



The Political Economy of Governance in the Euro-Mediterranean Partnership

Deliverable No. 2

Working Package I: The Political Economy of Euro-Med Trade

Location of Industries in MENA countries, in the EU and NMS: A Comparative analysis

Go-EuroMed Working Paper No. 0604

Hugues JENNEQUIN / Isabelle RABAUD
Laboratoire d'Économie d'Orléans
University of Orléans
France

Date: 31/12/2006

The Sixth Framework Programme
Contract No. 028386



www.go-euromed.org

Contents

Abstract 2

1. Introduction 4

2. Trade, Integration and Location: the Theoretical Framework 6

3. The Development of Service Activities in Europe and in MENA Countries 15

4. Changes in Concentration of Service Activities 17

5. Policy Recommendations 29

6. Conclusions 30

Abbreviations and Acronyms 31

Bibliography 32

Appendix 1: Share of services in total service employment, EU15, NMS and MPC, 2003.... 35

Appendix 2: Concentration indicators..... 36

Abstract:

The New Economic Geography theory (NEG) states that spatial distribution of activities among nations depends on their degree of economic integration. Upstream highly skilled labour-intensive and increasing-returns services favour location of new manufacturing activities, thus reducing the dependency of economic growth on low-wage costs for southern economies. This paper compares location of services industries in the Mediterranean Partner Countries (MPC) and in the EU25. Relying on indicators of concentration, we show that both services and manufacturing activities are less developed in MPC than in the EU15 or in the New Member States (NMS). Currently, services activities appear to be more evenly distributed inside trade areas (EU15, NMS and MPC) than within the Euro-Mediterranean zone. Concentration is time-decreasing when the EU15 is included, reflecting mostly intra-EU15 convergence. Financial intermediation and business services are the most concentrated services activities. Location of services activities differ between the EU and the Neighbourhood European Policy Countries (NEPC) in line with predominance of traditional services in the latter, particularly in the MPC. Insofar as spatial distribution of industries differs between the NMS and the MPC, concentration occurs by waves when economic integration deepens.

The EC should provide assistance to MPC national statistical institutes to improve the availability and the quality of their statistics. Indicators of services concentration show that, despite increased economic integration, the MPC have not yet caught-up with the EU25. Therefore, the EU should support MPC efforts to strengthen their enabling services sector. Insofar as key enabling services develop by waves, some southern Mediterranean countries may lag behind others. The EC should carefully seek to avoid such increases in inequalities within the MPC.

Keywords: Euro-Mediterranean Partnership – Location/concentration of services activities – Regional migration – Economic integration – Relationships between location of services and trade in goods

JEL codes: F14, R12, R23, F15, F16

1. Introduction

While absent from traditional trade theories, issues of location and spatial distribution of activities were brought back to economists' attention in the early 1990s by the seminal article on the New Economic Geography (NEG) of Krugman (1991). In this paper, he highlighted the spatial unevenness of the real economy, drawing on US experience. He emphasised that, although the US is generally sparsely populated, the bulk of American population resides in a few clusters of metropolitan areas: densely populated manufacturing belts contrast with thinly populated farm belts, and specific industries are highly concentrated as in Silicon Valley. Moreover, small changes in the characteristics of an economy, in particular due to the industrial revolution (transportation costs, economies of scale, share of non-agricultural activities) may have important consequences: *'population will start to concentrate and regions to diverge. Once started this process will feed itself. [...] The details of the geography that emerges – which region ends up with the population – depend sensitively on initial conditions.'* (Krugman, 1991, p. 487). Regions and countries do not have the same ability to attract economic activities. A specific and active policy can thus be implemented, allowing economic development or catching up, depending on geographical and economic characteristics. Puga and Venables (1998) thus underline that: *'the industrializing countries have high wages, but the positive pecuniary externalities created by inter-firm linkages compensate for the higher wage costs. Trade liberalization changes the attractiveness of countries as a base for manufacturing production and can trigger - or postpone - industrial development.'*

In this paper, integration is meant in its economic meaning: a fall in transaction costs (*i.e.* the extra costs linked to selling a product in a foreign country over the cost of selling it in the domestic market). It differs both from shallow integration: *'actions to eliminate discrimination between foreign and domestic firms'* (Hoekman, 1998, p. 9) and deep integration: *'explicit actions by governments to reduce the market segmenting effect of differences in national regulatory policies that pertain to products, production processes, producers and natural persons.'* (Hoekman, 1998, p. 9).

As far as the EU15 is concerned, between the 1980s and the 1990s, half of EU regions have become more specialised, while the remaining half have become less specialised. Integration matters for concentration (Combes and Overman, 2004). What factors drive concentration of manufacturing activities? Are those factors the same for location of services industries? The growing share of tertiary activities points to the role of services in the catch-up process of developing countries. Does development necessarily depend on the emergence of a

performing manufacturing sector? Or can efficient high-technology services provide the impetus needed to boost growth and development? Let it be said in passing that more and more services links are needed to coordinate and organise the core business of a company since manufacturing production has become more and more fragmented and geographically dispersed (see Rabaud and Montalieu, 2006). Thus, business services and manufacturing are becoming increasingly interrelated. Therefore, the location of services activities and the relationships between economic integration and regional concentration of services have become crucial questions for developing countries. Mediterranean Partner Countries (MPC) are particularly concerned since, except for Israel, less than 7 per cent of service workers are employed in business services, as compared to 14 per cent in the EU15.

The paper aims to highlight the location of activities, in particular services industries, in the MPC, at comparing it with the location of these services in the EU15 and New Member States (NMS) and at assessing whether or not agglomeration economies were its cause. Therefore, we rely on macroeconomic measures indicating the degree of concentration to analyse the actual and potential effect of the Euro-Mediterranean Partnership. We inquire as to whether the MPC are passing from a specialisation in agriculture to a specialisation in services or whether an industrialisation process is necessary. Is concentration of services activities also at stake in Middle East and North African (MENA) countries as in the EU15 or in the NMS? In terms of services location, does the Euro-Mediterranean Partnership favour improvements in territorial attractiveness, which then generate a sustainable growth process?

Our article is organised as follows: in the next section, to clarify our purpose, we summarise the main results of NEG models and assess how they deal with the specific situation of the MPC. The share of the main services activities in employment and value added in several MPC is compared to its distribution in the EU15 and NMS in the third section. In the fourth section, we present and assess concentration of services activities. Policy recommendations are proposed in the fifth section, while the sixth one concludes.

2. Trade, Integration and Location: the Theoretical Framework

Economists identify two different sources of potential benefits from economic integration: an improvement in the allocation of resources and the accumulation of further resources (Baldwin, 1994). However, the overall effects of further integration on national economies are more ambiguous and depend more on regional characteristics than on tariff cuts. In traditional theory, diverging economic development is based on uneven distribution of natural resources and endowments. However, as relevant it may be in some specific cases (agricultural, mining or fishing activities), this analysis cannot explain the main features of location and specialisation patterns in other activities, for which modern approaches appear more appropriate. According to the new analysis, firms make their location choices depending on four criteria: the size of the market of the host country (local demand), the number of firms already in the market (agglomeration economies eventually counterbalanced by congestion costs), after-tax labour and capital costs in the hosting area, the quality of public infrastructure and the skills of the workforce.

2.1. The New Economic Geography

The New Economic Geography (NEG), ensuing from the standard location theory, describes economic forces that deflect geographical distribution of activities. One of the main contributions of NEG models is to make the market size endogenous. A confrontation between dispersion and agglomeration forces appears, depending on the level of economic integration.³ In NEG models, economic integration implies falling 'transaction costs'. This latter notion not only includes lower physical transport costs, but also greater trade openness, smaller linguistic and cultural differences or less specific norms. Accordingly, insofar as Free Trade Association Agreements (FTAA) between MENA countries and the EU deal with further integration, NEG models are very suitable for the analysis of the current Euro-Mediterranean Partnership. Can convergence among MPC and core EU countries occur following economic integration? Which sectors are the most crucial to fostering economic development and call for more attention? NEG theoretical conclusions give some answers to these questions.

In these models, the equilibrium location of firms is caused by interactions between centrifugal and centripetal forces depending on the level of transaction costs. The centripetal

³ See Ottaviano and Puga (1998) for a survey of seminal NEG literature and Fujita *et al.* (1999), Neary (2001), Ottaviano and Thisse (2001 and 2004) or Baldwin *et al.* (2003) for more details.

(centrifugal) forces include all economic relations promoting concentration (dispersion) of economic activities. The centripetal forces can be self-sustaining: a change in a variable (one more firm) induces an adjustment in another variable (more consumers), which afterwards reinforces the first change (other firms move). A cumulative causation then appears (Myrdal, 1957).

Concentration and dispersion forces result from interactions between imperfect competition, economies of scale and agglomeration externalities.⁴ Firms and workers trade off the advantages of agglomeration economies and drawbacks of transaction costs. Regional integration (assimilated to a fall in transaction costs) encourages firms to concentrate in order to benefit from economies of scale. Increasing-returns-intensive sectors (the so-called ‘modern’ sectors) will be disproportionately present in regions with good market access (home market effect - Krugman, 1980).⁵ Moreover, associated with this home market effect, NEG models show that the market size increases when manufacturing agglomerates. Consequently, a cumulative causation can occur.

Two main kinds of NEG models explain the agglomeration process based on two different mechanisms. In the Core-Periphery model (CP model), workers’ mobility induces firms’ agglomeration; while in the Vertical-Linkage models (VL models), firms’ agglomeration can occur even without labour mobility thanks to input-output, inter-firm relations.

2.1.1. Core-Periphery models

The CP model was elaborated by Krugman (1991) to explain regional US concentration (for example in Silicon Valley or Detroit). This symmetrical two-country model shows that agglomeration of the modern sector is the unique stable equilibrium when transaction costs are sufficiently low. At this point, all industries and workers of the modern sector locate in one of the two countries, while the second economy is subjected to desertification. In this case, the cumulative gains increase for both geographically mobile consumers and industrial firms (see Figure 1).⁶

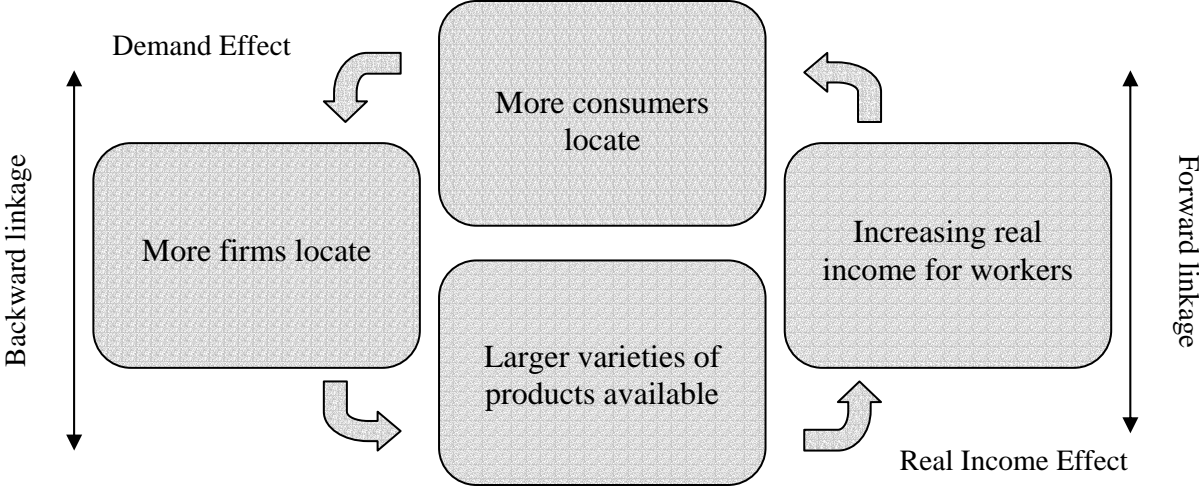
⁴ All these externalities describe two kinds of interactions originally defined by Scitovsky (1954). On the one hand, so-called ‘technological externalities’ occur outside the markets and act directly on the consumer’s utility function or the firm’s production function. Due to their complexity, their formalisation is rare (see Rieber and Tran, 2002a for an example). On the other hand, so-called ‘pecuniary externalities’ imply interactions based on market mechanisms.

⁵ This result comes from the ‘new trade theory’ models.

⁶ This result from the Core-Periphery model can be found under alternative assumptions: imperfect labour mobility (Ludema and Wooton, 1999), differentiating skills levels in the modern sector (Amiti and Pissarides, 2002), taste heterogeneity (Tabuchi and Thisse, 2002) or forward-looking expectations (Baldwin, 2001). None of these assumptions has any qualitative effect on the behaviour of the core-periphery model.

