Global Analysis Report for the EU-Ukraine TSIA

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Concept Global Analysis Report

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Preface

This report is the Global Analysis Report and constitutes the end of the first phase of the Trade Sustainability Impact Assessment study of the Free Trade Agreement within the Enhanced Agreement between the EU and Ukraine in line with the published Terms of Reference.

It is a joint study by ECORYS Netherlands and CASE Ukraine and it aims to shed light on the expected economic, social and environmental impacts of the FTA in order to assist the negotiation process between the European Union and Ukraine. The results

We have benefited greatly from the kick-off meeting, informal contacts with DG Trade, internal experts that have given feedback and first contacts with civil society. We are especially grateful to Mrs. Maryla Maliszewska and Prof. dr. J. Francois for their work on the CGE modelling sections.

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ECORYS Netherlands BV
CASE Ukraine

Summary

The Global Analysis Report (Phase 1) of the TSIA EU-Ukraine aims to provide an overview analysis of the situation between the EU and Ukraine in terms of economic, social and environmental issues.

At first, this general overview was given, with clear attention for the macroeconomic situation and for the importance of sectors for the EU-Ukraine relationship. Especially agriculture, petrochemicals and chemicals, metallurgy and energy are sectors that define the partnership between the EU and Ukraine. Also an overview of the trade relationships and FDI links between the two countries are given.

Next to the economic analyses a clear overview of the current social and environmental situation was provided in which it has become clear that there is still a lot of room for further improvements in the fields of poverty, health, education, employment and decent work and gender equality. Also environmentally, Ukraine needs to improve its methods of production in order to reduce the burden on the ecosystem via CO2 emissions, land use for agriculture, energy resources and biodiversity.

Against this background we have carried out a Computable General Equilibrium analysis to simulate three possible FTA scenarios that all are WTO inclusive as clearly specified in the Terms of Reference and during the kick-off meeting. The first scenario, the Extended FTA, entails a far-reaching FTA with liberalisation of trade in goods and very significant reductions in border costs, standards costs (technical barriers) and reductions in barriers to FDI. The two more limited scenarios, two and three, differ in their approach towards liberalisation of the service sector. In scenario two, a more limited FTA, with partial liberalisation of trade in goods and less ambitious reductions in standard costs, border costs and limited liberalisation of trade in services. The third scenario is identical to the second, except for the fact there is no liberalisation of trade in services.

When we analyse the outputs of the CGE modelling we find that the most Extended FTA leads to the largest welfare gains for both Ukraine and the EU. The more limited the FTA, the smaller the welfare gains are expected to be. At the sector level, we note that some sectors are expected to experience large changes in output and employment, like agriculture, machinery and equipment, ferrous metals, financial services and wearing apparel. The detailed results are presented in Chapter 3. We expect large environmental sustainability effects in sectors that tend to be more polluting like chemicals, ferrous metals and machinery and electronics. Significant social sustainable impacts we expect in agriculture and some of the horizontal issues like trade in services and competition policy.

Subsequently we screened all sectors mentioned in the Terms of Reference on the bases of four criteria. First, the importance of the sectors (in output and employment size) for the EU-Ukrainian economic partnership. Second, the estimated economic impact (measured as percentage and absolute change in levels of employment and production) of each sector is reviewed. Third, we look at the effect the change in production structure will have on social and environmental sustainable development and assess possible impacts. For this we use the core indicators and specific indicators for sustainable impact. Finally, the fourth criterion, which is not yet available, are the consultations with civil society and key stakeholders to the TSIA EU Ukraine study.

Having carefully screened all the sectors, we propose to analyse the following five:
1. Agriculture (and various subcategories)
2. Petrochemicals and chemicals
3. Energy
4. Metallurgy
5. Machinery and electronics

Having carefully analysed the various horizontal issues and progress that is currently being made by Ukraine, we have selected the following issues, keeping in mind their estimated effect on trade flows, tariffficated levels of protection, social and environmental (positive) impact and the fact that some issues are already largely dealt with through Ukraine's accession to the WTO (e.g. sanitary- and phytosanitary measures):
1. Competition policy
2. Trade in services
3. Technical standards (for industrial products)

It is these sectors and horizontal issues that we have 'scoped' in more detail in Chapter 5, describing their current situation and the areas for further research during Phase 2 of the TSIA EU Ukraine. It is Chapter five that provides the basis to continue with the next stage of the study.

CASE-Ukraine
ECORYS Netherlands

1 Introduction

1.1 Aims of the Global Analysis study

This report is to make a preliminary assessment of the economic impacts of trade and investment liberalisation measures which can be taken within the framework of the EU-Ukraine FTA negotiations as part of the overall objective of the project as defined in the Terms of Reference:

'The Trade SIA should address how the trade and investment provisions of the Enhanced Agreement under negotiation could affect social, environmental and developmental issues in the EU and in Ukraine'.

