EU Enlargement, Economic Interdependence and the Labor Markets in 'Old' and 'New' Member States

Alessia Lo Turco* **and Aleksandra Parteka†**

This version: 31st March 2009

Abstract

We propose a study on the interdependence between 'Old' and 'New' member states, focusing on the labor markets of the enlarged EU over the period 1995-2005. Increased accessibility of detailed sector level labor statistics allows us to shed some new light on the interactions between EU-15 and NMS-5 skill structures and employment levels. We consider trade based linkages and interaction mechanisms across 13 sectors. We focus on the relation between domestic high and low skill employment and foreign wage conditions regarding the two categories of workers. There are signs of possible substitution effects if we consider the relations between domestic EU-15 labor and labor force in 'New' partner countries. In general, low skilled workers seem to be more exposed to the foreign competition in the EU. However, the type of interaction between EU-15 and NMS-5 labor markets depends on the skill level of workers, typology of sectors and the intensity of trade relations with the 'New' countries.

JEL: *C33, F15, F16*
Keywords: *employment interdependence, labor markets, trade, EU integration*

*Polytechnic University of Marche, Department of Economics; Ancona - Italy; *a.loturco@univpm.it*

†Gdansk University of Technology, Department of Economics; Gdansk - Poland; *aparteka@zie.pg.gda.pl*

1 Introduction[1]

Major changes which have taken place in Europe in the recent two decades have posed an important challenge to the enlarged economy of the EU. In the 1990s we have seen the intensification of links between Eastern and Western Europe, and the general opening up towards the countries previously hidden behind the iron curtain. Progressing economic integration, initiated by trade agreements in mid-1990s and completed by the recent enlargements in 2004 and 2007[2] , have caused not only the strengthening of trade relations between New Member States (from now on NMS) and EU-15 countries[3], but also cross border integration of different phases of production, the intensification of migration and bigger mobility of other factors of production across Europe.

Trade liberalization in Europe has then boosted outward processing trade (OPT). Wage differentials have influenced the location of separate phases of production process and NMS (mainly Central and East European Countries - from now on CEECs) already in the 1990s were an important host of outsourcing practices for the EU-15 (Baldone et al., 2001). The importance of the processing trade in CEECs has risen considerably throughout the 1990s: between 1988 and 1999 outward processing exports to (imports from) CEECs increased by about 12.4% (17.1%) per annum (Egger and Egger, 2005a). Nowadays, CEECs' total exports towards the EU are strongly linked to the fragmentation of production (de Benedictis and Tajoli, 2008).

Following the political worries on the implications of trade integration with transition and developing economies, possibly causing a damage to low skilled labor in developed countries, the empirical literature has mainly concerned advanced countries' labor markets. The research has been focused particularly on the effects of imported intermediate inputs on the structure and/or on the level of the demand for labor. At the same time, with a few

[1]We thank the participants of the conference organized by the National Bank of Poland on "EU Enlargement, Migration, Labor Market and Economic Growth in Europe after Enlargement" (Warsaw, 8-9 December 2008), during which the paper won the Best Paper Award, as well as the participants of PUE-PIEC Workshop (Universita' Roma Tre, Rome, 28-29 January 2009) for valuable comments and suggestions. All remaining errors are ours. Financial support received from the Italian Ministry of Education, University and Research (Scientific Research Programs of National Relevance 2007 on "European Union policies, economic and trade integration processes and WTO negotiation") is gratefully acknowledged.

[2]Ten countries (Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovenia and Slovakia) joined the EU in 2004; Bulgaria and Romania acceeded in 2007.

[3]In 1990 46%of exports from twelve NMS were directed to the EU-15 countries, in 2005 already 61%; while trade with these countries amounted to 1% of EU-15 total exports in 1990 and already 6% in 2005 (data from UNComtrade).

exceptions[4] little empirical research has been dedicated to the the trade - labor markets interactions at the industry level, especially for the new EU members.

Several features distinguish our work from the existing contributions. The recent increased accessibility of detailed sector level labor statistics for separate EU countries (also NMS) allows us to shed some new light on the interaction mechanisms between labor markets of 'Old' and 'New'members. Due to data availability we focus on EU-15 and NMS-5 economies (namely: the Czech Republic, Hungary, Poland, Slovenia and Slovakia). We analyze the interactions between the level and the skill structure of trade partners' employment and the level and the skill structure of employment at home (in both directions).

In this respect our work extends the existing works on the labor market effects of European trade integration in that it considers 'Old' and 'New' members altogether, allowing also for some degree of heterogeneity. Furthermore, we extend the traditional focus of the empirical analysis beyond manufacturing by the inclusion of the business service sector among the sectors exposed to international competition.

Moreover, an important feature of novelty relies in the fact that the demand for labor (and of the different skills) is assumed to be affected not only by its own price and other domestic input prices but also by the labor costs in partner countries: *ceteris paribus* an increase in foreign wage increases/decreases the demand for labor according to the complementarity/substitutability existing between home and foreign labor inputs. The key idea is that as the technology of production is fragmented across countries, employment levels and structures also depend on the level and composition of the labor force of the trading partners.

Finally, we consider employment by skill category, where contrary to the traditional manual/non-manual worker dichotomy we define the skills according to the workers'education level. This feature allows for an interpretation of the results in terms of the relation between the skill upgrading of a sector in one country and the skill upgrading in the same sector abroad, thus in terms of convergence/divergence of skill structures of industries across Europe.

The rest of the paper is organized as follows. In the following section, we review the theory and the empirical literature on the labor market effects of increased trade integration. In Section 3 we describe the data and present some descriptive statistics on trade and employment in EU-15 and NMS over the period 1995-2005. In Section 4 we focus on revealing the degree of 'Old'-'New' members sectoral interdependency. To this aim an empirical model of

[4]See section 2.

sector labor demand is estimated. Subsequently, we present the elasticities of labor demand with respect to own and foreign wage conditions. Finally, the last fifth section concludes.

2 Literature review

Our analysis addresses two main questions: the endogeneity of trade-labor market interactions and the interdependency of labor markets manifested through the impact of wage conditions in partner countries on the domestic demand for labor. Whether domestic and foreign labor inputs, both in terms of labor in general, as well as its different types (i.e. skilled, unskilled), are complements or substitutes is a question that the theory has addressed in several manners - only indirectly, however. The burgeoning literature on the role of globalization (Feenstra, 1998; Krugman, 2008; Hummels et al., 2001) in the increasing skilled/unskilled inequality (Feenstra and Hanson, 1996, 1999) has usually assumed that foreign labor is a substitute for the domestic one. In such a framework, the final effect of trade in intermediates on the wage of the unskilled very much depends on the initial hypothesis of a model: assuming a single final good, Feenstra and Hanson (1996, 1999, 2003) show that trade in the low skill intensive parts of production process causes a reduction in the relative demand and wages of the unskilled in advanced countries which are substituted by skilled workers in developing countries.

On the other hand, Arndt (1997) shows that, within a framework with two final goods, the more labor intensive parts of production may be sent to labor abundant countries, but wages and employment may well increase in advanced countries labor intensive sectors due to regained competitiveness. In this respect an increase in employment/wage abroad need not be related to a reduction at home. Kohler (2001) depicts outsourcing in a specific factor model where capital is the sector specific factor, showing that when FDI takes place together with outsourcing, labor always loses and when arm's length transactions are the only possibility, then the intensity of the fragment outsourced again is relevant for the final outcome on wages. In this respect an important degree of substitution exists between the activities performed at home and abroad and the outflow of capital is another tool for the increased substitutability of home and foreign labor.

Further work on the topic highlights the relevance of treating the issue in a general equilibrium setting. Kohler (2004) endogenizes outsourcing making itself dependent on the level of domestic and foreign input prices. Recent contributions propose the 'New Paradigm' of the unbundling of tasks across the world (Grossman and Rossi-Hansberg, 2006a, 2006b) and recalls previous

theoretical suggestions finding that foreign low skilled labor need not to be a loser from globalization: the 'productivity' effect caused by the unbundling may actually reverse the negative effect of foreign competition since domestic and foreign tasks might go on growing together with domestic labor moving towards tasks more difficult to trade. However, when the prices of final goods change this conclusion can be challenged, especially if the unbundling does not concern the offshoring of a single type of tasks but, instead, a complete bundle of tasks involving different types of labor (Kohler, 2008).

Consequently, the empirical literature has focused mainly on advanced countries' labor markets. The main concern is whether the low skilled are negatively or positively affected by the fragmentation of production process. Furthermore, it should be noted that so far the empirical evidence on the relationship between delocation of production phases and the composition of employment in European countries has been rather performed in form of country specific studies[5]. Among the great number of works dealing with this issue in general, there is a limited number of contributions implicitly concerning the experience of the European integration. Egger and Egger (2003) argue that the increase in outsourcing to Central and Eastern Europe and the former Soviet Union have considerably shifted relative manufacturing employment in Austria in favor of high-skilled labor while a moderate increase in the skill premium took place.[6] Another example is the study by Helg and Tajoli (2005) who analyzed the experience of Italy and Germany and found that the increase of the skilled-to-unskilled labor ratio in the former country has been caused by international fragmentation of production (IFP) while in the latter IFP appears to have no influence on changes in the relative demand for skilled labor. Geishecker (2006) finds that outsourcing to Central and Eastern Europe reduces the relative demand for unskilled workers in Germany.

What is more, little empirical research has been dedicated to the problematic of trade - labor markets interactions under industrial interdependence in Europe. The notable exception is Egger and Egger (2005b) who explore the case of Austria and construct an input-output measure of spillover and feedback effects across industries, demonstrating that disregarding the effects transmitted across and within industries may lead to considerable underestimation of the labor market implications of international trade and outsourcing.

[5]The only exception is the work by Hijzen and Swaim (2007) who explore the relation between overall employment and offshoring for 17 high-income OECD countries.

[6]Egger and Kreickemeier (2008) provide a theoretical basis for this result in a model where the interactions between relative factor endowments and the skill intensity of the domestic production is explored in a setting with imperfect labor markets.

Within the EU-focused research performed at the industry level, there is some evidence on the effects of trade integration on labor markets in terms of the changes in average wages in NMS. Egger and Egger (2002) use the data on 14 NACE 2-digit sectors in seven CEECs (1993-1998) and prove that intermediate goods exports had a significantly negative impact on medium real wages in CEECs manufacturing, while the impact of intermediate imports is positive. As far as wage differentials across CEE countries are concerned, Egger (2006) uses analogous data for a subsample of three CEE countries (Czech Republic, Hungary and Poland) between 1993 and 1999 and demonstrates that intermediate goods trade fostered the process of sigma wage convergence between these countries. Egger and Pfaffermayr (2004) distinguish *between* countries and *within* countries (thus across industries) dimensions of wage equalization process at the same level of disaggregation as the aforementioned authors, rejecting the hypothesis of unconditional beta wage convergence both within the EU and the CEECs, but supporting the hypothesis of international (across countries) factor price equalization as a result of outsourcing practices in the European context. However, due to data limits up to a recent years there is very little evidence on the evolution of wages of different skill categories of labor in NMS in a comparative context (and not in a form of country specific studies) and seen from the industry perspective. Only Egger and Stehrer (2003)[7] analyze specific developments of wage bill between non-manual and manual workers in Czech Republic, Hungary and Poland, again in 14 manufacturing sectors finding a negative impact of intermediate goods trade on the skilled to unskilled wage bill ratio.

In general, in the literature on European integration issues, so far little emphasis has been put on a parallel assessment of the importance of trade intensification between EU-15 and NMS on employment structures in both groups of countries. In reality, Central Europe is already well integrated into EU-based networks (Kaminski and Ng, 2005), thus indeed we can expect that strong trade links existing within the EU-27 have created a net of transmission channels via trade enabling spillover effects.[8] As a result, if we consider mutually interdependent relations between trade and the situation on labor markets, the relative demands for different (in terms of skill content) types of labor in 'Old' and 'New' member states are likely to be strongly interdependent. Very few of the existing works address the issue

[7]Actually Esposito and Stehrer (2007) also focus on different skill categories, however they analyze the sector bias of the skill biased technological change (SBTC) hypothesis, which appears to play an important role in rising skill premium in Hungary and Poland, but not confirmed in the Czech Republic.