Each of the forward and backward linkages describes one part of these two causal elements. The forward linkages depict how an agent is linked to its suppliers while the backward linkages illustrate how an economic agent is linked to its customers.

Figure 1: Cumulative Causation in the CP Model



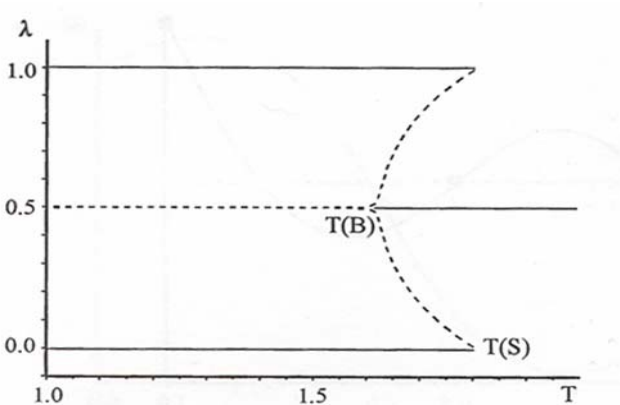
Source: Fujita and Thisse (1997)

In a CP model with a mobile workforce, the cumulative causation takes place between industrial firms and consumers. In Figure 1, forward linkages explain how manufacturing agglomeration incites workers to migrate (left box). Firms’ concentration generates both a fall in the regional price index (the imported goods share decreases) and raises the regional nominal wage (due to increasing competition). The regional real-wage increases attract more workers. This forward linkage takes place through an income effect. Consecutively, migration induces higher industrial expenditures through the growth of regional income. This ‘home market effect’ attracts industrial firms and constitutes the backward linkages.

Consequently, above a certain integration level (i. e. below a given degree of transaction costs), centripetal forces become strong enough to gender a core-periphery scheme among countries. In Graph 1, we describe the integration effects on location, in a two-country model. Falling transaction costs (T) between two regions mean further integration (abscissa). Autarky occurs when T tends towards infinity; whereas T=0 represents perfect economic integration. Dash lines (dotted) represent the stable (unstable) equilibrium situations. When economic relations between countries are weak (on the right side), only one equilibrium exists: the dispersion of economic activities among countries. In this case, half of the industry is located in each economy. There is a trade-off between benefiting from economies of scale in the core region and avoiding paying transaction costs on the one hand and on the other hand the costs

of supplying the core region from the periphery. Firms prefer locating near local demand because of burdensome transaction costs in supplying the foreign market (high T). However, below $T(S)$, concentration becomes sustainable (sustain point S). More integration induces two new equilibrium situations depending on the region where geographical concentration occurs. This concentration phenomenon is catastrophic in a mathematical sense: all modern-sector firms end up in a single country, while desertification occurs in the other. With further integration, dispersion is no longer a stable equilibrium (break point B). Insofar as further integration reduces transaction costs, economies-of-scale advantages counterbalance the cost of supplying the foreign market ($T < T(B)$). Manufacturing concentration thus becomes the only equilibrium (so-called ore-periphery) when integration is strong enough.

Graph 1: Core-Periphery bifurcation



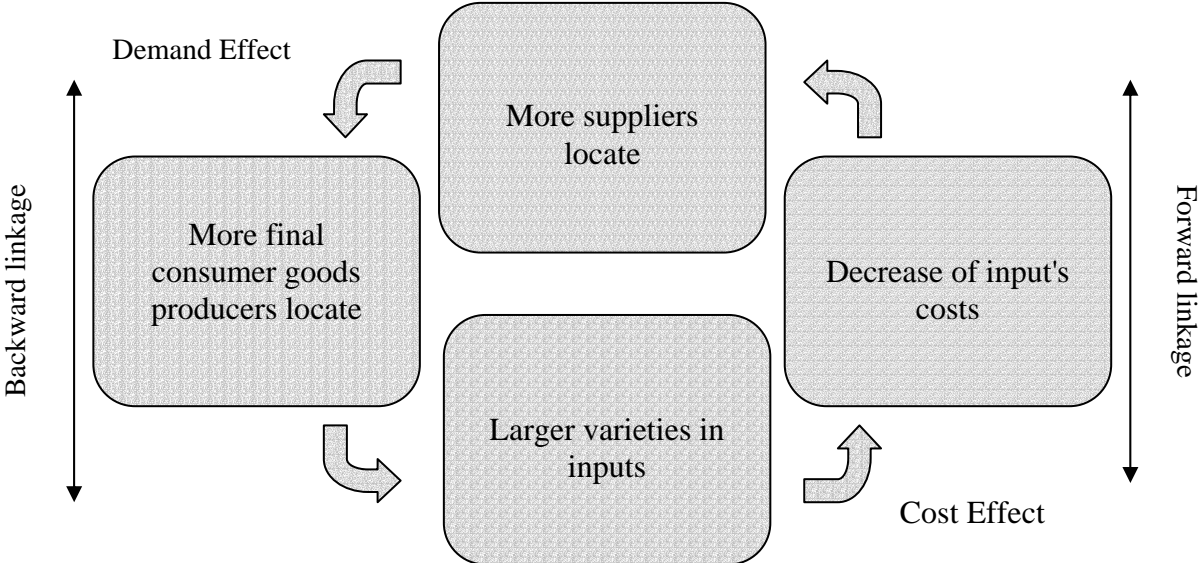
$T(S)$: Sustain point, $T(B)$: Break Point, λ : Industrial share in the region 1
 Source: Fujita et al. (1999)

Applied to Euro-Mediterranean relationships, trade openness could induce more north-south inequalities. At first sight, consequences seem worrisome for Mediterranean integration. However, specifics of the European experience moderate the probability that such an agglomeration process occur. The assumption of geographical mobility of workers used in Core-Periphery models is mostly irrelevant between European countries. These CP-like models are more suited to regional analysis within nations than to study international integration among different nations. Without labour migration, concentration of firms cannot induce any agglomeration in these models. The core-periphery cumulative causation disappears. A second generation of NEG models provides a better explanation of the effects of Euro-Mediterranean Partnership on the location pattern.

2.1.2. Vertical-Linkage models

The VL models describe another agglomeration process based on two main relationships among firms (Krugman and Venables, 1995; Venables, 1996). They assume geographically immobile workers. The cumulative causation then differs. An input-output structure of production is introduced into the manufacturing sector. They distinguish between upstream-supplier and downstream-intermediate-customer firms. Consequently, the forward (backward) linkage describes how agglomeration of supplier (intermediate customer) firms induces concentration of intermediate customer (supplier) firms (Figure 2).

Figure 2: Cumulative Causation in the VL Model



Source: Jennequin (2005)

The forward linkage depicts a *production-cost effect*. More and bigger upstream firms in a location generate an increased variety of intermediate goods at a lower price through the newly exploited externalities. These falling intermediate product prices attract producers of final goods. The following backward linkage is a *demand effect*. Concentration of more downstream firms in this same location has two complementary consequences. On the one hand, it increases the regional wage. On the other hand, production by the relocated firms is no longer imported, and consumers no longer bear the transaction costs for this new variety. Finally, regional manufacturing expenditures rise, attracting more upstream firms.

Clustering of activities is not only explained by the access to customers but also by the access to upstream suppliers through the input-output structure described by Hirschman (1958). Firms take advantage of increasing returns to scale as transaction costs on imported goods fall sharply. Then, these specific forward and backward linkages successfully account for the agglomeration process without labour mobility.

Both Vertical-Linkage and Core-Periphery models conclude that further integration leads to more agglomeration. However, this relation is non-monotonic. Manufacturing agglomeration causes a regional wage differential. Henceforth, the immobility of the workforce cannot equalise the regional remuneration, and wage competition becomes a centrifugal force. At low transaction costs, firms become more and more sensitive to cost differentials, so that the ‘modern’ sector may expand (Puga, 1999). When the first stages of integration occur, forward and backward linkages induce a manufacturing clustering that is self-sustaining. A core-periphery pattern appears and entails differences in regional wages (unlike in CP models where real wages are assumed to be equal). This wage differential is a sufficient condition to justify peripheral location in the last stages of integration. Symmetry takes place again when the labour-intensive activities relocate in low-cost regions. In other words, while demand determinants explain location with high transaction costs, cost considerations dominate with low transaction costs, *i.e.* with further integration.

These models lead to noteworthy consequences for the Euro-Mediterranean Partnership depending on the initial integration level. A shallow partnership would induce an amplified core-periphery pattern. However, further integration could increase the probability that manufacturing spreads out as a result of wage differentials among nations. MPC would then attract low-skilled labour-intensive industries while the highly skilled labour-intensive activities would remain in the core. To sum up, in a first step, integration leads to international divergence in income (a core-periphery pattern); in a second step, sectoral divergence follows across the Euro-Mediterranean countries.

2.1.3. Trading Arrangements and Location

In all these formalisations, integration occurs between two regions or nations. Other models include multi-country schemes to analyse the impact of trading arrangements on location and development. Thus, Puga and Venables (1998) confirm that trade liberalisation modifies the incentives for firms to locate in developing countries with lower labour costs.⁷ In a four-country model (two northern-core and two southern-periphery economies), authors analyse several sets of trade-policy experiments. Assuming exogenous technical progress, they

⁷ This section only analyses work dealing with North-South integration. Rieber and Tran (2004) provide further results about South-South regional integration.

suppose an initial core-periphery pattern⁸ and refer to the North as a single policymaker (identical tariffs) to focus on the South.

As a global result, when tariffs decrease, corresponding with trade liberalisation, the price of imported intermediate goods falls easing access to the large northern market. The last two forces, combined with the initial wage gap, explain industrial development in the southern economies when trading arrangements are deep enough. However, this development is uneven. When wage differentials are sufficiently important, one manufacturing firm spreads over another country (from North to South) to benefit from low labour cost and economies of scale. This setting up of a first firm creates cost and demand linkages, increasing incentives for other firms to choose to locate in that country rather than in the other nation in the South. Thus, only one of the developing countries benefits from manufacturing agglomeration, and spreading industrialisation occurs in a series of waves, from country to country (Puga and Venables, 1999).

More specifically, the authors derive a set of conclusions about the effects of trade liberalisation. On the one hand, unilaterally liberalising import of manufactures can promote development of local manufacturing industry.⁹ On the other hand, the gains coming from liberalisation through preferential trade agreements (PTA) membership are likely to exceed those that can be obtained from unilateral action. More precisely, PTA will be sensitive to the market size of member states, and so North-South PTA seem to offer better prospects for southern economies. However, in this case, North and eventually excluded countries would suffer from this arrangement as lower labour cost activities could locate in southern integrating economies.

In a similar work including tariff revenue and considering an initial even distribution of manufacturing activities, Puga and Venables (1999) show that a rise in tariffs in southern economies offers incentives to local firms to stay in the country and to continue supplying local demand. In the meantime, firms originating from other countries have an incentive to locate in this country. Such a trade policy is similar to an import substitution policy. Comparing this policy with trade liberalisation indicates that while the latter leads to a

⁸ This core-periphery pattern involves no manufacturing activities in the South. This extreme assumption, even if it does not alter theoretical conclusions, modifies the scale of economic development coming from trading arrangements. Indeed, integration can increase the incentives for southern firms to locate in northern economies in the first stage of integration, as shown by CP and VL models. Therefore, these NEG North-South models cannot study potential negative effects at the beginning of integration.

⁹ Recall that southern economies are initially out of manufacturing activities. Therefore, the southern industrialisation process is assimilated just to the capacity of attracting productive activities from North.

presence in a wider range of sectors (manufacturing concentration), the former yields a higher level of welfare (increasing tariff revenue).¹⁰

These models bring further conclusions concerning economic development and catching up for MENA countries. In term of location, the Euro-Mediterranean Partnership would permit the attraction of more low-cost intensive firms. This move induces both a rise in concentration of these sectors (absolute concentration) and a higher specialisation of these countries. Economic growth and catch-up risk to depend strongly on ‘footloose’ activities as is observed in the new EU Members States. Besides, this specialisation does not permit both the attraction of more value added activities and higher sustainable economic growth, in a second phase (Dupuch *et al.*, 2004). Consequently, if the Euro-Mediterranean Partnership can promote southern economic development and raise welfare, the long-run sustainability of this trade policy needs support policies. In their models, Rieber and Tran (2002a, 2002b) emphasize that strong international technology diffusion changes the attractiveness of countries for manufacturing production and can trigger industrial development. Cancelling North protectionist impediments extends positive technological externalities for southern economies and can generate huge beneficial effects. In the same way, in the South, an active industrial policy towards strategic sectors promotes South development, fostering location of high value added activities. NEG models including service sectors strengthen these theoretical recommendations.

