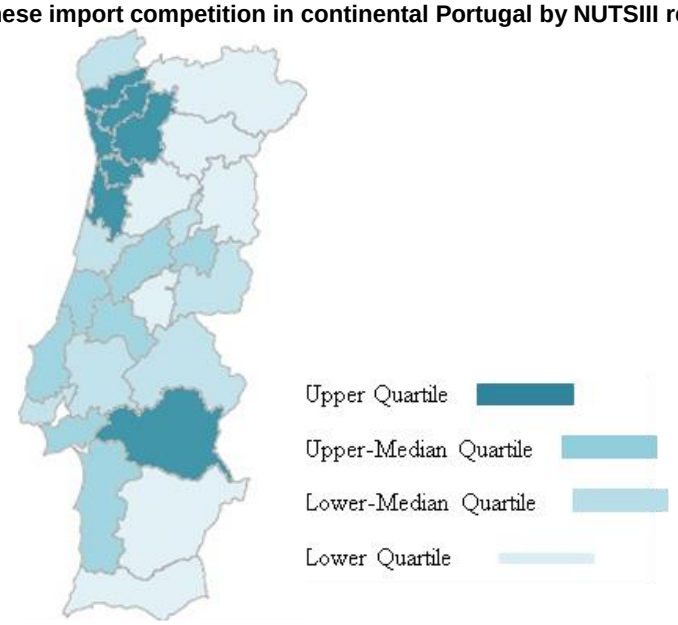


Figure 3.2. Chinese import competition in continental Portugal by NUTSIII region, 2004-2012



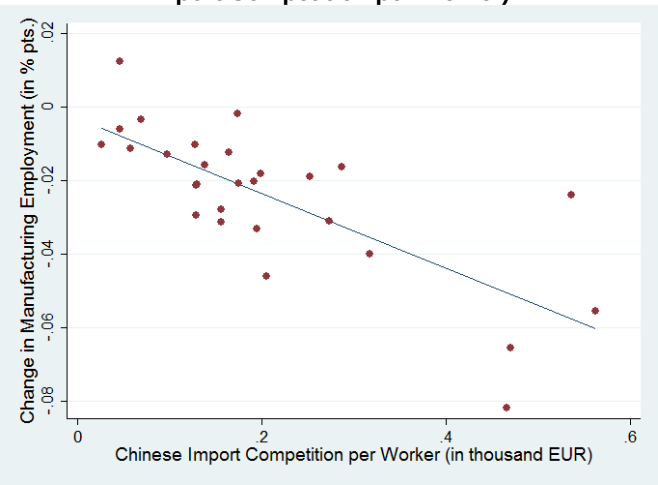
By looking at both figures, one may conclude that the most affected regions (upper quartile) are located mainly in the northern coastline of Portugal which is one of the most industrialized regions of Portugal. The regions less affected are the south and the inner of Portugal. This is expected because it is a region characterized by whether a high level of agriculture and no industry or mostly tourism (case of Algarve). Moreover, there is a big difference between the most affected and least affected regions. While Cávado shows an increase of 563 euros of Chinese imports per worker between 2004 and 2012, Algarve only shows an increase of 27 euros per worker during the same period. Additionally, the average increase in the upper quartile (416 € per worker) is approximately six times larger than the average increase in the lower quartile (67 € per worker). Comparing to the other studies, these values are quite smaller. For example, in the case of Spain[2], the upper quartile showed an increase of 1788 dollars per worker during 1995 through 2007, and in the case of USA[3], the average increase was 2110 dollars per worker during 2000 through 2007. This difference may partly be explained by the lack of some observations.

2 Donoso et al. (2013)
3 Autor et al. (2012)

4- Building the Model and Results

First of all, figure 4.1 shows the relationship between the change in manufacturing employment as a percentage of the working age population and the Chinese import competition per worker. As one can see, there is a negative relationship; regions that are more affected by higher competition (import exposure) face a larger negative change in manufacturing employment between 2004 and 2012.