For the Global Analysis Report (GAR) that encompasses Phase 1 of the TSIA EU – Ukraine study, the following is expected from the Consortium:

'Describe in a preliminary overview the baseline scenario, with focus on WTO commitments and selected sensitive areas, define two scenarios of likely outcome of the negotiations and propose selected sectors and horizontal measures for in-depth analysis'

So the three goals of this exercise are:

1. Firstly to provide a general economic analysis of the Ukraine and the EU – Ukrainian economic relations (to serve as the baseline scenario);
2. Secondly to assess the impacts of the EU – Ukraine FTA negotiations quantitatively through CGE modelling of various scenarios;
3. Thirdly to propose at least five sectors and three horizontal issues for further in-depth study; the selection of sectors and horizontal issues being duly justified – based on the methodology of screening and scoping.

1.1.1 Economic analysis and current trends

Based on the Trade Sustainability Impact methodology as outlined in the Handbook (2006) the project in Phase 1 starts with a global analysis of major economic, (if possible) social and environmental trends. These trends are the so-called baseline scenario, i.e. the situation in case no FTA agreement between the EU and Ukraine is concluded. For this TSIA EU – Ukraine, the Terms of Reference explicitly mention that existing commitments include Ukraine's WTO obligations and the effects on existing tariff and non-tariff barriers and implication for effective market access. Since the WTO negotiations – at the moment of this study going to print – are not yet published and

concluded, we have to make assumptions as to the most likely effects based on incomplete information.

Next to the economic, social and environmental trends, we look at specific horizontal issues like implementation of Intellectual Property Rights (IPR), exports restrictions, investment and FDI policies, technical standards and sanitary and phyto-sanitary (SPS) measures.

1.1.2 Scenario analysis through CGE modelling

Starting from the baseline scenario as defined in subsection 1.1.1, we look at three scenarios of likely outcomes of the negotiations based on the negotiation objectives as explained in the Terms of Reference.
We start from the baseline scenario, that being the situation for Ukraine in 2004 plus the expected WTO commitments of the country. The second scenario (S2) is a very ambitious one – specified later on in more details – where tariff and NTB reductions are most far-reaching if not completely abolished. We subsequently define two less ambitious scenarios, one including trade in services liberalisation and one not including this.
The outcomes of the three scenarios defined and calculated through CGE modelling will be used for the screening and scoping analysis that leads to the selection of sectors and horizontal issues.

1.1.3 Selection of sectors and horizontal issues

The selection of sectors and horizontal issues for more detailed study is a carefully planned and methodologically tested process. We base the selecting of sectors and horizontal issues on the screening criteria outlined in the inception report with the addition that we will also take possible cumulative effects into account. The outcomes of the modelled scenarios under 1.1.2 provide us with a first quantitative analysis that aid in the screening exercise. As part of the screening we aim to actively involve key stakeholders, including civil society, in the process to guarantee an open discussion and debate regarding the scenario analysis and sectors and horizontal issues that are to be defined. The subsequent scoping exercise – the final part of the Global Analysis phase – provides the sectoral Terms of Reference needed in phase 2 of the study.

1.2 Sources of information

Throughout this study, we use various references (See Annex 7) but the main ones are mentioned below:

- The Partnership and Cooperation Agreement between the EU and Ukraine;
- EU-Ukraine Action Plan in the context of the ENP;
- The Terms of Reference for the TSIA if the FTA in the framework of the Enhanced Agreement to be negotiated between the EC and Ukraine;
- The Handbook for TSIAs, EC, External Trade, March 2006;

- Guidance and Note provided to the Contractor during the kick-off meeting of 7 February 2007;
- CEPS (2006), "The prospects of deep free trade between the EU and Ukraine";
- CASE (2006), "Prospects for EU-Ukraine Economic Relations".

What we do not have to fine-tune our baseline scenario (including WTO) is a working party report with the existing WTO commitments of Ukraine as mentioned before.

1.3 Description of the structure of the report

In order to achieve the aims as defined in paragraph 1.1, we need to methodologically work through several steps.