2.2. Tertiary Sectors and Economic Development

Catin (1993, 1995) distinguishes between four stages of development: a pre-industrialisation followed by prevalence of low value-added industries; then technological activities emerge, and finally advanced services appear and expand. These successive steps of regional economic development draw attention to the role of services as an engine of growth (in employment and value added) in the North. Previously presented NEG models do not take tertiary activities into account. They consider services as invisible goods, while service firm location just follows manufacturing location.¹¹ Nevertheless, some economists have established formal empirical (Francois and Reinert, 1996) and theoretical (Markusen, 1989; Francois, 1993, 1995; Jayet, 2005; Jennequin, 2005) links between economic growth and

¹⁰ Such models assume an initial core-periphery scheme (i.e.: all industries are located in the North). Therefore, an increase in tariff does not engender relocation of manufacturing activities from South to North.

¹¹ This reasoning is equivalent to saying that if advanced services play a role in geographical distribution of activities, they have similar location behaviour as manufacturing.

advanced services. Economic take-off and catch-up should pass through a phase of increased ability to attract advanced services in southern economies.

More specifically on the subject of location, Catin and Ghio (1999) show that advanced services play a significant role in explaining global geographical distribution of activities. In a three-sector model, Jennequin (2005) associates manufacturing and Knowledge-Intensive Business Services (KIBS), which are supposed to have increasing returns to scale and to produce differentiated output. An input-output structure between them is assumed. The model shows that upstream service activities employing highly skilled mobile workers play a significant role in the design of international economic geography. When integration occurs, KIBS activities located in a country are more favourable to the location of new manufacturing activities than the latter are to attracting more KIBS. In other words, a more efficient development policy consists of promoting KIBS location rather than just attracting manufacturing. Moreover, a raising share of these activities in the southern economies permits the reduction of the dependence of economic growth on cost considerations. Structural advantages would be more efficient to attract firms than wage differentials, in particular in MENA countries, since income gaps narrow with economic development and thus cannot represent a sustained source of growth.

Policies aiming at developing KIBS activities can be either direct or indirect. Fiscal policy or specific European programs promoting KIBS implementation are direct instruments. Indirect instruments are illustrated by improvements into infrastructures or production factors used by KIBS. For instance, in developing countries, telecommunications infrastructures are essential to growth (Röller and Waverman, 2001; Mezouaghi, 2005). In the same way, a highly skilled workforce constitutes a strong characteristic of KIBS activities. Thus, attracting, keeping or training employees with high-level qualifications is essential to ensuring development in MENA countries. These goals could be difficult to attain. Indeed, according to NEG conclusions, integration and facilitation of trade induces a higher probability of concentration of mobile workers in the core regions, and highly skilled workers are precisely the most geographically mobile. MENA countries could suffer in this way from future migration of their highly skilled workforce and experience strong relocation of activities in favour of core countries, both in the KIBS and in the manufacturing production that follows. For these reasons, some MENA countries could be marginalised.

Finally, NEG models bring out some important indications about the impact of integration on location and regional divergence. If integration allows a real revenue rise for MENA

countries, reducing transaction costs for goods and services coming from core European regions, some major risks exist and have to be taken into account to ensure efficiency and success of the Euro-Mediterranean Partnership. Two main conclusions can be stressed in this framework. Firstly, economic development will not be even. Catching-up will occur by *waves* as integration becomes effective. Secondly, advanced services growth is a condition for a *sustainable* economic development, associating not only services but also manufacturing. Political authorities have to take into account the need to attract KIBS activities. Therefore, measures of KIBS concentration become a means both to assess the ability of MENA countries to catch up and to evaluate the impact of economic integration.

Thus, complementarily with manufacturing indexes of national specialisation and sector concentration, the fourth section offers a first evaluation of the services concentration, grouping the EU-25 and the nations involved in the Neighbourhood European Policy (NEP), including the MENA countries. The next section first presents the services activities pattern in MENA countries.

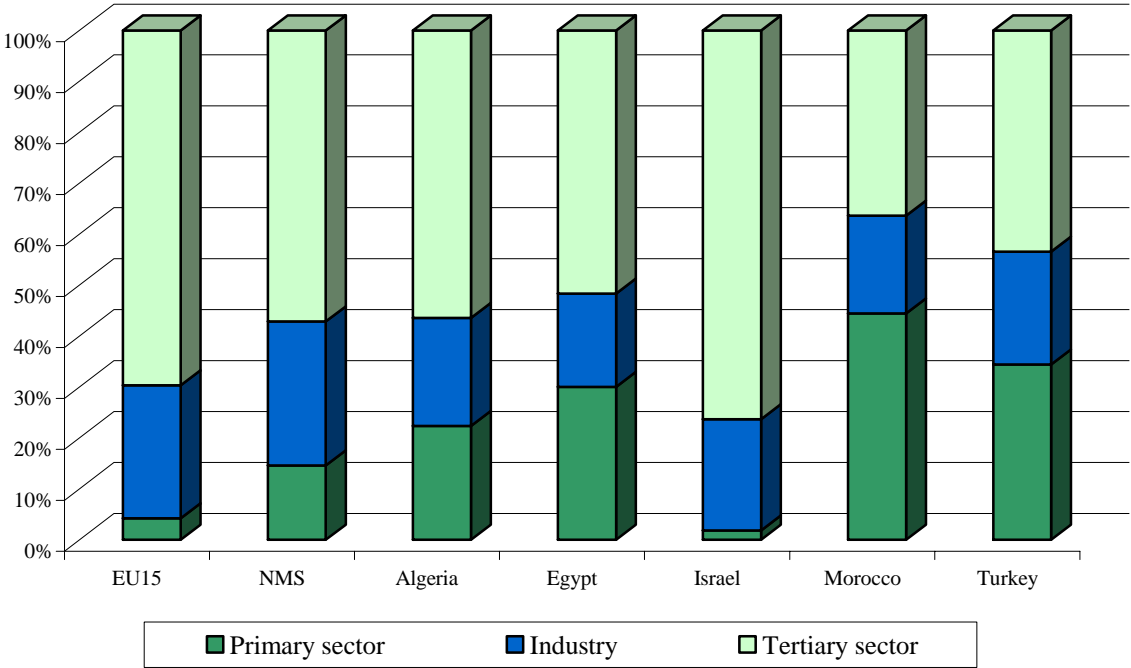
3. The Development of Service Activities in Europe and in MENA Countries

Rabaud and Montalieu (2006) emphasize how difficult it is to find a definition of services, which have traditionally been defined as non-extracting and non-manufacturing activities. The choice of an adequate breakdown of service activities is also tricky. Thus, we have decided to draw on the classification of Konan and Maskus (2006). Based on assessment of impediments to Foreign Direct Investment (FDI) in Tunisia, the authors distinguished between three categories of services, depending on both the extent of competition and the efficiency of available technology in the domestic economy. The first type is characterised by monopolised activities with inefficient technology 'high rent, high cost' (transport, financial intermediation, business services). The second type combines higher competition with inefficient technology 'low rent, high cost' (construction, trade, hotels and restaurants, real estate and repair). The third includes monopolised activities with efficient technology (communications) 'high rent, low cost'. Since we use highly aggregated sector data, we cannot distinguish between transports and communications, or between real estate and business services. Let it be noted in passing that we have followed the World Trade Organisation (WTO) in classifying construction in the secondary sector ('industry'), while

public utilities are included in the tertiary sector and will be considered as a ‘high rent, high cost’ activity. In addition, in order to take into account all service subdivisions of the ISIC (International Standard Industrial Classification) of the United Nations (UN), we have also defined a public services sector that includes public administration, education, health and other social services. We then compare the pattern of services activities in the EU15, NMS and MPC for which data are available.

Regarding the breakdown between the three main activities (primary, secondary, tertiary), while 70 per cent of workers are employed in the tertiary sector in the EU15 and 76 per cent in Israel, only 57 per cent are in the NMS, 56 per cent in Algeria, 52 per cent in Egypt, 43 per cent in Turkey and only 36 per cent in Morocco. Not only the primary sector is still an important activity in the MPC, with more than 30 per cent of employment, except in Algeria (22 per cent) and Israel (2 per cent), but also manufacturing is lagging behind compared with the UE15 and NMS with 22 per cent of the working population in Israel and Turkey, 21 per cent in Algeria, and less than a fifth in Morocco and Egypt. (See Graph 2).

Graph 2: Employment broken down into three activities, in 2003



Source: Authors’ calculations, from UNSCD and STAN

Within the tertiary sector, public services are the most important sector for Algeria (57 per cent), Egypt (53 per cent), Israel (47 per cent) and Morocco (45 per cent) among the MPC, as well as for the EU15 (44 per cent) and NMS (43 per cent). However, the share of health services differs sensibly between the two regions: 14 per cent of service employment in the

EU15 and Israel, 11 per cent in the NMS, 6 per cent in Algeria and Egypt and 5 per cent in Turkey. In opposite, the public administration still employs a sizeable share of active population in the MPC: 28 per cent in Algeria, 22 per cent in Egypt, 14 per cent in Morocco and 13 per cent in Turkey. (See Graph 1.1, Appendix 1).

Regarding market services in the MPC, except for Israel, ‘low rent, high cost’ personal services¹² still employ more workers (44 per cent of service employment in Turkey and 40 per cent in Morocco in line with trade activities linked to tourism and 26 per cent in Algeria and Egypt) than ‘high rent, high cost’ producer services¹³ (21 per cent in Turkey and Egypt, 17 per cent in Algeria and 14 per cent in Morocco). Meanwhile, the employment share of these two sectors is similar in both the EU15 (respectively 27 and 29 per cent) and the MNS (respectively 29 and 28 per cent). Except for Israel (18 per cent), the share of real estate and business services is sensibly lower in MPC (6 per cent in Turkey, 4 per cent in Egypt and Morocco and 2 per cent in Algeria) than in the EU15 (14 per cent) and the MNS (10 per cent). (See Graphs 1.2 and 1.3 in Appendix 1).

4. Changes in Concentration of Service Activities

4.1. Survey of past studies mainly focusing on the EU and manufacturing

Lack of and inconsistencies in data are the norm when dealing with services. Only few papers have analysed the evolution of services concentration. Some studies use both manufacturing (more statistics) and tertiary activities to offer a more exhaustive picture of economical agglomeration. In such a framework, and using French regional employment data, Houdebine (1999) show average decreasing concentration in services from 1978 to 1992. However, these national analyses do not permit the study of integration.

Based on European regional data of value added, Hallet (2000) associates five service sectors with twelve manufacturing sectors from 1980 to 1995. He finds that business services and financial activities have an increasing and higher concentration level than the other services. This result underlines the significant role of tradable tertiary activities in the global geographical distribution of activities.

¹² ‘Low rent, high cost’ personal services include two activities: trade and ‘hotels and restaurants’.

¹³ ‘High rent, high cost’ producer services take in: transport, financial intermediation, real estate and business services and public utilities.

In a more general approach, Gaulier (2003) limits his analysis to the three main sectors: agriculture, industry and services, in Europe. He demonstrates that services activities became more dispersed between 1980 and 1996, while their concentration level surprisingly appeared only slightly lower than in manufacturing.

Midelfart-Knarvik *et al.* (2002) offer a more exhaustive view since they differentiate five services sectors at a national level in Europe. Results differ from those of Hallet (2000). Transport, the only activity showing a rise in concentration, appears at the same time actually dispersed. The highest degree of agglomeration occurs in financial activities and business services, while decreasing from 1980 onward. Adopting the same characteristics as Midelfart-Knarvik *et al.* (2002), Jennequin (2005) confirms these conclusions for a more detailed breakdown of 21 services. He shows that European integration positively influences the concentration level of business services.

However, these studies are still too rare to give a clear picture of services agglomeration. Moreover, regarding services concentration within MENA countries, no descriptive work exists to date. The purpose of this article is to fill this gap.

4.2. Methodology and data

To see how concentration has changed inside the Euro-Mediterranean area during the last ten years, we use two geographical concentration indexes for each services sector. Specifically, we calculate Gini coefficients and Herfindahl sectoral concentration indexes. The geographical concentration indexes indicate which services are the most concentrated and show the evolution of the whole tertiary concentration during the periods considered. Therefore, variations in these indexes point out changes in the spatial distribution of services sectors.

With the Herfindahl index, for the different geographical area considered, we measure the degree of production concentration (employment, value added) in one sector independently of the situation in the other services activities. This index ranges from $1/m$ to 1 for m countries, *i.e.* from the minimum concentration case to the maximum concentration when all production is agglomerated in a single geographical economy. By definition, the larger countries highly influence this concentration index.

To complement this index, we have chosen to include the Krugman relative index in a Gini coefficient. If production (calculated here in terms of employees) is divided equally between the different areas, the coefficient will assume value 0, while it will take on value 1 in the case of maximum inequality when all production is concentrated in only one area.