Figure 4.1. OLS reduced form regression (Change in Manufacturing Employment and Chinese Import Competition per Worker)



However, this negative relationship may also be affected by other factors. Therefore, in order to further analyse the impact, I fit a regression which is in line to the one used by Autor et al. (2012). The model estimated is the following:

$$\Delta Emp_{mit} = \alpha_0 + \alpha_1 \Delta ImpComp_{it} + X'_{it}\alpha_2 + \varepsilon_{it}$$

Where the dependent variable ΔEmp_{mit} measures the change in manufacturing employment in percentage of the working age population between 2004 and 2012 for NUTSIII region *i*; the independent variable $\Delta ImpComp_{it}$ is the treatment variable explained previously and used to measure the Chinese import competition between 2004 and 2012 at the regional level; and X'_{it} is a vector of control variables at the start of period *t* (2004). In my study, and following the methodology used in Autor et al. (2012), the control variables are related to the labour market specificities and to the demographic structure. All the observations are weighted by the first year share of regional population in total Portuguese population (2004).

In column 1 of table 4.2, the result shows a negative and statistically significant at 1% level the effect of the import competition on manufacturing employment. The estimated coefficient states that an increase of 1000 EUR in imports per worker between 2004 and 2012 causes a decrease in the share of manufacturing employment in the working age population of approximately 0.12 percentage points.

In column 2 of table 4.2, I use an instrumental variable and the coefficient estimated is again statistically significant at 1% level and marginally higher.

The use of the instrumental variable is related to the possibility of endogeneity problems. Actually, during the time considered, Portugal was affected by the financial crisis in 2008 and 2009 and by the austerity program imposed by Troika which started in 2011. Both these two shocks are supposed to affect negatively imports and the labour market, underestimating the coefficient. Once again, I decided to follow the methodology proposed by Autor et al. (2012) to control the endogeneity problems and build an instrumental variable. In this case, instead of using Chinese imports to Portugal, I use Chinese Imports to other 11 high-wage countries[4]. Then, the instrument becomes:

$$\Delta ImpCompOther_{it} = \sum_j \frac{Emp_{ijt}}{Emp_{Pjt}} \frac{\Delta ImpOther_{Cjt}}{Emp_{it}}$$

Considering the coefficient estimated by the instrumental variable, one may conclude that the variation in the manufacturing employment is well explained by the increase of import competition from China, and

4 Spain, UK, Belgium, France, Netherlands, Ireland, Italy, Germany, Sweden, Denmark and USA

there is no robust demand factors affecting my results. In fact, while the treatment variable measures the Chinese total impact (supply shocks in China and demand shocks in Portugal), the instrumental variable captures only the Chinese supply shocks. It is important to highlight that both coefficients depict a large R-square, which means that the treatment variable well explains the variation in manufacturing employment.

Comparing to the other two studies[5], my results are significantly smaller. In the case of Spain and USA, the coefficients estimated were -1.4 and -0.746 percentage points, respectively. However, one has to take into the account that the period considered is different, the lack of some observations and the smaller values calculated for the treatment variable.

Table 4.2. Chinese Import Competition and Change of Manufacturing Employment in NUTSIII regions, 2004-2012

Dependent Var.: Change in Manufacturing Employment/working age pop (in % pts)		
Independent Var.	Column (1) OLS	Column (2) 2SLS
Import Competition/ worker	-0.125*** (0.0133)	-0.126*** (0.0116)
R-squared	0.854	0.854

Notes: N= 28 (28 NUTSIII regions x 1 period). Robust standard errors in parentheses. Statistical significance is indicated by *** p<0.01, ** p<0.05, * p<0.1 Models are weighted by the start of the period region share of national population.

In table 4.3, I add an important control variable which is the percentage of manufacturing employment in total employment at the start of the period. This control variable is used to capture a decline trend in the manufacturing employment that otherwise would affect the treatment variable. With this control, the treatment variable will only show the effect that comes from the differences between industries and their exposure to the Chinese import competition. In column (1) I use the usual OLS and in column (2) I use the instrumental variable. The control variable is negative in both cases but only statistically significant when I use the instrumental variable. Moreover, despite of decreasing considerably, both treatment variables continue to be statistically significant. In conclusion, one can say that the change in manufacturing employment in percentage of the working age population may also be partly explained by a downward trend in the manufacturing employment sector.