First of all, in the next chapter, Chapter 2 below, the various scenarios that we see as likely outcomes of the Free Trade Agreement negotiations between the EU and Ukraine are developed. In order to be as accurate and precise as possible, we start by looking at the agreement that shape and have shaped the EU-Ukrainian relations over the past years, followed by a specific section on Ukraine's WTO accession status. This latter section is the more important because WTO membership – as indicated by the Terms of Reference – should be included as part of the baseline scenario (starting point) of our analysis. Since the negotiations have not yet been concluded, estimated outcomes serve as inputs. In order to be as close to the 'real' outcomes as possible a special analysis is needed. Also serving as input for the development of scenarios are the existing economic situation and trends in the EU and Ukraine, the social situation and the environmental situation. Finally, Chapter 2, ends with a concise description of the envisaged FTA between the EU and Ukraine.

The macroeconomic analysis, including CGE modelling is carried out in Chapter 3. After a short model specification, we explain the different scenarios used. The scenario specification stems from the analysis carried out in Chapter 2. We define the baseline scenario (S1) as the situation for Ukraine in 2004 plus the WTO commitments. Then we analyse three possible FTA scenarios with various specifications. Scenario 2 (S2) is an analysis of a very ambitious FTA outcome – with large if not full elimination of tariffs, ambitious reductions in NTBs and further liberalisations. Scenarios 3-1 and 3-2 are both less ambitious where in scenario 3-1 we assume that also partial liberalisation of trade in services has taken place whilst in scenario 3-2 this has not been achieved. By defining the scenarios as such, we can analyse the different effects on welfare, output, employment and wages for the various possible FTA negotiation outcomes. The modelling results serve as the crucial input for the screening and scoping phases that follow.

In Chapter 1, the screening exercise is carried out. Screening helps us to identify trade measures and sectors that require an impact assessment on sustainability effects. On the basis of pre-defined criteria, we will thus determine which sectors and horizontal issues to analyse in more detail in Phase 2 of the TSIA study that will follow the Global Analysis phase. The criteria are presented and analysed in more detail in section 4.1 of this report. An important input for the selection of sectors and issues comes from key stakeholders and civil society, both of whom will be extensively consulted.

The extent to which this in-depth study of sectors and horizontal issues has to be carried out is defined in Chapter 5, the chapter dealing with the scoping phase. Whereas in the previous chapter, the sectors and horizontal issues for further research are selected, the final chapter looks shortly at the further research and study, as well as methodology for analysis, that is needed.

Chapter 6 concludes and Chapter 0 provides extra information and references in the Annexes.

2 Developing scenarios

2.1 Agreements shaping EU-Ukraine relations

2.1.1 Overview

In order to get a first overview on the relations between Ukraine and the EU, we need to shortly look back at the historical agreements that were signed. A concise list is presented below:

- Agreement between Ukraine and European Community on Trade in Textile Products;
- (signed in 1993, new Agreement signed in 2000);
- Agreement between the Government of Ukraine and the Commission of the European
- Communities on the Establishment and the Privileges and Immunities of the Delegation of the Commission of the European Communities in Ukraine (signed in 1993);
- Agreement between the Commission of the European Communities and the Government;
- of Ukraine setting up a Contact Group on Coal and Steel (signed in 1994);
- Partnership and Cooperation Agreement between the European Communities and their
- member states, and Ukraine (signed in 1994);
- Agreement between the Government of Ukraine and the European Coal and Steel Community on Trade in Certain Steel Products (signed in 1997);
- Agreement for Cooperation between the European Atomic Energy Community and the Cabinet of Ministers of Ukraine in the Field of Controlled Nuclear Fusion (signed in 1999).
- European Neighbourhood Action Plan for Ukraine as part of European Neighbourhood Policy (signed in 2005)

In addition, it should also be mentioned that in March 2003 Ukraine and the EU signed a bilateral protocol for market access in goods and services in the framework of Ukraine's WTO accession (Vinhas de Souza et al, 2005). It is within this policy context of agreements that the Enhanced Agreement (EA) – and within the EA the Free Trade Agreement (FTA) – is to be negotiated and developed.

Box 2.1 shows the trade related issues that follow from these agreements. The general system of preferences (GSP) that Ukraine has become a beneficiary of, allows a differentiation between sensitive and non-sensitive products and differentiated treatment of these product categories. Notably steel and textiles are exempt and subject to special rules and regulations. Ukraine has a specific challenge to meet in facing the anti-dumping allegations brought forward at the WTO – also by members of the EU-25.

