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LABOUR RIGHTS IN GLOBAL PRODUCTION NETWORKS

An Analysis of the Apparel and Electronics Sector in Romania



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EXECUTIVE SUMMARY

The global economy, and in particular the organization of global production and international trade, has changed significantly in the last three decades. Today, international trade and global production are increasingly organised in highly fragmented and geographically dispersed production networks where transnational corporations (TNCs) break up the production process in different parts and locate them in different countries. These transformations have important impacts on the development prospects of countries, firms and workers. While the impacts of these changes on countries, regions and firms have been studied rather extensively, comparatively little has been said about the effects on workers. Hence, this report analyses how global production networks are configured and how the incorporation of firms into these networks impacts on the position of workers and their rights. To analyse these questions an adapted Global Production Network (GPN) approach is used that not only considers the key role of firms, in particular lead firms, in global production networks but also non-firm actors, the institutional and regulatory context and workers.

The apparel and electronics sector in Romania provide the empirical lens to study these questions taking into account broader dynamics in the CEE region. Despite important differences (e.g. labour-versus capital-intensiveness, the complexity of the production process or the technology involved) both sectors have been increasingly organised in global production networks, with a global and a regional dimension, involve labour-intensive production steps which have been relocated to countries with lower labour costs and exhibit some similar industry dynamics such as high-competition and 'fast-fashion'-principles as well as labour rights issues. The strategies of lead firms such as H&M and Zara or Hewlett Packard, Dell and Nokia as well as of powerful first-tier suppliers such as Li & Fung in the apparel and Flextronics in the electronics sector aptly illustrate these dynamics. These industry dynamics strongly influence Romania's position in production networks, in particular its role as a regional supplier country where low costs and/or flexibility with regard to orders and lead times are paramount concerns. However, besides strategies of lead firms and sector dynamics this report reveals the importance of non-firm actors and specific institutional and regulatory contexts in which global production networks are embedded. In CEE the legacy of the state socialist period as well as of the 'transition' period, including EU accession, have importantly influenced the articulation of production networks. For instance, in electronics policies devised at the national and local level had an important impact on the specific integration of Romanian firms and workers into production networks. In apparel the EU's Outward Processing Trade (OPT) agreements created a deeply rooted division of labour between the lead firms in Western Europe and firms in Romania. On the international level the phase out of the Multi-Fibre Agreement (MFA) heavily impacted on the geographical articulation of production networks in the apparel sector and in electronics the Information Technology Agreement (ITA) furthered liberalization and outsourcing.

In the Romanian apparel sector working conditions in the 1990s, at least occasionally, featured sweatshop-like conditions. Gradually, improvements in working conditions occurred which were partly driven by legislative changes and the efforts of labour inspectorates as well as by international consumer campaigns. As a response to consumer campaigns many large buyers adopted Codes of Conduct (CoC). Our findings in the Romanian context suggest, however, that the effect of these firm-driven initiatives is limited as audits were so far mostly concerned with health and safety issues. Lead firms are reluctant to change their purchasing practices and integrate 'ethical' concerns into their core business activities. Thus, today the main labour rights issues in the apparel sector in Romania concern wages, working time and work intensity, informal work, trade union representation and to some extent occupational health issues. In the apparel sector workers often receive the sector minimum wage and piece-rate or a mixture of hourly and piece-rate payment and minimum quotas are common. Given the tight targets working overtime is sometimes the only way to meet quotas.

Overtime issues are also related to fluctuating orders which are increasingly unpredictable and demanded on a short-term basis. Informal work in the apparel sector consists of workers employed without contracts, workers with a contract covering the minimum wage but where the additional wage is paid off the books, or workers hired for long testing periods. Further, contract migrant workers have increased in importance in the apparel sector in Romania, in particular from China, Vietnam, Bangladesh and the Philippines. In the apparel sector female workers comprise 80% to 90% of the workforce as the labour-intensive sewing is exclusively done by women. The unionisation rate in the apparel sector is around 25% but there are important differences between former state-owned and newly established private as well as between larger and smaller firms. Cases of abusive dismissal or unfair treatment of union leaders or of employees willing to establish a union are quite common. These issues are closely connected to Romania's integration as a regional supplier into production networks that are characterised by 'fast fashion' tendencies as well as by OPT relations where low costs and/or flexibility with regard to orders and delivery time are paramount concerns.

In the Romanian electronics sector the situation is slightly different, given differences in the structure of production networks and the technology involved. Although plants of lead firms and Contract Electronics Manufacturer (CEMs) seem to have a 'high-tech' image, large parts of the work in these factories are labour-intensive and low-skilled with a majority of female workers operating on the lines (60-70%). In contrast to apparel the technology used in these plants imposes certain minimum standards with regard to working conditions, particularly in the health and safety area. Hence, the main labour rights issues in Romania concern working time and work intensity, flexible employment relationships as well as hostility towards trade unions. In the electronics sector wages are generally higher than in the apparel sector. However, one of the main motivations for lead firms and CEMs to establish production sites in Romania is still low wages and hence wages in the sector are often below the average wage in the respective region. Wage systems are characterised by a fixed base wage and a high variable share. A key concern for lead firms and CEMs is to manage the fluctuating demands of their clients. Hence, working time is strongly exposed to the volatility of (consumer) end markets. To deal with the constant and rapid change in production volumes firms extensively use flexible employment relationships as provided by temporary employment agencies. In the electronics sector, trade unions are generally weak and as most plants have been established through greenfield investments no established structures of organization existed before. CEMs are in particular known for their hostile behaviour against trade unions. These issues can be related to Romania's position in a hierarchical, multi-tiered system where firms in Romania carry out relatively unsophisticated activities.

ZUSAMMENFASSUNG

Die Weltwirtschaft, insbesondere die Organisation von globaler Produktion und internationalem Handel, hat sich in den letzten drei Jahrzehnten signifikant verändert. Internationaler Handel und globale Produktion sind zunehmend in stark fragmentierten und geografisch verstreuten Produktionsnetzwerken organisiert, in denen Transnationale Unternehmen den Produktionsprozess in unterschiedliche Segmente aufspalten und diese auf verschiedenen Länder verteilen. Diese Transformationsprozesse haben bedeutende Auswirkungen auf die Entwicklungsmöglichkeiten von Ländern, Firmen und ArbeitnehmerInnen. Während die Auswirkungen auf Länder, Regionen und Firmen relativ häufig untersucht wurden, gibt es vergleichsweise wenig Forschung über die Auswirkungen auf ArbeitnehmerInnen. Daher analysiert dieser Bericht, wie globale Produktionsnetzwerke konfiguriert sind und welche Konsequenzen die Eingliederung von Firmen in diese Netzwerke auf die Position von ArbeitnehmerInnen und ihre Rechte haben. Um diese Fragestellungen zu untersuchen, wird ein adaptierter Globaler Produktionsnetzwerks-Ansatz verwendet, der nicht nur die zentrale Rolle von Firmen, insbesondere *'Lead Firms'*, berücksichtigt, sondern auch die von nicht-Firmen Akteuren, institutionellen und regulativen Rahmenbedingungen sowie von ArbeitnehmerInnen.

Im Zentrum der empirischen Betrachtung steht der Bekleidungs- und Elektroniksektor in Rumänien - unter Bezugnahme breiterer Dynamiken in Zentral- und Osteuropa. Trotz wichtiger Unterschiede (beispielsweise Arbeits- versus Kapitalintensität, die Komplexität des Produktionsprozesses und die verwendete Technologie) sind beide Sektoren zunehmend in Produktionsnetzwerken mit globaler und regionaler Dimension organisiert, weisen arbeitsintensive Produktionsabläufe auf, die in Länder mit niedrigeren Arbeitskosten verlagert wurden, und zeigen einige ähnliche Industriedynamiken wie starke Konkurrenz, *'Fast Fashion'*-Prinzipien sowie ähnliche Arbeitsrechtsprobleme. Die Strategien von *'Lead Firms'* wie H&M und Zara oder Hewlett Packard, Dell und Nokia, sowie von einflussreichen großen Zulieferer wie Li & Fung im Bekleidungssektor und Flextronics im Elektroniksektor verdeutlichen diese Dynamiken. Diese Industriedynamiken beeinflussen Rumäniens Position in Produktionsnetzwerken stark, insbesondere seine Rolle als regionales Zuliefererland, wo geringe Arbeitskosten und/oder Flexibilität bezüglich Aufträgen und Lieferzeiten wesentliche Parameter darstellen. Neben Firmenstrategien und Sektordynamiken zeigt dieser Bericht jedoch auch die Bedeutung von nicht-Firmen Akteuren und spezifischen institutionellen und regulativen Rahmenbedingungen auf, in die globale Produktionsnetzwerke eingebettet sind. In Zentral- und Osteuropa haben das Erbe des Staatssozialismus, die *'Transitionsphase'* und der EU Beitritt die Konfiguration von Produktionsnetzwerken entscheidend beeinflusst. Beispielsweise hatten die nationalen und lokalen Politiken im Bereich Elektronik starke Auswirkungen auf die Integration rumänischer Firmen und ArbeitnehmerInnen in Produktionsnetzwerken. Im Bekleidungssektor erzeugten die Lohnveredelungsabkommen der EU eine tiefverwurzelte Arbeitsteilung zwischen westeuropäischen *'Lead Firms'* und rumänischen Unternehmen. Auf der internationalen Ebene hatte das Auslaufen des Multifaserabkommens gravierende Auswirkungen auf die geografische Ausprägung von Produktionsnetzwerken im Bekleidungssektor, und im Bereich Elektronik förderte das Informationstechnologie-Abkommen weitere Liberalisierungen und Produktionsverlagerungen.

Der rumänische Bekleidungssektor war während der 90er-Jahre teilweise durch *'sweatshop'*-ähnliche Arbeitsbedingungen geprägt. Nach und nach verbesserten sich die Arbeitsbedingungen aufgrund gesetzlicher Änderungen und erhöhter Anstrengungen der Arbeitsinspektorate sowie durch internationale KonsumentInnen-Kampagnen. Als Antwort auf KonsumentInnen-Kampagnen nahmen viele große Unternehmen Verhaltenskodizes an. Unsere Untersuchung deutet jedoch darauf hin, dass die Auswirkungen dieser Verhaltenskodizes auf die Verbesserung von Arbeitsbedingungen begrenzt ist, denn Audits waren bisher primär auf Arbeits- und Gesundheitsschutz konzentriert. *'Lead Firms'*

zögern, ihre Einkaufspraktiken zu ändern und 'ethische' Belange in ihr Kerngeschäft zu integrieren. Daher betreffen die arbeitsrechtlichen Probleme primär die Bereiche Löhne, Arbeitszeit und Arbeitsintensität, informelle Arbeit und Repräsentanz durch Gewerkschaften und in geringerem Ausmass Gesundheit am Arbeitsplatz. Im Bekleidungssektor erhalten ArbeitnehmerInnen oft den Sektor-Mindestlohn und Akkordlöhne bzw. eine Mischform aus Stunden- und Akkordlohn sowie Mindestquoten sind verbreitet. Angesichts der hohen Mindestquoten sind Überstunden manchmal die einzige Möglichkeit, um die Quoten zu erreichen. Überstunden sind auch auf die Auftragsschwankungen zurückzuführen, die zunehmend unvorhersehbarer und kurzfristiger sind. Informelle bzw. arbeits- und sozialrechtswidrige Beschäftigungsverhältnisse betreffen ArbeitnehmerInnen, die ohne Arbeitsvertrag arbeiten, ArbeitnehmerInnen, denen nur der Mindestlohn legal und der übrige Lohn 'schwarz' ausbezahlt wird, oder ArbeitnehmerInnen mit langen Probezeiten. Zunehmend werden auch ArbeitsmigrantInnen aus China, Vietnam, Bangladesch und den Philippinen angeheuert. Im Bekleidungssektor arbeiten zwischen 80% und 90% Frauen und Nähen wird ausschließlich von Arbeiterinnen erledigt. Der Organisationsgrad liegt bei ca. 25%, jedoch gibt es bedeutende Unterschiede zwischen früheren Staatsunternehmen und neuen Privatfirmen, sowie großen und kleinen Betrieben. Fälle ungerechtfertigter Entlassungen oder unfairer Behandlung von GewerkschaftsführerInnen bzw. von Beschäftigten, die eine Gewerkschaft im Betrieb gründen wollen, kommen immer wieder vor. Diese Arbeitsrechtsverletzungen stehen in enger Verbindung mit Rumäniens Integration als regionaler Zulieferer in Produktionsnetzwerken, die durch 'Fast Fashion' und passive Lohnveredelungssysteme geprägt sind und wo niedrige Kosten und/oder Flexibilität bezüglich Aufträgen und Lieferzeiten entscheidend sind.

Im rumänischen Elektroniksektor ist die Situation aufgrund der Struktur der Produktionsnetzwerke und der verwendeten Technologie etwas anders. Obwohl die Fabriken der 'Lead Firms' und der Elektronik-Kontraktfertiger ein 'High-Tech'-Image haben, ist ein Großteil der Abläufe arbeitsintensiv und erfordert nur geringe Qualifikationen und es sind mehrheitlich Frauen beschäftigt (60-70%). Im Gegensatz zum Bekleidungssektor erfordert die verwendete Technologie die Erfüllung einer Reihe von Minimalstandards hinsichtlich der Arbeitsbedingungen, besonders im Bereich Arbeits- und Gesundheitsschutz. Daher betreffen die arbeitsrechtlichen Probleme primär die Bereiche Arbeitszeit und Arbeitsintensität, flexible Arbeitsverhältnisse, sowie Gewerkschaftsfeindlichkeit. Im Elektroniksektor sind die Löhne generell höher als im Bekleidungssektor; dennoch sind geringe Löhne eines der Hauptmotive der 'Lead Firms' und Elektronik-Kontraktfertiger und daher sind die gezahlten Löhne häufig geringer als im regionalen Durchschnitt. Das Lohnsystem basiert auf einem fixen Grundlohn und stark variablen Zuschlägen. Eines der zentralen Anliegen von 'Lead Firms' und Elektronik-Kontraktfertigern ist der Umgang mit den stark fluktuierenden Aufträgen. Daher ist die Arbeitszeit der Beschäftigten stark den Schwankungen der (Konsum-)Endmärkte ausgesetzt. Um diesen starken Produktionsschwankungen zu begegnen, greifen Firmen im starken Umfang auf flexible Arbeitskräfte von privaten Arbeitsvermittlern zurück. Im Elektroniksektor sind Gewerkschaften generell schwach organisiert und da die meisten Fabriken neu gegründet wurden ('greenfield investments') kann auf keinen etablierten Strukturen aufgebaut werden. Insbesondere Elektronik-Kontraktfertiger sind für ihre Gewerkschaftsfeindlichkeit bekannt. Diese Probleme können in Verbindung gesetzt werden zu Rumäniens Position in einem hierarchischen, mehrere Ebenen umfassenden System, wo rumänische Firmen Tätigkeiten mit relativ geringem Komplexitätsgrad ausführen.

1. INTRODUCTION

1.1 Context and motivation: changes in international trade and global production

The global economy, and in particular the organization of global production and international trade, has changed significantly in the last three decades. This change has a quantitative dimension, as reflected in a considerable rise in trade (as a share of output) and in foreign direct investment (FDI) since the 1980s (Milberg 2004). However, the qualitative change in the structure of international trade and global production is much more significant. Today, international trade and global production are increasingly organised in highly fragmented and geographically dispersed production networks where transnational corporations (TNCs) break up the production process in different parts and locate them in different countries. To illustrate the principle, take the example of a t-shirt and a computer. The cotton for a t-shirt is harvested in Kazakhstan or India, processed into yarns and then fabrics in Turkey or China, sewed together in Romania or Bangladesh and finally sold in Austria or Germany. A computer is made up of semiconductor chips made in New Mexico (US), Scotland or Malaysia, a disk drive made in the Philippines, Singapore or Thailand, a monitor made in Japan, circuit boards made in China, and finally assembled in Mexico or Hungary (SOMO 2005). Such global production arrangements can be found in many sectors and are mirrored by the rising share of intermediate goods in total trade (Milberg 2004). Hence, the global economy has been transformed into “[...] a highly complex, kaleidoscopic structure involving the fragmentation of many production processes, and their geographical reallocation on a global scale in ways which slice through national boundaries” (Dicken 2003: 9).

Several factors have contributed to these transformations. Since the 1970s TNCs have reoriented their strategies and increasingly engaged in offshoring and outsourcing of production activities to developing and ‘transition’ countries to lower costs and increase flexibility. TNCs not only relocated certain activities to developing and ‘transition’ countries (offshoring, also called geographical outsourcing) but also increasingly moved away from direct forms of control over production (e.g. through FDI) towards more indirect forms (e.g. outsourcing to suppliers, also called organisational outsourcing). Thus, TNCs increasingly concentrated on their ‘core competencies’ (Prahalad/Hamel 1990) such as research and development (R&D), marketing and branding. Production, and increasingly other functions that were formerly considered core activities such as input sourcing or design, have been contracted out to firms TNCs do not own and to countries with cost-advantages. This strategic reorientation of TNCs was enabled by a shift to a more outward oriented development model in most developing and ‘transition’ countries in the context of the debt crises in the beginning of the 1980s and often structural adjustment programmes of the World Bank and the IMF. This policy shift made manufacturing capabilities that had also been built up during the previous more inward oriented period globally available. A ‘new international division of labour’ (Fröbel et al. 1980) emerged that was based on advances in transport, as well as in information and communication technologies, to fragment the production process and relocate production on a global scale.

These transformations in global production and international trade have important impacts on the development prospects of countries, firms and workers. Developing and ‘transition’ countries have increasingly been incorporated into global production networks which has supported the expansion of manufacturing production and export capabilities in these countries. Some, like the so-called ‘Asian Tigers’, achieved considerable economic progress and could improve their position within the

international economic system¹. For many other countries, however, integration into global production networks has not been accompanied by comparable economic progress, and the value added from manufacturing activities performed in global production networks has often not increased markedly compared to previous commodity-based exports (Milberg 2004; Kaplinsky 2005). Key reasons for these developments are the asymmetric market and power structures embodied within global production networks. The increase in globally available manufacturing capabilities has intensified competition at the production stage. In this context competitive advantage does not derive from relatively standardised and commodified activities such as manufacturing, but accrues from more 'intangible' activities such as R&D and marketing (Gereffi 1994). The latter activities are generally characterized by high entry barriers resulting in oligopolistic structures that allow the generation of high rents (Kaplinsky 2005; Levy 2005). Thus, lead firms tend to retain direct control over these 'intangibles' while they seek to outsource low value-added activities which are generally characterized by low entry barriers and high competition. Consequently, it is difficult for firms operating in the lower value activities to increase value-added, profits and wages.