In table 4.4, I build my model with the full controls. Therefore, I add the control variables regarding the demographic structure of Portugal: the first year period share of working-age population who is foreign-born, the first year period share of working-age population who got graduated, the first year period share of working-age women population and the first year period share of working-age young population.

Table 4.3. Chinese Import Competition and Change of Manufacturing Employment in NUTSIII regions, 2004-2012

Dependent Var.: Change in Manufacturing Employment/working age pop (in % pts)		
Independent Var.	Column (1) OLS	Column (2) 2SLS
Import Competition/ worker	-0.0824** (0.0356)	-0.0827*** (0.0249)
Manufacturing employment (%)	-0.0574 (0.0425)	-0.0570* (0.0338)
R-squared	0.876	0.876

Notes: N= 28 (28 NUTSIII regions x 1 period). Robust standard errors in parentheses. Statistical significance is indicated by *** p<0.01, ** p<0.05, * p<0.1 Models are weighted by the start of the period region share of national population.

5 Autor et al. (2012) and Donoso et al. (2013)

Table 4.4. Chinese Import Competition and Change of Manufacturing Employment in NUTSIII regions, 2004-2012

Dependent Var.: Change in Manufacturing Employment/working age pop (in % pts)		
Independent Var.	Column (1) OLS	Column (2) 2SLS
Import Competition/ worker	-0.0201	-0.0460*
	(0.0391)	(0.0242)
Manufacturing employment (%)	-0.124**	-0.0972**
	(0.0572)	(0.0495)
Share foreign-born populati-on (%)	0.387	0.156
	(1.334)	(1.024)
Share of graduated populati-on (%)	-0.594	-0.521
	(0.725)	(0.647)
Share of women population (%)	-0.108	-0.0829
	(0.0977)	(0.0712)
Share of young population (%)	0.325	0.256
	(0.307)	(0.236)
R-squared	0.925	0.922

Notes: N= 28 (28 NUTSIII regions x 1 period). Robust standard errors in parentheses. Statistical significance is indicated by *** p<0.01, ** p<0.05, * p<0.1 Models are weighted by the start of the period region share of national population.

Comparing to the previous situations, the results change significantly. When using OLS, the coefficient becomes statistically insignificant. Moreover, only the percentage of manufacturing employment is statistically significant at 5% level and negative, which means that the variation in manufacturing employment shared by working-age population follows a downward trend due to other factors rather than being caused by Chinese import competition. Specifically, when manufacturing employment in 2004 increases 1 percentage point, there is a negative variation of 0.12 percentage points between 2004 and 2012 in the share of manufacturing employment; all other control variables are not statistically significant. Contrary to the study of Autor et al. (2012) and Donoso et al. (2013), wherein adding control variables do not affect the results, here it is not the case. However, when using the instrumental variable, although being smaller, the treatment variable remains weakly statistically significant at 10% level. In particular, at a 1000 EUR increase of imports per worker, the manufacturing employment to working age population declines 0.0460 percentage points. Once again, it is important to highlight that, given the low number of observations; it might be possible that the results are not very reliable when I add controls. Therefore, one may conclude that, import competition from China may have a small and negative impact in the Portuguese manufacturing sector.

5- Non-China Trade

Since I am studying the effect of developing countries' competition on regional labor markets in Portugal; and Portugal has a good trade relationships with two other important developing countries which are Brazil and Angola, I decided to study its impact as well. For this purpose, I build my treatment variable exactly as before, but instead of using the variation of Chinese imports I use the variation of imports from Brazil plus Angola. The results are shown in figure 5.1 and the average is 947 EUR per worker between 2004 and 2012.

In table 5.2, one can verify that, although the increase in import competition per worker is higher than the Chinese case, the coefficient of the treatment variable is never statistically significant. The only effect comes from the percentage of manufacturing employment, which means that the negative variation in manufacturing employment is due to a larger initial percentage of manufacturing employment.