The absolute Herfindahl index and the relative Gini coefficient are complementary and offer a more accurate view of both the concentration level and the changes in dispersion of activities. For instance, the two sectors can show an identically high value of absolute concentration (Herfindahl index) or relative concentration (Gini coefficient), while agglomeration does not occur in the same geographical areas. An increase (decrease) in the absolute index (Herfindahl index) can be associated with a fall (rise) in the relative indicator (Gini coefficient), which means that the firms in this sector agglomerate (disperse) and that this agglomeration (dispersion) leads to greater convergence (divergence) with the pattern of concentration in the other sectors.

We use United Nations Statistics Common Database (UNSCD). More specifically, we rely on the *Yearbook of Labour Statistics* of the International Labour Organisation (ILO) for employment data. Gross value added data are extracted from National Accounts Yearbook Database. Data are in ISCI3 nomenclature. Statistics are broken down into 17 sectors (12 services) as shown in sectoral pattern presented in paragraph 3. Nevertheless, data are lacking for some MENA countries. In particular, there is no employment data for Jordan, Lebanon, Syria or Tunisia. Moreover, Turkish data are only available from 2000 on. As a substitute for missing information, we have drawn on statistics from the OECD's database STAN (STructural ANalysis).

4.3. Concentration of services activities assessment

We have calculated Herfindahl and Gini indexes for employment and value added in services of the fifteen EU Members prior 2004, the ten NMS (except Malta for value added). For value added, data were also available for an acceding country (Bulgaria), two candidate countries (Croatia and the former Republic of Macedonia), three MENA countries (Egypt, Israel and Tunisia) and five other Neighbourhood European Policy Countries¹⁴ (ONEPC) (Armenia, Belarus, Georgia, Republic of Moldova and Ukraine). For employment, information was provided for two acceding countries (Bulgaria and Romania), one candidate country (Croatia), five MENA countries (Algeria, Egypt, Israel, Palestine and Turkey) and four ONEP countries (Azerbaijan, Georgia, Republic of Moldova and Ukraine).

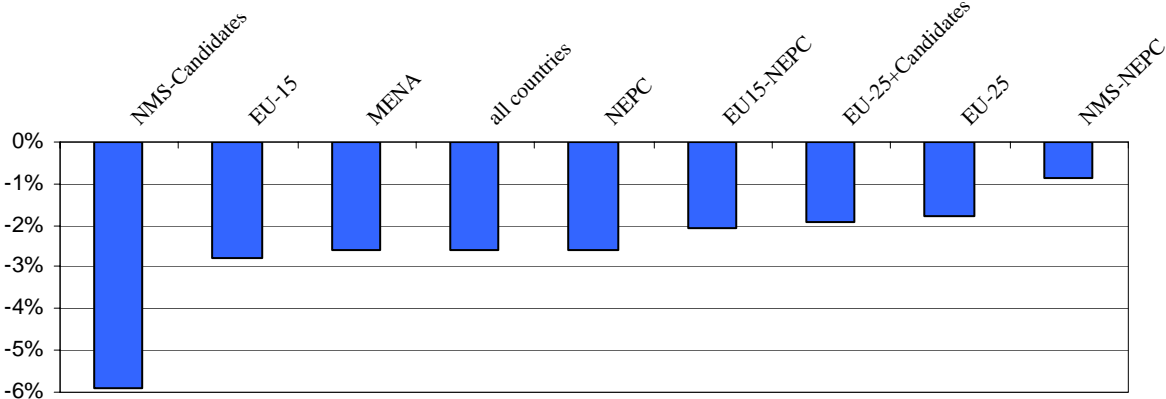
For both statistics of employment and value added, we have deduced two ratios from our two concentration indexes. First, for total services, we have calculated the variation of both indexes between 1999-2000 and 2003-2004 for employment and between 1994-1995 and

¹⁴ Other Neighbourhood European Policy Countries (ONEPC) include economies belonging to NEP but non-MENA countries.

2002-2003 for value added. Second, for several group of countries, we have calculated the ratio of each service sector concentration to the degree of concentration of total services for each period.

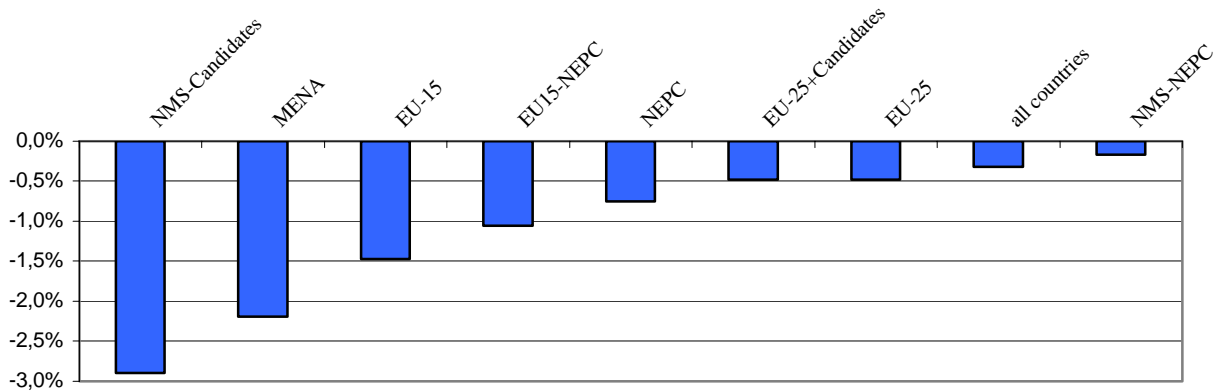
Regarding total services for employment, both Herfindahl and Gini indexes have fallen between 1999-2000 and 2003-2004. This reflects a more even distribution of activities inside the EU15, NMS and MENA countries (left side of Graph 3 and Graph 4). However, when it comes to heterogeneous groups (right side of Graph 3 and Graph 4), the reduction of concentration is more fragile. In other words, differences in degrees of concentration remain, and thus convergence is much slower than for the previous individual zones, each of which corresponding to a distinct regional trade area. This is particularly true when comparing the NMS either to MENA or to ONEPC. As for value added in total services, results are dichotomised. Concentration drops as soon as the EU15 is included in the group of countries, reflecting mostly convergence inside the EU15 (left side of Graph 5 and Graph 6), whereas concentration increases when the EU15 is excluded (right side of Graph 5 and Graph 6), the rise being particularly marked between NMS and OENPC.

Graph 3: Variation in Herfindahl index - employment - tertiary sector - 99-00 to 03-04



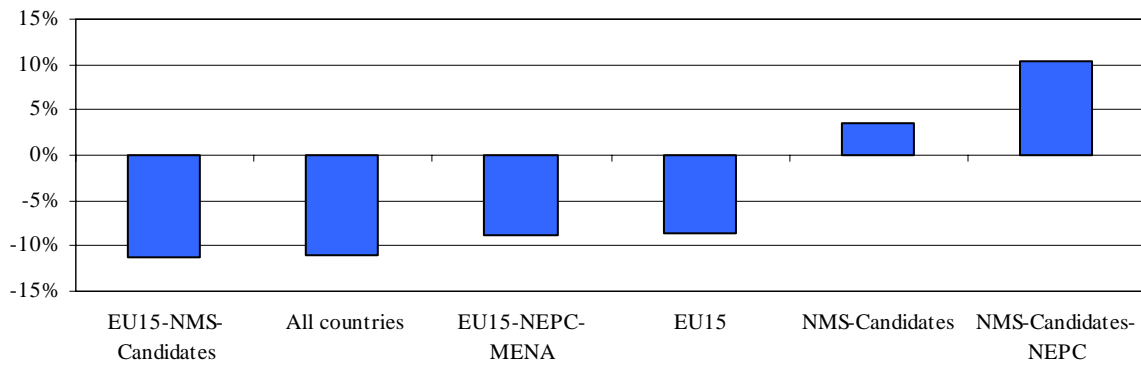
Source: Authors' calculations, from UNSCD and STAN

Graph 4: Variation in Gini coefficient - employment - tertiary sector - 99-00 to 03-04



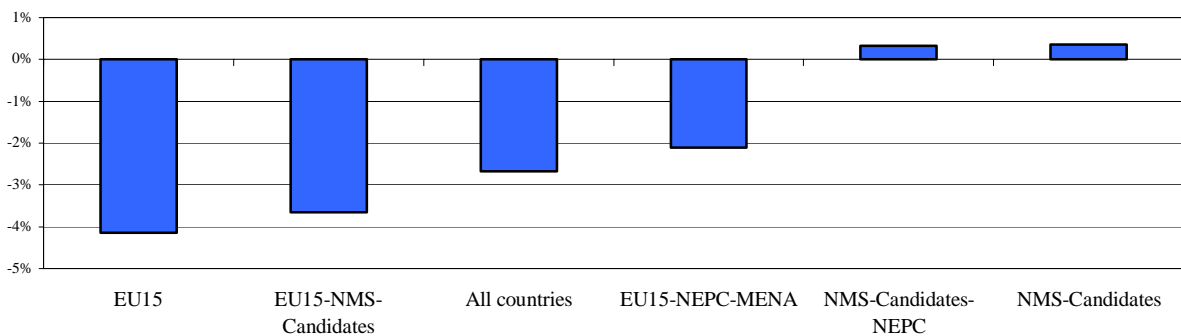
Source: Authors' calculations, from UNSCD and STAN

Graph 5: Variations in Herfindahl index - value added - tertiary sector - 94-95 to 02-03



Source: Authors' calculations, from UNSCD and STAN

Graph 6: Variation in Gini coefficient - value added - tertiary sector - 94-95 to 02-03

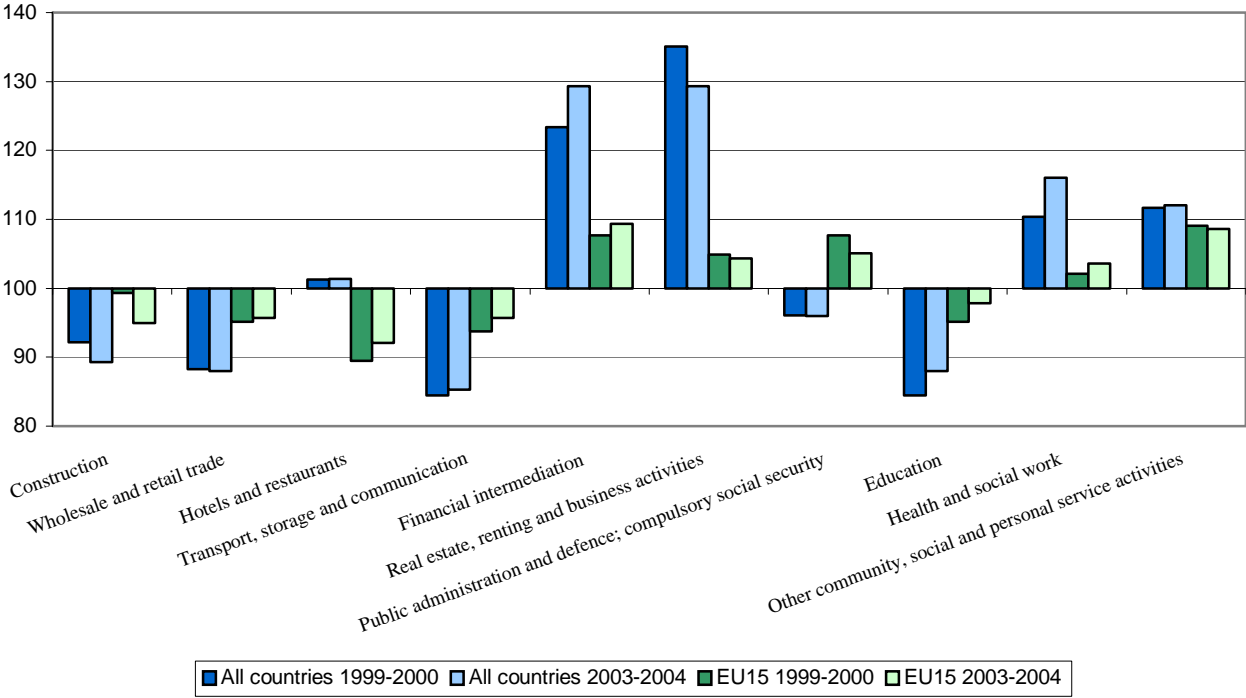


Source: Authors' calculations, from UNSCD and STAN

As for the second ratio (the gap between each service activity and average service concentration), we compare heterogeneity in sector concentration and not the level of concentration. From Graph 7 and Graph 8, for the employment criterion, distribution of