[8]See Pellegrin (2001) for the evidence on the learning-by-interacting mechanisms as a source of rising CEECs competitiveness.

of endogeneity of outsourcing while the theory, especially in the most recent contributions (Kohler, 2004, 2008) highlights the simultaneous choice of labor and imported inputs as dependent by domestic and foreign factor prices.

3 Data Description

In order to address directly the relationship between economic structures of EU-15 countries and NMS we use disaggregated trade and industrial statistics for all former EU-15 member countries (which we include in the 'Old' members' group[9] and five out of ten NMS which joined the EU in 2004 (namely: the Czech Republic, Hungary, Poland, Slovenia and Slovakia - from now on called NMS-5 and included into the 'New' group). Unfortunately, detailed industrial statistics are not yet available for the remaining NMS, but we will include them in the general description of trade relations within the enlarged EU. In order to avoid confusion with NMS-5, we denote all countries which joined the EU in 2004 and 2007 as NMS-12. List of countries along with adopted abbreviations can be found in Appendix (Table 9).

EUKLEMS Growth and Productivity Accounts[10] is our primary source of the data on countries' labor markets (number of employees and persons engaged in each sector, sector specific skill intensity - share of hours worked by workers characterized by different skill levels[11]), variables needed for the calculation of medium wages (labor compensation of different categories of workers employed within each sector and their time of work), as well as sector specific value added and intermediate input price indices. Statistics which were reported in national currencies are recalculated into euros using

[9]Depending on the year, statistics for Belgium (BEL) and Luxembourg (LUX) are available for both countries separately or aggregated together, thus we aggregated the data which were reported separately for BEL and LUX, treating them jointly throughout the analysis (BLX).

[10]We use the data from the latest release 2008 (www.euklems.net). All the series in EUKLEMS database have been created on the base of statistics provided by National Statistical Institutes (NSIs), but a particular emphasis has been put on the harmonisation of the basic data, ensuring cross country and cross industry comparability. Since data by labor types (according to the skill level) are not part of standard statistics reported by NSIs, EUKLEMS uses survey data as background sources (See Timmer et al., 2007 for details).

[11]Skills are defined here on the basis of educational level. We use statistics originally classified according to the international ISCO classification into workers with high skills (hs - higher/tertiary education), medium skills (ms - secondary education) and low skills (ls - basic education) which for this study are further aggregated into two alternative skill groups ($h_1 = HS$, $l_1 = MS + LS$ and $h_2 = HS + MS$, $l_2 = LS$) - see Section 3.2.

bilateral exchange rates from Eurostat.

Trade statistics (volume of bilateral exports and imports within the same sector between NMS and EU-15 members, as well as the volume of total trade with all world partners) are obtained from UN Comtrade Database through WITS retrieval system[12] which allows us to obtain recalculated series of trade data following industry list consistent with NACE division (a basic classification of the industrial statistics we use).

We focus on manufacturing and business services and, in order to match trade and industrial statistics at the sectoral level, we reorganize the original data and aggregate all available statistics into 13 tradable sectors (Table 10 in Appendix)[13]. Complete labor market data for NMS are not available prior to the year 1995 thus our analysis covers the time span of one decade (1995-2005) which, however, is an important decade for the observation of the increased interdependence within the integrating Europe after the Europe Agreements.

3.1 Changes in trade relations between 'Old' and 'New' Member States

Progressing economic integration in Europe has resulted in the intensification of trade relations between Western Europe and countries which eventually joined the EU in 2004 and 2007. The following table present the first insight into the dynamics and significance of trade flows between NMS-12 or NMS-5 and EU-15. In Table 1 we present the importance of EU-15 countries as source of imports for NMS-12 and NMS-5 countries in Panel A, while the Panel B contains analogous figures measuring the importance of imports from NMS-12 and NMS-5 for EU-15 countries. Our main interest is to focus on the transmission mechanism via trade *from* partner countries, thus here we concentrate on import flows which were coming to NMS from EU-15 and *vice versa*.

Depending on the sector, in 2005 imports from EU-15 amounted for 46.9% to 72.2% (the maximum was reached in the 'Rubber and plastic products' sector) of total world imports reported by NMS-12 countries, while as much as 47.7% to 75.3% (the maximum was reached in the 'Renting of machinery and equipment and other business services' sector) of total world imports reported by NMS-5 were coming from the EU-15. However, between 1995 and 2005 the share of import flows from EU-15 countries as a percentage of

[12]World Integrated Trade Solutions (www.wits.worldbank.org).

[13]We eliminate from the analysis agriculture, mining and public services in order to focus on manufacturing and on IT services.

Table 1: Share of import flows from EU-15 countries to NMS-12 and NMS-5 (and *vice versa*) as a percentage of total imports (by sector)

Panel A	Imports from EU15 to NMS-12 [% total NMS-12 world imports]			Imports from NMS-12 to EU15 [% total EU15 world imports]		
	1995	2005	Δ(%)	1995	2005	Δ(%)
A. Food, beverages and tobacco	53.7	54.0	0.5	1.8	3.4	94.1
B. Textiles, leather and footwear	74.9	64.3	-14.2	7.6	8.5	12.5
C. Wood and product of wood and cork	54.1	46.9	-13.4	11.2	14.1	26.3
D. Pulp, paper, printing and publishing	71.3	68.4	-4.0	1.9	4.6	138.5
E. Chemicals and chemical products	61.0	66.6	9.2	1.9	1.8	-6.9
F. Rubber and plastics products	73.7	72.2	-2.0	2.5	7.3	186.6
G. Other non-metallic mineral products	69.1	58.0	-16.0	7.0	7.3	4.6
H. Basic metals and metal products	58.4	62.0	6.2	5.7	6.6	15.0
I. Machinery, nec	78.5	71.8	-8.5	2.6	6.7	154.9
J. Electrical and optical equipment	63.9	49.0	-23.3	2.0	6.9	249.5
K. Transport equipment	71.7	69.7	-2.9	2.3	7.2	216.9
L. Manufacturing, nec; recycling	68.6	53.2	-22.5	6.6	10.4	56.8
M. Renting of m&eq, other services	67.2	71.3	6.2	0.7	2.3	241.2

Panel B	Imports from EU15 to NMS-5 [% total NMS-5 world imports]			Imports from NMS-5 to EU15 [% total EU15 world imports]		
	1995	2005	Δ(%)	1995	2005	Δ(%)
A. Food, beverages and tobacco	57.3	56.2	-2.0	1.4	2.9	102.9
B. Textiles, leather and footwear	72.7	58.9	-18.9	5.2	3.5	-32.2
C. Wood and product of wood and cork	50.6	52.8	4.3	8.6	7.7	-10.5
D. Pulp, paper, printing and publishing	72.0	70.6	-2.0	1.8	4.2	141.6
E. Chemicals and chemical products	62.6	68.6	9.6	1.5	1.4	-3.3
F. Rubber and plastics products	75.6	75.0	-0.8	2.3	6.4	177.3
G. Other non-metallic mineral products	69.2	62.1	-10.3	6.0	6.3	5.2
H. Basic metals and metal products	59.2	64.5	9.0	4.4	5.4	22.2
I. Machinery, nec	79.9	72.7	-9.0	2.4	6.0	150.8
J. Electrical and optical equipment	63.7	47.7	-25.1	1.6	6.0	281.8
K. Transport equipment	76.2	71.1	-6.7	2.1	6.8	218.0
L. Manufacturing, nec; recycling	67.9	52.4	-22.8	5.3	8.1	51.7
M. Renting of m&eq, other services	66.2	75.3	13.7	0.6	2.1	228.9

Note: NMS-5: CZE, HUN, POL, SVK, SVN
NMS-12: BGR, CYP, CZE, EST, HUN, LTU, LVA, MLT, POL, ROM, SVK, SVN.

Source: own elaboration with UN Comtrade data.

total imports reported by NMS-12 and NMS-5 diminished in most sectors. In case of NMS-12, importance of imports from EU-15 raised considerably only in such sectors as: 'Chemicals and chemical product', 'Basic metals and fabricated metal products' and 'Renting of machinery and equipment and other business services'; in case of NMS-5 also in 'Wood, products of wood and cork' sector.

On the other hand, if we consider the importance of NMS as partners for EU-15 (right part of Table 1), it turns out that the shares of import flows from NMS-12 and NMS-5 as a percentage of total imports reported by EU-15 are quite low (in 2005 up to 14.1% and 8.1% of total imports directed to EU-15, respectively), but since 1995 NMS-12 and NMS-5 as importers have gained importance in overall EU-15 structure of imports in most sectors. The most dramatic increase can be observed in rather advanced sectors like 'Electrical and optical equipment', as well as 'Transport equipment' - in case of these sectors the share of import flows from NMS-12 and NMS-5 as a percentage of total EU-15 imports more than doubled between 1995 and 2005).

It is worth noticing that imports from NMS-5 represent for Western European partners the bulk of imports coming from NMS. Note that between 1995 and 2005 the share of imports within 'Textiles, leather and footwear' and 'Wood and products of wood and cork' sectors, coming to EU-15 from NMS-5 in total EU-15 imports, diminished, but the share of NMS-12 as source of imports of these products has risen, which may be a sign of trade reorientation.

Hence, it is clear that, independently on the sector taken into consideration, trade with EU-15 is much more important for NMS than trade with NMS for the EU-15. Very large proportion of total imports to NMS come from EU-15 countries while the reverse is not true if we consider imports in the opposite direction.[14] Analyzing the changes in sector specific normalized trade balances in trade flows between New Member States and the EU-15 (Table 2), we can confirm that NMS-12 as a group still tend to occupy the position of a net exporter, especially in sectors requiring rather low skill labor such as: 'Textiles, leather and footwear', 'Wood and products of wood and cork'. However, what is important is the fact that between 1995 and 2005 NMS-12 managed to pass from the position of net importer to the role of net exporter in more advanced sectors ('Electrical and optical equipment' and 'Transport equipment'), and this is more so if we take into account NMS-5 only.

[14] A similar pattern is confirmed in export shares: the predominant share of NMS exports is directed to the EU-15: for example in 2005 up to 78.7% of total exports from NMS-12 'Textiles, leather and footwear' sector and 72.6% of NMS-5 'Transport equipment' exports were sent to the EU-15 market. In comparison, in 2005 the great majority of EU-15 exports (around 90%) was still directed to non-NMS markets. Detailed data available on request.

Table 2: Normalized trade balance between NMS-12 (NMS-5) and EU-15 (by sector)

	NTB (NMS-12 vs EU-15) [a]		NTB (NMS-5 vs EU-15) [b]	
	1995	2005	1995	2005
A. Food, beverages and tobacco	-19.4	-11.1	-9.7	-2.2
B. Textiles, leather and footwear	14.2	9.9	15.5	2.6
C. Wood and product of wood and cork	65.6	50.1	69.3	42.8
D. Pulp, paper, printing and publishing	-38.8	-22.3	-33.5	-15.3
E. Chemicals and chemical products	-36.8	-51.7	-35.9	-48.9
F. Rubber and plastics products	-33.4	-22.3	-29.8	-16.8
G. Other non-metallic mineral products	9.4	-6.4	14.8	2.7
H. Basic metals and metal products	18.4	-4.1	20.0	-2.4
I. Machinery, nec	-46.2	-15.6	-41.5	-7.7
J. Electrical and optical equipment	-24.8	13.3	-23.9	18.9
K. Transport equipment	-14.9	9.8	-9.5	19.1
L. Manufacturing, nec; recycling	35.2	48.6	36.3	52.2
M. Renting of m&eq, other services	-43.9	-25.5	-37.3	-15.5

Note: NMS-5: CZE, HUN, POL, SVK, SVN
NMS-12: BGR, CYP, CZE, EST, HUN, LTU, LVA, MLT, POL, ROM, SVK, SVN.

a. calculated as $\frac{(EXP^{fromNMS-12toEU-15} - IMP^{toNMS-12fromEU-15})}{(EXP^{fromNMS-12toEU-15} + IMP^{toNMS-12fromEU-15})} * 100$

b. calculated as $\frac{(EXP^{fromNMS-5toEU-15} - IMP^{toNMS-5fromEU-15})}{(EXP^{fromNMS-5toEU-15} + IMP^{toNMS-5fromEU-15})} * 100$

Source: own elaboration with UN Comtrade data.