While an increasing amount of literature has accumulated on how these changes in international trade and global production affect countries, regions and firms comparatively little has been said about the effects on workers. This is related to the implicit assumption that integration into global production networks leads to upgrading and upgrading gains 'trickle down' to workers. The conventional view sees global production networks as mechanisms to access global markets and to promote upgrading to higher value activities for firms in developing and 'transition' countries which both is assumed to automatically benefit workers. However, access to global production networks may be based on low wages and weak labour rights regulation as reflected in the proliferation of export processing zones (EPZ) in developing and 'transition' countries. In particular apparel and electronics production for export frequently takes place in such zones with investor-friendly regulations, often including weak labour rights regulation. A low wage (and low productivity) regime may be a short run solution to the problems of unemployment and lack of connection to international markets for individual countries, but it may become a difficult trap to get out (Milberg 2004). Various studies from different regions and sectors show that there are substantial obstacles to industrial and even more to social upgrading². Upgrading experiences suggest that even firms which 'succeed' in industrial upgrading do not necessarily gain the rewards with which industrial upgrading is generally associated, such as increased profitability and security (Bair 2005: 166; Fitter/Kaplinsky 2001; Kaplinsky 2005). And even if firms gain rewards for their upgrading efforts, the rewards may not be passed on to workers in the form of higher wages, greater job security or improved working conditions and thus industrial upgrading may not lead to social upgrading (Knorringa/Pegler 2006). Industrial upgrading may even be based on deteriorating working conditions and thus may lead to social downgrading. "[...] [P]articular strategies to increase the competitiveness of suppliers in global chains may look like upgrading from the vantage point of the firm, but in fact constitute a form of downgrading for the workers involved. [...] [T]he adoption of a 'lean production' philosophy by lead firms [...] has strong (and strongly negative) effects on workers [...]. As implemented in these value chains, lean production is transmogrified from a 'high road' to competitiveness to a set of practices that entail squeezing employees at the bottom of the chain in order to lower costs and increase flexibility" (2008a: 45). Along the same lines, Barrientos (2007) states that the transformation of global production has generally contributed to a significant change in the nature of employment leading to a shift to more flexible, informal and insecure work.

¹ Government policies, in particular industrial and trade policies, including selective protection from imports and inward FDI, subsidies for export promotion and very significant checks and controls on businesses which had to meet performance standards to receive subsidies or protection, had an important role in the economic development of these countries (Amsden 2001; Chang 2003).

² 'Industrial upgrading' is commonly understood as a firms' trajectory from lower to higher value activities in global production networks. We define 'social upgrading' analogously as the improvement of the position of workers as reflected in decent working conditions within global production networks (see also Barrientos 2007).

1.2 Research questions and methodology

In the context of these changes in the global economy, the central questions of this report are: How are global production networks configured and how does the incorporation of firms into these networks impact on the position of workers and their rights? These questions are addressed in the context of the macro-regional integration process in the European region. Since 1989 the political and economic relationships between Western European and Central and Eastern Europe (CEE) countries have changed substantially, in particular due to the increasing incorporation of CEE firms into production networks of predominantly Western European firms (McGowan et al. 2004). In light of this ongoing restructuring and reform process the question how this process impacts on labour rights is highly relevant in the European context. Especially in the new member states and the pending EU accession countries production sites have been frequently under scrutiny for labour rights violations (ICFTU 2008). The sectoral focus is on the apparel and electronics sectors and the country focus on Romania, taking into account broader dynamics in the CEE region. Despite important differences (e.g. labour-versus capital-intensiveness, the complexity of the production process or the technology involved) both sectors are increasingly organised in global production networks and hence, serve as a good empirical lens to study the impacts of global production on workers.

To analyze these questions, the research report builds on an extended Global Production Network (GPN) approach. The GPN approach shows the relationships between actors involved in production on different scales, frames the complexity of these relationships and stresses the importance of power structures. However, to make it suitable for analyzing our research questions the approach needs to pay attention to areas that have been under-developed in most research so far, namely the role of non-firm actors, (pre)existing structures and the role of workers and their rights. Part II gives an overview of the GPN approach and related chain/network approaches.

Concerning methodology, the research was organised in three phases and drew on quantitative as well as qualitative methods. The first phase involved the mapping of global production networks in the apparel and the electronics sector and was divided into two stages. The first stage was dedicated to the analysis of structures, processes and the main actors within global production networks in the apparel and electronics sector on different geographical scales, concentrating on global and macro-regional (CEE) dynamics. In the second stage the broader legal framework within which these industries operate and the respective labour rights issues were identified. Data was mainly gathered from secondary sources, including business sources, academic contributions, studies from regional and international organizations, publications from NGOs as well as statistical data, in particular on trade and production. The second phase involved embedding the networks in Romania. Secondary data was gathered from national research institutes, governmental, regional and international organisations, national legislation and NGO documents. Additionally, interviews with key informants from governmental institutions, research institutes, social partners, NGOs and other experts were conducted. The third phase involved unpacking the dynamics of global production networks at the firm level. The aim was to understand how sector dynamics and policies at different geographical levels are worked out on the ground and affect the position of local firms and workers. We conducted interviews with management, workers' representatives and workers. The sample of firms in the apparel and electronics sector was based on the structure of the sector and the production networks. See Appendix 1 for a list of the interviews.

1.3 Overview of the report

In Part II an overview on different chain/network approaches which have evolved in the last two decades is given and areas which are - to varying degrees - under-developed in the current chain/network literature are pointed out. Part III and Part IV deal with the apparel and the electronics sector respectively and are structured along the same broad lines, including an overview on global and macro-regional (CEE) dynamics as well as a detailed analysis of the production networks and the position of workers and their rights in Romania. Part V concludes and highlights areas for further research.

2. CHAIN AND NETWORK APPROACHES TO FRAME THE GLOBAL ECONOMY³

In light of the transformations in global production and international trade, a more organisational, network-centred and multi-scalar framework is central to analyse the organisation and geography of production and trade (Bair 2008a: 3). Over the past two decades a body of literature has evolved using chain or network frameworks to conceptualise and analyse economic globalisation, and in particular to explain how global production is organised and governed and how this affects the development prospects of firms, and regions (Coe/Hess 2007: 2). There are several merits of chain and network approaches especially if they are compared to standard analyses of international trade and production: First, chain and network approaches overcome limitations of isolated macro, meso or micro analysis by encompassing all relevant levels and grasping the spatiality of global production and trade. Second, these approaches take into account different actors and in particular analyse the role of firms while the central unit of analysis in social sciences in general has been the state - whether the assessment of its role is positive or negative (Henderson et al. 2002). Third, power relations and different forms of governance are explicitly analyzed.

2.1 Overview of different chain/network approaches

A variety of approaches using the chain or network concept has developed over the last two decades. Although the different approaches overlap and share common concerns, they derive from different theoretical and disciplinary domains and place different questions in the centre of analysis (for a detailed discussion see Bair 2005, 2008; Coe et al. 2008). At least four strands of research can be differentiated, which in our view constitute the field of chain and network research: Commodity Chains, Global Commodity Chains, Global Value Chains and Global Production Networks.

The term Commodity Chain (CC) was first used within the world system theory by Hopkins and Wallerstein. A CC is defined as “a network of labour and production processes whose end result is a finished commodity” (Hopkins/Wallerstein 1986: 159). The world system theory uses a broad approach of CC to analyse capitalistic processes, uneven development and the unequal distribution of surplus-value within chains. The central question is how CCs structure and reproduce a hierarchical world system that consists of core, semi-periphery and periphery. The CC approach stresses that the organisation of production within global commodity chains is not new but that these chains have been global in scope since the foundations of modern capitalism (Bair 2008a: 10f).

The Global Commodity Chain (GCC) approach builds on the world system theory but also has a background in economic sociology (Gereffi/Korzeniewicz 1994; Gereffi 1995). GCC research analyses inter-firm networks which connect producers, suppliers and subcontractors and is mainly interested in how global industries are organised and how firms, sectors and countries can upgrade. A rich stream of empirical literature has evolved that pays specific attention to the role of lead firms. Gereffi (1994, 1995) points out four dimensions of GCCs (input-output structure, geographical scope, governance structure and institutional context) but the approach has primarily concentrated on the governance dimension. Within the governance dimensions two prototypes are differentiated: producer-driven and buyer-driven commodity chains: “The former are characteristic of more capital-intensive industries (e.g. motor vehicles) in which powerful manufacturers control and often own several tiers of vertically-

³ This part draws on Plank/Staritz (2009a).

organized suppliers, as opposed to light manufacturing industries (apparel being the classic case), where far-flung subcontracting networks are managed with varying degrees of closeness by designers, retailers and other brand-name firms that market, but do not necessarily make, the products that are sold under their label” (Gereffi 1994: 112).

The Global Value Chain (GVC) approach draws on the GCC approach but is also influenced by the international business literature. GVC research focuses on value creation and capture and on analysing governance structures in different industries, with an emphasis on upgrading prospects at the firm level (Gereffi et al. 2001, 2005). GVC scholars criticise the producer-/buyer-driven typology of the GCC approach which is considered as too narrow. In contrast, GVC scholars develop a typology of five governance structures that link suppliers to lead firms (hierarchy, captive, relational, modular and market) drawing on transaction cost economics (Gereffi et al. 2005). Main determinants of this type of governance are the complexity of transactions, the ability to codify transactions and the capabilities of suppliers. However, this fivefold typology has also been criticised in the literature for not being able to capture the complexities of chains and for its limited perspective on governance, which primarily takes into account internal sector logics (Bair 2005; Coe/Hess 2007; Gibbon et al. 2008).

The Global Production Networks (GPN) approach originates in economic geography and attempts to go beyond GCC and GVC research by stressing two differences: “First, GCCs/GVCs are essentially linear structures, whereas GPNs strive to go beyond such linearity to incorporate all kinds of network configurations. Second, GCCs/GVCs focus narrowly on the governance of inter-firm transactions while GPNs attempt to encompass all relevant sets of actors and relationships” (Coe et al. 2008: 4). Thus, GPN research stresses the complexity of relationships between actors involved in global production and takes into account the influence of wider institutional actors (Henderson et al. 2002; Coe et al. 2008). Furthermore, the GPN approach stresses a broader political economy perspective incorporating socio-political structures within which production networks are embedded and which influence them.

2.2 Under-developed areas

Beyond these differences in chain/network approaches, there are a number of areas which are - to varying degrees - under-developed in the current chain/network literature. We highlight three areas which are central to better understand the complexity of global production and international trade and to make the approaches suitable for analyzing our research questions. The GPN approach has taken these areas most seriously which makes it the most accurate approach for our analysis. However, also the GPN approach either has to be extended theoretically (point three) or has to deliver on its potential by more fully addressing its theoretical statements in empirical work (point one and two).

First, chain/network approaches should not be limited to inter-firm relations and to TNCs as key drivers of the global economy but should take into account the complex relationships between firms and non-firm actors (e.g. national and sub-national states, supra-national and international organizations, trade unions, business associations, NGOs). The neglect of non-firm actors is problematic, given the influence that they have on the shape of production networks. In particular, the role of the state remains central in understanding the configuration of production networks and the development prospects of incorporation into these networks. Despite the common assumption that states have lost power vis-à-vis firms, the real life picture is far more complex and contingent. Strong states can be highly influential, as illustrated by the Chinese state, which has exerted strict control on the entry and activity of foreign firms (Coe et al. 2008: 20). In CEE countries, however, the historical legacy of the state socialist past and the ‘transition’ process which has been strongly biased towards ‘free market’ policies have considerably reduced the power of states to influence the articulation and outcomes of production networks (Henderson 1998; Czaban/Henderson 2003). NGOs have shown their potential to influence TNCs’ practices through campaigns by exposing working, social and

environmental conditions in the production networks of TNCs (Levy 2008). The importance of trade unions varies in different countries and sectors but their conventional strategies have generally lost effectiveness in the context of global production (Bieler et al. 2008) as TNCs' strategy of organisational and locational fragmentation has weakened the position of labour (Letto-Gillies 2005). Business lobby groups have had significant influence on political decisions, including trade regulation issues (Levy 2008). In CEE civil society organisations have faced significant challenges to establish (new) structures and strategies after the collapse of state socialism. Besides emerging local NGOs, international NGOs, such as the Clean Clothes Campaign (CCC) in the apparel sector or SOMO in the electronics sector, have had an important role. Trade unions in CEE have struggled with the legacy of the state socialist past, have lost the majority of their members and have had problems in developing new strategies in the context of global production (Crowley/Ost 2001). Supra-national and international organisations such as the EU, the WTO, the World Bank and the IMF are central actors in global production networks and have considerable influence on the regulative contexts, as discussed next.

Second, chain/network approaches need to pay more attention to (pre-)existing structures and thus to the institutional and regulative contexts within which production networks are embedded (Henderson et al. 2002). As Czaban and Henderson (2003) put it: "(...) [C]ommodity chains link not only firms in different locations, but also the specific social and institutional contexts at the national (sometimes sub-national) level, out of which all firms arise, and in which all - though to varying extents - remain embedded. (...) (I)nter-firm networks link societies that exhibit significant social and institutional variation, embody different welfare regimes and have different capacities for state economic management - in short, represent different forms of capitalism" (174). In CEE the legacy of the state socialist period as well as of the 'transition' period, with its specific policies and institutional changes, including EU accession, have had important effects on the way firms in the region are integrated into production networks. For instance, the liberal attitude of CEE governments towards TNCs investment in the electronics sector contrast with the more restrictive approach taken by many newly industrialised countries (NICs) in East Asia (Amsden 2004). Besides national (and sub-national) regulations, also regulations established by international and supra-national institutions decisively shape the structures within which production networks are embedded. The Multi-Fibre Agreement (MFA) and later the Agreement of Textile and Clothing (ATC) of the WTO constitute prime examples which had governed global apparel trade for almost four decades. The phase-out in 2005 has had crucial effects on the geographical articulation of, as well as on power structures within, production networks. The World Bank and the IMF have had strong influence through the conditionalities of their structural adjustment programmes. Moreover, the emergence of regional economic blocks and the related changes in regulations have strongly impacted upon the configuration of production networks (Bair 2006; Coe/Hess 2007). The Outward Processing Trade (OPT) arrangements of the EU enabled and drove the extension of Western European production networks, in particular in the apparel sector, towards CEE and influenced the distribution of activities and value-added between Western European and CEE firms.

Third, the role of workers and their rights have not been sufficiently addressed and thus socio-economic effects have not been adequately covered. While the impact of world market integration on firms has been studied rather extensively, an analysis of its impacts on workers has been largely missing from the research agenda. Given the prevailing assumption that potential upgrading gains at the firm level will trickle down to workers, this is highly relevant, even more so since the scarce research carried out within chain/network frameworks calls this assumption in question (see Knorringa/Pegler 2006; Barrientos 2007; Bair 2008a). First, there is no guarantee that upgrading leads to gains that can be captured by the respective firm. Second, even if there were gains there is no guarantee that these gains 'trickle down' to workers. Firm upgrading may even be based on deteriorating working conditions. Further, when workers are mentioned in chain/network approaches, they are often considered as a homogenous group - despite important differences regarding gender, qualification, ethnicity or status (e.g. informal, migrant, temporary; Barrientos 2007). Especially, "(...) the importance of gender as a social category implicated in the geography and configuration of global

commodity chains, and the gendered implications of commodity chain dynamics, including industrial upgrading, has been largely ignored in chain research of all varieties.” (Bair 2005: 175). Moreover, most studies that address employment issues in chain/networks approaches consider workers in the sense of labour - a factor of production. Only a limited number of studies explicitly addresses workers as active agents (Hess 2009). Perceiving workers as social agents underlines their capabilities and entitlements. We draw on this perspective to analyze the position of workers and labour rights in global production networks and use the standards of the “Basic Code of Labour Practice” of the International Confederation of Free Trade Unions (ICFTU). It comprises eight standards - the “ILO core labour standards” and “other generally accepted labour standards” stipulated in basic ILO conventions. These eight standards are broadly used by trade unions, NGOs, multi-stakeholder initiatives and academics. The following standards are included (ICFTU 2009): no forced or bonded labour, no discrimination in employment, no child labour, freedom of association and the right to collective bargaining, right to a living wage, no excessive working time, occupational health and safety measures, right to the establishment of an employment relationship.

3. GLOBAL PRODUCTION NETWORKS IN APPAREL⁴

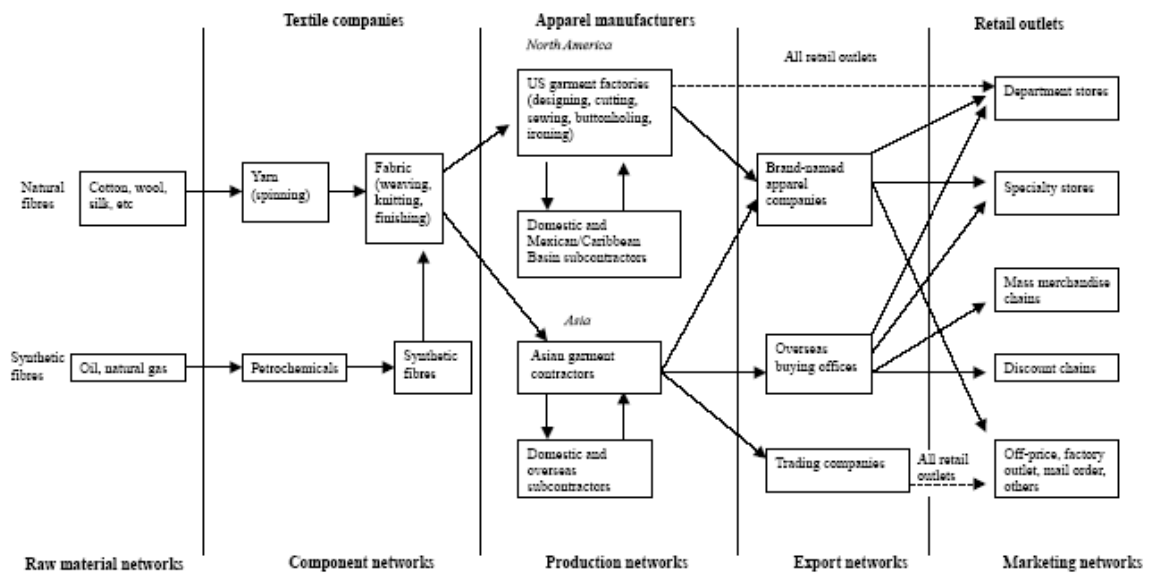
3.1 Global sector dynamics

For a long time the apparel sector has been promoted as a gateway to economic development because of its key role in the industrialisation process of countries such as Great Britain and the US, as well as the NICs in East Asia (Dickerson 1999). The sector is among the most globalised industries in the world and has increasingly been organised through global production networks with a highly fragmented production process and the relocation of activities on a global scale (Dicken 2003; UNCTAD 2005). Production and trade patterns in the apparel sector have changed significantly in the last decades. Main drivers of this restructuring have been corporate strategies of lead-firms, as reflected in the rise of organisational buyers and more recently in the emergence of 'fast fashion', as well as regulatory changes such as the recent liberalisation of the multilateral trade regime governing apparel with the phase-out of the WTO's ATC and the increasing importance of regional trade agreements. These transformations have important implications for production and sourcing patterns as well as for industrial and social upgrading possibilities of firms and workers in developing and 'transition' countries.