Figure 5.1. Brazil + Angola Import Competition per Worker (EUR) by NUTSIII region, 2004-2012

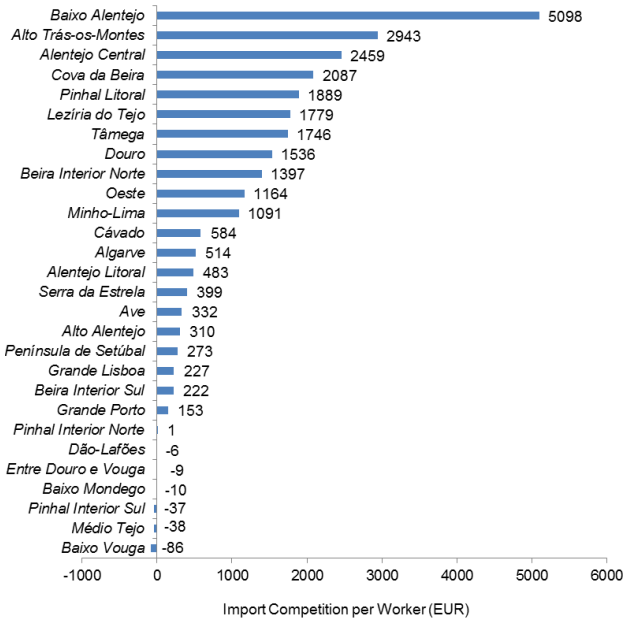


Table 5.2. Brazil + Angola Import Competition and Change of Manufacturing Employment in NUTSIII regions, 2004-2012

Dependent Var.: Change in Manufacturing Employment/working age pop (in % pts)

Independent Var.	Column (1)	Column (2)	Column (3)
Import Competition/ worker (BRZ+ANG)	-0.00683 (0.00738)	0.00366 (0.00719)	0.00265 (0.00390)
Manufacturing employment (%)		-0.152*** (0.0202)	-0.133** (0.0481)
Share foreign-born population (%)			0.712 (1.305)
Share of graduated population (%)			-0.535 (0.728)
Share of women population (%)			-0.102 (0.112)
Share of young population (%)			0.279 (0.350)
Observations	28	28	28
R-squared	0.016	0.814	0.925

Notes: N= 28 (28 NUTSIII regions x 1 period). Robust standard errors in parentheses. Statistical significance is indicated by *** p<0.01, ** p<0.05, * p<0.1. Models are weighted by the start of the period region share of national population..

The reason for that may lie in the type of goods imported from Brazil and China. For example, in 2012, almost 80% of the total imports were concentrated in mining and quarrying, which is a sector with a small percentage of people employed (approximately 1.8% in 2012). In fact, looking at figure 5.1, one may see that the most affected regions are those corresponding to the south and inner of Portugal which have a higher degree of agriculture and people employed in mining and quarrying. Moreover, one may say that the increase in trade between Portugal and Brazil and Angola are mostly associated with cultural proximity, same language and historical long-term relationships, rather than being associated with better productivity or lower trade barriers, as the case of China. Another important factor concerns the trade balance which is positive between 2006 and 2012. For instance, the value of exports is multiplied by 2.4 the value of imports in 2009; this situation never occurs with China.

6- Importance of Exports

Another way to study the robustness of my results is using alternative measures to evaluate the impact of trade exposure. As mentioned in Autor et al. (2012), and following the methodology used by them, I decid-

ed to use net imports, in substitution of imports as an alternative measure. Therefore, the treatment variable becomes:

$$\Delta ImpComp_{it} = \sum_{j} \frac{Emp_{ijt}}{Emp_{Pjt}} \frac{\Delta(Imp - Exp)_{Cjt}}{Emp_{it}}$$

Wherein $\Delta(\mathrm{Imp} - \mathrm{Exp})_{\mathrm{Cjt}}$ is the variation of difference between imports from and exports to China.