3.2 Changes in employment patterns in 'Old' and 'New' members

Having seen the major characteristics concerning trade patterns within the enlarged EU, we now turn towards the description of sectoral patterns of employment in EU-15 and NMS-5 countries (complete labor statistics for the remaining NMS are unavailable). Since we focus on possible interdependencies between labor markets in 'Old' member states and newcomers, the key question is weather there is substitution or complementarity between labor force in EU-15 and NMS-5 tradable sectors. In order to trace the contemporary evolution of employment in both groups of countries, in Table 3 we present percentage changes in their employment levels (in terms of employees and persons engaged) in single sectors between 1995 and 2005.

The general message is that overall tradable employment rose in both groups of countries (in EU-15 by around one-fifth, in NMS-5 by around one-

Table 3: Change in employment levels in tradable sectors in EU-15 and NMS-5 (in %, 1995-2005)

	Δ Employees [%]		Δ Persons engaged [%]	
	'Old' (EU-15)	'New' (NMS-5)	'Old' (EU-15)	'New' (NMS-5)
A. Food, beverages and tobacco	1.6	-11.77	0.93	-12.53
B. Textiles, leather and footwear	-28.73	-43.89	-28.91	-42.98
C. Wood and product of wood and cork	-2.44	4.35	-5.11	8.61
D. Pulp, paper, printing and publishing	-10.94	1.98	-9.95	5.08
E. Chemicals and chemical products	-7.9	-25.18	-7.67	-21.81
F. Rubber and plastics products	3.08	53.31	2.44	45.34
G. Other non-metallic mineral products	-6.33	-18.36	-6.59	-17.54
H. Basic metals and metal products	4.23	-1.61	3.97	-5.42
I. Machinery, nec	2.12	-28.58	1.84	-28.05
J. Electrical and optical equipment	-9.02	45.29	-8.72	35.02
K. Transport equipment	7.31	25.64	7.35	16.31
L. Manufacturing, nec; recycling	-5.0	16.96	-5.24	14.21
M. Renting of m&eq, other services	58.06	64.0	57.58	77.48
Average	21.46	13.92	22.82	16.63

Note: weighted averages (by sector size) across countries within each of the group
NMS-5: CZE, HUN, POL, SVK, SVN

Source: own elaboration with EUKLEMS data

seventh), even though the change in the number of employees between 1995 and 2005 was higher than in terms of persons engaged. However, it is evident, the if we look inside the tradable economy, the evolution of employment in two groups of countries differs substantially across sectors. The services sector expanded noticeably, while more heterogeneity characterizes manufacturing. Employment levels increased contemporarily in EU-15 and NMS-5 only in two sectors ('Rubber and plastics products' and 'Transport equipment') but much bigger change took place in the latter countries. Both in Old and New Members 'Textiles, leather and footwear' sector - exposed to increasing competition from Asian (mainly) markets - shrank. The same happened to 'Chemicals' and 'Other non metallic mineral products' sectors. From the point of view of eventual competition between EU-15 and NMS-5 workers, particularly interesting are those sectors where employment levels improved in the latter countries, while diminished in the former ones: 'Wood products', 'Pulp, paper, printing and publishing', 'Electrical and optical equipment' and 'Manufacturing n.e.c.'. Note that in the sector producing advanced equipment (sector J) employment in NMS-5 countries on average rose by around 45% (employees) or 35% (persons engaged), while at the same time dimin-

ished in the EU-15 by around 9%. The opposite changes (considerable rise in EU-15, drop in employment in NMS-5) took place in the 'Machinery n.e.c.' sector.

The information on sector specific skill content permits us to trace the dynamics of employment skill structure in 'Old' and 'New' member states. We use the information on the share of hours worked in single sectors by persons engaged with high, medium and low skills where skills in EUKLEMS are defined according to the worker's education level: workers with a tertiary education degree or more are classified as high skilled (HS), with a secondary school degree as medium skilled (MS) and with a primary school degree or less as low skilled (LS). In order to provide easier legibility of the results and due to empirical analysis constraints (number of the degrees of freedom) we consider two typologies of workers: high skilled (h) and less/low skilled (l). However, we use two alternative definitions of high/low skilled in order to take into account the effects of the two different aggregation on skills on the final results. Consequently we have:

- definition 1 - narrow definition of high skilled and broad definition of low skilled
  - $h_1 = HS$ (workers with tertiary education),
  - $l_1 = MS + LS$ (workers with secondary education or less);
- definition 2 - broad definition of high skilled and narrow definition of low skilled
  - $h_2 = HS + MS$ (workers with secondary education or more),
  - $l_2 = LS$ (workers with primary education or less).

In Table 4 we present sector specific high skill content (share of hours worked by high skill persons engaged) in EU-15 and NMS-5[15] in 1995 and 2005, according to the two alternative definitions of skills (h_1 and h_2).

On average, in NMS-5 in 1995 10% of hours worked was performed by high skill workers with tertiary education (narrow definition - h_1) and 11.5% in EU-15; in 2005 the corresponding shares amounted to 16.5% and 18.2%, respectively, which is a sign of the movement towards bigger share of high skill labor (overall skill upgrading of employment structures) in both groups of countries. If we take into account the broader definition of high skilled (h_2), encompassing also workers with medium education levels, NMS-5 appear to employ more workers with at least secondary education level than EU-15:

[15]Such data is unavailable for the remaining NMS.

Table 4: High skill content of employment structure (share of hours worked by high skill persons engaged) in %, by sector, h_1 and h_2

	h_1 [%]				h_2 [%]			
	'Old' (EU-15)		'New' (NMS-5)		'Old' (EU-15)		'New' (NMS-5)	
	1995	2005	1995	2005	1995	2005	1995	2005
A. Food, beverages and tobacco	3.68	5.96	4.15	6.34	61.42	68.43	83.65	86.97
B. Textiles, leather and footwear	3.03	4.4	4.17	6.17	62.79	67.53	83.41	86.93
C. Wood and product of wood and cork	5.62	8.81	8.69	12.76	67.43	72.77	85.12	89.59
D. Pulp, paper, printing and publishing	7.03	10.57	8.84	13.21	70.07	75.73	84.44	89.02
E. Chemicals and chemical products	8.17	12.19	9.15	13.42	69.5	75.51	84.2	88.33
F. Rubber and plastics products	6.35	9.14	8.9	13.01	70.57	75.92	84.73	89.3
G. Other non-metallic mineral products	5.96	9.02	8.66	12.76	66.85	72.57	85.68	89.72
H. Basic metals and metal products	5.89	8.53	8.52	12.43	70.24	75.63	85.22	89.26
I. Machinery, nec	6.19	8.74	7.83	10.21	73.89	79.21	90.15	91.69
J. Electrical and optical equipment	10.07	13.22	7.88	9.89	77.62	82.99	89.35	90.16
K. Transport equipment	9.36	12.87	7.99	10.31	73.83	79.93	90.88	91.85
L. Manufacturing, nec; recycling	4.4	6.73	4.14	6.34	65.96	71.6	83.86	87.44
M. Renting of m&eq, other services	23.56	30.15	30.28	37.73	80.99	83.32	93.68	94.32
Average	11.59	18.18	10.05	16.49	72.89	78.67	86.86	90.29

Note: weighted averages (by sector size) across countries within each group
h_1 - narrow definition (=HS), h_2 - wide definition (=HS+MS)
NMS-5: CZE, HUN, POL, SVK, SVN

Source: own elaboration with EUKLEMS data

in 2005 more than 90% of persons engaged in tradable economy of NMS-5 countries had at least secondary education (comparing to 79% in EU-15).[16]

However, skill patterns are rather differentiated across sectors. If we focus on narrow definition of high skilled (h_1), the biggest proportion of hours worked by workers with tertiary education completed is performed in the services sector and the lowest in more traditional, typically labor intensive activities. It is worth noticing that both in 1995 and in 2005 NMS-5, compared to EU-15, employed more intensively workers with academic education in almost all sectors but not in those typically defined as 'high-skill': 'Electrical and optical equipment', 'Transport equipment'.

[16]It confirms the view that NMS are characterized by human capital of rather high quality which should enable successful catching-up process (Caselli and Tenreyro, 2005). Note, however, that skills are defined here on the basis of educational level and not skills effectively used in the place of work.

4 Empirical assessment of labor market interdependency

4.1 The empirical strategy

In order to assess the degree of complementarity/substitutability between domestic and foreign workers we develop a twofold empirical strategy. We firstly focus on the response of total employment in a sector with respect to the overall average labor cost in partner countries. Secondly, we try to do the same for skilled and unskilled labor, disentangling different responses of the domestic demand for skilled and unskilled labor to the average cost of skilled and unskilled labor in partner countries.

The basis for this empirical setting is the measurement of the average labor cost in partner countries. We take into account the great heterogeneity of partners in the EU resulting from income levels, stages of development and time of accession to the EU. For this reason we build two distinct measures for the average cost of 'New' and 'Old' partners'. Ranking the 'New' partners in the EU from 1 to p and the 'Old' ones from $p+1$ to R[17], for every country i, sector j we construct two sector specific measures of the weighted average labor cost respectively in 'New' and 'Old' partner countries (time subscripts are omitted for ease of presentation):

$$WP_{Lij}^{New} = \frac{\sum_{q=1}^{p} import_{iqj} * wage_{qj}}{\sum_{q=1}^{p} import_{iqj}} \tag{1}$$

$$WP_{Lij}^{Old} = \frac{\sum_{q=p+1}^{R} import_{iqj} * wage_{qj}}{\sum_{q=p+1}^{R} import_{iqj}}$$

The average wage in partners ($\vee z = `New', `Old'$, with q indexing the R partners in the EU)) of each country i (WP_{Lij}^{z}) is then obtained as the weighted average of partners' labor cost, $wage_{qj}$, in the same sector j with weights equal to country i's imports from partner q in the same sector j. Such weighting scheme allows us to consider endogenised trade based interactions between labor markets at home and abroad: foreign wage conditions in partner q can matter as long as trade is present. In the light of competition/complementarity between groups of workers in distinct countries, emerging from progressing trade liberalization and offshoring practices, we

[17]The definition of partner countries adopted here refers to partners in the EU in our restricted sample composed of 20 countries (Table 9 in Appendix), thus every 'New' member state has 4 'New' partners and 15 'Old' partners, while every 'Old' member state has 5 'New' partners and 14 'Old' partners.

assign major importance to the evolution of wage conditions in partner countries from which imports are particularly intense. The measures (2) and (1) are used in the following subsection 4.2 on overall interdependency between domestic and parters' labor markets.

Finally, in a similar way we obtain the measures of the average cost of skilled, h, and unskilled labor, l in 'Old' and 'New' parter countries - to be used in the subsection 4.3 on skill specific labor markets interdependency:

$$WP_{ijk}^{New} = \frac{\sum_{q=1}^{p} import_{iqj} * wage_{qjk}}{\sum_{q=1}^{p} import_{iqj}} \ \forall k = h, l; \tag{2}$$

$$WP_{ijk}^{Old} = \frac{\sum_{q=p+1}^{R} import_{iqj} * wage_{qjk}}{\sum_{q=p+1}^{R} import_{iqj}} \ \forall k = h, l.$$

4.2 The impact of labor cost in partner countries on overall domestic demand for labor

As previously stated, the first step we accomplish in the empirical analysis is to investigate whether the evolution of labor market conditions (wages) in partner countries has an effect on employment levels at home. To this aim we estimate the following empirical model for the conditional labor demand[18]:

$$emp_{ijt} = \alpha + \beta_0 emp_{ijt-1} + \beta_1 wp_{Lijt}^{New} + \beta_2 wp_{Lijt}^{Old} + \beta_3 y_{ijt} + \beta_4 w_{ijt} + \delta D_t + \theta D_j + \mu_{ij} + \epsilon_{ijt} \tag{3}$$

where emp is the log of employment in country i and sector j at time t; y and w are respectively the log of real output and of the real wage in the same sector and country at time t, D_t refers to common time effects and D_j controls for time invariant sector specificities (common to all of the countries in the sample). Finally, wp_L^{New} and wp_L^{Old} are the logs of the two measures of average labor cost in 'New' and 'Old' partner countries, defined in (1) and (2). They are among the right hand side variables influencing domestic labor demand, so our main coefficients of interest are β_1 and β_2: a positive elasticity of domestic employment with respect to foreign labor compensation implies a certain degree of substitutability between the domestic and the foreign labor force, while the negative elasticity of emp with respect to wp is a sign of complementarity effects.