Before discussing the main drivers of restructuring, the process of apparel production is described which can be divided into five stages that are closely intertwined with the textile sector (see figure 1): (a) raw material supply, including natural and synthetic fibres; (b) provision of components, such as yarns and fabrics; (c) apparel production; (d) export channels; and (e) marketing networks at the retail level (Appelbaum/Gereffi 1994). Most inputs for the apparel sector come from the textile sector. Activities in the textile sector are quite capital-intensive and demand specific knowledge, machinery and fairly well equipped factories. Given these higher knowledge and capital requirements the textile sector is more concentrated in larger firms located in the NICs or emerging countries (Cammatt 2006). In contrast, the apparel industry is very labour-intensive as it is not possible to automate all production stages, particularly sewing. Despite various attempts to reduce the labour intensiveness in apparel assembly there has not been any groundbreaking innovation that is commercially viable (Jones 2006). Hence, the 'one machine-one operator' configuration of the sewing stage has remained the key technology of the apparel industry since the invention of the mechanical sewing machine in the 1850s (Abernathy et al. 2006). The relatively simple core activity of sewing explains in part its fragmented ownership structure, as there are hardly any entry barriers for this commodity-type activity. Beyond these tangible aspects of production there are a variety of activities such as design, marketing, distribution/logistics and sales that link the producers to the consumers.

⁴ This part draws on Plank/Staritz (2009b).

Figure 1: The textile and apparel production network; Source: Appelbaum/Gereffi 1994



A development across different industries has been the increasing importance of organisational buyers, with the apparel industry being the prime example. These firms design and market the products they sell but the actual manufacturing is carried out by other firms. The outsourcing and offshoring of labour-intensive parts of apparel production has been a key strategy of firms from developed countries to improve competitiveness in the context of stagnant consumer demand and growing production capacities in developing and ‘transition’ countries (Dickerson 1999). Thus, many firms have downsized their production in developed countries and shifted production operations to independent suppliers in developing and ‘transition’ countries. In contrast to branded manufacturers⁵, which initially had large in-house manufacturing capacities and have embraced subcontracting arrangements only since the 1980s, retailers (see box 1) and branded marketers never disposed of significant in-house production but instead relied on sourcing from apparel manufacturers (Bair 2006). Thus, different lead firms have increasingly structured their business around the same core activities such as design, R&D and marketing. The emergence of these organisational buyers contrasts sharply with the old power structure in the apparel sector where manufacturers set the rhythm for design as well as prices (Dunford 2004).

Box 1: Hennes & Mauritz – A leading fashion retailer

The apparel industry has been one of the sectors where the rise of organisational buyers was first noticed (Gereffi 1994). Retailers and branded marketers and more recently branded manufacturers shape global production networks by „specifying which firms would make what products, how, where, when, and at what cost“ (ILO 2006: 11). The Swedish Hennes & Mauritz (H&M) has been practicing this strategy very successfully and is today the third largest specialized apparel retailer by sales in the world (after GAP and Inditex/Zara (see box 3)). H&M started as a small business in 1947 in Vaesteras, a small town one hour south of Stockholm, and has grown steadily, particularly since the 1980s when it entered a period of international expansion. In 2008 H&M had more than 1.738 retail stores in 33 countries and over 53.000 employees worldwide (H&M webpage; Datamonitor 2008a). But this retail

⁵ Gereffi (1999) classifies lead firms in the apparel sector into three broad categories: retailers, branded marketers and branded manufacturers.

network accounts only for part of the success in the low price, high fashion market that H&M predominately serves. The sourcing networks that H&M has established globally allow commanding apparel productions from around 800 suppliers that dispose of a total of 2.700 production units. Hence, without owning one single apparel manufacturing factory H&M can rely on a global workforce of around 700.000 workers. H&M's 21 production offices are the link between these supplier firms and the central buying office in Stockholm. H&M sources nearly 60% from Asia, with China alone accounting for 30%, and nearly 40% from CEE and North Africa, including Turkey which accounts for 20%. China is thus H&M's most important sourcing country, followed by India, Bangladesh as well as Turkey and Romania (Breitkreuz 2008). The financial figures are telling. In the past two decades H&M had an average growth rate of 20%. Between 2000 and 2007 sales doubled and profits quadrupled. In the year 2007 H&M recorded revenues of \$11.559 million and operating profits \$2.712 million. (Datamonitor 2008a).

A more recent development has been the emergence of powerful first-tier suppliers which are again challenging the power structures in the apparel sector. Thus, the increasing concentration and consolidation among lead firms is partly replicated by a concentration at the first-tier supplier level leading to a re-integration of production (Nolan et al. 2008). Faced with increasing pressure on price, quality and delivery time as well as technical and organizational requirements from buyers more capable suppliers have tried to position themselves as globally operating network organizers that coordinate networks within a global supply base. This trend has been most obvious and widespread in electronics with the emergence of so called Contract Electronics Manufacturers (CEMs, see below) (Lüthje 2002; Ernst 2002) but there is also some evidence, in particular in the Asian Rim, that the same mechanisms are at work in apparel (Appelbaum 2008). Some Asian firms are the prototypes in this respect (see box 2) (UNCTAD 2005). These firms already gathered experience and proved their ability to coordinate production networks in the Asian region when faced with rising labour costs as well as quota restrictions in their countries - a model that has been called triangular manufacturing (Appelbaum/Gerrefi 1994). While this model was more or less limited to the Asian rim during the 1970s and 1980s it has recently been extended to the rest of the world, incorporating suppliers in particular from less developed Asian countries such as Bangladesh and Cambodia as well as from African countries (Gibbon/Ponte 2005).

Box 2: Transnational network organizers: Esquel and Li & Fung

Over the last decade a number of large transnational first-tier suppliers has emerged, in particular in Hong Kong, Taiwan, South Korea and China (Appelbaum 2008). Despite their increasing importance in global production networks in apparel they have until recently received little attention. Two examples of these firms are Esquel and Li & Fung:

The Esquel Group was founded in 1978 and is headquartered in Hong Kong. Esquel claims to be one of the world's leading producers of premium cotton shirts. Among its clients are major brands such as Tommy Hilfiger, Hugo Boss, Brooks Brothers, Abercrombie & Fitch, Nike, Lands' End and Muji, as well as retailers, including Marks & Spencer, Nordstrom and Jusco. The firm operates a vertically integrated business model. Hence, it owns cotton farms and yarn and textile factories in China that provide inputs for the apparel production that takes place in its plants in China, Malaysia, Vietnam, Mauritius and Sri Lanka. In addition, it also runs a product development department. In 2008 the firm employed 47.000 people. The latest financial figures are available for 2000 which show a turnover of around \$500 million (UNCTAD 2005).

Li & Fung has based its expansion on a different business model. Rather than directly owning factories, it has developed into a transnational trading company which coordinates a sourcing network via 80 offices in more than 40 countries across North America, Europe and Asia. It also operates

product design and development capabilities to provide complete global sourcing solutions for its customers. These include among others brands such as Levi Strauss and Tommy Hilfiger and retailers as KarstadtQuelle, HEMA, V&D, Bijenkorf, Claudia Sträter, Hunkemöller and M&S Mode. The most recent coup was a contract with Liz Clairborne. In March 2009 Li & Fung signed a deal to take over the complete sourcing of one of the biggest US apparel retailer, whose global sourcing operations were once considered key to its competitive strength. As an industry analyst put it: „In China alone, Li & Fung can call on between 3.000 to 4.000 suppliers – so it’s not surprising retailers are unable to set up an equivalent supply chain or get the same prices.“ (Just-Style 2009). Li & Fung has 14.000 employees and recorded a turnover of \$14.195 million in 2008.

While initial waves of relocation have been primarily motivated by labour cost differentials, other considerations have also come to shape sourcing decisions (Abernathy et al. 2006). A key driver behind this development is the increasing dominance of ‘fast fashion’, a business model that is based on increased variety and fashionability and on permanently shrinking product life cycles. One indicator for this trend is the rising market-share of firms such as H&M or Zara (see box 3), which have pioneered this ‘fast fashion’ approach as well as the acceleration that affects the whole sector (Tokatli 2008). In the past there were two collections per year (spring/summer and fall/winter), in the late 1980s/early 1990s some retailers added mid-season purchasing, now there is purchasing throughout the year (Tokatli et al. 2008: 261) and the life span of a fashion trend today is measured in weeks (Cela Diaz 2005: 88). The emergence of ‘fast fashion’ has important effects on sourcing patterns, as short lead times and flexibility have become an important factor in the locational decision of firms. Short lead times can be achieved through different strategies, including fast transport (e.g. through air transport, which is, however, only cost competitive in specific contexts) and tightly organised production networks, but generally benefit locations in geographical proximity to end-markets. Also, the organisation and control of the supply chain, as well as the production process itself are affected as shorter lead times, smaller production runs and more flexibility is required from producers. Hence, this business model and the related changes in consumer markets partly explain why production networks in apparel are characterised by a global and a macro-regional dimension (see below).

Box 3: Zara - A pioneer of ‘fast-fashion’

Zara is the largest European specialized apparel retailer by sales and the world’s second largest, after the US GAP. Zara is part of Industria de Diseno Textile (Inditex), one of the largest fashion distribution groups, which has eight sales formats - Zara, Pull and Bear, Massimi Dutti, Bershka, Stradivarius, Oysho, Zara Home and Utergue - and around 4.278 stores in 73 countries and close to 80.000 employees (Inditex webpage, Datamonitor 2008b). Zara provides 70% of Inditex’s income and has more than 1.529 stores in 72 countries (Datamonitor 2008b). Zara founder Amancio Ortega opened the first Zara store in 1975 in La Coruna in Spain with the aim “to bring catwalk style to the street” (Tungate 2008: 50). This already indicates Zara’s more up-market profile compared to its closest European competitor H&M. Another difference which has earned Zara some reputation in the 1990s relates to its production and sourcing strategy. While most lead firms in the apparel sector do not own manufacturing plants but source apparel from ‘independent’ suppliers based in ‘low-cost countries’, Zara had until recently sourced most of its production from Spain and Portugal and even maintained in-house production. Keeping production close to the major end markets has been key in Zara’s competitive strategy as it has allowed a highly responsive supply chain. Additional elements of Zara’s supply chain have been integrated design and product development capabilities as well as centralized input sourcing and logistics. The result of this strategy is that clothes can move from design to hanger in the shops in just 15 days – H&M’s minimum turnaround is 20 days and GAP’s used to be three months. The two centralized distribution centres in Spain where products are consolidated and inspected before they are shipped to the stores can handle 60.000 and 80.000 garments an hour

respectively (Cela Diaz 2005: 100). The time between receiving an order at the distribution centre and the delivery of the goods to the store is on average 24 hours for European stores and 48 hours for American and Asian stores. In recent years also Zara has increasingly turned to global sourcing from 'low-cost countries', in particular since 2005. In 2005 40% of Inditex's production was manufactured in Spain and Portugal - either in-house or by suppliers, 30% was manufactured 'in proximity' in Europe, involving CEE and Turkey (18%) and North Africa (12%). 27% was sourced from Asia - 15% from China and 12% from the rest of Asia and 3% are sourced from the rest of the world. (Cela Diaz 2005) In 2006 already 34% were sourced from Asia and this is likely to increase as Inditex opened three offices in Hong Kong (Toklati 2007, 32f). In the last years Zara's sales and net income have continued to grow at an annual rate of over 20%. Between 2000 and 2007 Inditex' sales tripled and profits increased by 300%. In the fiscal year 2008 Inditex recorded revenues \$13.069 million and operating profits of \$2.977 million. (Datamonitor 2008b)

However, these organisational dynamics have to be assessed in the context of the changing regulatory landscape. In an industry that is as highly regulated as apparel "upgrading prospects, and developmental outcomes more generally, are determined not just by the organizational dynamics of commodity chains but also by several layers of institutional environments" (Bair/Gereffi 2003: 165). Trade regulations can be traced back at least to the early phases of industrialization in Great Britain when imports of Indian fabrics were restricted to protect the emerging domestic textile industry (Dickerson 1999). But it was only after World War II with increasing exports from developing countries that industry groups in industrialized countries, in particular Great Britain and the US, began to look for ways to limit these imports. After a series of 'voluntary' measures and bilateral agreements the former US-President Kennedy initiated a multilateral agreement for volume quota for cotton textile exports in 1961 which was initially called Short Term Cotton Agreement and then followed by the Long Term Cotton Agreement (UNCTAD 2004a; Bair 2008b). In 1974 the Long-Term-Agreement was replaced by the MFA which was renewed several times and lasted until the conclusion of the Uruguay Round in 1994. With the new ATC it was decided to phase out the existing regime and to bring global apparel trade in line with WTO principles (Bair 2008b: 3). In the agreement the phase-out of quotas was specified in four steps ending with the total elimination of all quotas among WTO members in 2005 (UNCTAD 2005).

After 2005, with the phase-out of the ATC, trade and production patterns have changed significantly. Although the quota system was designed to protect the major import markets (Europe, US and Japan), it provided many developing and 'transition' countries a way to establish an apparel industry as it created an incentive to spread production across a range of countries with access to quota restricted markets. Trade data and first studies on the effects of the ATC-phase out reveal that there have been important shifts especially towards China and to a lesser extent India and that higher-cost, regional suppliers in Central America and the Caribbean and in CEE such as Mexico, Turkey and Romania as well as producers in African countries have lost export shares. However, these reductions have been not as dramatic as expected by those foretelling the elimination of regional suppliers (Conway 2006). The 'stickiness' of regional sourcing has to be viewed against the background of changing consumer demand patterns and corporate strategies, as discussed above. Additionally, the macro-regional integration process, driven by regional trade agreements, has strongly furthered the deepening of regional production networks and contributed to the emergence of regional supplier countries (Bair 2006).

On a regional level the creation of the EU and the North American Free Trade Agreement (NAFTA) has facilitated the deepening of regional production networks since the 1990s. These regional treaties were preceded by special trade agreements that created favourable conditions for offshoring production, in particular to nearby countries in every region of the Triade (Gereffi 1999). Thus, firms from the Triade supplied intermediate inputs (e.g. yarns, fabrics) to the offshore assemblers which

were located in countries with reciprocal trade agreements that allowed goods assembled offshore to be re-imported under preferential conditions (e.g. reduced tariff rates or expanded import quotas) . In the US this system was known as '807' and later '9802' trade whereas the then European Community referred to it as 'Outward Processing Traffic' (OPT) (see below) (Pellegrin 2001). Also in Asia producers in relatively high-wage countries (e.g. Japan, Hong Kong) used this kind of agreements with low-wage countries such as China (Gereffi 1999). In addition, trade agreements were put in place that should benefit underdeveloped regions by giving them preferential access to markets of developed countries such as the EU's former Lome Convention and the Cotonou agreements and the currently negotiated Economic Partnership Agreements as well as the 'Everything but Arms Initiative' for least developed countries or the US Africa Growth and Opportunity Act (AGOA) (Abernathy et al. 2006).

The importance of regional suppliers is revealed when looking at the major apparel export countries and the final markets they serve. A group of globally operating Asian supplier countries, including China, India and Bangladesh, have a strong position in all major markets (Europe, US and Japan) while a second group of regional supplier countries specifically serves one major market (Comtrade 2009). Countries belonging to the latter group are located close to their main export market and have increased in importance since the 1990s (e.g. Turkey and Romania for the EU (see table 1), Mexico, Honduras and the Dominican Republic for the US).

Table 1: Top 25 apparel export countries to EU-15, 1990–2007 (excluding intra-EU 15 trade); Source: Comtrade 2009

(SITC 84)		1990		1995		2000		2004		2005		2007
Total Imports, in US\$ bn		27,32		41,44		50,67		76,26		82,11		103,30
1	Hong Kong	14,18%	China	12,65%	China	17,41%	China	23,08%	China	30,93%	China	34,93%
2	Turkey	10,93%	Turkey	11,04%	Turkey	10,77%	Turkey	13,40%	Turkey	13,04%	Turkey	12,73%
3	China	10,03%	Hong Kong	10,42%	Hong Kong	6,59%	Bangladesh	6,63%	India	6,04%	Bangladesh	6,42%
4	India	5,72%	India	6,45%	Tunisia	5,11%	Romania	6,41%	Bangladesh	5,85%	India	6,11%
5	Korea, Rep.	5,37%	Morocco	5,21%	Romania	4,98%	India	5,07%	Romania	5,61%	Tunisia	3,75%
6	Morocco	4,76%	<u>Poland</u>	5,18%	Bangladesh	4,90%	Tunisia	4,51%	Tunisia	4,00%	Morocco	3,70%
7	Tunisia	4,07%	Tunisia	5,03%	India	4,86%	Morocco	4,28%	Morocco	3,80%	Romania	3,53%
8	Thailand	3,10%	Bangladesh	3,18%	Morocco	4,58%	Hong Kong	3,97%	Hong Kong	3,34%	Hong Kong	2,86%
9	<u>Poland</u>	2,49%	Indonesia	3,16%	Indonesia	3,69%	Indonesia	2,58%	Indonesia	2,21%	Indonesia	1,96%
10	Indonesia	2,24%	Romania	3,03%	<u>Poland</u>	3,63%	<u>Poland</u>	2,03%	<u>Bulgaria</u>	1,82%	Vietnam	1,77%
11	Taiwan	2,16%	<u>Hungary</u>	2,27%	Thailand	2,22%	Thailand	1,96%	Thailand	1,68%	Sri Lanka	1,67%
12	Macao	2,02%	Pakistan	2,03%	<u>Hungary</u>	2,08%	Pakistan	1,95%	Pakistan	1,65%	Pakistan	1,63%
13	United States	2,02%	Thailand	2,02%	Korea, Rep.	1,82%	<u>Bulgaria</u>	1,88%	<u>Poland</u>	1,61%	<u>Bulgaria</u>	1,59%
14	Pakistan	2,00%	Malaysia	1,78%	Sri Lanka	1,72%	Sri Lanka	1,58%	Sri Lanka	1,49%	Thailand	1,54%
15	<u>Hungary</u>	1,90%	United States	1,66%	Pakistan	1,70%	<u>Hungary</u>	1,37%	<u>Hungary</u>	1,21%	<u>Poland</u>	1,39%
16	Malaysia	1,90%	Korea, Rep.	1,63%	Vietnam	1,54%	Vietnam	1,20%	Vietnam	1,20%	<u>Hungary</u>	1,04%
17	Mauritius	1,78%	Sri Lanka	1,54%	<u>Bulgaria</u>	1,46%	Korea, Rep.	1,11%	Malaysia	0,93%	Malaysia	0,94%
18	Romania	1,64%	<u>Czech Republic</u>	1,48%	Malaysia	1,45%	<u>Czech Republic</u>	1,01%	Cambodia	0,80%	Cambodia	0,80%
19	Switzerland	1,58%	<u>Slovenia</u>	1,47%	Mauritius	1,30%	Malaysia	1,00%	<u>Ukraine</u>	0,76%	<u>Czech Republic</u>	0,78%
20	Philippines	1,31%	Mauritius	1,42%	Macao	1,26%	Cambodia	0,95%	Mauritius	0,73%	Mauritius	0,71%
21	Bangladesh	1,23%	<u>Croatia</u>	1,40%	Taiwan	1,15%	Mauritius	0,90%	<u>Czech Republic</u>	0,70%	<u>Macedonia</u>	0,64%
22	Israel	1,18%	Macao	1,18%	<u>Czech Republic</u>	1,04%	<u>Lithuania</u>	0,82%	<u>Lithuania</u>	0,66%	United States	0,61%
23	Singapore	1,03%	Taiwan	1,05%	United States	0,93%	<u>Ukraine</u>	0,81%	<u>Croatia</u>	0,65%	Egypt	0,60%
24	Sri Lanka	0,84%	Switzerland	1,05%	<u>Lithuania</u>	0,93%	<u>Croatia</u>	0,76%	United States	0,63%	Switzerland	0,58%
25	<u>Czechoslovakia</u>	0,81%	Vietnam	0,89%	<u>Slovak Republic</u>	0,91%	Macao	0,75%	Korea, Rep.	0,59%	<u>Ukraine</u>	0,57%

3.2 CEE's role in global production networks

During the last three decades, and in particular since the 1990s, the apparel sector has experienced dramatic transformations in the context of European macro-regional integration. The reconfiguration of the sector involved most often the relocation of business activities from Western European countries to relatively cheaper locations in CEE and in the Euro-Mediterranean Rim – the so-called 'Greater Europe' (Gereffi/Memedovic 2003; Palpacuer et al. 2005). Initially, the relocation was driven by firms that sought to reduce their wage bill and, hence, these countries have been primarily assigned a specific role, namely the role of low-cost, labour-intensive production platforms serving the final markets in the EC/EU. Additionally, the (pre-)existing structures inherited from state socialism provided an industrial fabric with a long tradition in apparel. While most of the technical equipment was outdated (Pincheson 1995), the more 'intangible' assets, such as a skilled but cheap workforce, local production networks and existing business contacts, have been the basis for the flourishing of apparel trade since the early 1990s (Begg et al. 2003). Poland, Hungary and Romania, in particular, became important exporters in the early 1990s, the Czech Republic in the mid-1990s, Bulgaria in the early 2000s and the Ukraine in the mid-2000s (see table 1).