The use of net imports is an important specification because despite having a negative trade balance with China, Portuguese exports increased much more than imports between 2004 and 2012 (670% vs 203%). However, it is important to highlight the differences between the type of imports and exports. As mentioned previously, in 2000, Portugal imported mostly computers and communication equipment, furniture and other manufacturing goods and machinery, and exported, as well, mostly, machinery, products of wood and electrical equipment. This similarity in machinery products may be explained by the fact that I am not taking into account the division between final and intermediary goods. Nevertheless, the specialization of China in producing more sophisticated products is so extraordinary that Portugal was exporting in 2012 mostly motor vehicles and parts thereof and mining and quarrying products and importing computers and communication equipment, electrical equipment and machinery.

Since Portugal just as the U.S. may not be in the same production chain as China, one needs to be cautious when analyzing the results. Moreover, contrary to Autor et al. (2012), I am not using any instrumental variable, which may affect my estimations.

The results presented in table 6.1 show a statistically and significant coefficient of the net imports competition per worker with and without controls. In column (1), when net import exposure per worker increases 1000 EUR, manufacturing employment to working age population ratio declines 0.145 percentage points. In fact, by removing exports, the coefficient is approximately 16% higher than the coefficient of gross imports. Moreover, contrary to the gross imports estimates, when I add full controls, the coefficient remains negative and statistically significant at 1% level. This means that exports had a negative impact on the treatment variable and take them into account was a good strategy to improve my estimations and conclusions. In addition, by using regional fixed effects, the coefficients are similarly precisely estimated.

Table 6.1. Chinese Net Import Competition and Change of Manufacturing Employment in NUTSIII regions, 2004-2012 (Regional Fixed Effects Estimates)

Dependent Var.: Change in Manufacturing Employment/working age pop (in % pts)			
Independent Var.	Column (1)	Column (2)	Column (3)
Net Import Competition/ worker	-0.145*** (0.0471)	-0.0503** (0.0209)	-0.0716*** (0.0149)
Manufacturing employment (%)		-0.124*** (0.0222)	-0.110*** (0.0334)
Share foreign-born population (%)			0.653 (0.806)
Share of graduated population (%)			0.609 (0.380)
Share of women population (%)			-0.301*** (0.0868)
Share of young population (%)			0.781*** (0.272)
Observations	28	28	28
R-squared	0.501	0.847	0.964
Using Regional Fixed Effects			
Net Import Competition/ worker	-0.138*** (0.0231)	-0.0767*** (0.0186)	-0.0711*** (0.0132)

Notes: N= 28 (28 NUTSIII regions x 1 period). Model estimated by regional fixed effects using 5 NUTSII regions. Robust standard errors in parentheses. Statistical significance is indicated by *** p<0.01, ** p<0.05, * p<0.1. Models are weighted by the start of the period region share of national population. Full regional fixed effects model in A.6.

7- Conclusion

While total Portuguese trade with developed countries increased approximately 181% in the last 20 years, trade with developing countries rose 564%. With China explaining 17% of this variation, it became in 2014 the 8th most important importer among all trade partners and the 2nd among all developing countries. Although exports have grown much more impressively in the last years, the trade deficit with China increased almost 640% between 1995 and 2012. Moreover, with import penetration rate of Chinese imports reaching almost 80% in 2012, it is undeniable the growing importance of trade with China to the Portuguese economy.

At the same time, Portugal witnessed its manufacturing employment decreasing 34%, which may be explained by the growing trade exposure to China. Many studies before concluded that trade with developing countries affects negatively the labour markets in the developed countries, with, for instance, less manufacturing employment, lower earnings and wages, more unemployment, lower firms' employment growth and firms' survival and lower demand for unskilled workers.

Using a methodology proposed by Autor et al. (2012), my study is the first examining whether the decline in the manufacturing employment in Portugal can be partly explained by the import competition from China. Using a sample of persons employed in enterprises between 2004 and 2012, I show whether regions more exposed to Chinese import competition face a larger decline in manufacturing employment.

My results show that regions specialized in manufacturing sectors where the rise in Chinese imports was higher, witnessed a larger decline in the manufacturing employment than regions were exposure to import competition was smaller; and they are robust for regional fixed effects and when using net imports per worker, rather than gross imports per worker. Specifically, an increase of 1000 EUR in imports per worker throughout the period considered causes a decrease in the share of manufacturing employment in the working age population by approximately 0.12 percentage points or a decline of 0.431 log points.