Since the number of persons engaged and the number of employees in a sector[19] are both available as measures of employment (emp) we decided to

[18]Similar model has been adopted by Hijzen and Swaim (2007) who, however, included among right hand side variables 'demand shifters' in the form of measures of offshoring.

[19]The difference between the two are the self-employed and family workers.

alternate them in the estimation of the model because they convey different pieces of information: foreign competition may well result in a reduction of employees in a sector and might not affect the overall number of persons engaged (due to transformation of the organization of production which may see employees move to the self-employed category).

Unfortunately, data on capital stock was not available for NMS, for this reason no measure of capital intensity is present among the right hand side variables in (3). We try to address this lack by the inclusion of industry fixed effects and time effects. Furthermore, time effects are allowed to vary according to the group typology, i.e. 'Old' and 'New' members, when the whole sample is considered.

Summary statistics of the variables used in the empirical analysis below can be found in Table 11 in the Appendix.

Results

Table 5 reports the coefficient estimates of the model (3) obtained using system GMM[20] which allows us to control for the endogeneity of all of the right hand side variables. The Table present the results for the first (SYS-GMM) and Windmejer small sample corrected second step (SYS-GMM 2nd). The final rows in each panel then report the P values for the Hansen J statistics and for the test for the absence of autocorrelation of order 2 - AR(2), a failure to reject the null is expected to validate the assumptions underlying the use of estimator. Panel A in the Table refers to the number of persons engaged, while Panel B reports results obtained when the number of employees are used as measure of employment in the sector. The first two columns refer to the whole sample estimates (*emp* referring to domestic labor markets of both NMS-5 and EU-15), the other two pairs of columns contain the estimation results when the sample is split between 'New' and 'Old' members, thus when *emp* refers only to NMS-5 or EU-15 domestic labor markets, respectively.

Focusing on the crucial estimates concerning wage conditions in parter countries, we may see that when the whole sample is considered (the first two colums) there is no robust evidence on labor market interdependencies (except for negative effect of wages in partners from the EU-15 group on domestic number of employees).

Domestic employment in New Members (the next two colums) does not appear to be robustly related to foreign wages. Stronger and clearer result

[20]The above empirical model is a dynamic panel data model and after a preliminary investigation made by confronting results from Ordinary Least Square, Fixed Effect and First Difference GMM estimator, we conclude that the problem of weak instruments (due to highly persistent series) might be a concern in the present context.

Table 5: Employment effects of wage conditions in partner countries (wp_L^{New},wp_L^{Old})

	SYS-GMM 1^{st} step	SYS-GMM 2^{nd} step	SYS-GMM 1^{st} step	SYS-GMM 2^{nd} step	SYS-GMM 1^{st} step	SYS-GMM 2^{nd} step
Panel A	(Number of Persons Engaged)					
	All Sample		'New' (NMS-5)		'Old' (EU-15)	
emp_{-1}	0.936***	0.915***	0.884***	0.849***	0.957***	0.953***
	[0.029]	[0.037]	[0.032]	[0.040]	[0.017]	[0.021]
w	-0.739*	-0.746*	-1.253*	-1.191	-0.294*	-0.301
	[0.402]	[0.425]	[0.692]	[1.205]	[0.168]	[0.202]
y	0.043*	0.057**	0.075***	0.089**	0.02	0.029
	[0.026]	[0.029]	[0.022]	[0.039]	[0.025]	[0.025]
wp_L^{Old}	-0.081	-0.068	-0.135*	-0.091	-0.068*	-0.067
	[0.054]	[0.056]	[0.072]	[0.094]	[0.036]	[0.041]
wp_L^{New}	0.029	0.03	0.043	0.095**	0.043**	0.042*
	[0.026]	[0.032]	[0.039]	[0.047]	[0.020]	[0.022]
Obs.	2470	2470	650	650	1820	1820
Groups	247	247	65	65	182	182
Hansen	0.05	0.05	1	0.99	0.09	0.09
AR(2)	0.71	0.72	0.47	0.49	0.86	0.85
Panel B	(Number of Employees)					
	All Sample		'New' (NMS-5)		'Old' (EU-15)	
emp_{-1}	0.881***	0.874***	0.842***	0.822***	0.961***	0.957***
	[0.045]	[0.052]	[0.048]	[0.074]	[0.017]	[0.019]
w	-0.738*	-0.824*	-1.533	-2.935	-0.382**	-0.377*
	[0.447]	[0.424]	[0.998]	[1.862]	[0.178]	[0.196]
y	0.056**	0.063**	0.04	0.029	0.021	0.023
	[0.027]	[0.031]	[0.035]	[0.064]	[0.025]	[0.023]
wp_L^{Old}	-0.115*	-0.114*	-0.114	-0.062	-0.075**	-0.077*
	[0.064]	[0.065]	[0.114]	[0.175]	[0.035]	[0.040]
wp_L^{New}	0.035	0.048	-0.013	-0.016	0.047**	0.050**
	[0.032]	[0.035]	[0.070]	[0.117]	[0.021]	[0.021]
Obs.	2470	2470	650	650	1820	1820
Groups	247	247	65	65	182	182
Hansen	0.06	0.06	0.99	0.95	0.08	0.08
AR(2)	0.56	0.55	0.69	0.7	0.54	0.53

Note: Robust Standard Errors in Brackets.
All estimates bear industry dummies and common time effects.

appears in case of domestic employment in 'Old' member states (the last two colums) but it is different for partners belonging to the two alternative groups. The rise of average wage of partners also belonging to 'Old' group, wp_L^{Old}, negatively affects home employment in 'Old' members economies (especially if *emp* is measured as number of employees) thus complementarity effects exist. More interestingly, the effect of the average wage of New Members, wp_L^{New}, on the total number of employees in 'Old' members is positive. It means that a certain degree of substitution takes place between domestic EU-15 labor force and foreign workers from the NMS-5 countries which indicates competition between EU15 and NMS-5 labor.

Finally, the Table suggests very modest employment creation effects of the sector expansion: the elasticity with respect to real output y is significant and positive, although very small, only if the whole sample is considered or for the persons engaged in NMS5. As expecte, the elasticities with respect to own wages (w) are negative.

In both Panels the test for the absence of autocorrelation of order 2 always passes. The Hansen test barely fails to reject the null when the whole sample is considered while the validity of the over-identifying restrictions is stronger in the sub-samples. Finally, this set of results is robust to the inclusion of country fixed effects.[21]

4.3 The impact of skilled/unskilled labor cost in partner countries on skill specific domestic demand for labor

In order to investigate in depth the existence of a substitution/complementarity nexus between the structure of employment in 'New' and 'Old' partners, we proceed by estimating the demand for different types of labor. To this purpose we distinguish between high and low skilled workers, trying to assess how the demand for skilled/unskilled labor in the European country i is affected by an increase of skilled /unskilled wages in its partner countries. As specified in section 3.2, we alternate two definitions of high and low skilled, so h= h_1,h_2 and l= l_1,l_2).

In order to allow for a flexible technology, we adopt a non-homothetic translog cost function (Berndt, 1991: 469-476). Then, assuming a production technology with three inputs - materials, high and low skilled labor - it is possible to derive the conditional demand for h and l labor as follows (country and industry subscripts are omitted throughout for ease of presentation):

[21]The results are not shown for brevity but they are available from the authors upon request.

$$\tilde{S}_{ht} = \alpha_h \tilde{S}_{ht-1} + \sum_{k=h}^{l} \beta_{hk} * \frac{\tilde{w}_{kt}}{\tilde{p}_{mt}} + \gamma_{hy} * \tilde{y}_t + \sum_{z=new}^{old} \sum_{k=h}^{l} \delta_{hk}^{z} * \tilde{wp}_{kt}^{z} \quad (4)$$

$$\tilde{S}_{lt} = \alpha_l \tilde{S}_{lt-1} + \sum_{k=h}^{l} \beta_{lk} * \frac{\tilde{w}_{kt}}{\tilde{p}_{mt}} + \gamma_{ly} * \tilde{y}_t + \sum_{z=new}^{old} \sum_{k=h}^{l} \delta_{lk}^{z} * \tilde{wp}_{kt}^{z}$$

where S_h and S_l respectively measure the cost shares of high and low skilled labor; $\tilde{}$ stands for the deviation from the individual time mean to allow for industry-country specific unobservable fixed effects and for any time invariant source of endogeneity. The lag of the dependent variable is included to control for the persistence of the labor cost shares. The total lack of data on the capital stock for the NMS-5 again represents a limitation of the above empirical specification. Given the short time span we try to control for this by the within transformation of the variables and by the inclusion of the lagged value of the cost shares which might actually be related to the capital intensity of a sector in a specific country. The log of domestic hourly wage of skilled and unskilled labor is represented by $w_k \forall k = h, l$; y is the log of real output and p_{mat} represents the log of unit price of material inputs. The price of materials appears in the denominator because the equation for the conditional demand of materials needs to be dropped from the system in order to avoid linearly dependency among the left hand side variables and the singularity of the system variance-covariance matrix. However, we estimate the model with the Maximum Likelihood estimator which grants for the invariance of the parameter estimates to the choice of the equation to delete.[22] Finally, wp_k^z, for $z = new, old$ and $k = h, l$ represents the log of weighted cost of skilled and usnkilled labor in partner countries, measured as in 2 above.

Similar approaches in the empirical literature have mainly concerned the elasticity of substitution of labor between domestic U.S. parents and foreign affiliates both at firm and sector level (Brainard and Riker, 1997; Slaughter, 1995; Lawrence, 1993). Here the use of industry level data allow for a more general approach not only focused on multinational activity. The main assumption is that firms simultaneously choose all the domestic inputs and that they cannot control on the equilibrium quantity of foreign inputs which instead depends on the choice of foreign firms. However foreign input prices matter in that they can affect the decision to offshore an activity abroad and to import from abroad activities previously made at home. This decision

[22]The exact detailed derivation of the final equations can be found in Berndt (1991): 469-476.

should affect both the demand for labor and for imported intermediates too, however while we can see what happens to labor we cannot really disentangle between domestic and imported inputs. Despite considering only imports and wages from partners in the EU , any other source of foreign competition is meant to be captured by the within transformation of the variables and by the inclusion of year fixed effects: allowing for common time shocks across the countries we might control for the influence of the ongoing globalization process on our countries' labor markets.

Finally, own and cross price elasticities are calculated as follows:

$$\begin{aligned} \epsilon_{nn} &= \frac{\beta_{nn} + S_n^2 - S_n}{S_n};\ n = \{h, l\} \\ \epsilon_{nm} &= \frac{\beta_{nm} + S_n S_m}{S_n};\ n, m = \{h, l\}\ and\ n \neq m \end{aligned} \tag{5}$$

The elasticities with respect to real output and foreign wages are calculated as:

$$\begin{aligned} \epsilon_{ny} &= \frac{\gamma_{ny}}{S_n};\ n = \{h, l\} \\ \epsilon_{nm}^z &= \frac{\delta_{nm}^z}{S_n};\ n, m = \{h, l\}\ and\ z = new, old. \end{aligned} \tag{6}$$

Results

The parameter estimates from model 4 are shown in Table 13 in the Appendix, while Table 6 shows the elasticities of skilled and unskilled labor (L_h and L_l) with respect to own wages (w_h and w_l) and foreign labor cost (wp_h and wp_l) calculated according to the formulas in (5) and (6). Panel A refers to the narrow definition of high skilled, h_1 and the broad one of low skilled, l_1, while Panel B refers to the alternative definitions of skills: h_2 and l_2. The first two columns contain elasticities calculated over the whole sample of countries, while the subsequent pairs of columns show analogous results calculated only in the sub-sample of 'New' and 'Old' members, respectively. All the set of results include common time effects.