This restructuring process, involving the decline of the Western European apparel industry and the parallel shifting of production to CEE countries, has been orchestrated by the EU through OPT arrangements since 1975 (Pellegrin 2001). OPT arrangements in this context generally involved the export of EU textiles to neighbouring low-wage countries which made them into finished garments for re-import into the EU. Thus, EU-based firms could send inputs (textile) to one of the countries in question (e.g. Romania) for processing and could re-import the finished garments without facing restrictions which pertain to 'direct' imports into the EU. This preferential treatment consisted in granting specific OPT quotas in sectors protected by quantitative restrictions which involved mainly textile and apparel (called 'economic OPT'), and in removing tariff protection in other sectors (called 'tariff OPT') (Pellegrin 2001). Thus, under OPT quotas were expanded and tariffs on the re-imports only needed to be paid on the value-added abroad and not on the entire value-added – provided that the textiles came from Western European countries.

A main motivation of these arrangements was to secure the competitiveness of the Western European textile and apparel complex by relocating the labour-intensive stages (mainly sewing) and securing the survival of the more capital-intensive ones (textile) within Western Europe. In the short run this form of integration has helped CEE firms to survive after the collapse of the established production and trade networks of the state socialist period. In the long run and in dynamic perspective however, it locked CEE firms into an unfavourable division of labour, since it led to a functional downgrading of their activities and a concentration on labour intensive and low-tech production steps. Only in recent years – a long time after the formal phase-out of OPT regulations in the second half of the 1990s – has the situation changed, as lead firms have delegated more functions to CEE manufacturers. However, it is questionable whether this form of 'industrial upgrading' will yield gains for firms and workers in CEE or whether it is merely "a form of defensive restructuring in the face of intense contract competition and pressure" (Pickles et al. 2006: 2322). In particular, the liberalisation through the MFA phase-out has increased pressures on CEE firms. The situation is compounded by the fact that firms in CEE are faced with increasing costs related to EU-enlargement. In the next section we discuss these developments in more detail for Romania.

3.3 Romania's integration into global production networks

On the global apparel landscape Romania holds a strong position, being among the 15 largest exporters of apparel. Almost 90% of Romanian apparel exports go to EU-15 and Romania has become 'Europe's sewing room', meaning it is the number one apparel exporter from CEE to EU-15

and was globally the fourth most important exporter of apparel to EU-15 (after China, Turkey and Bangladesh and followed by India and Tunisia) in 2004 (see table 1). However, Romania's apparel sector has been subject to important transformations over the last decades.

Under state socialism, the apparel industry, which was strongly integrated with the textile industry, had an important role in achieving a high degree of national industrialisation and providing employment, especially for female workers (Begg et al. 2003). Romania was no exception in this regard and, hence, many textile and apparel units employing predominantly female workers were set up next to the plants of the male-dominated heavy industry all over the country (interview Ciutacu 2008). The decision of the Romanian leader Ceaușescu to secure Romania's autarkic status, including the decision to repay the entire foreign debt, shaped the industry's development through the 1980s. In order to earn foreign currency, exports were promoted while imports were discouraged. As a result, textile and apparel production was highly domestically integrated as almost all production stages were carried out in Romania. In 1988 Romania became the major exporter of apparel from the CEE region to the EC/EU (Textiles Intelligence 1997). Helpful in this regard was the privileged status that Romania enjoyed concerning trade relations to Western Europe compared to other countries of the soviet-bloc (Textiles Intelligence 1997) due to the 'maverick communist' image that had been ascribed to Ceaușescu during his early years (interview Ciutacu 2008).

However, the weakness of the Romanian industry became apparent when state socialism collapsed in the CEE region and the sector was exposed to international competition. Alongside the overall economic downturn, production in the textile and apparel sector declined sharply after 1989. However, the apparel sector recovered quickly, due to OPT relationships with Western European firms which already continued in the early 1990s. The sector developed into a major pillar of the economy, absorbing 20% of total industrial employees and accounting for almost one fifth of exports up to the beginning of the 2000s (NIS 2007). However, this specific insertion of Romanian firms into Western European production networks, which was promoted via EU OPT trade, was not without its price. The OPT contracts – which are called 'Lohnsystem' in Romania – established a division of labour that furthered the disintegration of the domestic apparel and textile complex and led to a change from integrated 'full-package' production to labour-intensive assembly manufacturing. In the short run the OPT transactions with Western European firms were for many firms the only way to survive, as they guaranteed demand and provided materials and machinery firms could not finance otherwise. In addition, firms lacked organisational, financial and sales know-how, since until 1989 departments of the trade ministry had handled all contracts and commercial relations between buyers and suppliers (Czaban/Henderson 2003; CCC/SOMO 1998). The downside of these OPT-arrangements was, however, that they led to a functional downgrading as the former fully-integrated firms carried out only the labour-intensive tasks, especially sewing, under OPT trade. The predominant logic behind this type of arrangement is to take advantage of low labour costs, since it "essentially amounts to 'selling' minutes of labour to the client" (Cammett 2006: 35).

The diverging development paths of the formerly integrated textile and apparel sector are mirrored in employment data as can be seen in table 2. While textile employment fell continuously from 414.000 in 1990 to 65.000 in 2006, employment in the apparel sector first decreased from 258.000 in 1990, reaching a low of 180.000 in 1997, and then increased until they reached their highest level of 303.000 in 2003 (NIS 2007). The growth of apparel employment is even more impressive when one considers that labour productivity has been constantly rising over the years (interview FEPAIUS 2008). The divergence is also reflected at the firm level where the former state-owned large vertically integrated textile and apparel firms were split in smaller units and privatised and smaller private apparel firms emerged during the 1990s (Pincheson 1995; Bota/Gut 2007). The importance of apparel firms as compared to textile firms has constantly increased and the sector is almost entirely composed of small and medium-sized enterprises, with more than half of them being micro-enterprises with less than ten employees (NIS 2007). The most recent official statistics state that in 2006 there were 8.183 firms in the textile and apparel sectors - 70% in the apparel and 30% in the textile sector (NIS 2007). These

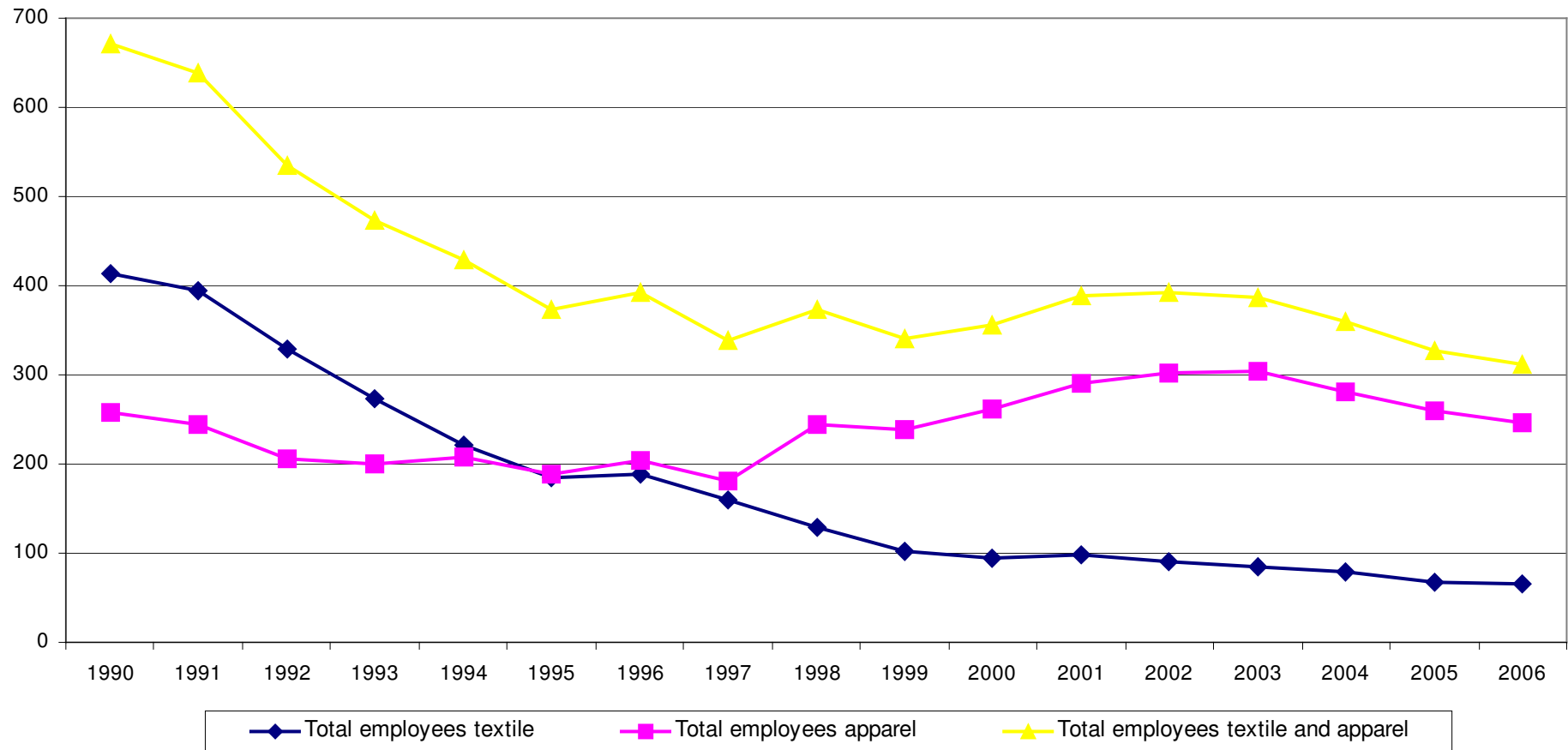
small firms often have no direct relationships with foreign buyers but use intermediaries that mostly involve larger Romanian firms which subcontract parts of their production (interviews with managers in Galati and Focsani 2008). But the situation has been changing in important ways since 2005 as discussed next.

Romania's apparel boom reached its peak in 2004. Since then apparel firms have struggled to keep their contracts. The heavy reliance on the 'Lohnsystem' – according to industry estimates around 75-85% of apparel production in 2004 – became problematic as this relatively unsophisticated production model is primarily built upon low labour costs. Since the phase-out of the MFA in 2005 lead firms have not been constrained by the quota system and therefore they have shifted orders away from the 'Greater Europe' towards Asia. High-volume, low-quality production in particular has been affected. In addition, apparel production has been challenged by neighbouring non-EU countries (e.g. the Ukraine, Republic of Moldova, Macedonia, Albania) which offer lower (labour) costs. Romanian apparel firms have also lost workers in the context of EU enlargement. With the easing of restrictions regarding visa and work permit requirements, migration to Western Europe accelerated and led to a labour shortage in particular skills as well as regions (Ciutacu 2006). This shortage was particularly felt in the apparel industry, given its bad record in terms of working conditions (ILO 2005a, 2005b), and was compounded by the fact that workers also left for other sectors, such as retailing, that have recently emerged as an employment alternative. Furthermore, as in other CEE countries (Pickles et al. 2006), rising production costs, especially utility costs, threatened the thin margins that can be earned in the 'Lohnsystem' (Bota/Gut 2007). Given the industry's heavy export-orientation towards the EU market, currency de-/appreciations and thus the monetary policy of the Romanian national bank had considerable effects. Again, the year 2005 marked an important departure, with strong appreciation towards the Euro in the context of the EU-accession process. As buyers pay in Euros the price received for production decreased in the domestic currency (RON) but the costs – as mentioned above – increased (interview FEPAUIS 2008).

Taken together, these developments marked a rupture in the apparel sector in Romania, reflected in a reduction in production, employment (see figure 2) and the number of apparel firms (NIS 2007). Sector estimates claim that around 40% of the firms in the apparel sector have disappeared since 2004 (interviews FEPAUIS and Bota 2008). The qualitative dimension of this change relates to the strategic re-orientation of the remaining firms in Romania, which started to move away from the increasingly precarious 'Lohnsystem'. Firm strategies can be grouped into three broad categories. Firstly, firms have tried to take on more responsibilities in the production networks and to become 'full-package' suppliers sourcing their own inputs and developing design capabilities. Some Romanian exporters are now offering more services or even ready-to-sell collections to EU buyers. Sourcing of inputs is however difficult, as the Romanian textile industry vanished and as firms need access to loans to pre-finance the purchasing of inputs as well as the developing of design capacities. Further, our interviews suggest that functional upgrading does not necessarily lead to increased rewards such as increased profitability or security as these additional functions and responsibilities have been generally passed on to suppliers by lead firms and they have become the new minimum requirement for participating in certain networks. Moreover, some lead firms, especially 'fast fashion' retailers such as H&M and Zara, have substantial direct control over their supply chain and see functions such as design and sourcing of inputs as their core competencies, which makes functional upgrading in their networks highly contested (interviews with firms 2008). Secondly, firms have increasingly looked for alternatives to the Western European market and have re-discovered the domestic as well as specific export markets, such as Russia. However, these markets are also contested by other competitors. A third strategic response to reduce (labour) costs and counter labour shortage has been the internal relocation of production to poorer regions in Romania, the increasing reliance on subcontracting across borders to neighbouring non-EU countries such as the Republic of Moldova or the Ukraine (Smith et al. 2008), and the use of migrant workers from Asia (see below). However, all of these strategies require specific resources, which the majority of small and micro-firms find particularly difficult to acquire.

Figure 2: Employment in Romania's apparel and textile sector, 1990-2006; Source: NIS 2007

Total number of employees in textile and apparel sectors
(in thousands)



3.4 Labour rights situation in Romania

Working conditions in the apparel sector are among the worst in the world, including child labour and forms of slave labour (Dicken 2003; Hale/Wills 2005). In an increasingly liberalised sector, industry pressures are often offloaded onto a highly feminised and non-unionised workforce. These global industry pressures are, however, mediated through specific local institutional structures and policies. In particular, the state socialist past of the CEE countries and EU enlargement helps to understand the positions of workers in the apparel production networks in Romania (Pickles/Smith forthcoming). Furthermore, the role of Romania as a regional supplier country closely connected to 'fast fashion' tendencies as well as the integration into production networks through the 'Lohnsystem', where low costs and/or flexibility with regard to orders and delivery time are paramount concerns, are central in understanding pressures on, and prospects for, workers.

Working conditions in the 1990s, at least occasionally, featured sweatshop-like conditions (CCC/SOMO 1998; Musiolek 2000; Barendt et al. 2005), as the harsh times of 'transition', accompanied by high unemployment, left little alternatives for workers and the dominant mode of insertion via the 'Lohnsystem' left little room to improve wages and working conditions. Gradually, improvements in working conditions occurred which were partly driven by legislative changes and the efforts of labour inspectorates as well as by international consumer campaigns, in particular initiated by the CCC, which tried to push lead firms toward more responsible business practices. As a response many large buyers have introduced Codes of Conduct (CoC) and conduct social audits, some of them have also social auditors based directly in Romania who regularly visit their suppliers. There are however two important problems: First, although CoC generally cover basic labour rights, audits were so far mostly concerned with health and safety issues, paying less attention to wages, overtime or trade union rights which are critical to improve overall working conditions (interviews with National Labour Inspectorate and firms 2008). Improvements such as better lighting, ventilation or ergonomic chairs relate to process upgrading as they also increase productivity by a more 'efficient' use of the 'human resource'. In contrast to these 'win-win' situations, issues that are in conflict with the prevailing business logic (e.g. living wage, working time, trade union rights) remain contested. Respecting those rights would mean restrictions with regard to flexibility and prices/wages paid. Thus, the selective nature of improvements suggests that the 'business case' was at least equally important as the 'social case' (interviews with labour inspectorates 2008). Second, there is a lack of coherence at the buyers' level since the person in charge of CoC and CSR and the one in charge of production and price negotiations is generally not the same and their agendas are not geared to each other. Hence, apparel suppliers are confronted on the one hand with tight price and delivery time demands from the clients' buying department and on the other hand with demands from the CSR department that has usually not the power to reward the supplier for investments and improvements in working conditions (e.g. via higher prices or more stable contractual relationships) (interviews with firms 2008).