Additionally, when I consider import competition from Angola plus Brazil, rather than China, the results are not statistically significant and conclusive because the trade relationships between Portugal and those countries are considerably different than the trade relationships with China.

To finish, it would be very interesting to estimate the impact of import competition on wages and benefits received from the State and look at the aggregate impact on income, as Autor et al. (20120) have done in their study.

References

AMITI, M. and FREUND, C. (2010), "The Anatomy of China's Export Growth", *NBER Working Paper 10451*, National Bureau of Economic Research, Cambridge, MA.

ARKOLAKIS, C., COSTINOT A. and RODRÍGUEZ-CLARE, A. (2012), "New Trade Models, Same Old Gains?", *American Economic Review*, 102(1), 94-130.

AUER, R. and FISCHER, A.M. (2008), "The Effect of Trade with Low-Income Countries on U.S. Industry", *Federal Reserve Bank of Dallas and Globalization and Monetary Policy Institute*, 14.

AUTOR, D.H., DORN, D. and HANSON, G.H. (2012), "The China Syndrome: Local Labor Market Effects of Import Competition in the United States", *NBER Working Paper 18054*, National Bureau of Economic Research, Cambridge, MA.

AUTOR, D.H., DORN, D., HANSON, G.H. and SONG, J. (2013), "Trade Adjustment: Worker Level Evidence"

BERNARD, A.B., JENSEN, J.B. and SCHOTT, P.K. (2006), "Survival of the best fit: Exposure to low-wage countries and the (uneven) growth of U.S. manufacturing plants", *Journal of International Economics,*68, 219-237.

BRANDT, L., VAN BIESEBROECK, J. and ZHANG, Y. (2009), "Creative Accounting or Creative Destruction? Firm-Level Productivity Growth in Chinese Manufacturing", *NBER Working Paper 15152*, National Bureau of Economic Research, Cambridge, MA.

BRANSTETTER, L. and LARDY, N. (2006), "China's Embrace of Globalization", *NBER Working Paper 12373*, National Bureau of Economic Research, Cambridge, MA.

BRODA, C. and WEINSTEIN, D.E. (2004), "Globalization and the Gains from Variety", *NBER Working Paper 10314*, National Bureau of Economic Research, Cambridge, MA.

CABRAL, M. and SILVA, J. (2006), "Intra-industry Trade Expansion and Reallocation Between Sectors and Occupations", unpublished publication.

CHANEY, T. (2011), "The Gravity Equation in International Trade: An Explanation", *University of Chicago, NBER and CEPR*, Preliminary and Incomplete.

DONOSO, V., MARTÍN, V. and MINONDO, A. (2013), "Do differences in the exposure to Chinese imports lead to differences in local labour market outcomes? An analysis for Spanish provinces", unpublished manuscript.

DONOSO, V., MARTÍN, V. and MINONDO, A. (2013), "Does competition from China raise the probability of becoming unemployed? An analysis using Spanish workers' micro-data", unpublished manuscript.

EBENSTEIN, A., HARRISON, A., MCMILLAN, M. and PHILLIPS, S. (2009), "Estimating the Impact of Trade and Offshoring on American Workers Using the Current Population Surveys", *NBER Working Paper 15107*, National Bureau of Economic Research, Cambridge, MA.

FAUSTINO, H.C. (2010), "Intra-Industry Trade and Labour Market Adjustment in the Automobile Industry", *International Journal of Economics and Finance*, 2 4.

FAUSTINO, H.C. and LEITÃO, N.C. (2010), "The Portuguese intra-industry trade and the labor market adjustment costs: The SAH Again", *School of Economics and Management, Technical University of Lisbon*, working paper 08.

FEENSTRA, R.C. and HANSON, G.H. (1996), "Globalization, Outsourcing, and Wage Inequality", *American Economic Review*, 86 2, 240-245.