In general, regularity conditions implied by the theory are respected since own price elasticities (L_h with respect to w_h and L_l with respect to w_l) are negative and the average prediction for the share of skilled and unskilled labor is positive[23]. Both the narrow definitions of high and low skilled, h_1 and l_2, respectively are more sensitive to own domestic wages than the remaining two categories.

[23]Results available from the authors upon request

Table 6: Elasticities of high and low skilled labor with respect to output and wages by skill category (w_h,w_l, wp_h,wp_l)

Panel A:			$h_1 = HS$	$l_1 = MS + LS$		
	All Sample		'New' (NMS-5)		'Old' (EU-15)	
	L_{h_1}	L_{l_1}	L_{h_1}	L_{l_1}	L_{h_1}	L_{l_1}
w_{h_1}	-0.76***	0.05***	-0.98***	0.05***	-0.67***	0.05***
	[0.03]	0]	[0.05]	0]	[0.03]	0]
w_{l_1}	0.21***	-0.78***	0.17***	-0.82***	0.22***	-0.77***
	0]	0]	0]	0]	0]	0]
y	-0.13***	-0.09***	-0.14***	-0.14***	-0.14***	-0.09***
	[0.02]	[0.01]	[0.04]	[0.02]	[0.02]	[0.01]
$wp_{h_1}^{Old}$	0.03	0.06*	-0.26	0.2*	0.03	0.02
	[0.07]	[0.04]	[0.19]	[0.12]	[0.07]	[0.03]
$wp_{l_1}^{Old}$	-0.02	0	0.18	-0.24	0	0.07*
	[0.08]	[0.04]	[0.23]	[0.14]	[0.08]	[0.04]
$wp_{h_1}^{New}$	0.11***	-0.03	0.87***	0.19**	0.01	-0.06***
	[0.06]	[0.03]	[0.15]	[0.1]	[0.05]	[0.03]
$wp_{l_1}^{New}$	-0.17***	-0.03	-1.14***	-0.31***	-0.05	0.02
	[0.05]	[0.03]	[0.16]	[0.1]	[0.05]	[0.03]

Panel B:			$h_2 = HS + MS$	$l_2 = LS$		
	All Sample		'New' (NMS-5)		'Old' (EU-15)	
	L_{h_2}	L_{l_2}	L_{h_2}	L_{l_2}	L_{h_2}	L_{l_2}
w_{h_2}	-0.63***	0.21***	-0.64***	0.24***	-0.61***	0.21***
	[0.01]	0]	[0.03]	[0.01]	[0.02]	0]
w_{l_2}	0.06***	-0.94***	0.03***	-0.97***	0.06***	-0.93***
	0]	0]	0]	0]	0]	0]
y	-0.16***	0	-0.19***	0	-0.13***	-0.05***
	[0.01]	[0.01]	[0.02]	[0.03]	[0.01]	[0.02]
$wp_{h_2}^{Old}$	-0.05	-0.08	-0.54***	-1.21***	0.06	0.02
	[0.06]	[0.09]	[0.15]	[0.28]	[0.06]	[0.09]
$wp_{l_2}^{Old}$	0.08	0.16*	0.46***	1.21***	-0.02	0.09
	[0.05]	[0.09]	[0.14]	[0.26]	[0.05]	[0.09]
$wp_{h_2}^{New}$	0.02	-0.03	0.32***	0.15	-0.05	0.01
	[0.04]	[0.07]	[0.13]	[0.23]	[0.04]	[0.06]
$wp_{l_2}^{New}$	-0.08**	-0.01	-0.45***	-0.21	0.01	-0.05
	[0.04]	[0.06]	[0.12]	[0.22]	[0.04]	[0.06]

This result is in line with the one in Table 5. Positive domestic cross price elasticities reveal a certain degree of substitution between domestic low and high skilled labor. However, it is worth reminding that our broad definitions of high and low skilled labor, h_2 and l_1, also include workers with a high school degree, then there is more scope for substitution between high and low skilled in this setting than if the two categories of skills were defined in terms of production and non-production workers.

Turning to the elasticities of domestic labor with respect to foreign wages, Panel A reveals that the high skilled with tertiary education in NMS-5, L_{h1}, are a complement to broadly defined low skilled (higher education or less) in 'New' partner countries (negative and significant elasticity between L_{h1} and wp_{l1}^{New}). At the same time high skilled from 'New' directly compete with the high skilled in 'New' partner countries. The high skilled with academic education in 'Old' EU-15 are not really affected by wages in partner countries. 'Old' members' broadly defined less skilled, L_{l1} are complemented by high skilled from 'New'. Interestingly, those with secondary education or less (L_{l1}) in NMS-5 can be substitutes of high skilled foreign workers and complement analogical low skilled in partner countries belonging also to 'New' group.

Looking at the Panel B we can draw the information on substitution/ complementarity effects when high skilled are defined in a broad manner and encompass workers not only with academic education, but also with secondary education completed. The demand for the least skilled, L_{l2} in NMS-5 is positively affected by an increase of the wage of the the least skilled in 'Old' members, $wp_{l_2}^{old}$, thus suggesting a substitution among domestic and foreign low skilled in these countries, while complementarity exists between domestic low skilled in NMS-5 and those with at least secondary education in EU-15 partner countries.

Results by sector and country groups

A further check we do is to estimate the empirical model (4) on subgroups of sectors distinguishing between low and high skill intensive activities according to the skill intensity taxonomy adopted within the EU KLEMS database. Table 10 in the appendix shows the sector classification: 'Chemicals and chemical products', 'Machinery, Electrical and Optical Equipment', 'Transport Equipment' and 'Renting of m&eq and other business activities' are classified as skill intensive.

We also split the heterogeneous sample of 'Old' members (EU-15) between 'Old' with a specialization in the high skill intensive industries (denoted as *Old High*) and 'Old' with a specialization in the low skill intensive ones (denoted as *Old Low*). In order to do so, for each country and year we calculate the ratio of total value added in high skill intensive industries to total value added in the low skill intensive ones and we classify countries as

Old High if their ratio is above the median in that year, otherwise we classify it as *Old Low*. The composition of the two groups is stable across all of the time span: Austria, Finland, Greece, Italy, Spain and Portugal apper to belong to the latter category.

In Table 7 we report separately the elasticities' estimates for the subsamples of 'New' (NMS-5) countries, *Old High* and *Old Low*. Again Panel A refers to the narrow definition of high skilled and broad definition of low skilled, $h_1(l_1)$, while Panel B refers to the alternative category. Then, in each Panel, the first two columns refer to high skill intensive sectors, the second pair to the same sectors with the exclusion of the services sector and the third set of columns refers to the low skill intensive sectors.

The results give us plenty of information but we focus on possible competition between domestic and foreign labor. Lets have a closer look at the two broadly defined gropups of workers (h_1 and l_2). It turns out that domestic labor force with the highest skills (L_{h1} - Panel A) working in high skill intensive sectors in NMS-5 is only threatened by the same category of workers in other NMS-5 (positive elasticities signifying substitition effects). High skilled workers working in EU-15 high skill countries (*Old High*) in high skill intensive sectors are only challenged by high skill workers in NMS-5 employed in the same high skill industries. Those with academic education employed in low skill intensive sectors in *Old High* EU-15 countries can be substituted by workers with the same educational level from NMS-5, while high skilled from *Old Low* working in low skill intensive sectors can be threatened by competition from other 'Old' countries' high skilled. In general (with the aforementioned exceptions), workers in Old members specialized in high skill intensive activities are not really affected by wage conditions in NMS-5, especially in the high skill intensive sectors of manufacturing. Then, in general the competition with the NMS5's high skilled in high skill intensive sectors seems to be driven by the service sector.

On the other hand the demand for the less skilled (with only primary education - L_{l2} in Panel B) in NMS-5 is in direct competition with low skilled workers from EU-15 (independently on the typology of sectors). The situation of low skilled from EU-15 countries specialising in rather advanced sectors (thus *Old High*) can be affected negatively only within low skil sectors - by workers with at least secondary education from EU-15 partners and by low skilled with primary education from 'New' member states.

Finally, in order to check the robustness of the results with respect to the intensity of trade with NMS-5, we split EU-15 group into countries more and less involved in trade with 'New' countries. We define as '*More involved*' those EU-15 countries which already at the beginning of our period of analysis had the shares of imports from NMS-5 in total imports above the overall

Table 7: Elasticities of high and low skilled labor with respect to wages by skill category, sectors typology and 'Old' groups according to their skill level

Panel A:		$h_1 = HS$		$l_1 = MS + LS$			
		High Skill intensive sectors		High Skill intensive sectors excl. Services		Low Skill intensive sectors	
		L_{h_1}	L_{l_1}	L_{h_1}	L_{l_1}	L_{h_1}	L_{l_1}
'New'	$wp_{h_1}^{Old}$	-0.72***	0.11	-0.24	0.28	0.1	0.34*
		[0.3]	[0.12]	[0.25]	[0.18]	[0.23]	[0.18]
	$wp_{l_1}^{old}$	0.2	-0.31**	0.15	-0.39**	0.19	-0.35
		[0.33]	[0.14]	[0.28]	[0.2]	[0.29]	[0.23]
	$wp_{h_1}^{New}$	1.48***	0.08	0.42**	-0.04	0.19	0.15
		[0.31]	[0.14]	[0.2]	[0.14]	[0.15]	[0.12]
	$wp_{l_1}^{New}$	-2.05***	-0.32**	-0.49**	-0.08	-0.33**	-0.2
		[0.32]	[0.14]	[0.21]	[0.15]	[0.16]	[0.12]
Old	$wp_{h_1}^{Old}$	0.02	0.05	0.03	0.08	0.56***	-0.08
High		[0.09]	[0.05]	[0.21]	[0.11]	[0.15]	[0.07]
	$wp_{l_1}^{Old}$	-0.11	-0.03	0.13	-0.01	-0.24	0.14*
		[0.1]	[0.06]	[0.21]	[0.11]	[0.18]	[0.08]
	$wp_{h_1}^{New}$	0.38***	0.07	0.23	0.07	-0.27***	-0.05
		[0.1]	[0.06]	[0.16]	[0.09]	[0.1]	[0.04]
	$wp_{l_1}^{New}$	-0.47***	-0.21***	-0.26	-0.14	0.21**	0.01
		[0.1]	[0.06]	[0.16]	[0.09]	[0.09]	[0.04]
Old	$wp_{h_1}^{Old}$	-0.43**	-0.15	-0.37	-0.26	0.57***	-0.14**
Low		[0.18]	[0.11]	[0.34]	[0.17]	[0.18]	[0.06]
	$wp_{l_1}^{Old}$	0.25	0.06	0.14	0.21	-0.59***	0.21***
		[0.2]	[0.12]	[0.37]	[0.18]	[0.2]	[0.07]
	$wp_{h_1}^{New}$	-0.06	0.02	-0.06	-0.05	-0.05	-0.03
		[0.11]	[0.07]	[0.17]	[0.08]	[0.1]	[0.03]
	$wp_{l_1}^{New}$	-0.01	-0.09	0.13	0.04	-0.01	0.04
		[0.11]	[0.07]	[0.18]	[0.08]	[0.1]	[0.03]
Panel B:		$h_2 = HS + MS$		$l_2 = LS$			
		High Skill intensive sectors		High Skill intensive sectors excl. Services		Low Skill intensive sectors	
		L_{h_2}	L_{l_2}	L_{h_2}	L_{l_2}	L_{h_2}	L_{l_2}
'New'	$wp_{h_2}^{Old}$	-1.15***	-2.53***	-0.64***	-0.6**	0.45	-2.06***
		[0.41]	[0.65]	[0.2]	[0.25]	[0.3]	[0.61]
	$wp_{l_2}^{Old}$	1.08***	2.49***	0.37**	0.33	-0.28	1.85***
		[0.42]	[0.66]	[0.2]	[0.25]	[0.27]	[0.55]
	$wp_{h_2}^{New}$	0.05	-0.65**	0.04	-0.49**	0.77***	0.24
		[0.21]	[0.34]	[0.17]	[0.23]	[0.18]	[0.37]
	$wp_{l_2}^{New}$	-0.18	0.64**	-0.32**	0.36*	-0.83***	-0.22
		[0.2]	[0.32]	[0.15]	[0.21]	[0.18]	[0.36]
Old	$wp_{h_2}^{Old}$	-0.21	0.03	-0.11	-0.13	-0.08	0.43***
High		[0.27]	[0.43]	[0.09]	[0.16]	[0.12]	[0.15]
	$wp_{l_2}^{Old}$	0.31	0.04	0.13	0.11	0.17	-0.32**
		[0.27]	[0.44]	[0.09]	[0.16]	[0.11]	[0.14]
	$wp_{h_2}^{New}$	0.2	-0.44*	-0.02	0.05	0.21**	-0.18
		[0.16]	[0.26]	[0.05]	[0.1]	[0.1]	[0.13]
	$wp_{l_2}^{New}$	-0.25*	0.39	-0.09*	-0.14	-0.22**	0.13
		[0.14]	[0.24]	[0.05]	[0.09]	[0.1]	[0.12]
Old	$wp_{h_2}^{Old}$	1.18***	-0.5	0.05	-0.39	0.72***	-1.09***
Low		[0.38]	[0.74]	[0.13]	[0.35]	[0.14]	[0.24]
	$wp_{l_2}^{Old}$	-1.27***	0.48	-0.16	0.43	-0.65***	1.08***
		[0.38]	[0.74]	[0.13]	[0.35]	[0.13]	[0.22]
	$wp_{h_2}^{New}$	-0.12	0.09	-0.07	-0.28	-0.01	0.29
		[0.22]	[0.43]	[0.09]	[0.22]	[0.12]	[0.19]
	$wp_{l_2}^{New}$	0.13	-0.12	0.02	0.23	-0.01	-0.23
		[0.21]	[0.41]	[0.08]	[0.21]	[0.11]	[0.18]