The rupture marked by the year 2005 had complex effects on workers and working conditions. Notwithstanding regional and sectoral differences, the labour-shortage due to the lifting of the requirements for visa and work permits has increased the overall bargaining power of workers. The remaining firms responded in different ways. Some tried to offer better wages and working conditions to retain or attract workers. Occasionally, they tapped into remote areas by either offering free transport to the site or by setting-up a small production line in the respective area. Alternatively, they moved production sites internally, in particular to Moldavia – the poorest region in the north-east of Romania where employment alternatives are still very limited – or relied on subcontracting across borders to neighbouring non-EU countries. Finally, a few firms sought migrant workers, mainly from Asian countries (including China, Vietnam, Bangladesh and the Philippines), under the work permit scheme (see below). Firms' reactions depended, among other factors, on their specific insertion into production networks and the nature of the lead firms. In general, firms that predominantly work in the higher quality segment for (mostly Italian or German) apparel manufacturers have had more room to

negotiate working conditions than those producing apparel of low or medium quality for retailers. In particular, the latter type of production has either moved out of the country or relocated internally to Moldavia, where wages are still relatively low (interview GEA and Stiel 2008).

Thus, today the main labour rights issues in the Romanian apparel sector concern wages, working time and work intensity, informal work, trade union representation and to some extent occupational health issues (ILO 2005b, interviews with National Labour Research Institute, labour inspectorates and trade unions 2008). See Appendix 2 for a legal overview on the labour rights situation in Romania.

In the apparel sector workers often receive the sector minimum wage which is only slightly above the national gross minimum wage (RON 500 or €137 per month in 2008⁶). In Romania net salaries in the apparel sector are 30% below the average paid in the Romanian industry (NIS 2007) and only forest workers and woodcutters earn less than apparel workers (interview with Ciutacu and trade unions 2008). Piece-rate or a mixture of hourly and piece-rate payment and minimum quotas are common in the apparel sector. During state socialism calculating the individual norm for the piece-rate system was a profession on its own (interview with National Labour Inspectorate 2008). Since the 1990s quotas have been established by line managers, but their scope of calculating a 'realistic' target that allows for decent working conditions is heavily limited by the prices clients are offering (interviews with apparel firms and workers 2008). Given the tight targets working overtime is sometimes the only way to meet quotas (Barendt et al. 2005: 41, interviews with National Labour Inspectorate and workers 2008). Moreover, overtime issues are also related to fluctuating orders which are increasingly unpredictable and demanded on a short-term basis. Thus, workers generally have to work overtime in peak times to meet targets but are sometimes forced to work (and earn) less when orders are decreasing (interviews with trade unions 2008; Barendt et al. 2005: 44). However, there are also cases where workers prefer to work overtime to increase their modest incomes (interviews with labour inspectorates and workers 2008). Finally, overtime is sometimes not paid at a premium rate as required by law (interviews with trade unions and labour inspectorates 2008; Lungwitz 2006).

Informal work has been an important feature of the Romanian economy under state socialism as well as throughout the transition period and was primarily developed as a survival strategy (Ghinararu 2007). Informal work practices nowadays take place under different circumstances. Informal work in the apparel sector consists of workers employed without contracts, workers with a contract covering the minimum wage but where the additional wage is paid off the books, or workers hired for long testing periods. If workers work (partly) off the books they receive higher incomes but employers circumvent social security payments which leads to lower social protection and pension payments (interviews with Ciutacu and National Labour Inspectorate 2008).

Further, contract migrant workers have increased in importance in the apparel sector in Romania (interview with Crisan, trade unions and firms 2008, Crisan 2008: 6). Due to labour shortage in some parts of Romania employers in the apparel sector sought foreign workers from primarily Asian countries, including China, Vietnam, Bangladesh and the Philippines to work in textile and apparel production plants. Information about these workers and their working conditions is scarce (Chivu 2007). In January 2007 this issue gained some publicity as 300 female Chinese workers who were employed legally under the work permit scheme in an apparel factory in Bacau protested for higher wages (BBC News 2007). The women had worked in Bacau since mid-2006 on contracts established between the Romanian employer, an Italian and a Chinese employment agency (interviews with trade unions 2008). At the time of their recruitment the workers were promised wages of US\$ 700 per month. In fact they only received US\$300 per month. Their contract with the recruitment agency stipulated that they had to pay up to US\$4.000 to be selected for working. The workers had to transfer 25% of their salary every month to repay this amount. Additional deductions were made for food and accommodation by the employer. (ITUC 2008) The Romanian manager initially threatened to send the

⁶ Calculation based on an averaged exchange rate in 2008 of 3,65.

workers back to China. Only after pressure from international trade unions a solution was negotiated. This case exemplifies the particular vulnerabilities that migrant workers are exposed to. Since then similar cases have become public and more firms announced plans to hire migrant workers from Asia (interviews with firms 2008; ZF 2008; Die Presse 2008)

In the apparel sector female workers comprise 80% to 90% of the workforce. Sewing is exclusively done by women. Men work either in the ironing or packaging sections or with machines which is especially the case in textile firms where larger machines are used in the production process. An older study CCC/SOMO (1998) found that "in factories where women work in the ironing section the rationale for low wages is that "the job doesn't require any skills", while in other factories where mostly men work in the ironing section the wages are relatively high because "ironing is a heavy job". Similar explanations have been given in our firm interviews. A particular issue was reported with regard to parental leave where discrimination against women seems to be an important issue (interviews with labour inspectorates 2008).

Reported health and safety issues in the apparel sector include lack of proper ventilation during summer and heating during winter, excessive dust, insufficient lightening and problems with non-adjustable chairs (interviews with labour inspectorates, trade unions and workers 2008, Musiolek 2000). Our interviews suggest that in these areas most improvements have been achieved during the last years, mainly driven by labour inspectorates but also as a consequence of buyers' requirements (interviews with labour inspectorates and firms 2008).

Trade unions have been largely de-legitimised in CEE after 1989 and have seen their membership decrease constantly. Yet, the Romanian average unionisation rate is still above the European average (Fulton 2007), but unionisation density is highly sector-specific. According to trade unions' estimates, the unionisation rate is around 25% in the apparel sector (interviews with trade unions 2008). There are important differences between former state-owned and newly established private as well as between larger and smaller firms. Union representation tends to be high in former state-owned companies which are generally larger firms, and very low in newly established private firms which account for most employment. The dominance of small-scale firms makes union organization more difficult. Cases of abusive dismissal or unfair treatment of union leaders or of employees willing to establish a union are a quite common practice (ILO 2005b). The situation is further aggravated by the fact that trade unions in the sector are highly fragmented and, hence, have not developed a joint strategy to organise a feminised and partly informalised sector.

4. GLOBAL PRODUCTION NETWORKS IN ELECTRONICS

4.1 Global sector dynamics

Comprising a variety of products, including computers, mobile phones and mp3-players, the electronics sector is among the largest and fastest growing manufacturing industries in the world (UNCTAD 2004b)⁷. Since the 1980s electronics has doubled its share in global manufacturing trade to reach almost one quarter of world trade in manufactured products (UNCTAD 2004b: 90). A key reason for this is the increasing participation of developing and 'transition' countries in global electronics production networks. Hence, production and trade patterns have changed significantly in the last decades and the electronics industry is today among the most globalised industries and, as the apparel sector, has increasingly been organised in highly fragmented and globally dispersed production networks (Dicken 2003). Key factors underlying this restructuring process have been corporate strategies of lead firms, in particular the adoption of the 'vertical specialisation' business model that led to a deep change in industrial organisation, as well as changes in the regulatory environment, including the adoption of a liberal investment and trade regime in many developing and 'transition' countries. As in the apparel sector, these transformations have important implications for production patterns as well as for industrial and social upgrading possibilities of firms and workers in developing and 'transition' countries.

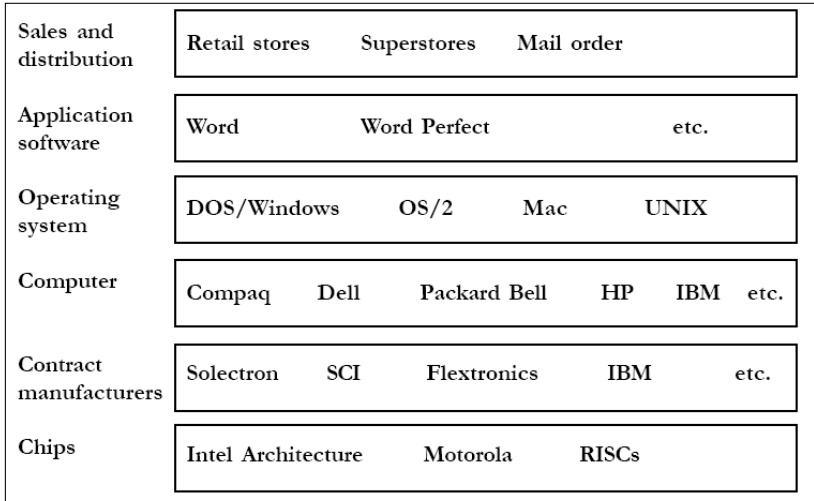
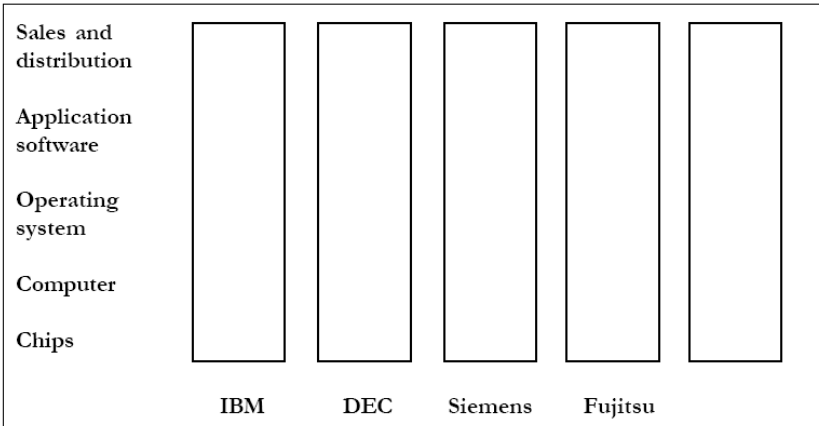
Historically, the electronics industry was characterised by large vertically integrated firms where basically all activities were carried out in-house. Thus, the lead firms in the electronics sector (also called Original Brand Manufacturers (OBM) or brand name firms) such as IBM and Digital Equipment in the US, Fujitsu in Japan and Siemens in Germany, used to follow the 'vertical integration' model and, hence, designed and produced the key components and assembled these components in-house. This Fordist business model has however undergone dramatic changes since the inception of the industry in the 1940 (Henderson 1989). A key reason for this was the 'PC revolution' in the 1980s that had important effects on the whole electronics sector as it changed the competitive dynamics in the sector. Lead firms from the US and later Japan started to offshore selected manufacturing activities to foreign affiliates as early as in the 1960s (Henderson 1989; Ernst 2002). In the 1970s they also started to subcontract lower-level assembly functions to independent firms, in particular in East Asia. However, despite these early offshoring and outsourcing activities to Asia, the large, vertical integrated corporation was still the prototype of industrial organisation in the early 1980s.

The 'PC revolution' originating in Silicon Valley marked an important rupture (Ernst 2002; Lüthje et al. 2002). IBM's decision in the early 1980s to enter the rapidly growing niche market in micro-computers with a product that relied on standardised components led to a profound change in the industry structure (Ernst 2002). Until then, manufacturing of components and the technology and know-how needed therefore were considered key aspects of the 'competitive strategy' of lead firms as they

⁷ The electronics sector can be differentiated in a hardware and software segment. This report focuses on electronics hardware manufacturing which includes the following product categories based on UN SITC Rev. 3 (Comtrade 2009): (a) SITC-75: office machines and automatic data processing machines, including end-products such as personal computers (PC), printers, computer monitors, and parts of PCs and office equipment, as well as intermediate parts such as disk drives, optical disk drives, and printed circuit boards assembled; (b) SITC-76: telecommunications and sound-recording equipment, including end-products such as telecommunications equipment, modems, and consumer electronics (e.g. TV and video recorders), as well as intermediate parts for telecommunications equipment and consumer electronics; (c) SITC-776: electronics valves, including primarily intermediate parts and components such as integrated circuits, wafers, transistors, and other semiconductor devices.

were considered a pre-requisite for product innovation and related future business opportunities. Hence, lead firms tried to keep these activities in-house and the technology proprietary. In contrast, the modular architecture of micro-computers assembled from standardised components offered new possibilities for highly specialised firms that concentrated on specific segments within the production process (see figure 3). In this way the standardization and subsequent commercialization of processes formerly contained within the boundaries of vertically integrated firms created „a mass market for personal computers as well as literally thousands of new producers of a diverse range of components, peripherals and applications.“ (Saxenian 2006: 39). Most of the emerging specialised technology firms from the Silicon Valley focused only on specific parts of the final product such as microprocessor (e.g. Intel) or software operating systems (e.g. Microsoft) (Ferguson & Morris 1993).

Figure 3: Vertically integrated (around 1980s) versus vertically specialized computer industry;
Source: Lüthje 2005



These developments were not limited to the PC segment but increasingly spread across the whole electronics sector as „new electronics products markets began to converge on a common technological foundation of networkable, quasi-open, microprocessor based systems“ (Borus/Cohen 1997: 7). Thus, the increasing standardisation changed the terms of competition in the whole sector. Given the increasing commodification of manufacturing (related) activities lead firms (e.g. IBM, Hewlett Packard, Nokia) increasingly focused on R&D and marketing/branding and shed manufacturing activities. The de-coupling of product innovation and manufacturing enabled lead firms to achieve market control by focussing on the design of key products. In this system of ‚vertical specialisation‘ lead firms aim to create new product markets through the development of breakthrough technologies

or product designs (Lüthje 2002). Instead of investing in expensive in-house manufacturing plants, lead firms allocate resources to other purposes and reduce their fixed costs and financial risks (ILO 2007). Hence, the production system developed from a vertically integrated hierarchical system into a more 'modular', market-like form where final products such as computers or mobile phones are not manufactured in-house in one firm but where manufacturing is outsourced to a variety of external firms. These firms assemble the final products from standard parts and components (e.g. chips, modems, operating systems) or produce these components which are configured according to the needs of lead firms (Lüthje 2001). Therefore, today most production is not organized within a large vertical integrated TNC but relies on a network of hundreds of formally independent firms that are spread over the globe, yet most of these firms are concentrated in specific regions or countries. For instance, the more sophisticated and capital-intensive component production tends to be concentrated in a few clusters worldwide, while low-wage activities such as assembly are more dispersed. Thus, there is a considerable amount of low value and thus, low-wage activity in this 'high tech'-sector as the increasing standardisation allows to fragment the production process into labour-intensive and more capital- and knowledge-intensive parts.

The re-orientation of lead firms away from manufacturing has created room for other firms to organise manufacturing. Two important actors which gained power as first-tier suppliers are so-called Original Design Manufacturers (ODM) and Contract Electronics Manufacturers (CEM). ODMs emerged from the early offshoring and outsourcing activities from lead firms, in particular in Taiwan. Initially, they were principally concerned with rather simple assembly work but they succeeded to upgrade their activities substantially and took over a set of responsibilities that was formerly integrated within lead firms, including product design. Related to this move was the concentration on a limited number of high-volume products (e.g. notebooks, monitors, handsets/mobile phones) for which they could refine their design skills. Hence, ODMs deliver the final product - for which they own the design - to lead firms which then sell it under their brand names. For instance, almost all notebooks that are sold under the brand name of Hewlett Packard, Dell or Apple are manufactured by Taiwanese ODMs in the Greater Shanghai region.

Besides ODMs that specialised in specific products, large parts of the manufacturing activities have been taken over by CEMs (see box 4). CEMs are distinct from traditional subcontractors as they aim to provide a 'one-stop shop' for manufacturing services by offering a greater range of integrated manufacturing capabilities. Hence, in addition to assembly work they have extended their range of activities to encompass supply-chain management functions such as component purchasing, logistics management and after-sales services such as product repair. In contrast to ODMs, they generally do not engage in product design. Hence, their key 'competitive advantage' arises from the ability to pool orders for a variety of clients which is achieved by offering generic, rather than product-specific manufacturing capabilities. Through this they, first, can achieve significant economies of scale given their broader client base which is not only achieved on the factory floor but also via a centralised management of procurement and purchasing of components that allows leveraging their buying power towards (component) suppliers. Second, they can increase time to market as their generic manufacturing capabilities allow rapidly switching from one product line to another as clients demands are changing.

Many of the CEMs started to operate as small, independent manufacturers in the Silicon Valley in the late 1970s providing manufacturing services to the emerging specialised technology firms (Sturgeon 2003). As the trend to standardize and outsource manufacturing operations accelerated the importance of this type of firms increased - as reflected in their impressive growth rates, in particular since the 1990s. Their increasingly importance can further be related to shifting strategies of lead firms during the 1990s. First, as some of the ODMs moved to upstream segments and began to compete directly with lead firms by selling under their own brand (e.g. Acer) lead firms have increasingly moved away from ODMs towards CEMs (Hobday 2001; Sturgeon/Lester 2004). Second, as the 'vertical specialisation' industry model gained ground subcontracting networks in manufacturing expanded

rapidly and included a diverse spectrum of outsourcing relationships. To streamline these increasingly complex outsourcing relationships lead firms started to consolidate their supply base and demanded global manufacturing and process support (Sturgeon 2002). As a consequence, CEMs have themselves developed a 'global footprint', mostly via the acquisition of entire plants from lead firms but also through greenfield investments. Hence, the major CEMs employ tens of thousands of workers (ILO 2007). As a consequence, CEMs are vertically re-integrating manufacturing activities at the first-tier supplier level and contribute in this way to the re-emergence of Fordist-style integrated mass-production in a number of low wage countries. A key element in this business model is the heavy reliance on low-wage and flexible labour which can be seen in the high use of contract workers in the sector which are used as a buffer to manage the ups and downs of orders (see below).

Box 4: The global CEM-industry

The emergence of powerful first-tier suppliers has been most obvious in the electronics sector. CEMs have increasingly re-integrated the production process in massive industrial plants. The most telling example is 'Foxconn-City', an enormous industrial park located in Shenzhen where tens of thousands of workers - estimates talk of up to 200.000 workers - are employed by Foxconn, the largest CEM globally. Its closest competitor - Flextronics - is the most important player in the European context. The Singapore based Flextronics vertically integrated production and started to operate in huge industrial parks at a time, when everybody in the industry talked about and also implemented concepts such as 'lean-production' and 'downsizing'. Flextronics started in 1969 as a small business in Silicon Valley, where it provided circuit board assembly ('board stuffing') to local firms that needed extra capacity for periods of peak demand. Its customers provided both the raw materials of the printed circuit board and the components (ILO 2007). Since then it has continuously extended its activities, both upstream and downstream. Today, it operates facilities in 30 countries on all continents. This global footprint allows servicing the manufacturing needs of its customers. Among them are lead firms such as Alcatel, Dell, EMC, Epson, Sony Ericsson, Hewlett Packard, Microsoft, Motorola, Nokia Networks, Siemens, and Xerox. Flextronics operates nine industrial parks in low-cost regions around the world such as Latin America, Asia, and Eastern Europe. These parks offer an infrastructure that combines leading-edge engineering, manufacturing, procurement and logistics services for lead firms. One advantage is highlighted by Mr. Fawkes from Hewlett Packard: "A couple of years ago Mexico got very expensive for consumer products, and we moved our production to the Flex factory in Shanghai. To be able to do that is a beautiful thing. If I had to build or shut down my own factories, the lead times would be very long." (Strategy + Business 2004)

CEMs gained even more in importance in the aftermath of the burst of the 'New Economy' bubble in 2001 as lead firms further increased their outsourcing activities. Even those lead firms that were up to 2001 reluctant to engage in outsourcing activities started to do so as they wanted to get rid of the risks involved with manufacturing, reduce their fixed costs and increase flexibility. This change had also a geographical dimension reflected in a rise of relocations away from former core electronics production centres in the US and Western Europe to Asian countries, in particular to China, but also to regional low-cost suppliers such as Mexico for the US or Hungary for Western Europe.