FEENSTRA, R.C. and HANSON, G.H. (1999), "The Impact of Outsourcing and High-Technology Capital on Wages: Estimates for the United States, 1979-1990", *Quarterly Journal of Economics*, 114 3, 907-940.

di GIOVANNI, J., LEVCHENKO, A.A. and ZHANG, J. (2012), "The Global Welfare Impact of China: Trade Integration and Technological Change", *IMF working paper 12/79*, International Monetary Fund.

GOLDBERG, P., KHANDELWAL, A., PAVCNIK, N. and TOPALOVA, P. (2008), "Imported Intermediate Inputs and Domestic Product Growth: Evidence from India", *NBER Working Paper 14416*, National Bureau of Economic Research, Cambridge, MA.

GROSSMAN, G.M. and ROSSI-HANSBERG, E. (2008), "Trading Tasks: A Simple Theory of Offshoring", *American Economic Review*, 28 5, 1978-199

HARRISON, A. and MCMILLAN, M. (2009), "Offshoring Jobs? Multinationals and US Manufacturing Employment", *Tufts University*.

HSIEH, C. and OSSA, R. (2011), "A Global View of Productivity Growth in China", *NBER Working Paper 16778*, National Bureau of Economic Research, Cambridge, MA.

HSIEH, C. and OSSA, R. (2015), "A Global View of Productivity Growth in China", *NBER Working Paper 16778*, National Bureau of Economic Research, Cambridge, MA, revised publication.

KOVAK, B. (2011), "Local Labor Market Effects of Trade Policy: Evidence from Brazilian Liberalization", *Carnegie Mellon University*.

KRUGMAN, P. and LAWRENCE, R. (1993), "Trade, Jobs, and Wages", *NBER Working Paper 4478*, National Bureau of Economic Research, Cambridge, MA.

KRUGMAN, P. (1995), "Growing World Trade: Causes and Consequences", *Brookings Papers on Economic Activity*, 1, 327-377

KRUGMAN, P. (2008), "Trade and Wages, Reconsidered", *Brookings Papers on Economic Activity*, 1, 103-154.

LEITÃO, N.C., DIMA, B. and STEFANA, D. (2013), "Marginal Intra-industry Trade and Adjustment Costs in Labour Market", *Fondazione Eni Enrico Mattei*, 39.2013.

LIU, R. and TREFLER, D. (2011), "A Sorted Tale of Globalization: White Collar Jobs and the Rise of Service Offshoring", *NBER Working Paper 17559*, National Bureau of Economic Research, Cambridge, MA.

MAYDA, A.M., NAKANE, M., STEINBERG, C. and YAMADA, H. (2012), "Exposure to Low-wage Country Imports and the Growth of Japanese Manufacturing Plants", *Research Institute of Economy, Trade and Industry*, 12-E-038.

MION, G. and ZHU, L. (2010), "Import Competition from and Outsourcing to China: A Curse or Blessing for Firms?" *Centre for Economic Performance*, 1038.

PRANDEKA, M. (2013), "Portugal: Labour Market Reforms – A Summary of main problems and actions taken", *Global Economics & Market Outlook*, Eurobank

TOPALOVA, P. (2007), "Trade Liberalization, Poverty and Inequality: Evidence from Indian Districts", *NBER Working Paper 0110*, National Bureau of Economic Research, Cambridge, MA.

TOPALOVA, P. (2010), "Factor Immobility and Regional Impacts of Trade Liberalization: Evidence on Poverty from India", *International Monetary Fund*, 10/218

VERHOOGEN, E. A. (2007), "Trade, Quality Upgrading and Wage Inequality in the Manufacturing Sector", *Columbia University, BREAD, CEPR and IZA*, 2913.

WOOD, A. (1995), "How Trade Hurt Unskilled Workers", *Journal of Economic Perspectives*, 9 3, 57-80.

World Trade Report 2014, "Trade and development: recent trends and the role of the WTO", *World Trade Organization.*

Mercados informação global (2014), "China Ficha de Mercado", *aicep Portugal Global.*

2013, "Portugal Reforming the State to Promote Growth", *OECD "Better Policies" Series*, Organization for Economic Co-operation and Development.

2014, "Portugal Deepening Structural Reform to Support Growth and Competitiveness", *OECD "Better Policies" Series*, Organization for Economic Co-operation and Development