Table 8: Elasticities with respect to partners' wages by skill category, sectors typology and 'Old' groups according to the intensity of trade with NMS-5

Panel A:		$h_1 = HS$ $l_1 = MS + LS$					
		High Skill intensive sectors		High Skill intensive sectors excl. Services		Low Skill intensive sectors	
		L_{h_1}	L_{l_1}	L_{h_1}	L_{l_1}	L_{h_1}	L_{l_1}
Old	$wp_{h_1}^{Old}$	-0.04	0.05	-0.16	0.07	0.59***	-0.03
Less		[0.09]	[0.06]	[0.24]	[0.13]	[0.14]	[0.07]
Involved	$wp_{l_1}^{Old}$	-0.21**	-0.12*	0.18	-0.08	-0.27	0.09
		[0.1]	[0.07]	[0.26]	[0.14]	[0.17]	[0.08]
	$wp_{h_1}^{New}$	0.36***	0.03	0.28**	0	-0.08	0
		[0.09]	[0.06]	[0.14]	[0.08]	[0.09]	[0.04]
	$wp_{l_1}^{New}$	-0.44***	-0.15**	-0.26*	-0.09	-0.01	-0.03
		[0.1]	[0.06]	[0.14]	[0.08]	[0.08]	[0.04]
Old	$wp_{h_1}^{Old}$	0.04	-0.07	0.03	-0.23*	0.66***	-0.27***
More		[0.18]	[0.09]	[0.27]	[0.12]	[0.15]	[0.06]
Involved	$wp_{l_1}^{Old}$	-0.01	0.11	0.01	0.33***	-0.61***	0.35***
		[0.2]	[0.09]	[0.29]	[0.13]	[0.16]	[0.07]
	$wp_{h_1}^{New}$	-0.08	0.08	-0.12	-0.13	-0.46***	-0.14***
		[0.13]	[0.07]	[0.25]	[0.11]	[0.1]	[0.04]
	$wp_{l_1}^{New}$	-0.01	-0.13*	0.09	0.14	0.43***	0.13***
		[0.14]	[0.07]	[0.26]	[0.11]	[0.09]	[0.04]
Panel B:		$h_2 = HS + MS$ $l_2 = LS$					
		High Skill intensive sectors		High Skill intensive sectors excl. Services		Low Skill intensive sectors	
		L_{h_2}	L_{l_2}	L_{h_2}	L_{l_2}	L_{h_2}	L_{l_2}
Old	$wp_{h_2}^{old}$	-0.1	-0.09	-0.23	0.52	0.18	0.18
Less		[0.1]	[0.19]	[0.3]	[0.48]	[0.13]	[0.16]
Involved	$wp_{l_2}^{old}$	0.02	0.09	0.2	-0.39	-0.11	0.02
		[0.1]	[0.19]	[0.3]	[0.49]	[0.11]	[0.15]
	$wp_{h_2}^{new}$	-0.02	-0.13	0.2	-0.69**	0.26**	0.09
		[0.07]	[0.13]	[0.17]	[0.28]	[0.11]	[0.14]
	$wp_{l_2}^{new}$	-0.07	0.03	-0.25	0.56**	-0.29***	-0.1
		[0.06]	[0.12]	[0.16]	[0.26]	[0.1]	[0.13]
Old	$wp_{h_2}^{old}$	-0.09	-0.27	0.47*	-0.97**	-0.35***	0.09
More		[0.1]	[0.24]	[0.26]	[0.53]	[0.13]	[0.21]
Involved	$wp_{l_2}^{old}$	0.14	0.36	-0.43	1.06**	0.39***	-0.09
		[0.1]	[0.25]	[0.27]	[0.53]	[0.12]	[0.2]
	$wp_{h_2}^{new}$	0.02	0.17	0.37**	0.23	-0.06	-0.45***
		[0.05]	[0.11]	[0.18]	[0.36]	[0.1]	[0.16]
	$wp_{l_2}^{new}$	-0.1**	-0.2**	-0.35**	-0.19	0.07	0.4***
		[0.04]	[0.1]	[0.17]	[0.34]	[0.09]	[0.15]

EU-15 mean: Austria, Denmark, Finland, Germany, Italy and Sweden. Estimated elasticities are presented in Table 8. Again, the crucial are the signs of competition between EU-15 and NMS-5 labor force (thus we concentrate on positive and significant elasticities estimates).

It turns out that high skilled labor with tertiary education (Panel A, L_{h1}) in less involved EU-15 countries can be challenged by similar workers from NMS-5 in high skill intensive sectors. Also in low skill intensive sectors, high skill workers from EU-15 countries intensively importing from NMS-5, face competition from 'New' members (probably high skilled in EU-15 in low skill intensive sectors are challenged by medium skilled in NMS-5). Looking at the less skilled (Panel B, L_{l2}) there is no competition between EU-15 and NMS-5 workers within skill intensive sectors. When we exclude services, possible substitution characterises low skill workers from EU-15 'Less involved' and low skilled NMS-5 labor. Unsurprisingly, in low skill intensive sectors workers with only primary education working in EU-15 countries 'More involved' in importing from NMS-5 have to compete with low skilled workers from NMS-5.

5 Summary of the findings and Conclusions

This paper has focused on the interdependence existing between 'Old' and 'New' member states through the analysis of trade- labor market nexus existing in the enlarged EU. Increased accessibility of detailed sector level data on labor markets in separate EU member countries (EU-15 and selected NMS, namely: Poland, Hungary, the Czech Republic, Slovakia and Slovenia) has allowed us to shed some new light on the interactions between 'Old' and 'New' member states' tradable sectors. We have addressed the limits of the existing empirical research on the enlargement process by analyzing the interactions between the level and the skill structure of 'Old' and 'New' trade partners' employment and the level and the skill structure of domestic employment. The key idea is that trade effects on employment structures at home are to a large extent dependent on the performance of the labor market in trade partner countries.

The description of the evolution of bilateral trade relations between 'Old' and 'New' member states confirms that indeet the process of trade liberaklsation boosted trade between the two groups of countries, even though EU-15 markets are still far more important for 'New' countries that the other way round. NMS still occupy the position of net exporters in low skill intensive sectors, but on the other hand since 1995 have managed to enforce their performance in more advances sectors, too. The general size of tradable

economy rose both in 'Old' and 'New' countries, especially the services sector expanded noticeably. As far as the overall skill structure of employment is concerned, EU-15 employ more educated workers but in both groups of countries the process of quality upgrading has taken place.

We have applied a multiple empirical strategy in order to quantyfy the degree of interdependencies between labor markets in the integrating Europe. We have constructed a measure of average labor cost in parter countries, taking into account the intensity of trade flows between domestic and foreign EU markets. Dynamic panel data estimations aimed at assessing the direction and strength of interaction mechanisms within the enlarged EU labor market. Indeed, a certain degree of substitution exists between domestic EU-15 employment and foreign labor from NMS-5 which indicates possible competition between 'Old' and 'New' workers.

In order to investigate in depth the existence of a substitution/ complementarity nexus between the structure of employment in 'Old' and 'New' members, we proceeded by estimating the system of demands for different (in terms of skill structure: high and low skilled) types of labor in each country. The high skilled with academic education in 'Old' (EU-15) are not really affected by wages in partner countries, but substitution effects concern mainly low skilled in EU-15 and NMS-5. We have performed further checks, taking into account the heterogeneity of sectors (according to the skill intensity) and countries belonging to the 'Old' group (according to the degree of specialisation in high skill employment, as well as the intensity of trade with NMS-5).

6 Bibliography

Arndt, S. W.(1997). Globalization and the open economy. *North American Journal of Economics and Finance* 8: 71-79.

Baldone S., F. Sdogati and L. Tajoli (2001). Patterns and determinants of international fragmentation of production: evidence from outward processing trade between EU and Central Eastern European Countries. *Weltwirtschaftliches Archiv* 137(1): 80-104.

Berndt, E.R. (1991). *The Practice of Econometrics.* Reading MA: Addison-Wesley.

Brainard S. and D. Riker (1997). Ae U.S. multinational exporting U.S. jobs? *NBER Working Papers* No. 5958, National Bureau of Economic Research.

Caselli F. and S. Tenreyro (2005). Is Poland the Next Spain? *NBER Working Papers* No. 11045, National Bureau of Economic Research.

Crespo N. and M. Fontoura (2007). Integration of CEECs into EU market: structural change and convergence. *Journal of Common Market Studies* 45(3): 611-632.

De Benedictis L. and L. Tajoli (2007). Economic integration and similarity in trade structures. *Empirica* 34: 117-137.

De Benedictis L. and L. Tajoli (2008). Similarity in trade structures, integration and catching-up. *Economics of Transition* 16(2): 165-182.

Dulleck U., N. Foster, R. Stehrer and J. Wörz (2005). Dimensions of quality upgrading. Evidence from CEECs. *Economics of Transition* 13(1): 51-76.

Egger P. (2006). Intermediate goods trade and international wage convergence in Central Europe. *Empirica*, 33: 181-192.

Egger H. and P. Egger(2002). How international outsourcing drives up eastern wages. *Weltwirtschaftliches Archiv*, 138(1): 83-96.

Egger H. and P. Egger (2003). Outsourcing and skill specific employment in a small economy: Austria and the fall of the iron curtain. *Oxford Economic Papers* 55: 625-643.

Egger H. and P. Egger (2005a). The determinants of EU processing trade. *The World Economy* 28(2): 147-168.

Egger H. and P. Egger(2005b). Labour market effects of outsourcing under industrial interdependence. *International Review of Economics and Finance* 14: 349-363.

Egger H. and P. Egger (2005b). Labour market effects of outsourcing under industrial interdependence. *International Review of Economics and Finance* 14: 349-363.