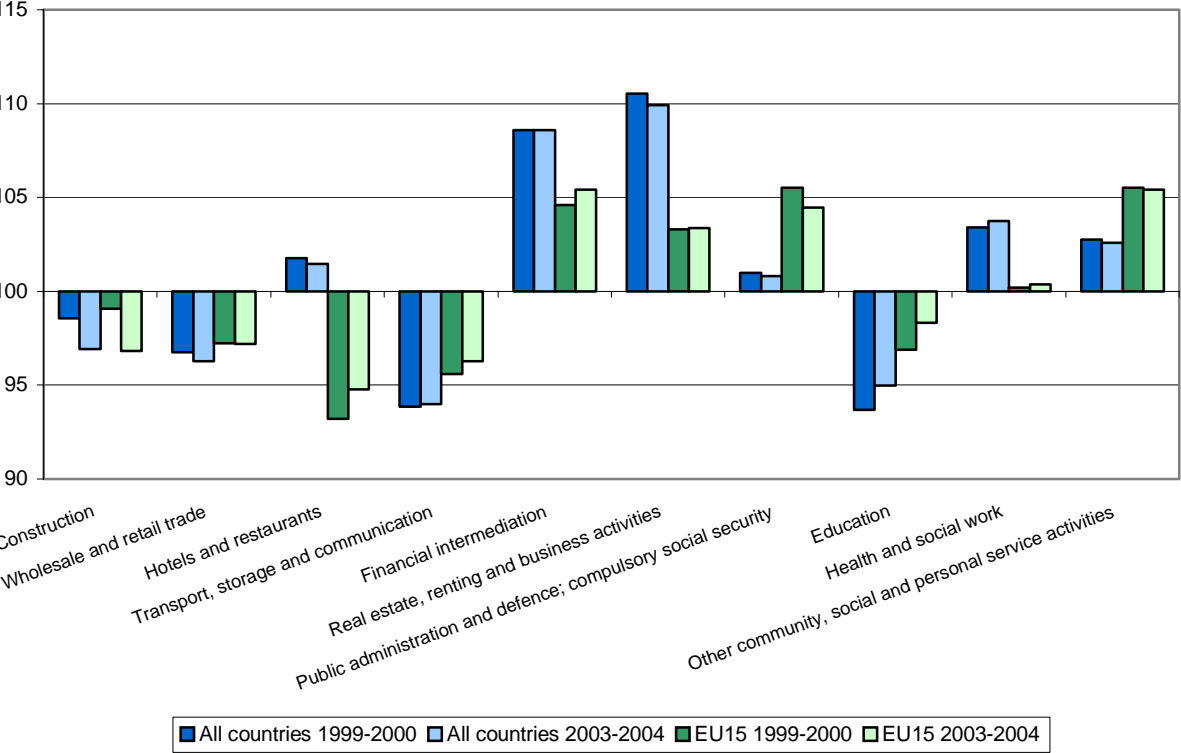
services activities appears more homogeneous inside the EU15 than within all countries of our sample taken together. For the widest group, financial intermediation and ‘real estate and business services’ appear to be the most concentrated activities. Changes between the two time-periods turn out to be weak, except for education. Based on Herfindahl indexes, within the group of 37 countries, relative concentration rises in health services and financial intermediation; meanwhile Gini coefficients are relatively steady. Thus, in those two activities, absolute concentration increases: firms locate in fewer countries and in so doing, get closer to the relative concentration, *i.e.* average sectoral concentration.

Graph 7: Herfindahl index - employment - average gap - all countries - EU15 - 99-00 02-03



Source: Authors’ calculations, from UNSCD and STAN

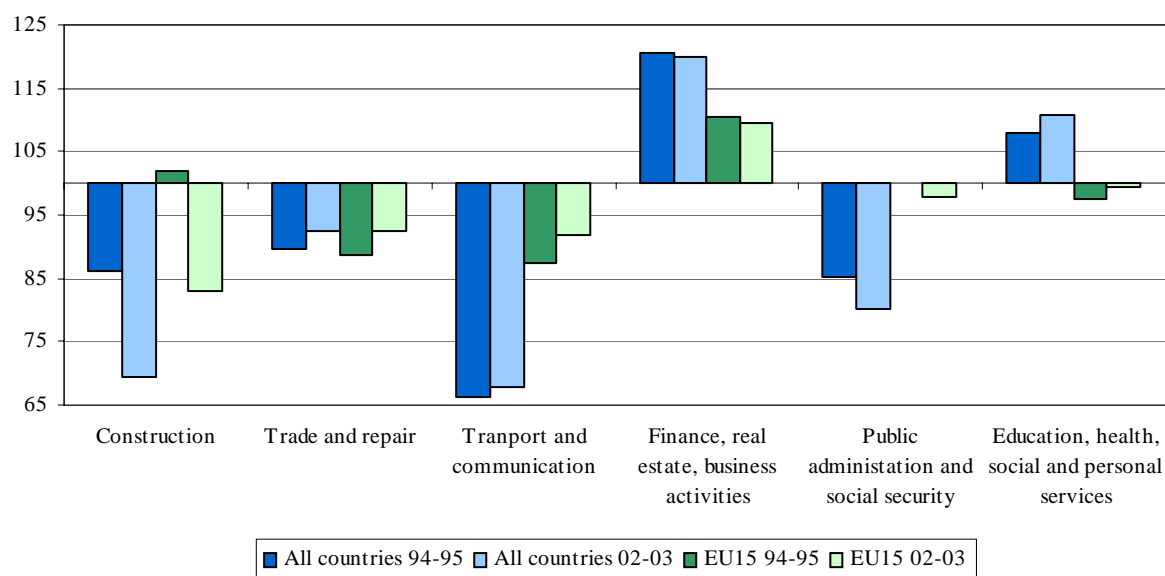
Graph 8: Gini coefficient - employment - average gap - all countries - EU15 - 99-00 02-03



Source: Authors' calculations, from UNSCD and STAN

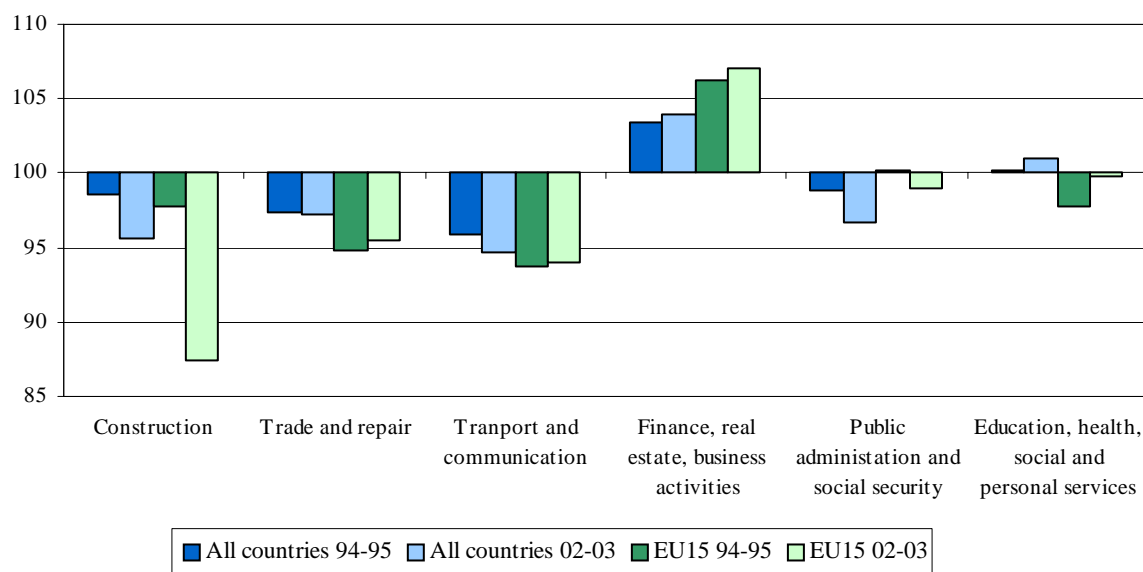
The same outcome is also observed using value added instead of employment: ‘financial intermediation, real estate and business activities’ appears both as the most concentrated activity inside the EU15 and within the widest group and as the only one in which concentration grows; except for construction, time-variations are weak; concentration increases. (See Graph 9 and Graph 10).

Graph 9: Herfindhal index - value added - average gap - all countries - EU15 - 94-95 02-03



Source: Authors' calculations, from UNSCD and STAN

Graph 10: Gini coefficient - value added - average gap - all countries - EU15 - 94-95 02-03

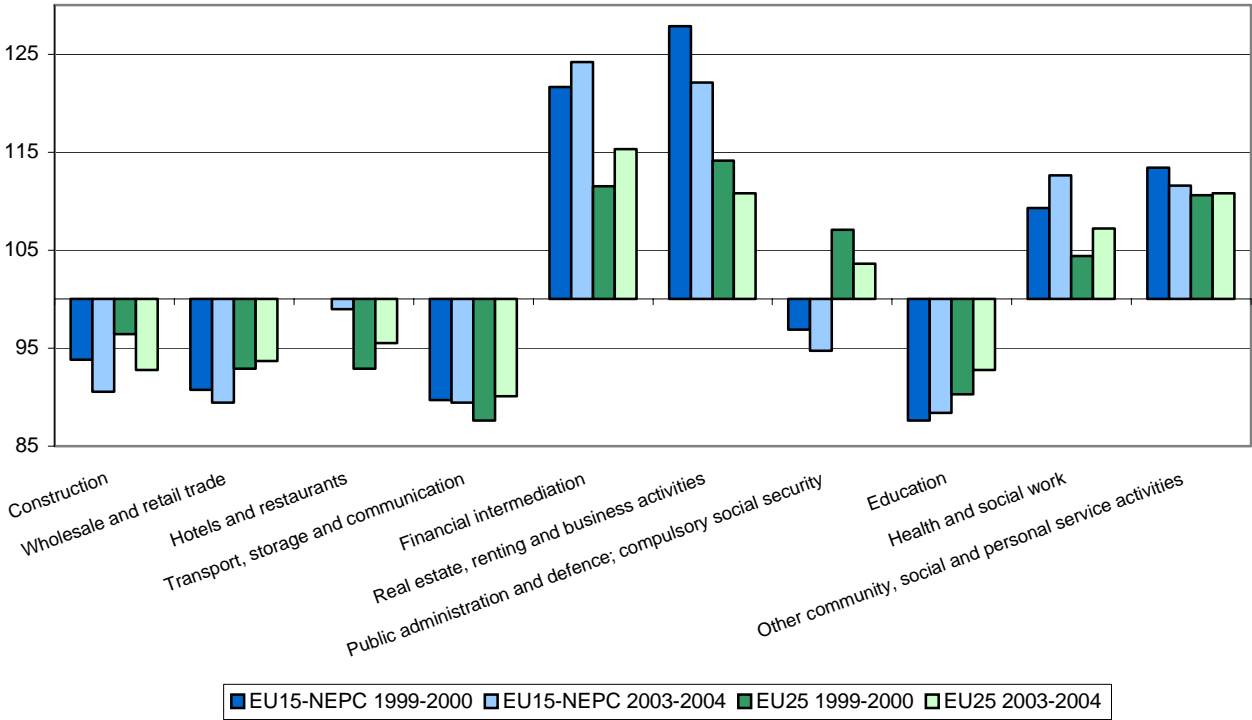


Source: Authors' calculations, from UNSCD and STAN

Relying on employment data, within the group of 'EU15 + NEPC (Neighbourhood European Policy Countries)' relative concentration appears the highest in financial intermediation and 'real estate and business services', while geographical distribution in those activities is more homogeneous inside the EU25. Thus, these two enabling services concentrations are really heterogeneous between the NEPC and EU. The NEPC countries do not seem to converge