Table 2: Top 10 CEMs, 2008, Source: iSuppli, Revenue Estimates 2008

Rank	Name	Headquarter	Turnover [billion USD]
1	Hon Hai (Foxconn)	Taiwan	55,0
2	Flextronics	Singapore	33,0
3	Jabil	USA	13,0
4	Celestica	Canada	8,0
5	Sanmina	USA	7,0
6	Elcoteq	Luxembourg	5,0
7	Venture	Singapore	2,7
8	Benchmark	USA	2,6
9	Universal Scientific	Taiwan	2,0
10	Plexus	USA	2,0

Despite the emergence of powerful ODMs and CEMs at the first-tier supplier level the vast majority of suppliers in global electronics production networks is still made up of small- and medium-sized enterprises that provide a large array of inputs for the final products. Their focus is on low-wages activities like the supply of standard components and, hence, their 'competitive advantage' is low production cost and flexibility. As Ernst and Kim put it (Ernst/Kim 2001: 9): "They are typically used as 'price breakers' and 'capacity buffer', and can be dropped at short notice (...) [and they] normally lack proprietary assets; their financial resources are inadequate to invest in training and R&D; and they are highly vulnerable to abrupt changes in markets and technology, and to financial crises."

Besides the importance of corporate strategies broader policy changes and specific regulations at the national and international level shape the electronics sector in important ways. An important prerequisite for the globalisation of electronics production was the shift towards an outward-oriented development model in many developing and 'transition' countries that has occurred since the 1980s. This paradigmatic policy change was not limited to the electronics sector but the sector occupied an important role in many countries' liberalisation strategies (Gallagher/Zarsky 2007). Governments at the national and local level were eager to attract FDI and access global electronics production networks as they promised „ [...] high-wage, skilled workers and [would] offer opportunities for entrepreneurs to earn technological profits“ (Amsden 2004: 87). The rationale was to start with low-wage export platforms that would lead to knowledge-spillovers which in turn would improve the innovation and manufacturing capabilities of local firms and support the move into higher value activities. EPZ and similar instruments such as industrial parks or industrial zones were of particular relevance and firms involved in the electronics sector account for a major share of EPZ related activities (UNCTAD 2004b). However, this upgrading trajectory has not always materialized (see e.g. Phillips/Henderson 2009) as many activities in the electronics production process are basic and labour-intensive and have become increasingly standardised and commodified leading to fierce competition as more and more developing and 'transition' countries have offered their production and export capabilities.

A second important aspect concerning regulatory changes relates to the increasing liberalisation of trade in electronics. In particular the conclusion of the Information Technology Agreement (ITA)⁸ in 1996 negotiated under the auspices of the WTO marked an important change in strategy of major countries. The EU case illustrates this change aptly. From the 1960s onwards the main approach of

⁸ The ITA was negotiated and signed in 1996 at the Singapore Ministerial Meeting, with the goal of expanding trade in electronics products by eliminating tariffs through equal annual reductions on an agreed range of products. The 29 countries that originally negotiated the accord have now grown to 70. The ITA covers five main categories: computers, telecommunications products, semiconductors, semiconductor manufacturing equipment/software and scientific instruments. (Borras/Cohen 1997)

member countries consisted in promoting 'national champions' behind tariff walls. For various reasons, including the industry change that was underway since the 'PC revolution', this approach did not pay off as expected (Zysmann/Boruss 1994). Against the background of the EU enlargement process and the development of a larger, 'harmonised single market', the EU policy changed culminating in the signature of the ITA with the aim of eliminating all tariffs on electronics products. However, despite this aim tariff reductions have been concentrated on parts and components and tariff rates continue to play an important role in final products. Further, regional trade agreements overlap with the liberalisation process at the international level. For instance, within the context of free trade agreements the EU applies lower rates to electronics shipped from Turkey or the Ukraine (Boruss/Cohen 1997; MOVE 2008).

Global production networks in electronics are spanning the globe and touch down in an increasing number of countries, but depending on the activities performed the degree of spatial concentration varies significantly. Generally speaking, the spatial concentration tends to increase the more complex and capital- and knowledge-intensive products and processes are as only few firms and regions meet the high demands required for this type of production (Ernst 2002: 325). The few semiconductor/microprocessor locations at the high end are a prime example in this regard. In contrast, commodity-type activities like labour-intensive assembly work at the low end tend to be highly dispersed. Manufacturing of components (e.g. displays, memory devices, hard-disk drives) occupy an intermediate position in between these two extremes.

Asia's increasing involvement in the electronics sector over the last half of the century is a key feature of the electronics sector. In particular East Asia has become the central manufacturing base for the industry. More recently, also manufacturing related engineering work (Lüthje 2005) and even some sensitive R&D functions have been relocated to East Asian countries (Ernst 2008). Most high-tech districts in NICs but also in developed countries have developed certain competitive advantages with regard to the manufacturing or design of specific products or components, such as Silicon Valley in chip development and semiconductor machinery or Taiwan in motherboards and notebook computers (Lüthje et al. 2002). Another development that has occurred in particular since the 1990s overlaps with this general trend towards Asia and is related to the shift in lead firms' strategies, the subsequent internationalisation of CEMs and increasing regional integration. As lead firms increasingly demanded that CEMs 'go global' and offer 'one-stop-shopping' solutions to serve the key markets in the Triade, CEMs built-up integrated manufacturing capacities in every major macro-region (Linden 1998), including Mexico for North America, Malaysia and China for Asia and Hungary, Poland and the Czech Republic for Western Europe (see table 3). The creation of these regional production networks is not only motivated by low labour costs (compared to the Triade) but also based on responsiveness and hence time-to-market which favour locations in geographic proximity to final markets. Hence, when viewed from the point of total costs, locations in CEE can out-compete China, at least for particular products (MHM 2006).

Table 3: Top 30 electronics export countries to EU-15, 1993-2007 (excluding intra-EU trade); Source: Comtrade 2009

(SITC 75, 76, 776)	1993	1995	2000	2003	2005	2007	
Total Imports, in US\$	65.344.847.938	92.397.430.441	140.848.364.651	147.422.525.045	211.130.520.129	253.756.659.726	
1	USA	34,55% USA	33,82% USA	28,43% China	20,90% China	29,46% China	35,11%
2	Japan	30,85% Japan	25,16% Japan	17,93% USA	18,14% USA	13,26% USA	12,69%
3	Singapore	9,47% Singapore	9,80% China	9,69% Japan	14,24% Japan	11,12% Japan	9,40%
4	Malaysia	4,99% Malaysia	5,98% Singapore	7,54% Rep. of Korea	6,99% Rep. of Korea	8,21% Rep. of Korea	7,30%
5	Rep. of Korea	4,37% Rep. of Korea	5,09% Rep. of Korea	7,18% Singapore	6,85% Malaysia	5,37% Malaysia	5,18%
6	China	3,53% China	4,86% Malaysia	6,26% Malaysia	6,61% Singapore	5,31% <u>Hungary</u>	4,64%
7	Hong Kong SAR	2,51% Hong Kong SAR	2,70% <u>Hungary</u>	3,56% <u>Hungary</u>	4,40% <u>Hungary</u>	5,20% <u>Czech Rep.</u>	3,99%
8	Thailand	1,62% Thailand	2,26% Philippines	2,89% Philippines	3,19% <u>Czech Rep.</u>	2,81% Singapore	3,68%
9	Switzerland	1,41% Canada	1,54% Thailand	2,42% <u>Czech Rep.</u>	2,51% Philippines	2,66% <u>Slovakia</u>	2,45%
10	Canada	1,12% Switzerland	1,39% Hong Kong SAR	2,38% Thailand	2,34% Hong Kong SAR	2,16% Thailand	2,35%
11	Philippines	0,95% Philippines	1,01% Canada	2,04% Hong Kong SAR	2,17% Thailand	2,13% Philippines	1,95%
12	Malta	0,76% Areas, nes	0,72% Switzerland	1,15% <u>Poland</u>	1,26% Turkey	1,37% <u>Poland</u>	1,62%
13	Israel	0,55% Malta	0,71% Israel	1,13% Turkey	1,14% Costa Rica	1,23% Hong Kong SAR	1,48%
14	Indonesia	0,49% Norway	0,64% Indonesia	0,93% Indonesia	1,06% United Arab Emirates	1,10% Turkey	0,95%
15	Norway	0,48% <u>Hungary</u>	0,64% Mexico	0,79% Costa Rica	1,06% <u>Poland</u>	0,98% Costa Rica	0,94%
16	<u>Hungary</u>	0,40% Israel	0,62% <u>Estonia</u>	0,78% Canada	1,02% Switzerland	0,96% Canada	0,84%
17	Morocco	0,24% Indonesia	0,43% <u>Poland</u>	0,63% Switzerland	0,95% <u>Slovakia</u>	0,94% Switzerland	0,78%
18	Turkey	0,23% <u>Poland</u>	0,35% Costa Rica	0,63% Mexico	0,94% Canada	0,85% Mexico	0,78%
19	Brazil	0,22% Mexico	0,33% Turkey	0,62% Israel	0,57% Indonesia	0,83% Indonesia	0,76%
20	Mexico	0,16% Morocco	0,31% <u>Czech Rep.</u>	0,58% United Arab Emirates	0,51% Mexico	0,79% Israel	0,49%
21	<u>Poland</u>	0,14% <u>Czech Rep.</u>	0,24% Norway	0,49% <u>Estonia</u>	0,44% <u>Estonia</u>	0,49% Norway	0,37%
22	Australia	0,14% Turkey	0,24% Romania	0,28% Norway	0,43% Israel	0,47% Tunisia	0,21%
23	<u>Czech Rep.</u>	0,13% Australia	0,18% <u>Slovakia</u>	0,20% <u>Slovakia</u>	0,41% Norway	0,31% Malta	0,19%
24	Saudi Arabia	0,11% India	0,13% Bunkers	0,20% Romania	0,25% Brazil	0,18% Viet Nam	0,19%
25	Tunisia	0,06% Brazil	0,12% Morocco	0,19% Morocco	0,22% Malta	0,17% India	0,18%
26	India	0,05% <u>Estonia</u>	0,11% Malta	0,18% Australia	0,17% Romania	0,17% United Arab Emirates	0,14%
27	<u>Slovenia</u>	0,05% Saudi Arabia	0,10% Australia	0,14% Malta	0,16% India	0,15% South Africa	0,14%
28	United Arab Emirates	0,05% <u>Slovenia</u>	0,06% Brazil	0,09% India	0,13% Morocco	0,13% Romania	0,14%
29	Mali	0,04% <u>Lithuania</u>	0,04% South Africa	0,06% South Africa	0,11% South Africa	0,12% Morocco	0,13%
30	Bahrain	0,03% United Arab Emirates	0,04% United Arab Emirates	0,06% <u>Lithuania</u>	0,10% Cyprus	0,12% <u>Estonia</u>	0,12%

4.2 CEE's role in global production networks

In the electronics sector the last two decades have seen a deepening of European integration that has been paralleled by shifting production capacities from Western Europe to CEE (Linden 1998; OECD 2008; MOVE 2008). The re-emergence of CEE as a production location was primarily driven by TNCs which sought to extend their regional production networks further eastward to reduce costs and flexibility due to geographical proximity (Linden 1998; McGowan et al. 2004). By the late 1980s Western European electronics firms faced increasing competition from US and Japanese lead firms and struggled to preserve their position (Zysmann/Boruss 1994). Against this background the fall of state-socialism in CEE provided opportunities for the revitalisation of the industry by tapping the cheap but skilled workforce in geographic proximity. In particular Phillips and Siemens were among the first to invest in the CEE region in the first half of the 1990s, first, via the acquisition of state assets in the privatisation process and later through green field investments. A second wave occurred from the mid-90s onwards and has been particularly driven by CEMs which started to establish integrated manufacturing capacities close to the final markets in Western Europe (Radošević 2002; Lühje/Sproll 2004). Against this background Hungary, Poland and the Czech Republic have come to play a major role as low-cost production platforms (Radošević 2004). But the increasing importance of Asia, including China and India, has increased cost-based competition and has led to a further relocation, in particular of labour-intensive manufacturing activities, to Asia or further into Eastern Europe. This is reflected in the emergence of newcomer countries such as Romania, Bulgaria, the Ukraine, Russia and Turkey that offer more favourable conditions than Hungary or the Czech Republic, including lower labour costs (MHM 2006; Frost & Sullivan 2007). With regard to more complex and knowledge-intensive activities, the partial upgrading of manufacturing capabilities and the occasional delegation of more sophisticated functions such as prototyping and product introduction to plants in established CEE locations such as Hungary (see box 5) underlines the dynamic nature of global production networks and the potential relocation threats that the remaining locations in Western Europe are exposed to.

Box 5: Videoton – Shifting division of labour

Videoton is one of the rare examples of domestic electronics firms in the CEE region that survived the collapse of state socialism. Despite this exception to the rule, it provides a good example of the dynamic nature of global production networks and the shifts in the division of labour in the European context. Videoton was founded in 1938 and developed into the biggest state-owned company in Hungary. Unlike many electronics firms it managed the 'transition period' by radically downsizing and focusing on low-wage assembly as a CEM. By the end of the century it was among the top 10 firms in Hungary and employed 16.000 workers (Radošević/Yoruk 2001). Today most of its employees still work in Hungarian plants (8.000 employees) but Videoton set up a plant in Bulgaria that employs around 1.000 workers and plans to open another plant in the Ukraine in mid-2009. A key driver for the eastward expansion is labour costs. According to Videoton's management, Bulgaria has approximately 50% of labour unit costs compared to Hungary and labour in the Ukraine is even cheaper. As the cost structure is changing, so are the tasks that are assigned to firms in different locations. For instance, products (e.g. cable loops) that were produced in Hungary ten years ago are now produced in Bulgaria. Most standard electronics components continue to be sourced from Asian firms. At the same time, the production process within Hungary has become more knowledge-intensive. Ten years ago all know-how was made available by the Western-European customers. Today Videoton deploys its own know-how. There are 150 employees working in the engineering department as compared to zero in 1995. Overall, Videoton's management expect a threefold division of labour within Europe: Western Europe will specialize in design, marketing and distribution, 'Middle Europe' (EU10) will specialize in engineering and development and Eastern European countries will specialize in labour-intensive production. (Meijers et al. 2008)

While electronics production networks in CEE are predominantly reflecting the strategies of lead firms, other actors and their policies contributed to the specific type of integration which occurred over the last two decades. In particular since the mid-1990s governments in CEE, with Hungary and the Czech Republic being most active, have deployed several instruments to attract lead firms. Policies at the national and local level have concentrated on attracting FDI (Linden 1998). They included among others favourable tax regimes, grants and special economic zones (SEZ) which provided tax and duty exemptions as well as industrial parks (Radošević 2002). For instance, the Hungarian government funded the development of 112 industrial parks which has proven attractive to electronics firms such as Flextronics, IBM, Jabil Circuit, and Philips (Radošević 2002). In addition, governments targeted specific foreign investors that they deemed of strategic importance via special deals/packages. At the local level, authorities have played an active role in attracting FDI as they provided land and utilities and supported the retraining of workers. Locational decisions have also been based on existing business relations, in particular with Hungary, and industrial capacities that had been built up during the state socialist era which was influenced by the division of labour within the Council for Mutual Economic Assistance (CEMA). For instance, Hungary's former role in microcomputer production may well explain its strength in software. Equally, Poland's strong position as a regional exporter of television sets can be traced back to its socialist past where it was in charge of television production (Linden 1998).

4.3 Romania's integration into global production networks

The electronics sector has only recently increased in importance in Romania, in particular due to relocations of lead firms and CEMs since the turn of the century. Hence, Romania ranks number 42 in global electronics exports (Comtrade 2009). In contrast to apparel, Romania's direct export position to EU-15 is not particularly outstanding. However, when considering that almost 20% of Romanian electronics exports go to Hungary and that Hungary is the single most important electronics exporter from the CEE region to EU-15, the picture changes (see table 4). In particular labour-intensive parts of the production process have been increasingly relocated from Hungary to Romania which reveals the hierarchical and multi-tiered order of electronics production networks.