Egger H. and U. Kreickemeier (2008). International fragmentation: boon or bane for domestic employment? *European Economic Review*, 52: 116-132.

Egger P. and M. Pfaffermayer (2004). Two dimensions of convergence: National and International Wage Adjustments Effects of Cross-border Outsourcing in Europe.*Review of International Economics* 12(5): 833-843.

Egger P. and R. Stehrer (2003). International Outsourcing and the Skill-Specific Wage Bill in Eastern Europe,*The World Economy* 26(1): 61-72.

Esposito P., Stehrer R. (2007). The Sector Bias of Skill-biased Technical Change and the Rising Skill Premium in Transition Economies, *WIIW Working Papers* 43, The Vienna Institute for International Economic Studies.

EU KLEMS Database (March 2008)., see Marcel T., M. O'Mahony and B. van Ark, The EU KLEMS Growth and Productivity Accounts: An Overview, University of Groningen and University of Birmingham; downloadable at *www.euklems.net*

Feenstra R. and G. Hanson (1996). Foreign Investment, Outsourcing and Relative Wages. [in:] Feenstra R., G.Grossman and D.Irwin (Eds.), *The Political Economy of Trade Policy: Paper in Honour of Jagdish Bhagwati.* MIT Press, 89-127.

Feenstra R.C. (1998). Integration of Trade and Disintegration of Production in the Global Economy. *Journal of Economic Perspectives* 12(4): 31-50.

Feenstra R. C. and G. H. Hanson (1999). The impact of outsourcing and high-technology capital on wages: Estimates for the United States, 1979-1990. *Quarterly Journal of Economics* 114: 907-940.

Feenstra R. C. and G. H. Hanson (2003). Global production sharing and rising inequality: a survey of trade and wages. In: E. Kwan Choi and J.Harrigan (Eds.) *Handbook of International Trade.* Basil Blackwell, London.

Geishecker I.(2006). Does outsourcing to Central and Eastern Europe really threaten manual workers'jobs in Germany? *The World Economy* 29(5): 559-583.

Grossman G.M. and E. Rossi-Hansberg (2006a). Trading tasks: a simple theory of offshoring. *NBER Working Papers* No. 12721, National Bureau of Economic Research.

Grossman G.M. and E. Rossi-Hansberg (2006b). The rise of offshoring: it's not wine for cloth anymore. *The New Economic Geography: Effects and Policy Implications* Federal Reserve Bank of Kansas City.

Helg R. and L. Tajoli (2005). Patterns of international fragmentation of production and the relative demand for labor. *North American Journal*

of Economics and Finance 16: 233-254.

Hijzen, A., H. Görg and R. Hine (2005). International outsourcing and the skill structure of labour demand in the United Kingdom. *The Economic Journal* 115: 860878.

Hijzen A. and P. Swaim (2007). Does offshoring reduce the industry employment? *University of Nottingham Research Paper Series* No. 2007/24.

Hotopp U., S. Radosevic and K. Bishop (2005). Trade and industrial upgrading in countries of central and eastern Europe. *Emerging Markets Finance and Trade* 41(4): 20-37.

Hummels,D., J. Ishii, and K.Yi (2001). The nature and growth of vertical specialization in world trade. *Journal of International Economics* 54:75(96).

Kaminski B. and F. Ng (2005). Production disintegration and integration of Central Europe into global markets. *International Journal of Economics and Finance* 14 : 377-390.

Keller W. (2002). Trade and the transmission of technology. *Journal of Economic Growth* 7: 5-24.

Kohler W. (2001). A specific factors view on outsourcing. *North American Journal of Economics and Finance* 12: 31-53.

Kohler W. (2004). International outsourcing and the factor prices with multistage production. *The Economic Journal* 114: 166-185.

Kohler W. (2007). The Bazaar Effect, unbundling of comparative advantage and migration. *Cesifo Working Paper* 1932.

Kohler W. (2008). Offshoring: why do the stories differ? *Cesifo Working Paper* 2231.

Krugman P. (2008). Trade and wages, reconsidered. *Brookings Papers on Economic Activity* 2008(1): 103-154.

Lawrence R.Z. (1994). Trade, multinational and labor. *NBER Working Paper* No. 4836, National Bureau of Economic Research.

Pellegrin J. (2001). "Learning by interacting" and catching up in Central and Eastern European Countries: evidence form outward processing trade. *Journal of International Relations and Development* 4(3): 250-273.

Slaughter M.J. (1995). Multinational corporations, outsourcing and american wage divergence. *NBER Working Paper* No. 5253, National Bureau of Economic Research.

Timmer M.P., O'Mahony M. and van Ark. B. (2007). Growth and Productivity Accounts from EU KLEMS: an Overview. *National Institute Economic Review*, 200(1): 64-78.

United Nations Statistics Division (2008). Commodity Trade Statistics Database (UNComtrade), available through World Integrated Trade Solutions (*www.wits.worldbank.org/witsweb*)

7 Appendix

Table 9: List of Countries and adopted abbreviations

EU-15 ('Old')		NMS			
		NMS-12		NMS-5 ('New')	
AUT	Austria[a b]	BLG	Bulgaria	CZE	Czech Republic
BLX	Belgium and Luxembourg	CYP	Cyprus	HUN	Hungary
DNK	Denmark[b]	CZE	Czech Republic	POL	Poland
ESP	Spain[a]	EST	Estonia	SVK	Slovak Republic
FIN	Finland[b]	HUN	Hungary	SVN	Slovenia
FRA	France	LTU	Lithuania		
GER	Germany[b]	LVA	Latvia		
GRC	Greece[a]	MLT	Malta		
IRL	Ireland	POL	Poland		
ITA	Italy[a b]	ROM	Romania		
NLD	Netherlands[a]	SVK	Slovak Republic		
PRT	Portugal[a]	SVN	Slovenia		
SWE	Sweden[b]				
UK	United Kingdom				

[a] Countries specialized in less skill intensive activities and then classified as 'Old' Low
[b] Countries more involved in trade with the NMS5

Table 10: List of sectors

A. Food, beverages and tobacco	Low skill intensive
B. Textiles, leather and footwear	Low skill intensive
C. Wood and product of wood and cork	Low skill intensive
D. Pulp, paper, printing and publishing	Low skill intensive
E. Chemicals and chemical products	High skill intensive
F. Rubber and plastics products	Low skill intensive
G. Other non-metallic mineral products	Low skill intensive
H. Basic metals and fabricated metal products	Low skill intensive
I. Machinery, nec	High skill intensive
J. Electrical and optical equipment	High skill intensive
K. Transport equipment	High skill intensive
L. Manufacturing, nec; recycling	Low skill intensive
M. Renting of m&eq other business services	High skill intensive

Table 11: Summary Statistics Model 3

Variable		Mean	Std. Dev.	Min	Max	Observations
emp	overall	4.51	1.25	1.75	8.46	N = 2717
Persons	between		1.25	2.04	8.25	n = 247
Engaged	within		0.10	3.89	5.04	T = 11
w	overall	0.03	0.02	0.01	0.30	N = 2717
Compensation	between		0.01	0.01	0.16	n = 247
of labor	within		0.01	-0.07	0.17	T = 11
emp	overall	4.41	1.24	1.53	8.28	N = 2717
Employees	between		1.24	1.81	8.09	n = 247
	within		0.11	3.76	5.07	T = 11
w	overall	0.03	0.02	0.01	0.30	N=2717
Compensation of	between		0.01	0.01	0.16	n=247
Employees	within		0.01	-0.07	0.17	T=11
y	overall	4.81	0.29	3.91	7.20	N = 2717
	between		0.23	4.18	6.26	n = 247
	within		0.18	3.16	5.75	T = 11
wp_L^{Old}	overall	-1.57	0.27	-2.27	-0.51	N = 2717
Compensation of	between		0.25	-2.08	-1.03	n = 247
labor	within		0.11	-2.04	-0.97	T = 11
wp_L^{New}	overall	-3.71	0.33	-5.26	-2.58	N = 2717
Compensation of	between		0.23	-4.36	-3.25	n = 247
labor	within		0.23	-4.86	-2.86	T = 11

Table 12: Summary Statistics Model 4

Variable		Mean	Std. Dev.	Min	Max	Observations
S_{h_1}	overall	0.05	0.06	0.00	0.51	N = 2717
	between		0.06	0.00	0.48	n = 247
	within		0.01	-0.04	0.17	T = 11
S_{h_2}	overall	0.21	0.10	0.02	0.70	N = 2717
	between		0.09	0.03	0.66	n = 247
	within		0.02	0.13	0.30	T = 11
w_{h_1}	overall	-0.78	1.29	-3.03	3.34	N = 2717
	between		1.29	-2.79	2.79	n = 247
	within		0.12	-1.38	-0.17	T = 11
w_{h_2}	overall	-1.23	1.23	-3.39	2.65	N = 2717
	between		1.23	-3.26	2.33	n = 247
	within		0.12	-1.82	-0.59	T = 11
S_{l_1}	overall	0.22	0.07	0.04	0.55	N = 2717
	between		0.07	0.07	0.47	n = 247
	within		0.02	0.11	0.30	T = 11
S_{l_2}	overall	0.06	0.05	0.00	0.27	N = 2717
	between		0.05	0.00	0.22	n = 247
	within		0.01	-0.02	0.14	T = 11
w_{l_1}	overall	-1.42	1.27	-3.68	2.45	N = 2717
	between		1.27	-3.51	1.87	n = 247
	within		0.12	-2.00	-0.82	T = 11
w_{l_2}	overall	-1.66	1.29	-4.50	2.22	N = 2717
	between		1.29	-3.99	1.63	n = 247
	within		0.13	-2.71	-0.92	T = 11
y	overall	4.81	0.29	3.91	7.20	N = 2717
	between		0.23	4.18	6.26	n = 247
	within		0.18	3.16	5.75	T = 11
$wp_{h_1}^{Old}$	overall	-1.05	0.27	-1.73	-0.12	N = 2717
	between		0.25	-1.63	-0.45	n = 247
	within		0.11	-1.52	-0.52	T = 11
$wp_{l_1}^{Old}$	overall	-1.64	0.27	-2.31	-0.62	N = 2717
	between		0.25	-2.15	-1.10	n = 247
	within		0.10	-2.08	-1.06	T = 11
$w_{h_2}^{old}$	overall	-1.48	0.26	-2.15	-0.46	N = 2717
	between		0.24	-1.96	-0.92	n = 247
	within		0.11	-1.94	-0.90	T = 11
$w_{l_2}^{old}$	overall	-1.89	0.29	-2.71	-0.83	N = 2717
	between		0.27	-2.47	-1.30	n= 247
	within		0.10	-2.34	-1.29	T = 11
$wp_{h_1}^{New}$	overall	-3.06	0.30	-4.60	-2.10	N = 2717
	between		0.21	-3.64	-2.70	n = 247
	within		0.22	-4.22	-2.32	T = 11
$wp_{l_1}^{New}$	overall	-3.81	0.32	-5.34	-2.68	N = 2717
	between		0.23	-4.42	-3.32	n = 247
	within		0.23	-4.95	-2.98	T = 11
$w_{h_2}^{new}$	overall	-3.67	0.32	-5.22	-2.55	N = 2717
	between		0.23	-4.30	-3.21	n = 247
	within		0.23	-4.81	-2.83	T = 11
$w_{l_2}^{new}$	overall	-4.09	0.34	-5.67	-2.91	N = 2717
	between		0.24	-4.68	-3.53	n = 247
	within		0.23	-5.25	-3.24	T = 11