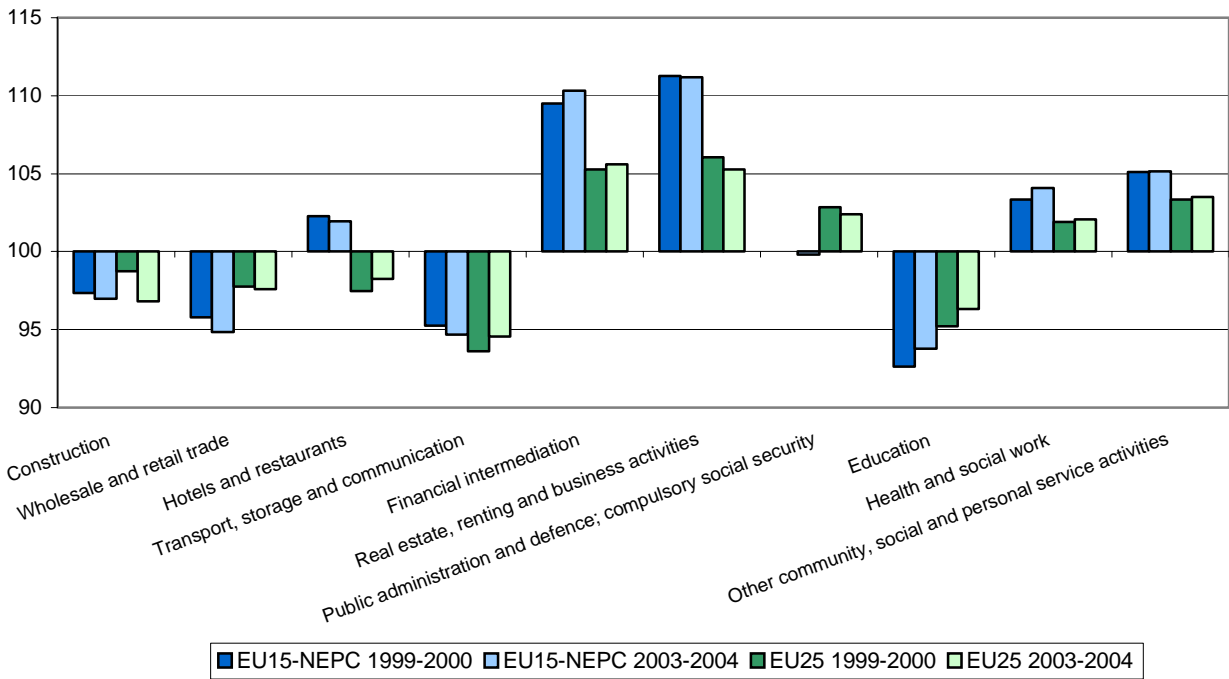
inasmuch as this concentration gap remains stable. The Euro-Mediterranean region is still characterised by a core-periphery scheme (see section 2). Compared to the EU25, ‘hotels and restaurants’ show a stronger relative concentration inside the group ‘EU15 + NEPC’. This outcome is partly linked to the important share of these activities in the MPC (see section 3) which increase concentration. The second result illustrates sectoral divergence in location of services activities between the NEPC and EU. Traditional (labour-intensive) services predominate inside the NEPC, whereas high value-added services are still poorly implemented. This result contrasts with the growing share of high value-added business services observed within the EU. (See Graph 11 and Graph 12).

Graph 11: Herfindahl index - employment - average gap - EU15-NEPC - EU25 - 99-00 02-03



Source: Authors’ calculations, from UNSCD and STAN

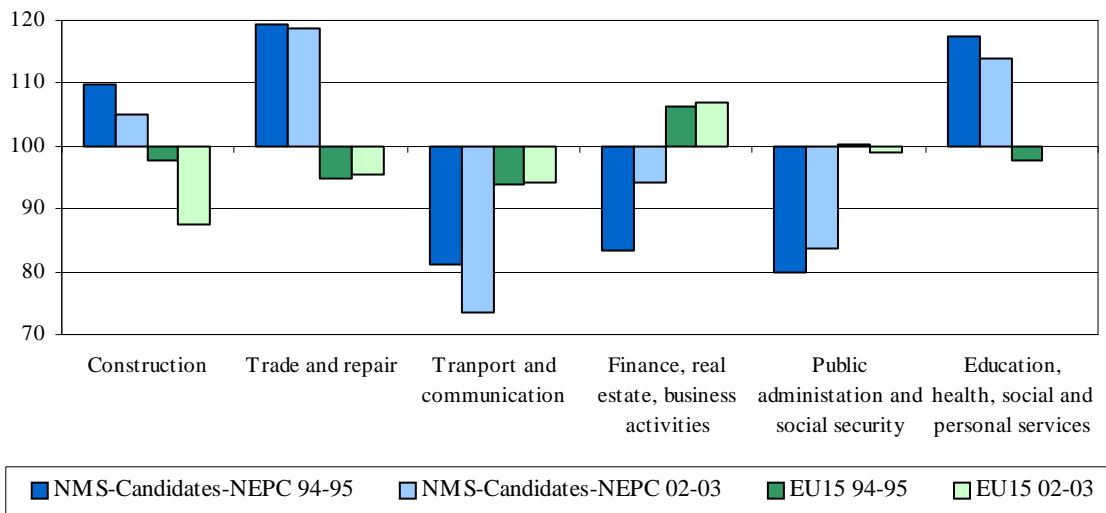
Graph 12: Gini coefficient - employment - average gap - EU15-NEPC - EU25 - 99-00 - 02-03



Source: Authors' calculations, from UNSCD and STAN

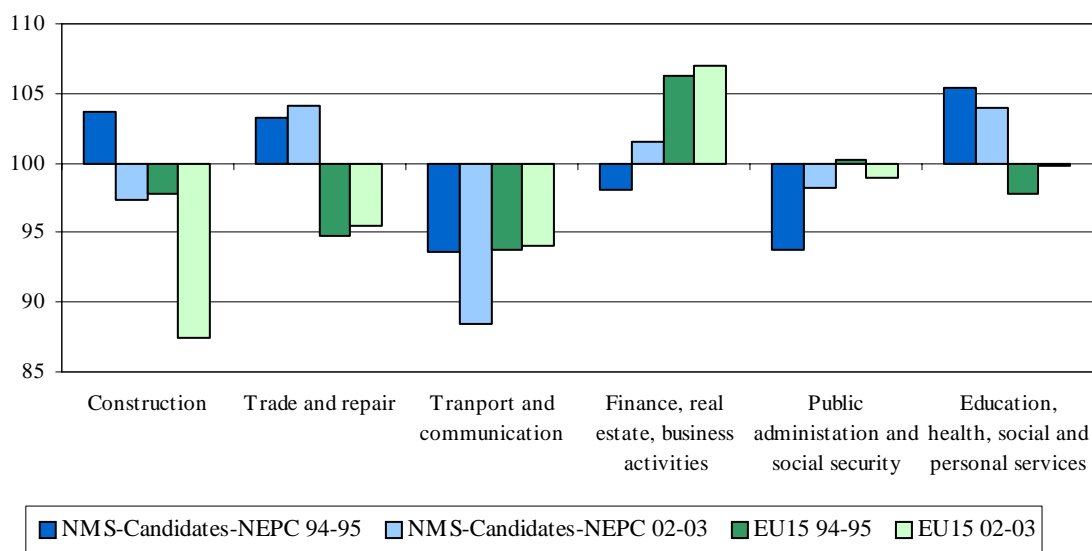
Using value added, 'trade and repair' and 'education, health, social and personal services' show the highest relative concentration in non-EU15 countries, while these activities display a homogeneous concentration inside the EU15. Within non-EU15 countries, relative concentration of 'transport and communication' has measurably fallen over time, while it remained steady inside the EU15. (See Graph 13 and Graph 14).

Graph 13: Herfindhal index - value added - average gap - EU15 - non EU15 - 94-95 02-03



Source: Authors' calculations, from UNSCD and STAN

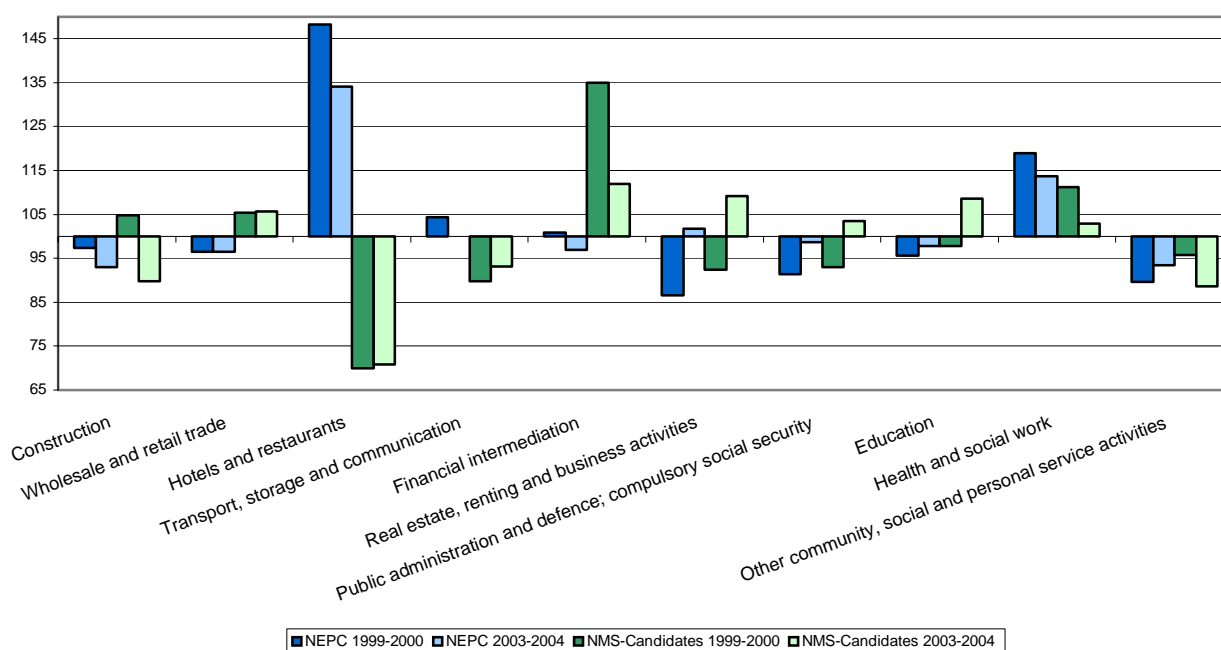
Graph 14: Gini coefficient - value added - average gap - EU15 - non-EU15 - 94-95 02-03



Source: Authors' calculations, from UNSCD and STAN

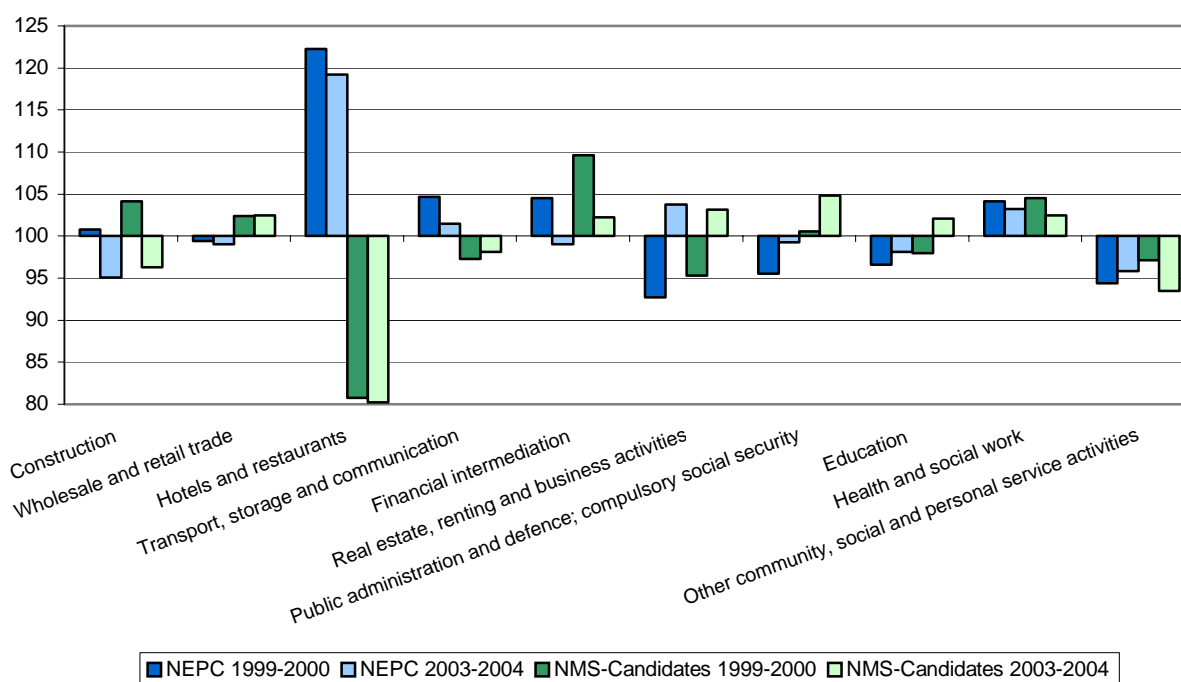
Relying on employment data, relative concentration strongly diverge in NMS compared to MENA countries. More specifically, while financial intermediation exhibits a sharp (though decreasing) relative degree of concentration inside the NMS, it appears to be dispersed in the NEPC. The converse holds for 'hotels and restaurants', where the contrast is even more marked and may reflect an important element of MPC heterogeneity. (See Graph 15 and Graph 16).