Table 4: Major destinations for Romanian Electronics Exports, 1998-2006; Source: Comtrade 2009

(SITC 75, 76, 776)	1998	2001	2003	2005	2006	2007
Total Imports, in US\$	35.633.646	426.796.327	556.842.677	493.985.303	739.108.798	643.453.724
1	Greece	23,25% France	30,38% China	21,27% Belgium	18,90% Hungary	28,05% Hungary
2	France	17,55% Germany	17,16% Belgium	16,73% Germany	15,09% Germany	16,21% Germany
3	Germany	14,24% Greece	12,13% Netherlands	15,59% Hungary	14,96% Italy	10,86% Italy
4	Netherlands	8,15% Ireland	9,67% Germany	7,85% Italy	13,32% Netherlands	10,00% Greece
5	Sweden	6,32% United Kingdom	8,18% France	7,78% United Kingdom	7,96% United Kingdom	7,44% United Kingdom
6	United Kingdom	5,71% USA	6,86% United Kingdom	7,11% Netherlands	6,12% Greece	5,51% USA
7	Switzerland	3,73% Hungary	4,00% Greece	5,59% Greece	4,23% USA	4,81% Netherlands
8	Italy	3,58% Belgium	1,76% USA	5,02% France	4,00% Belgium	3,18% Spain
9	Ireland	3,35% Italy	1,53% Italy	2,82% USA	2,81% Sweden	1,59% Turkey
10	USA	2,92% Netherlands	1,25% Finland	2,24% Switzerland	1,38% France	1,43% China
11	Israel	2,08% Sweden	0,81% Spain	0,94% China	1,21% <u>Czech Rep.</u>	1,00% <u>Bulgaria</u>
12	<u>Rep. of Moldova</u>	1,75% Switzerland	0,79% Switzerland	0,78% Sweden	0,87% Ireland	0,92% Ireland
13	Hong Kong SAR	1,03% <u>Rep. of Moldova</u>	0,78% Hungary	0,61% United Arab Emirates	0,83% Switzerland	0,91% France
14	Panama	0,98% Israel	0,77% Singapore	0,44% <u>Czech Rep.</u>	0,77% Canada	0,79% Sweden
15	Austria	0,91% Brazil	0,75% Canada	0,43% Finland	0,72% Hong Kong SAR	0,70% <u>Czech Rep.</u>
16	Singapore	0,66% Austria	0,65% <u>Poland</u>	0,42% Turkey	0,60% Mexico	0,60% Switzerland
17	Turkey	0,44% <u>Poland</u>	0,57% Turkey	0,39% Canada	0,60% Turkey	0,58% India
18	<u>Czech Rep.</u>	0,43% Singapore	0,45% <u>Czech Rep.</u>	0,36% Spain	0,59% Norway	0,57% <u>TFYR of Macedonia</u>
19	Canada	0,38% <u>Czech Rep.</u>	0,36% United Arab Emirates	0,31% Israel	0,50% Denmark	0,54% Norway
20	Finland	0,36% Norway	0,15% Israel	0,30% Japan	0,48% Spain	0,52% Mexico
21	Belgium-Luxembourg	0,36% South Africa	0,14% Austria	0,28% <u>Poland</u>	0,47% Japan	0,42% <u>Poland</u>
22	<u>Serbia and Montenegro</u>	0,33% China	0,12% New Zealand	0,28% Mexico	0,42% Israel	0,35% Rep. of Korea
23	Spain	0,17% Spain	0,11% Rep. of Korea	0,27% Austria	0,41% Austria	0,32% <u>Serbia</u>
24	Iceland	0,15% <u>Slovakia</u>	0,09% Norway	0,26% Norway	0,23% Finland	0,27% <u>Rep. of Moldova</u>
25	<u>Poland</u>	0,14% Hong Kong SAR	0,08% Australia	0,16% Hong Kong SAR	0,23% Brazil	0,24% Australia

During state socialism Romania developed domestic electronics products and services due to its goal to reach autarky. Hardware, including components, telecommunications equipment, consumer products, computers and computing and automation systems, and software were produced for domestic consumption as well as for export to CEMA countries, the Middle-East and Asia (Grundey/Heeks 2004; Baltac 2006). Romania was the first country in CEE to build first generation computers in the late 1950 and early 1960 (UNCTAD/WTO 2002). It also started to develop mini-computers and software as early as in the beginning of the 1970s. A key institution was the Institute of Calculus Techniques and Informatics, where around 3.000 ICT experts worked and which created a network of regional offices that supported the implementation of computing solutions and trained specialised staff (ITPS 2003). An important aspect in the development of the electronics sector was the privileged status Romania enjoyed vis-à-vis the West as it meant that the industry could rely on Western technology. For instance, the first Romanian mini-computers were produced under French and U.S. licenses using components from South-East Asia (Grundey/Heeks 2004). However, in the 1980s the Romanian economy entered a period of isolation and technologies in the electronics sector became obsolete (ITPS 2003).

By the end of the 1980s the industry was, despite some achievements, significantly backward compared to international standards. Hence, only few Romanian firms survived the downturn in the economy during transition and the competition from foreign firms (UNCTAD/WTO 2002). The hardware sector fared badly in the transitional period and most production capabilities disappeared in the 1990s as firms could not withstand international competition and as state funding for domestic demand dried up. In particular the production of components almost vanished entirely (ITPS 2004). One of the rare examples - like the Hungarian Videoton mentioned above - that survived the 'transitional shock' was Electromagnetica that split into three smaller units and entered into joint-ventures with lead firms from Western Europe. The software industry managed the 'transition' period better and has developed into a quite vibrant sector where local firms have established subcontracting relationships with lead firms (such as Microsoft, Cisco, Motorola and Ericsson) which have taken advantage of low-cost and skilled software professionals in Romania (MCIT 2002; Grundey/Heeks 2004: 332).

However, starting with the second half of the 1990s lead firms from Western Europe and CEMs started to invest in electronics manufacturing in Romania. The key rationale was to take advantage of low-cost, yet skilled workers that were predominantly used for assembling components, mainly imported from Asian countries (MCIT 2002). Among the early arrivals were the telecommunication firms Intrarom (Greece) and Alcatel (France), the German Lisa Draxelmaier supplying electrical parts for the automotive sector as well as the CEM Solectron (ITPS 2004). The investment of around US\$100 million of the then US-company Solectron in Timisoara in 1998, for a production plant specialized in the assembly of mobile phones and hardware equipment, was the first large investment of a CEM in Romania. Alongside this increasing presence of foreign firms in the sector a number of smaller Romanian firms with around 10 to 15 workers emerged from the remnants of state-socialism that predominantly acted as local distributors for international brands (e.g. Hewlett Packard, Intel, Canon). A handful of these firms (Asesoft, K-Tech Electronics, Comrace, Flamingo Computers) started simultaneously to assemble and market their own products for the domestic market (ITPS 2004). Hence, at the turn of the century the leading market segments of electronics manufacturing in Romania consisted of telecommunications, computers/other office equipment and industrial process equipment and the sector was characterised by a strong foreign influence (Vuici 2002).

In the context of the slump of the electronics industry which was particularly hit by the burst of the 'New Economy' bubble in 2001 lead firms have further shifted towards fully outsourced manufacturing models (Lüthje/Sproll 2004). This has driven the relocation from high-cost production areas in Western Europe to low-cost sites, including China and CEE countries. Countries such as Hungary, Poland and the Czech Republic that already positioned themselves as production locations during the 1990s primarily benefited from these relocations (OECD 2008). However, Romania has become a hot spot

for electronics production in the last years as underlined by the arrival of an increasing number of CEMs, including key players such as Celestica, Benchmark, Elcoteq, Zollner and Plexus. Key motives are highlighted by an industry expert: „Operating in Romania is considered by many CEM executives as being equivalent to operating in China in terms of the total landed costs. Further proximity to Western European markets and shorter supply chains have made Romania an irresistible location for CEM players.“ (Frost & Sullivan 2008) Further, Romania’s export profile sheds light on its position in a hierarchical and multi-tiered order of electronics production networks where Romania is subordinated to Hungary and inputs from Romania feed into the Hungarian production process. For instance, Elcoteq’s plant in the border-town of Arad produces sub-systems that are assembled in Budapest (EMSnow 2008). But while the increasing presence of CEMs has passed largely unnoticed, the decision of the lead firm Nokia to set up a plant in a small village close to Cluj in 2008 has put a spotlight on the trend to shift labour-intensive operations in electronics eastwards. The media focus was particularly high since Nokia justified the relocation from the German plant in Bochum with the high costs of the plant and the necessary adjustment processes in the sector, although its market share is close to 40% and Nokia had recorded historically high profits in the year before.

While low labour costs - according to industry sources around 70% below the Western European average (Frost & Sullivan 2007) - and geographic proximity are certainly a key factor in explaining Romania’s rise in electronics, other aspects need to be taken into account. In particular, the liberal investment policies that range from a favourable tax regime to the establishment of special industrial zones are worth mentioning (interview with ARIS 2008). Further, unlike the textile or apparel industry the sector has received special attention through different government initiatives (UNCTAD/WTO 2002). As was the case in other CEE countries (Radosevic 2002), local governments were instrumental in steering these developments by providing tax exemptions or subsidized infrastructure. In the case of Nokia, the county of Cluj offered the land for free, Nokia was granted tax exemptions on the land and buildings for 30 years and obtained the modernization and extension of the airport in Cluj (FES 2008). The case of Nokia has even led to speculations about the undue use of EU funds by local authorities. Other cases were less controversial as the investment of Celestica, another important CEM that set up a plant in Bors, close to the Hungarian border in 2005. In a competitive bid the mayor of the town of Bors accepted the price of EUR5 per sqm. for ‘pragmatic’ reasons: „The money we lost in the negotiations will come back to us in [property] taxes every year.“ (ZF 2005)

During state socialism the firms in the electronics sector were large employing sometimes several thousands of people (Baltac 2006). As mentioned above hardly any of these big institutions survived the transition process. But since the late 1990s the number of firms involved in electronics manufacturing has increased again from 446 (2000) to almost 890 (2006) (Vuici 2006). Today, there are roughly four groups of firms that make up the industry landscape in Romania: production sites of lead firms, production sites of CEMs, foreign (component) suppliers and local electronics firms. CEMs and lead firms have concentrated on assembly production, generally within industrial zones. There is a regional concentration of CEMs’ and lead firms’ investment in the North-Western region close to the Hungarian border due to the proximity to the Western European market and the established infrastructure in Hungary (interviews with management 2008). In particular the counties of Bihor, Timis and Cluj show a high concentration of electronics manufacturing (Vuici 2006). The prevailing business model of assembly production relies heavily on imported inputs, primarily from Asian countries. Depending on the CEMs’ and lead firms’ strategy they demand strategic (component) suppliers to co-locate production capacities close to their production sites. As demands from CEMs and lead firms are very high and as these firms tend to have centralised global supply chain management, local Romanian firms play a minor role as suppliers. If local Romanian suppliers are integrated in production networks they generally produce non-electronic components (e.g. metal sheets) or consumables (e.g. chemicals) (interview with supply chain managers 2008). Hence, up to now there has been limited scope for local firms in production networks geared towards Western European markets and the linkages have been generally limited to basic components. These findings confirm the general picture that upgrading opportunities arising, in particular from CEM investments, are rather limited

(Lüthje/Sproll 2004, Phillips/Henderson 2009). Even if industrial upgrading were to occur, as it has occurred to some extent in Hungary, it is far from certain that it leads to social upgrading for workers „since the upgrading of skills and the increased learning requirements inside and outside the factories often do not translate into higher wages, better benefits and increased employment security“ (Lüthje 2005: 30).

4.4 Labour rights situation in Romania

The electronics sector is characterised by a high degree of outsourcing and offshoring and high competition between lead firms that constantly seek to lower costs and increase flexibility. The pressures that this model generates are translated from the top down along the production chain to workers at the bottom. Hence, despite its hi-tech, and occasionally post-industrial image, violations of labour rights are widespread in the global electronics sector. Re-occurring problems include low wages, long working hours, to some extent health and safety issues, violation of trade union rights as well as the high use and discrimination of temporary workers that have an essential role in ‘stabilising’ the volatile business environment of the industry. These sector-specific issues are however mediated through the specific local institutional structures and policies, in particular the state socialist past of the CEE countries and the liberal policies adopted during ‘transition’. Furthermore, Romania’s position in a hierarchical, multi-tiered system where firms in Romania carry out relatively unsophisticated activities helps to understand pressures on workers and prospects for social upgrading.

The Romanian electronics sector consists of a small number of large firms that are foreign-owned or joint-ventures with foreign participation and a large number of small- and medium-sized firms (NES 2005; Vuici 2006). Although, plants of lead firms and CEMs seem to have a ‘high-tech’ image, the majority of work in these firms is labour-intensive and low-skilled with a majority of female workers operating on the lines (interviews with human resource managers 2008). The unionization rate is generally low. In contrast to apparel the technology used in these plants imposes certain minimum standards. For instance, the temperature in the plants must not be above 28 degree Celsius as otherwise the soldering process would not work adequately (interview with production manager 2008). Hence, the main labour rights issues in Romania concern working time and work intensity, flexible employment relationships as well as hostility of management towards trade unions (interviews with trade unions, labour inspectorates and workers 2008). See Appendix 2 for a legal overview on the labour rights situation in Romania.

In the electronics sector wages are generally higher than in the apparel sector. However, one of the main motivations for lead firms and CEMs to establish production sites in Romania is still the low wage and hence wages in the sector are often below the average wage in the respective region (interviews with public employment agencies and trade unions 2008). Wage systems are characterised by a fixed base wage and a high variable share. The base gross wage ranges between RON 700 and 800 (€192 to 219⁹) for line operators at entry positions and the average variable share ranges between 20 and 40%. Depending on the activity occupied and the human resource policy of the respective firm the flexible shares are based on individual or line performance and take into account conduct/discipline as well as absenteeism (interviews with human resource managers 2008).

A key concern for the firms interviewed is to effectively manage the fluctuating demands of their clients. Hence, working time at these sites is strongly exposed to the volatility of (consumer) end markets. To deal with the constant and rapid change in production volumes firms extensively use flexible employment relationships as provided by temporary employment agencies. The International Metalworkers Federation (IMF) estimates that currently in many instances 50% of the labour force in a

⁹ Calculation based on an averaged exchange rate in 2008 of 3,65.

given electronics factory consists of temporary workers, and at times even up to 90% (IMF 2007). In the firms interviewed in Romania temporary workers accounted for about 20 to 30% of the line operators (interviews with human resource managers 2008). Further, workers generally have to work overtime in peak periods to meet targets. When orders are decreasing workers are shifted internally to other production lines and occasionally they have to take leave (interviews with human resource managers 2008). The importance of flexible employment conditions not only for CEMs but more generally for the sector is amongst others underlined by Nokia's lobbying efforts to flexibilise Romanian labour law (interviews trade unions 2008, Die Presse 2008).

Women are (again) the majority of the line operators accounting for 60 to 70% of the workforce (interview with human resource managers 2008). The majority of the work in the production plants is labour-intensive and consists of simple and repetitive activities. This is a consequence of the strict standardization process - a McDonalds approach to labour (see box 6) - to ensure uniformity of work procedures on a global level. As a consequence the workforce is polarized into higher qualified engineering and administrative staff (indirect employees) and low-skilled manufacturing workers (direct employees or line operators). Further, there are differences between permanent and temporary or leased workers. In times of falling client demand, leased workers are the first ones that have to leave the workplace. Workers' representatives have no access to information about their contracts because they are concluded with the temporary employment agency and not with the employer and thus cannot adequately represent the leased workforce (interviews with trade unions 2008). In contrast to other sectors there seem to be no migrant workers in the Romanian electronics sector although this is generally a characteristic feature of the electronics sector (Lüthje/Sproll 2004). The only indication of migrant workers so far is the plan of BYD Romania, a global supplier to Nokia that intended to staff its operations close to the Nokia plant in Cluj with Chinese migrant workers (interview with trade unions in Cluj 2008).

Box 6: A McDonald's Approach to labour

The characteristics of manufacturing work in the CEM industry largely result from the specific nature of integration into global production networks. Some basic characteristics of CEM-work can be summarized as follows (based on Lüthje 2002):

- **'Work without a product':** As CEM-plants do not manufacture their 'own' products, quality management and workplace control has to be refocused on customer orientation and manufacturing has to be organized as 'service work'.
- **Relatively low wages with high variable proportions:** As most CEM-plants are located in low-cost areas, manufacturing wages and benefits are rather modest, and bonus-oriented pay-systems (including stock ownership and options) have to ensure customer orientation.
- **Labour flexibility:** The constant and very rapid change in production volumes is managed by an extensive use of various kinds of flexible employment.
- **Quality management based on restricted teamwork:** In most plants there is an ideology of 'team orientation', but no formal structure of work groups etc., as known from team concepts in other industries.
- **Heavy reliance on women and minority workers:** As in most areas of electronics manufacturing, the majority of the manufacturing workforce is female. In the U.S., in particular in California, the workforce is mainly recruited from ethnic minorities in disadvantaged labour market positions.

In the electronics sector, trade unions are generally weak and as most plants have been established through greenfield investments no established structures of organization existed before (interviews with Ciutacu and FES 2008). CEMs are in particular known for their hostile behaviour against trade unions (interview with FES 2008) and „the contrast between economic development on the one hand and the underdevelopment of workers' representation on the other is often staggering“ (Lüthje 2005: 23). This sector specific issue is compounded in the Romanian context as TNCs are known for granting relatively decent working conditions as long as workers are refraining from trade union activities (FES 2008, interviews with trade unions 2008). In March 2005 BusinessRomania (2005) reported that then Solectron prohibited employees to organize in unions in its production site in Timișoara which was confirmed by trade unions and the new human resource manager. The takeover of Solectron by Flextronics, including the replacement of the general and human resource manager, seems to have improved the attitude towards trade unions (interviews with human resource manager and trade union 2008). There is now a trade union in the Solectron/Flextronics plant and also within the new Nokia plant close to Cluj a trade union has been established. However, in each plant there is also a second trade union that is not recognised by the management. This situation aptly represents the problems of trade unions' strategic choices. The trade unions accepted by management pursue a step-by-step approach of negotiation and do not contest ‚business principles' as embedded within global production networks such as the flexible work programme in two shifts with twelve hours. The trade unions which are not recognised by management are more confrontational and insist on certain issues such as the ‚normal' work routine of eight hours in five days as set out by Romanian labour law (interviews with trade union representatives in Cluj and Timisoara 2008).

The labour rights situation in the electronics industry has only recently been examined by NGOs (e.g. SOMO 2005; WEED 2008). Hence, lead firms in the sector lag behind their counterparts in apparel as regards CSR activities. Besides the ‚Electronics Industry Code of Conduct' (EICC-webpage 2009) individual lead firms such as Hewlett Packard and Nokia have developed their own CoC. With regard to the firms interviewed they have either a CoC or ‚Ethic Principles'. Basic working conditions are integrated in these documents and operationalised via internal regulations. They are generally also part of general framework contracts with suppliers. However, monitoring and audits of compliance are almost exclusively internal (interviews with human resource managers 2008). In contrast, audits focusing on technical and process standards are generally carried out by external parties (interviews with human resource managers 2008). Considering the information gained, CSR has rather focused on ad-hoc external activities (e.g. community projects, sponsoring) than on working conditions and employee development in the core business of firms.

5. CONCLUSIONS AND OUTLOOK

The transformations in global production and international trade, in particular the emergence of global production networks, have important impacts on the development prospects of countries, firms and workers. In the context of these changes this report analysed how global production networks are configured and how the incorporation of firms into these networks impacts on the position of workers and their rights. To analyse these questions an adapted GPN approach was used that not only considers the key role of firms, in particular lead firms, in global production networks but also non-firm actors and pre-existing structures, and hence, the institutional and regulatory context in which production networks are embedded, as well as workers.

The apparel and electronics sectors in Romania provide the empirical lens to study these questions taking into account broader dynamics in the CEE region. These two sectors seem to be very different as apparel is conventionally considered as a labour-intensive, low-tech industry while electronics is perceived as a capital-intensive, high-tech industry. But as outsourcing and offshoring strategies have become more sophisticated, also within the electronics sector the production process has been decomposed in discrete production steps, involving a considerable amount of labour-intensive production steps. Hence, despite important differences (e.g. labour- versus capital-intensiveness, the complexity of the production process or the technology involved) both sectors have been increasingly organised in global production networks, involve labour-intensive production steps which have been relocated to countries with lower labour costs and exhibit some similar industry dynamics as well as labour rights issues.