Table 13: Coefficients estimates for elasticities in Table 6

				$h_1 = HS\ l_1 = MS + LS$				
	α_{h_1}	$\beta_{h_1h_1}$	$\beta_{h_1l_1}$	γ_{h_1y}	$\delta^{Old}_{h_1h_1}$	$\delta^{Old}_{h_1l_1}$	$\delta^{New}_{h_1h_1}$	$\delta^{New}_{h_1l_1}$
All	0.734	0.010	0.000	-0.007	0.001	-0.001	0.006	-0.009
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
New	0.506	-0.001	0.000	-0.006	-0.012	0.008	0.041	-0.053
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Old	0.779	0.014	0.000	-0.007	0.002	0.000	0.001	-0.003
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	α_{l_1}	$\beta_{l_1h_1}$	$\beta_{l_1l_1}$	γ_{l_1y}	$\delta^{Old}_{l_1h_1}$	$\delta^{Old}_{l_1l_1}$	$\delta^{New}_{l_1h_1}$	$\delta^{New}_{l_1l_1}$
All	0.585	0.000	0.000	-0.019	0.013	-0.001	-0.006	-0.006
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
New	0.487	0.000	0.001	-0.025	0.035	-0.041	0.033	-0.054
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Old	0.629	0.000	0.000	-0.021	0.004	0.016	-0.014	0.004
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				$h_2 = HS + MS\ l_2 = LS$				
	α_{h_2}	$\beta_{h_2h_2}$	$\beta_{h_2l_2}$	γ_{h_2y}	$\delta^{Old}_{h_2h_2}$	$\delta^{Old}_{h_2l_2}$	$\delta^{New}_{h_2h_2}$	$\delta^{New}_{h_2l_2}$
All	0.598	0.034	0.000	-0.033	-0.010	0.017	0.005	-0.016
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
New	0.447	0.033	0.001	-0.037	-0.107	0.091	0.062	-0.089
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Old	0.636	0.037	0.000	-0.027	0.012	-0.003	-0.011	0.002
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	α_{l_2}	$\beta_{l_2h_2}$	$\beta_{l_2l_2}$	γ_{l_2y}	$\delta^{Old}_{l_2h_2}$	$\delta^{Old}_{l_2l_2}$	$\delta^{New}_{l_2h_2}$	$\delta^{New}_{l_2l_2}$
All		0.000	0.000	0.000	-0.004	0.009	-0.002	-0.001
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
New	0.520	0.001	0.000	0.000	-0.028	0.028	0.003	-0.005
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Old	0.768	0.000	0.000	-0.003	0.001	0.006	0.001	-0.004
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 14: Coefficients estimates of Table 7

		$h_1 = HS$								$l_1 = MS + LS$							
		α_{h_1}	$\beta_{h_1h_1}$	$\beta_{h_1l_1}$	γ_{h_1y}	$\delta^{Old}_{h_1h_1}$	$\delta^{Old}_{h_1l_1}$	$\delta^{New}_{h_1h_1}$	$\delta^{New}_{h_1l_1}$	α_{l_1}	$\beta_{l_1h_1}$	$\beta_{l_1l_1}$	γ_{l_1y}	$\delta^{Old}_{l_1h_1}$	$\delta^{Old}_{l_1l_1}$	$\delta^{New}_{l_1h_1}$	$\delta^{New}_{l_1l_1}$
NMS5	HS sect.[a]	0.38	0.02	-0.03	0.00	-0.03	0.01	0.07	-0.10	0.43	-0.03	0.09	-0.02	0.02	-0.05	0.01	-0.05
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	HS sect.[b]	0.12	0.03	-0.03	-0.01	-0.01	0.01	0.02	-0.02	0.44	-0.03	0.09	-0.02	0.05	-0.07	-0.01	-0.01
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	LS sect.	0.17	0.03	-0.03	-0.01	0.00	0.01	0.01	-0.01	0.33	-0.03	0.11	-0.06	0.06	-0.06	0.03	-0.03
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Old High	HS sect.[a]	0.63	0.04	-0.03	-0.01	0.00	-0.01	0.03	-0.03	0.46	-0.03	0.08	-0.03	0.01	-0.01	0.01	-0.04
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	HS sect.[b]	0.62	0.01	-0.01	-0.01	0.00	0.01	0.01	-0.01	0.44	-0.01	0.06	-0.03	0.01	0.00	0.01	-0.02
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Old Low	LS sect.	0.57	0.02	-0.01	-0.01	0.02	-0.01	-0.01	0.01	0.40	-0.01	0.08	-0.04	-0.02	0.03	-0.01	0.00
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	HS sect.[a]	0.50	0.10	-0.09	-0.01	-0.03	0.02	0.00	0.00	0.41	-0.09	0.14	-0.06	-0.03	0.01	0.00	-0.02
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	HS sect.[b]	0.26	0.03	-0.02	-0.01	-0.01	0.00	0.00	0.00	0.43	-0.02	0.08	-0.07	-0.05	0.04	-0.01	0.01
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	LS sect.	0.50	0.03	-0.02	-0.01	0.02	-0.02	0.00	0.00	0.45	-0.02	0.11	-0.05	-0.03	0.05	-0.01	0.01
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		$h_2 = HS + MS$								$l_2 = LS$							
		α_{h_2}	$\beta_{h_2h_2}$	$\beta_{h_2l_2}$	γ_{h_2y}	$\delta^{Old}_{h_2h_2}$	$\delta^{Old}_{h_2l_2}$	$\delta^{New}_{h_2h_2}$	$\delta^{New}_{h_2l_2}$	α_{l_2}	$\beta_{l_2h_2}$	$\beta_{l_2l_2}$	γ_{l_2y}	$\delta^{Old}_{l_2h_2}$	$\delta^{Old}_{l_2l_2}$	$\delta^{New}_{l_2h_2}$	$\delta^{New}_{l_2l_2}$
NMS5	HS sect.[a]	0.46	0.06	-0.01	-0.02	-0.12	0.07	0.01	-0.06	0.40	-0.01	0.02	0.00	-0.01	0.01	-0.01	0.01
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	HS sect.[b]	0.49	0.06	-0.01	-0.02	-0.22	0.21	0.01	-0.04	0.39	-0.01	0.02	0.00	-0.06	0.06	-0.02	0.02
		0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	LS sect.	0.34	0.07	-0.01	-0.06	0.09	-0.06	0.15	-0.16	0.36	-0.01	0.03	0.00	-0.05	0.04	0.01	-0.01
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Old High	HS sect.[a]	0.60	0.05	-0.01	-0.04	-0.03	0.03	0.00	-0.02	0.68	-0.01	0.01	0.00	0.00	0.00	0.00	-0.01
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	HS sect.[b]	0.62	0.04	0.00	-0.03	-0.04	0.06	0.04	-0.05	0.66	0.00	0.01	0.00	0.00	0.00	-0.02	0.01
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Old Low	LS sect.	0.51	0.04	0.00	-0.04	-0.02	0.03	0.04	-0.05	0.67	0.00	0.01	0.00	0.02	-0.02	-0.01	0.01
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	HS sect.[a]	0.56	0.04	-0.01	-0.04	0.01	-0.04	-0.02	0.00	0.76	-0.01	0.00	-0.01	-0.02	0.03	-0.02	0.01
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	HS sect.[b]	0.50	0.03	0.00	-0.05	0.21	-0.22	-0.02	0.02	0.75	0.00	0.01	-0.01	-0.03	0.03	0.01	-0.01
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	LS sect.	0.63	0.03	0.02	-0.03	0.13	-0.12	0.00	0.00	0.64	0.02	0.00	-0.01	-0.09	0.09	0.02	-0.02
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 15: Coefficients estimates of Table 8 -countries more involved

		$h_1 = HS$								$l_1 = MS + LS$							
		α_{h_1}	$\beta_{h_1h_1}$	$\beta_{h_1l_1}$	γ_{h_1y}	$\delta^{Old}_{h_1h_1}$	$\delta^{Old}_{h_1l_1}$	$\delta^{New}_{h_1h_1}$	$\delta^{New}_{h_1l_1}$	α_{l_1}	$\beta_{l_1h_1}$	$\beta_{l_1l_1}$	γ_{l_1y}	$\delta^{Old}_{l_1h_1}$	$\delta^{Old}_{l_1l_1}$	$\delta^{New}_{l_1h_1}$	$\delta^{New}_{l_1l_1}$
NMS5	HS sect.[a]	0.38	0.02	-0.03	0.00	-0.03	0.01	0.07	-0.10	0.43	-0.03	0.09	-0.02	0.02	-0.05	0.01	-0.05
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	HS sect.[b]	0.12	0.03	-0.03	-0.01	-0.01	0.01	0.02	-0.02	0.44	-0.03	0.09	-0.02	0.05	-0.07	-0.01	-0.01
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	LS sect.	0.17	0.03	-0.03	-0.01	0.00	0.01	0.01	-0.01	0.33	-0.03	0.11	-0.06	0.06	-0.06	0.03	-0.03
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Old High	HS sect.[a]	0.53	0.05	-0.05	-0.01	0.00	-0.02	0.03	-0.03	0.44	-0.05	0.11	-0.04	0.01	-0.02	0.01	-0.03
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	HS sect.[b]	0.50	0.02	-0.02	-0.01	-0.01	0.01	0.01	-0.01	0.43	-0.02	0.07	-0.04	0.01	-0.01	0.00	-0.02
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Old Low	LS sect.	0.53	0.02	-0.02	-0.01	0.02	-0.01	0.00	0.00	0.38	-0.02	0.08	-0.04	-0.01	0.02	0.00	-0.01
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	HS sect.[a]	0.80	0.05	-0.03	0.00	0.00	0.00	-0.01	0.00	0.57	-0.03	0.08	-0.02	-0.02	0.03	0.02	-0.03
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	HS sect.[b]	0.64	0.01	0.01	0.00	0.00	0.00	-0.01	0.00	0.42	0.01	0.04	-0.03	-0.05	0.07	-0.03	0.03
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	LS sect.	0.52	0.01	0.00	0.00	0.02	-0.02	-0.01	0.01	0.49	0.00	0.07	-0.03	-0.07	0.09	-0.03	0.03
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		$h_2 = HS + MS$								$l_2 = LS$							
		α_{h_2}	$\beta_{h_2h_2}$	$\beta_{h_2l_2}$	γ_{h_2y}	$\delta^{Old}_{h_2h_2}$	$\delta^{Old}_{h_2l_2}$	$\delta^{New}_{h_2h_2}$	$\delta^{New}_{h_2l_2}$	α_{l_2}	$\beta_{l_2h_2}$	$\beta_{l_2l_2}$	γ_{l_2y}	$\delta^{Old}_{l_2h_2}$	$\delta^{Old}_{l_2l_2}$	$\delta^{New}_{l_2h_2}$	$\delta^{New}_{l_2l_2}$
NMS5	HS sect.[a]	0.46	0.06	-0.01	-0.02	-0.12	0.07	0.01	-0.06	0.40	-0.01	0.02	0.00	-0.01	0.01	-0.01	0.01
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	HS sect.[b]	0.49	0.06	-0.01	-0.02	-0.22	0.21	0.01	-0.04	0.39	-0.01	0.02	0.00	-0.06	0.06	-0.02	0.02
		0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	LS sect.	0.34	0.07	-0.01	-0.06	0.09	-0.06	0.15	-0.16	0.36	-0.01	0.03	0.00	-0.05	0.04	0.01	-0.01
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Old High	HS sect.[a]	0.57	0.05	-0.01	-0.04	-0.02	0.00	-0.01	-0.02	0.70	-0.01	0.02	0.00	0.00	0.00	-0.01	0.00
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	HS sect.[b]	0.58	0.05	-0.02	-0.03	-0.04	0.03	0.03	-0.04	0.69	-0.02	0.03	0.00	0.02	-0.02	-0.03	0.03
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Old Low	LS sect.	0.52	0.04	-0.01	-0.04	0.03	-0.02	0.05	-0.05	0.65	-0.01	0.03	0.00	0.01	0.00	0.01	-0.01
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	HS sect.[a]	0.58	0.06	0.00	-0.03	-0.02	0.04	0.01	-0.02	0.78	0.00	0.00	0.00	-0.01	0.02	0.01	-0.01
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	HS sect.[b]	0.59	0.06	0.00	-0.03	0.10	-0.09	0.08	-0.07	0.74	0.00	0.00	0.00	-0.04	0.04	0.01	-0.01
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	LS sect.	0.68	0.05	0.01	-0.02	-0.08	0.08	-0.01	0.02	0.75	0.01	-0.01	-0.01	0.01	-0.01	-0.03	0.03
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00