Graph 15: Herfindahl index - employment - average gap - ENPC - NMS Candidates - 99-00 02-03



Source: Authors' calculations, from UNSCD and STAN

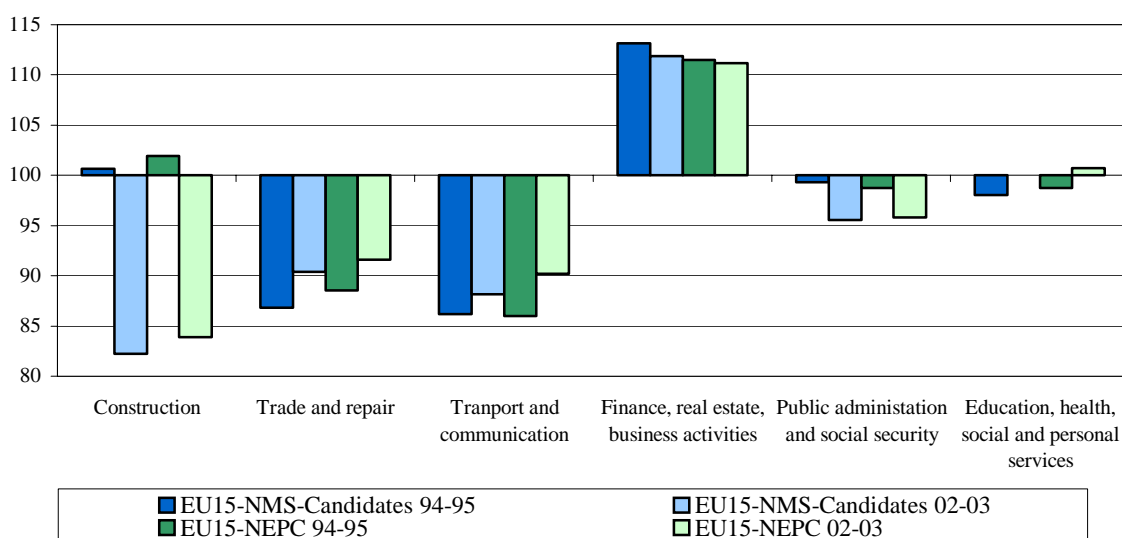
Graph 16: Gini coefficient - employment - average gap - ENPC - NMS+Candidates - 99-00 02-03



Source: Authors' calculations, from UNSCD and STAN

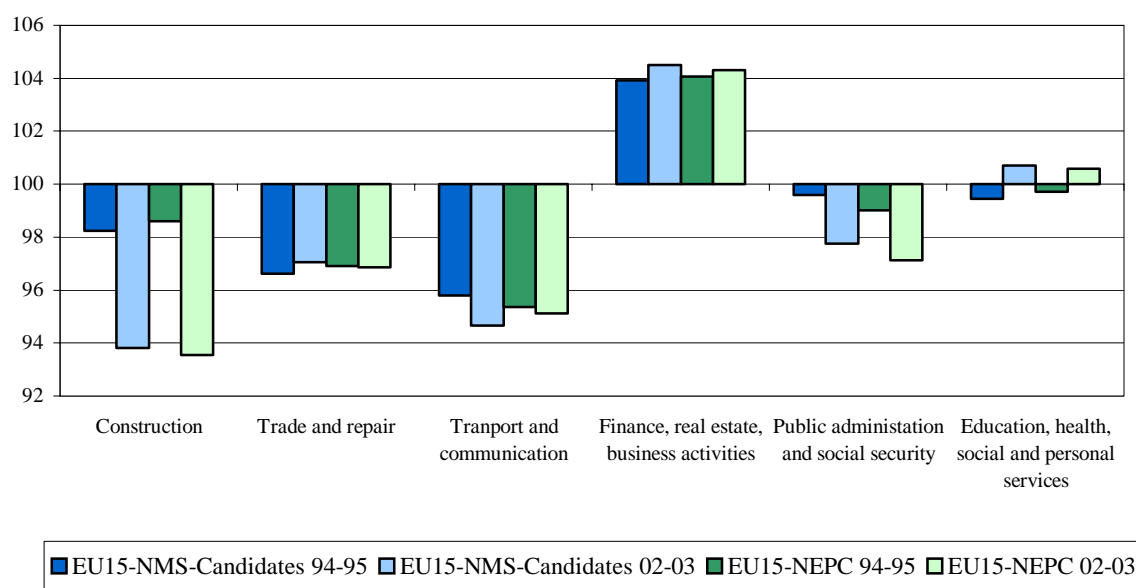
Using value added, the two last figures (Graph 17 and Graph 18) highlight the amazing similarity between relative concentration inside the group 'EU15-NMS-Candidates countries' and the area 'EU15-NEPC', for each service sector. This result is linked to the convergence process (decreasing concentration) inside the EU15, which dominate all other effects; thus, all other evolutions are masked.

Graph 17: Herfindahl index - value added - average gap - EU15-NMS-Candidates - EU15-NEPC 94-95 02-03



Source: Authors' calculations, from UNSCD and STAN

Graph 18: Gini coefficient - value added - average gap - EU15-NMS-Candidates - EU15-NEPC 94-95 02-03



Source: Authors' calculations, from UNSCD and STAN

5. Policy Recommendations

This article proposes three recommendations.

First, the EC (EUROSTAT) should provide assistance to MPC national statistical institutes to improve the availability and the quality of their statistics, in particular in employment and value added. Lack of data is an obstacle to making a good assessment of the state of development of MPC services activities.

Second, when it comes to enabling services, growth in such highly skilled labour-intensive and increasing-returns activities is a precondition for a sustainable economic development as they provide an incentive to agglomerate, not only for other services firms but also for manufacturing industries. Indicators of services concentration show that, despite increased economic integration, the MPC have not yet caught up with the EU15 or with the NMS. Consequently, the EU should support MPC efforts to strengthen their services sector, in particular in enabling services. The southern Mediterranean partners should remain a priority in the Neighbourhood European Policy (NEP).

Third, insofar as key enabling services develop by waves, some southern Mediterranean countries may lag behind others. The EC should carefully seek to avoid such increases in inequalities within the MPC.

6. Conclusions

Beginning only in early 1990s, analyses of the New Economic Geography theory (NEG) offer many insights for dealing with the need of the MPC to build strong enabling infrastructure services. Associated with falling coordination costs, not only do such activities foster international fragmentation of production in manufacturing, but also the implementation of a strong network of knowledge-intensive increasing-returns business services (KIBS), gendering agglomeration economies that attract foreign manufacturing firms.

Currently, services activities appear to be more evenly distributed inside trade areas (the EU15, NMS and MPC) than within the Euro-Mediterranean zone, where levels of concentration still differ: convergence is much slower there than inside the individual zones. Concentration is time-decreasing when the EU15 is included, reflecting mostly intra-EU15 convergence.

Among services, concentration is the most important in financial intermediation and business services. In 'hotels and restaurants', relative concentration is stronger inside the groups NEPC and 'EU15 + NEPC' than within the EU25 or NMS, illustrating sectoral divergence in location of services activities between the EU and NEPC. This outcome is particularly well founded for MENA countries where these hotels and restaurants are exceptionally important industries. Traditional (labour-intensive) services predominate inside the NEPC, whereas high value added services are still poorly implemented. Thus, insofar as spatial distribution of industries differs between the NMS and MPC, concentration occurs by waves when economic integration deepens.

Inasmuch as a highly skilled workforce is an important element of enabling services, attracting, keeping or training employees with high-level qualifications appear essential to ensure development in MENA countries. Thus, further research should focus on labour issues, in particular on migration. Then, the drawbacks (brain drain) and the advantages of migration (financial support via workers remittances) should be reassessed.

Abbreviations and Acronyms

CP	Core-Periphery
EC	European Commission
EU	European Union
FDI	Foreign Direct Investment
FTAA	Free Trade Association Agreements
ILO	International Labour Organisation
ISIC	International Standard Industrial Classification
KIBS	Knowledge Intensive Based Services
MENA	Middle East and North African
MPC	Mediterranean Partners Countries
NEG	New Economic Geography
NEP	Neighbourhood European Policy
NEPC	Neighbourhood European Policy Countries
NMS	New Member States
OECD	Organisation for Economic Cooperation and Development
ONEPC	Other Neighbourhood European Policy Countries
PTA	Preferential Trade Agreements
STAN	Structural Analysis (database of the OECD)
UN	United Nations
UNSCD	United Nations Statistics Common Database
VL	Vertical-Linkage
WTO	World Trade Organisation

Bibliography

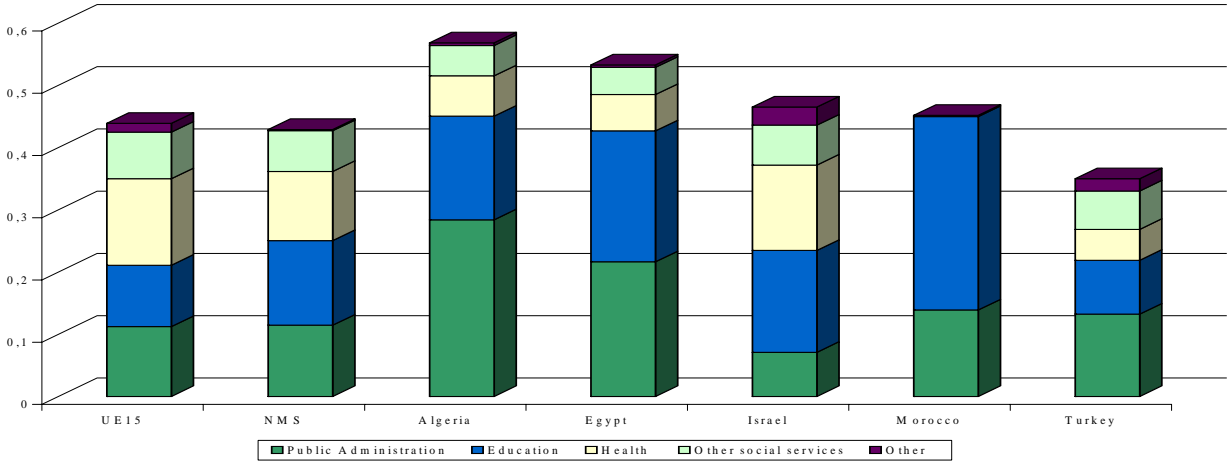
1. Amiti, M. and C. Pissarides (2002), Trade and Industrial Location with Heterogeneous Labour, *Discussion Paper Centre for Economic Performance*, No. 0541, August.
2. Baldwin, R. (1994), *Towards an Integrated Europe*, Centre for Economic Policy Research, London.
3. Baldwin, R. (2001), Core-Periphery Model with Forward-looking Expectations, *Regional Science and Urban Economics*, Vol. 31, pp. 21-49.
4. Baldwin, R., R. Forslid, P. Martin, G. Ottaviano and F. Robert-Nicoud (2003), *Economic Geography and Public Policy*, Princeton University Press, Princeton.
5. Catin, M. and Ghio S. (1999), Les étapes du développement régional : un modèle d'économie géographique, in Catin M., J.Y. Lesueur and Y. & Zenou Y. (Eds.), *Emploi, Concurrence et concentration spatiales*, Paris, Economica, chapter 10, pp. 245-277.
6. Catin, M. (1993), Performances à l'exportation, structures de production et niveaux de développement des régions, *Revue d'Economie Régionale et Urbaine*, No. 4, pp. 633-647.
7. Catin, M. (1995), Les mécanismes et les étapes de la croissance régionale, *Région et Développement*, 1, pp. 11-28.
8. Combes, P.P. and H. Overman (2004), The spatial distribution of economic activities in the European Union, (chapter 64), in: J.V. Henderson and J.F. Thisse (Eds.), *Handbook of Urban and Regional Economics*, Volume IV. Amsterdam, North Holland, pp. 2845-2909.
9. Dupuch, S., H. Jennequin and E. M. Mouhoud (2004), EU enlargement: what does it change for the European economic geography?, *Revue de l'OFCE*, special Issue No. 29, April, pp. 241-274.
10. Francois, J. (1993), Imperfectly Competitive Financial Markets and Financial Market Integration, *Research Division Working Paper U.S. International Trade Commission*, No. 92-08-a.
11. Francois, J. (1995), Dynamic Effects of Trade in Financial Services, *International Economic Journal*, Vol. 9, No. 3, Autumn, pp. 1-14.
12. Francois, J. and K. Reinert (1996), The Role of Services in the Structure of Production and Trade: Stylised Facts from a Cross-Country Analysis, *Asia-Pacific Economic Review*, Vol. 2, No. 1, May.
13. Fujita, M., P. Krugman and A. Venables (1999), *The Spatial Economy. Cities, Regions and International Trade*, MIT Press, Cambridge, MA.
14. Fujita M. and J.F. Thisse (1997), Economie géographique, problèmes anciens et nouvelles perspectives, *Annales d'Economie et de Statistiques*, No. 45, pp.37-87.
15. Gaulier, G. (2003), Spécialisation et productivités des régions européennes, *Région et Développement*, No. 17-2003, pp. 161-180.
16. Gordo, E., M. Gil and M. Pérez (2003), Los Efectos De La Integración Económica Sobre La Especialización y Distribución geográfica de la actividad industrial en los países de la UE, *Documento Ocasional* No. 0303, Banco de España, servicio de estudios, Madrid.
17. Haaland, J.I., H.J. Kind, K.H. Knarvik and J. Torstensson (1999), What Determines the Economic Geography of Europe?, *CEPR Discussion Paper*, No. 2072.
18. Hallet, M. (2000), Regional Specialisation and Concentration in the EU, Economic Paper n°141, DG for Economic and Financial Affairs, European Commission.
19. Hirschman, A.O. (1958), *The strategy of economic development*, New Haven, Yale University Press.
20. Hoekman, B., (1998), Free Trade and Deep Integration: Antidumping and Antitrust in Regional Agreements, *World Bank Policy Research Working Paper*, July, No. 1950, 49 p.
21. Houdebine, M. (1999), Concentration Géographique des Activités et Spécialisation des Départements Français, *Économie et Statistique*, n°326-327, pp. 189-204.
22. Jayet, H. (2005), Évolutions sectorielles et évolutions géographiques, *Les Cahiers du Plan*, No. 5, May, pp. 49-58.