Both sectors are increasingly characterised by a business model that is based on constantly developing new products that need to be brought to market within permanently shrinking time periods. This is most obvious in the fashion sector apparel with ever-decreasing product-life cycles but it can also be observed in many segments of electronics (e.g. mobile phones, laptops, mp3-players). One consequence of this business model is that geographic proximity to end-markets becomes an important factor in the locational decision since it allows shortening the production process. This partly explains why production networks in apparel and electronics are characterised by a global and a macro-regional dimension (Bair/Dussel Peters 2006; Lüthje/Sproll 2004). Both sectors are further characterized by high competition in an increasingly liberalised environment and strong power imbalances due to asymmetric market structures (Milberg 2004). Especially in apparel the recent phase-out of the quota system that had governed world trade for almost four decades has heightened competition (Bair 2008b). In both sectors one can observe concentration tendencies at the top among the lead firms alongside fragmentation and fierce competition at the bottom as more and more firms in developing and 'transition' countries have adopted the export-oriented assembly model. But in the electronics sector, and to a lesser extent also in the apparel sector, particularly in Asia, the concentration at the top among lead firms is accompanied by a concentration at the first-tier supplier-level leading to a re-integration of production and to the emergence of globally operating production TNCs (CEMs).

These industry dynamics strongly influence Romania's position in global production networks, in particular its role as a regional supplier country where low costs and/or flexibility with regard to orders and delivery are paramount concerns. However, besides strategies of lead-firms and sector dynamics this report reveals the importance of other (non-firm) actors and specific institutional and regulatory contexts in which global production networks are embedded. In CEE the legacy of the state socialist period as well as of the 'transition' period, with its specific policies and institutional changes, including EU accession, importantly influenced the articulation of production networks. For instance, in electronics policies devised at the national and local level were important to attract FDI and to further

the integration of firms and workers into production networks. In apparel the EU's OPT agreements created a deeply rooted division of labour between lead firms in Western Europe and firms in Romania. On the international level the phase out of the MFA heavily impacted on the geographical articulation of production networks in the apparel sector and in electronics the ITA furthered liberalization and outsourcing.

In the Romanian apparel sector working conditions in the 1990s, at least occasionally, featured sweatshop-like conditions. Gradually, improvements in working conditions occurred which were partly driven by legislative changes and the efforts of labour inspectorates as well as by international consumer campaigns. As a response to consumer campaigns many large buyers adopted CoC and started to conduct social audits. Our findings in the Romanian context suggest, however, that the effect of these firm-driven initiatives is limited as audits were so far mostly concerned with health and safety issues, paying less attention to wages, overtime or trade union rights which are critical to improve overall working conditions. Lead firms are still reluctant to change their purchasing practices and integrate the 'ethical' concerns into their core business activities. Thus, today the main labour rights issues in the apparel sector in Romania concern wages, working time and work intensity, informal work, trade union representation and to some extent occupational health issues. These issues are closely connected to Romania's integration as a regional supplier into production networks that are characterised by 'fast fashion' tendencies as well as by the 'Lohnsystem'.

In electronics the picture is slightly different, given differences in the structure of production networks and the technology involved in Romania. Many CEMs as well as lead firms have set up electronics manufacturing plants in recent years. Although, plants of lead firms and CEMs seem to have a 'high-tech' image, large parts of the work in these factories are labour-intensive and low-skilled with a majority of female workers operating on the lines. In contrast to apparel the technology used in these plants imposes certain minimum standards with regard to working conditions, particularly in the health and safety area. Hence, the main labour rights issues in Romania concern working time and work intensity, flexible employment relationships as reflected in the high share of temporary workers that have an essential role in 'stabilising' the volatile business environment of the industry as well as hostility of management towards trade unions. These issues can be related to Romania's position in a hierarchical, multi-tiered system where firms in Romania carry out relatively unsophisticated activities.

These findings suggest that in both sectors labour rights that are in potential conflict with prevailing business logics inherent to global production networks (e.g. living wage, working time and work intensity, trade union rights) remain contested. While improvements have been made in areas such as health and safety that constitute potential 'win-win' situations as they also relate to process upgrading from the point of the firm, the aforementioned rights would impose certain restrictions with regard to flexibility and prices/wages paid.

In light of the findings of this report, what are the options available to secure labour rights in global production networks and to ensure that participation in global production networks leads to social upgrading? To analyze options to improve the position of workers one needs to distinguish between two perspectives. So far, most studies that address employment issues in the field of global production networks consider workers in the sense of labour - a factor of production. A very limited number of studies explicitly addresses workers as active agents (Hess 2009). Perceiving workers as agents underlines their entitlements and rights. In this context the Human Rights framework can offer guidance on how to address problems of responsibility and accountability for labour rights in global production networks, as it offers a normative framework that identifies rights-holders and duty-bearers based on universally recognised normative standards. For historical reasons and the structure of international law, the Human Rights framework focuses on the state as the key agent in the human rights arena. Only recently, the focus has started to shift and besides the state also non-state actors (e.g. private individuals, corporations, particularly TNCs) have been identified as duty bearers for human rights responsibilities. In the same vein, the redefinition of the role of the state in the context of globalisation has led to a new set of regulatory mechanisms that emerged at the national and

international level. At the international level a variety of primarily soft law instruments emerged to secure key labour rights. These include (nonbinding) guidelines of international organisations (e.g. OECD Guidelines, ILO Tripartite Declaration, UN Draft Norms) and self-regulation at the sectoral or firm level (e.g. CoC). International Framework Agreements concluded between Global Union Federations and TNCs are more recent instruments aimed at securing workers rights on the international level.

Given the existing and emerging options at the national, macro-regional (European) and international level, future research is necessary to assess the effectiveness of different options with regard to labour rights protection in the context of global production networks. The analysis of the configuration of apparel and electronics production networks and labour rights issues in these networks in Romania created an analytical and empirical base from which this research can depart.

APPENDICES

A.1 Interviews

The following institutional and firm interviews referenced in the report were conducted in Romania between April and October 2008:

Institutional interviews:

Constantin Ciutacu, Institute of National Economy, Romanian Academy of Science, Bucharest

Dietmar Carl Stiel, Avanz Consulting, Bucharest

Marius Bota, Faculty of Business, Babeş-Bolyai University Cluj-Napoca

GEA, Group of Applied Economists, Bucharest

National Labour Inspectorate, Bucharest

Local Labour Inspectorates in Buzau, Cluj, Focsani, Galati, Slatina and Timisoara

Trade Unions in Bucharest, Buzau, Craiova, Iasi and Slatina

FEP AUIS, employers' organisation of the Romanian light industry, Bucharest

ARIS, Romanian Agency for Foreign Investment, Bucharest

Friedrich Ebert Stiftung Romania, Bucharest

Firm interviews:

Apparel Sector: 12 firms in Bucharest, Buzau, Craiova, Focsani, Galati, Iasi and Slatina (management, workers' representative and workers)

Electronics Sector: 3 CEMs and one lead firm as well as 3 supplier firms in Cluj, Oradea, Timisoara and Arad (management, and where possible workers' representative and workers)

A.2 Overview of the labour rights situation in Romania

Literature reviewed and interviews conducted indicate that on the level of legislation, workers' rights' protection in Romania is quite extensive. Relatively strict national labour legislation can generally be found in the CEE region due to the legacies of the state socialist past and due to the EU accession process and the transposition of the EU acquis. The problem, however, lies in respecting and implementing the law (ICFTU-webpage 2008, Barendt et al. 2005: 41, interviews with labour inspectorates, trade unions, researchers and FES 2008).

According to the Romanian Labour Code (Art. 254), all general and special regulations in the field of the employment relationships and health and safety at work are subject to the control of labour inspectorates. Thus, labour inspectorates play a vital role in monitoring the observance of labour rights. However, labour inspectorates remain under-staffed to fully cover all sectors and regions: throughout the whole country there are 42 territorial (regional) inspectorates and one central labour

inspectorate in Bucharest with a total of 3.725 staff members and thereof 1.852 labour inspectors (Labour Inspectorates National Report 2007). In addition, the structure of labour inspectorates has been changed in 2000, establishing new 'integrated labour inspectorates' which only slowly started to be fully operational (European Centre for Occupational Health, Safety and the Environment 2001). Despite these constraints, labour inspectorates have to some extent been incremental in securing labour rights in Romania. In interviews conducted with workers, all interviewees reported frequent and regular inspections.

Concerning the legislation and implementation of the eight ICFTU code standards, the following general observations can be made for Romania:

Forced labour

The Romanian constitution and national law prohibit forced labour and Romania has also ratified both main ILO Conventions on the prohibition of forced labour. Generally, these are enforced effectively - except with regard to human trafficking which remains a persistent problem in the country (ILO 2007c). Forced labour appears generally not to be an issue in the two sectors under investigation. However, a few incidences of migrant workers working in conditions resembling forced labour have been reported in the apparel sector (see above).

Child labour

Romania ratified the ILO core conventions on child labour. However, according to ICFTU, there are 3,9 million economically active children in Romania, including over 300.000 child labourers in agriculture and low skilled jobs, and 60.000 to 70.000 engaged in the worst forms of child labour (ICFTU 2005). The ILO notes child labour in the household, in agriculture, and a considerable number of street children (ILO/IPEC 2002). Trafficking in children has also been identified as a major problem (UNICEF 2006). However, child labour appears not to be an issue in the two sectors under investigation.

Discrimination in employment

The Romanian constitution forbids discrimination based on race, nationality, ethnic origin, language, religion, sex, opinion and political allegiance, wealth or social background. Concerning discrimination at the workplace, Romania has ratified the relevant ILO conventions. However, discrimination still persists especially with respect to women and ethnic minorities (especially Roma¹⁰). Concerning the equal treatment of women and men, the Romanian legislation covers all major provisions of the European legislation as the corresponding regulations were largely transposed into the national legislation, including all equality directives of the EU. However, in practice, discrimination still persists. Despite gender equality measures and women's equal level of education, women occupy few influential positions in the private sector, where they earn lower than average wages (Howard 2000: 83), also due to the sectors of activity where women primarily work, and where earnings are generally one third under the national average wage, e.g. in education, health care, social assistance, tourism, and the textile and apparel industry (CEDAW 2006; Ghebrea 2006: 18). The ILO CEACR notes in its observations of 2008 that most of the gender discrimination cases related to discrimination in employment, e.g. refusal to offer employment based on age or pregnancy, retrograding because of pregnancy, dismissal in connection with pregnancy or sexual harassment. In the specific sectors,

¹⁰ Discrimination is substantively prevalent with the Roma community. However, in our research in the two sectors we did not encounter discrimination against Roma.

issues of gender discrimination vary. For details see the previous sections on the apparel and electronics sectors.

Freedom of association and right to collective bargaining

As in other CEE countries, Romania's trade unions struggle with the legacies of the state socialist past. Trif (2004) describes the history and present problems of trade unions in CEE: "During the communist regime, trade unions covered almost the entire industrial labour force. (...) The trade unions were an instrument in the implementation of Communist Party policies, and had no distinct identity, authority or legitimacy deriving from their members. These communist legacies resulted in a low legitimacy for the unions in 1989 and a lack of experience as autonomous institutions. Unions had neither collective bargaining practice, nor knowledge in fighting for membership and organising, nor participating in democratic elections. Therefore, the post-communist trade unions had to create new identities and to learn new functions." Still, although trade union density fell from 90% in the beginning of the 1990s to 30 to 35% in 2006, Romanian trade unions are among the strongest in CEE in terms of density and influence on labour legislation (Carley et al. 2007).

In Romania there are more than twenty national confederations but only five of them meet the representativity criteria to negotiate collective agreements at the national level¹¹ (Trif 2004: 53ff): CNSLR-FRATIA (National Free Trade Union Confederation of Romania – Frația which is the follow-up organisation of the former communist UGSR, representing 33,7% of the total of around two million trade union members¹²), BNS (National Trade Union Bloc – BSN, representing 20,6%), CARTEL Alfa (CNS-Cartel Alfa, representing 16,4%), CSDR (National Democratic Trade Unions Confederation of Romania, representing 16,5%), Meridian (representing 8,9%).

Trade unions in Romania, as in other CEE countries, are company-based and free to affiliate with any of the federations which are free to affiliate with any of the confederations¹³. The trade union movement in Romania is quite decentralised and fragmented. Collective bargaining at the sectoral level often covers only the minimum terms and conditions of employment in the respective sector, in particular minimum wages. Therefore, company unions have to negotiate the more detailed employment conditions at the firm level. However, company unions are frequently in a weaker negotiating position as power asymmetries between employees and employers are the largest at the firm level.

Similar to other CEE countries, Romanian employers' associations are less developed than the trade unions. Trade union officials indicated that they would prefer to deal with stronger employers' associations which had a mandate to negotiate collective agreements at national and sectoral levels (Trif 2004). It seems, however, that the EU accession has had an impact on employers' associations. The main confederations unified their forces in 2006 primarily to represent members' interests at the EU institutional level, and their legitimacy was acknowledged throughout the consultation process to harmonize national legislation with the EU acquis (Trif 2008).

Concerning freedom of association and the right to collective bargaining the Romanian legislation generally complies with the core labour standards¹⁴ but too many groups of employees (high-level civil

¹¹ In terms of collective bargaining representativity, to be representative at the national level law requires trade unions to be representative of at least 5% of the entire labour force, and to be representative at the sectoral level law requires trade unions to be representative of at least 7% of all employees in the sector (Law Nr. 143/1997, see also Stoiciu 2006: 2).

¹² Trif (2004) states that the reliability of the data concerning trade union membership is questionable. She uses data provided by the Centre for Trade Union Resources, based on a survey conducted by a tripartite body in 2000.

¹³ The law requires a minimum of 15 employees to form a union, it takes two unions from the same industry (on the company level) to form a federation if they jointly have at least sixty members and two federations can form a confederation.

¹⁴ The 2003 trade union law in Romania recognizes the right of workers to establish and join trade unions. Collective bargaining is a recognized right under the law but collective bargaining agreements only have to be negotiated in

servants, public prosecutors and judges, the military, intelligence service and the police) are excluded from the freedom to form and join a trade union (ITUC 2009). Problems also exist regarding the right to strike (ITUC 2009: 11; European Committee of Social Rights 2007: 3; ICFTU 2006: 1; Howard 2000: 81). The ICFTU report on trade unions rights concludes that: "In practice as well as in law, trade union rights are not always respected. The right to form trade unions, first of all, is not always practicable. Some employers try to block the creation of trade unions within the companies (and even warn workers against discussing unionisation with outsiders). Others create controlled 'unions', to counteract the activities of independent trade unions. In some cases, employers seek to destroy independent trade unions, which is punishable by law but difficult to prove. It is reported that the most anti-union employers - usually foreign companies - make employment conditional upon the worker agreeing not to create or join a union. Secondly, it is very difficult to strike at the enterprise level and at branch level it is even more difficult. Trade union leaders who organise a strike often face reprisals. Thirdly, many employers do not respect the right to collective bargaining and do not conclude collective agreements with the trade unions. Fourth and finally, the limited number of judicial panels dealing, at district level, with industrial disputes, and the fact that the labour law specialists can only issue opinions, not binding decisions, has impaired the resolution of labour disputes and the enforcement of trade union rights. Employers have rarely been punished by the courts for their anti-union behaviour." (ICFTU 2005: 4). In a documentation on Nokia, FES (2008) states that: "In general, many multinational companies in Romania are well known for granting relatively decent work conditions to their employees [...]. On the other hand, not being a union member is an informal condition for being employed in the multinationals, many people losing their job as a result of their efforts to join a trade union organization." (FES 2008: 4).

In the specific sectors, the unionization rate as well as issues of freedom of association and collective bargaining vary. While unionisation is quite high in former state-owned companies, it is considerably lower in newly established private and small companies (Lungwitz 2006). For details see the previous sections on the apparel and electronics sectors.

Living wage

Romania is among the EU countries with the lowest wages (Larive Romania 2005: 41). Ciutacu (2007a) points out that "in a cross-country comparison of national minimum wages, Romania ranks 26 among the 27 EU Member States, a fact that generates a workforce crisis, with workers being recklessly forced to migrate". The year 2007 is the third year for Romania to have two simultaneous national gross minimum wage levels: one set by the government and the other one set in the national collective agreement by the social partners (Ciutacu 2007a). The government set the national gross minimum monthly wage at RON 390 (€11515). However, the social partners agreed on a gross minimum monthly wage of RON 440 (€130) in the national collective agreement for the period 2007 to 2010 (Ciutacu 2007b). The national minimum wage set in the national collective agreement is the basis for the sectoral and company collective bargaining. Trade unions have continuously criticised that the minimum wage is too low and not in line with the economic and social situation in Romania¹⁶. This perception has been confirmed by the European Committee of Social Rights (European Committee of Social Rights 2007: 5). Differences in wages are vast across sectors. In most sectors there exist sectoral collective bargaining agreements which set sectoral minimum wages on the basis of the national minimum wage; company-level collective bargaining agreements may set company minimum wages. For details see the previous sections on the apparel and electronics sectors.

workplaces where there are more than 21 employees.

¹⁵ Calculation based on an averaged exchange rate in 2007 of 3,40.

¹⁶ See comments on Eiro-Online: <http://www.eurofound.europa.eu/eiro/index.htm>.

Working hours

With accession to the EU, Romania had to harmonise its legislation in the areas of working time. Working hours are tightly regulated by Romanian law. Generally, employees should work eight hours per day and 40 hours per week. Maximum working hours are 9 per day and 48 per week, with respective increased hours of rest (Trif 2007: 250). However, in practice, there are immense sectoral differences. For details see the previous sections on the apparel and electronics sectors.

Occupational health and safety measures

In terms of occupational health and safety at work, Romania has not ratified the two core conventions¹⁷. Regarding the consequences of this in practice, there is only little available data. According to Costescu, Romania had 5.799 work accidents in 2003, 367 of which were fatal, followed by 5.543 (384 fatal) in 2004 and 4.714 (406 fatal) in 2005, and 4.764 work accidents (353 fatal) in 2006, showing a decrease in work accidents over the years (Costescu 2008). Latest figures from the National Labour Inspectorate state 4.398 accidents, 344 of which were fatal (Labour Inspectorates National Report 2007: 85), showing a significant decrease in fatal accidents. According to Chivu (2006), labour inspectorates have increased monitoring of health and safety, and inspections revealed inter alia the following problems: lack of supervision in workplaces prone to occupational accidents, lack of risk assessment, inadequate safety equipment, inappropriate storage for hazardous materials, and failure to comply with legal provisions on shift work and work intensity. The health and safety situation varies from sector to sector and sometimes from firm to firm. For details see the previous sections on the apparel and electronics sector.

Permanent employment relationship

With accession to the EU and the transposition of the EU acquis into national legislation, Romania had to loosen its strict legislation which made other employment relationships than permanent ones a difficult, almost impossible exception. The new legislation gives more leeway but it also stipulates that the permanent employment relationship should be the rule, and other forms must be objectively justified. Economic and sector considerations are vital factors for such justifications. In particular, in the electronics sector, a high number of temporary workers can be found among the workforce to meet the shifting demands of the sector. Overall, a tendency corresponding to the situation in other EU member states of making employment more flexible can be observed.

¹⁷ However, one must concede that few EU countries have ratified the two conventions. Austria, for example, has only ratified one of them. For an overview see HEDA newsletter 2007: 22.

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