23. Jennequin, H. (2005), *La localisation des activités tertiaires : un enjeu économique majeur*, PhD thesis in economics, Paris XIII University, December, 333 p.
24. Konan, D.E. and K.E. Maskus (2006), Quantifying the Impact of Services Liberalization in a Developing Country, *Journal of Development Economics*, Vol. 81, No. 1, October, pp. 142-162.
25. Krugman, P. and Venables A. (1995), Globalization and the Inequality of Nations, *The Quarterly Journal of Economics*, Vol. CX, Issue 4, 11/95, pp. 857-879.
26. Krugman, P. (1980), Scale Economies, Product Differentiation and the Pattern of Trade, *American Economic Review*, Vol. 70, pp. 950-959.
27. Krugman, P. (1991), Increasing Returns and Economic Geography, *Journal of Political Economy*, Vol. 99, pp. 483-499.
28. Ludema R. and I. Wooton (1999), Regional Integration, Trade, and Migration: Are Demand Linkage Relevant in Europe?, in: R. Faini, J. de Melo and K. Zimmermann (Eds.), *Migration, the Controversies and the Evidence*, CEPR, London.
29. Markusen, J. (1989), Trade in Producer Services and in Other Specialized Intermediate Inputs, *American Economic Review*, Vol. 79 No. 1, pp. 85-95.
30. Mezouaghi, M. (2005), Libéralisation des services de télécommunications au Maghreb : transition institutionnelle et performances, *Notes et Documents, Agence Française de Développement*, No. 23.
31. Midelfart-Knarvik K.H., H. Overman, S. Redding and A. Venables (2002), The location of European Industry, *European Economy*, No. 2, pp. 216-273.
32. Myrdal, G. (1957), *Economic theory and under-developed regions*, Duckworth, London.
33. Neary, J. (2001), Of hype and hyperbolas: introducing the new economic geography, *Journal of Economic Literature*, Vol. 39, No. 2, June, pp. 536-561.
34. Ottaviano, G. and D. Puga (1998), Agglomeration in the Global Economy: a Survey of the New Economic Geography, *The World Economy*, Vol. 21, pp. 707-731.
35. Ottaviano, G. and J.F. Thisse (2001), On Economic Geography in Economic Theory: Increasing Returns and Pecuniary Externalities, *Journal of Economic Geography*, No. 1, pp. 153-179.
36. Ottaviano, G. and J.F. Thisse (2004), Agglomeration and Economic Geography, in: J.V. Henderson, J.F. Thisse (Eds.), *Handbook of Regional and Urban Economics*, Volume IV, Amsterdam, North-Holland, pp. 2564-3608.
37. Puga D. (1999), The rise and fall of regional inequalities, *European Economic Review*, (43)2, pp. 303-334.
38. Puga, D. and A. Venables (1998), Trading arrangements and industrial development, *The World Bank Economic Review*, Vol. 2 No. 2.
39. Puga, D. and A. Venables (1999), Agglomeration and Economic Development: Import Substitution versus Trade Liberalization, *Economic Journal*, Vol. 109, No. 455, pp. 292-311.
40. Rabaud, I. and T. Montalieu (2006), Trade in services: how does it work for MENA countries?, *Working paper Go-EuroMed project*, November 2006, DR LEO 2006-30, 26 p.
41. Rieber, A. and T. Tran (2002a), Technology diffusion, North-South spillovers and industrial location, *Journal of Economic Development*, Vol. 27 No. 1, June, pp. 25-40.
42. Rieber, A. and T. Tran (2002b), Stratégies de politique commerciale pour une sortie de la trappe de sous-développement, *Revue Economique*, Vol. 53 No. 2.
43. Rieber A. and T. Tran (2004), Intégration régionale sud - sud et répartition intra-zone des activités, *Revue Economique*, Vol. 55 No. 1.
44. Röller L. and L. Waverman (2001), Telecommunications infrastructure and economic development: a simultaneous approach, *American Economic Review*, 91 (4), p.909-923.
45. Scitovsky, T. (1954), Two concepts of external economies, *Journal of Political Economy*, Vol. 62, pp. 143-51.

46. Tabuchi, T. and J.F. Thisse (2002), Taste Heterogeneity, Labor Mobility and Economic Geography, *Journal of Development Economics*, Vol. 69 No. 1, October, pp. 155-177.
47. Venables, A.J. (1996), Equilibrium Locations of Vertically Linked Industries, *International Economic Review*, Vol. 37, pp. 341-359.

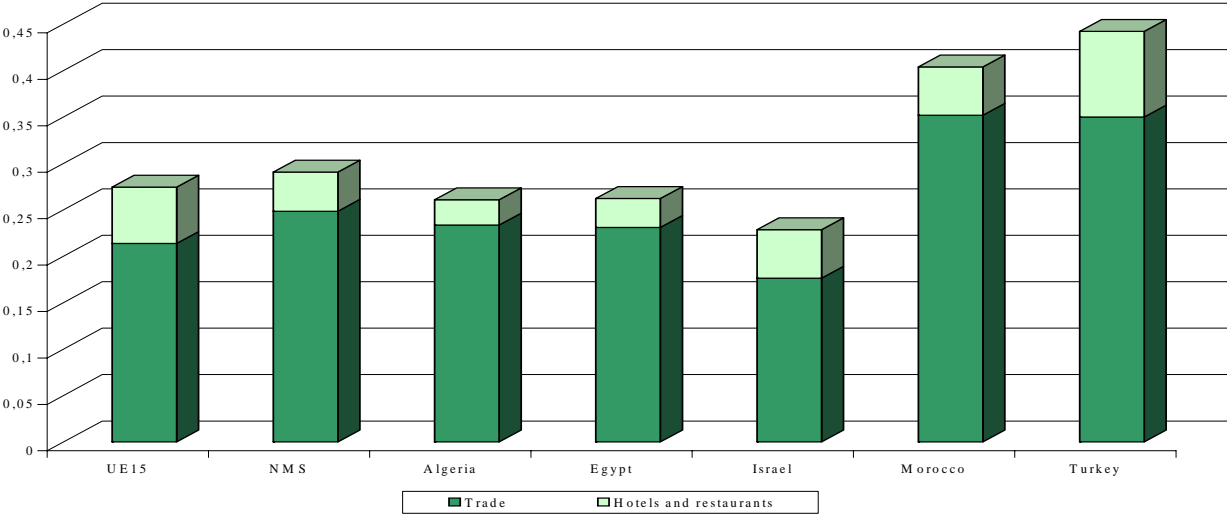
Appendix 1: Share of services in total service employment, EU15, NMS and MPC, 2003.

Graph 1.1: Public services, share, 2003



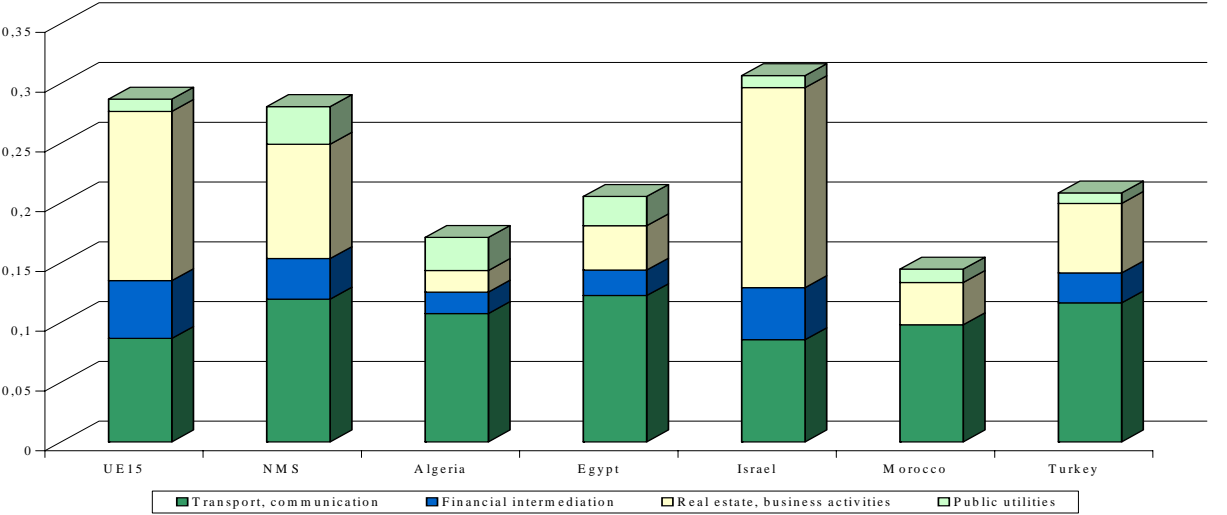
Source: Authors' calculations, from UNSCD and STAN

Graph 1.2: Household services, share, in 2003



Source: Authors' calculations, from UNSCD and STAN

Graph 1.3: Business services, share, 2003



Source: Authors' calculations, from UNSCD and STAN

Appendix 2: Concentration indicators

We use Herfindahl indexes and Gini coefficients. With the Herfindahl index, for the different geographical area considered, we measure the degree of concentration of the production (employment, value added) of one sector independently of the situation in the other services activities. We compare production distribution for each sector based on a geographical division in m countries. For instance, using employment data, with n the total number of services sectors, N_k^i the number of employees in the sector k in the country i and N_k^* , the number of employees in this sector k in all countries considered ($N_k^* = \sum_{i=1}^m N_k^i$), the index is calculated as follows:

$$H_k = \sum_i \left(\left(\frac{N_k^i}{N_k^*} \right)^2 \right) \quad (1)$$

This index ranges from $1/m$ to 1, *i.e.* from the minimum concentration case to the maximum concentration when all production is agglomerated in a single geographical area. By definition, the larger countries exert great influence in this concentration index. These economies indeed take on a more than proportional weight due to the squared exponent.

To complement this index, we use the Gini coefficient, based on the Krugman relative index. Aiming initially at measuring national specialisation, this indicator can be modified to measure sectoral concentration. The Krugman concentration index is calculated as follows:

$$KRUG_k = \sum_i \left| \frac{N_k^i}{N_k^*} - \frac{N^i}{N^*} \right| \quad (2)$$

where N^i is the number of employees in all services in country i ($N^i = \sum_{k=1}^n N_k^i$) with a total of n sectors and N^* indicates the total number of employees in all countries. In this way, we obtain for each services sector, the gap between the k -sector employment share in country i relative to all countries and the share of total services employment in country i relative to all sample. Hence, we call it a *relative* index.

We prefer including this index in a Gini coefficient, which makes it possible create graphs based on a relative index.¹⁵ If the activity is divided equally between the different areas, the coefficient will assume value 0; while conversely, it will take on value 1 in the maximum inequality case, when all the production is concentrated in only one area.

Finally, the Gini coefficient for each tertiary sector k is obtained from the following expression:

$$G_k = 1 - \sum_{i=1}^m \left[\sum_{i=1}^{I+1} \frac{N^i}{N^*} - \sum_{i=1}^I \frac{N^i}{N^*} \right] \times \left[\sum_{i=1}^I \frac{N_k^i}{N_k^*} + \sum_{i=1}^{I+1} \frac{N_k^i}{N_k^*} \right] \quad (3)$$

where 'I' represents the cumulative employment share of the first i^{th} geographical area considered.

¹⁵ Using an absolute indicator rather than a relative one is possible but rare (Haaland *et al.* 1999, Gordo *et al.*, 2003). This solution does not take into account the heterogeneity in the initial size of sectors. Without it, the significance of the results is reduced (Combes and Overman, 2004).