Box 2.1 Trade related issues (based on Vinhas de Souza et al, 2005)

Generalised System of Preferences (GSP)	Since 1 January 1993, Ukraine has become a beneficiary of the Generalized Scheme of Preferences (GSP). These preferences are differentiated between two product categories: non-sensitive and sensitive products. Tariff duties on non-sensitive products continue to be suspended, while duties on sensitive products enjoy a tariff reduction. EU GSP benefits are not granted to the commodities accounting for a considerable part of Ukrainian exports (iron and steel, fertilizers, fishery products, grain, seeds, fruits, and plants). Still, the GSP should be considered as a tool for facilitating the access of Ukrainian goods to the EU market.
Steel	The Partnership and Cooperation Agreement between the EU and Ukraine provides in Article 22(1) that trade in some steel products is to be the subject of a special agreement. The previous bilateral agreement between the European Coal and Steel Community (ECSC) and the Government of Ukraine on trade for certain steel products expired on 31 December 2001. The Parties agreed to conclude a new agreement and the negotiations of this new agreement have not yet been completed. Pending the signature and the entry into force of the new agreement, quantitative limits for the year 2004 were determined. Given that the tax of 30 euros/tonne on exports of ferrous scrap Ukraine applied as of 1 January 2003 has not been lifted nor diminished, the EU found it appropriate to set the quantitative limits for the year 2004 at the same level as for the year 2003. Later on November 22, 2004 the Agreement between the Government of Ukraine and the European Community on trade in certain steel products for 2004 was signed envisaging a certain increase in steel quotas. At that time the Parties have also proclaimed their readiness to start the negotiations on new steel agreement to regulate their steel trade starting from 2005–2006. This new agreement has yet to be signed.
Textiles	Trade in textiles between the EU and Ukraine is regulated by a separate agreement, signed in December 2000 (replacing a previous agreement dating back to 1993), aimed at reciprocal liberalization of trade in textiles and clothing. The Parties agreed to refrain from adopting any non-tariff measures that could hinder trade in textile and clothing products if certain conditions are met by the Ukrainian side. Ukraine's commitments under this agreement were: ▪ First, to bound tariff rates applicable to EU textile imports from Ukraine to the level of tariffs as of July 2000, and ▪ Second, reduce them to the level not exceeding the rate EU has bound in WTO.
Anti-dumping investigations / Market economy status	A problem plaguing EU–Ukraine relations is granting Ukraine the market economy status, linked to anti-dumping investigations against Ukraine.27 Anti-dumping measures are applied particularly frequently against steel and chemicals, two categories that comprise nearly half of Ukraine's total exports. According to the WTO, Ukraine ranked 13th in the world as a target of anti-dumping measures between January 1995 and June 2004, with 51 anti-dumping measures concluded by various countries (a share of anti-dumping measures about *ten times greater* than Ukraine's share of world trade). From those, 8 originated from the EU-25. In October 2000, the EU Council of Ministers passed a decision allowing a "market economy enterprise" status for particular Ukrainian firms that can substantiate that they operate under market economy conditions.28 At the same time, the European Commission informed Ukraine that there are two unresolved issues, which are significant in the context of trade-defence investigations: ▪ Bankruptcy legislation: the EU Commission believes that current legislation prevents certain state-owned enterprises from going bankrupt under circumstances which are not sufficiently defined. There are also concerns that proper enforcement of bankruptcy law may not be ensured vis-à-vis "city-forming enterprises", which may have potential capacity to export whilst technically bankrupt; ▪ State interventions in price setting mechanism: the EU Commission believes that distorting state interference in the pricing of goods continues and appears to be on the increase in certain sectors, in particular fertilizers and metals, which are of key importance in the context of trade-defence measures.
Comment	Nevertheless, some of the main limitations in trade and thus in the FTA seem to be domestic (World Bank 2004), related to legislation, inadequate compatibility of standards, inefficiency of customs, and related tax procedures.

2.1.2 Neighbourhood policy and Action Plan

In 2003, the EU created a new framework for its relations with neighbours, including Ukraine, called the European Neighbourhood Policy. The main idea of the ENP is to encourage stability, security and prosperity in the neighbouring states without extending EU membership to them. The blueprint for the ENP was outlined in the Communication on Wider Europe issued in March 2003 (EC, 2003), and then elaborated in the ENP Strategy Paper, adopted in 2004. To make the ENP operational, the EU agreed with each ENP country an action plan that specifies priorities that should be realised in the short-to-medium term (3 or 5 years). These action plans are the main tool for the ENP implementation. The European Neighbourhood Policy Instrument (ENPI) was introduced to support the financial part of the reforms. The Commission together with the related country monitor the implementation of the action plan with progress reports.

The EU-Ukraine action plan was drafted in late 2004 and signed in February 2005. Its objective is to intensify the relations between Ukraine and the EU and to go beyond just co-operating towards gradual economic integration and deepening of political cooperation. The Plan is to be implemented over a period of three years. The Plan sets objectives and priorities in most big policy areas - e.g. in legislation, economic and social policies, trade policies, environmental standards, taxation, transport, energy, education and public health sector - and elaborates on what should be done to achieve them. In the economic domain, the prioritised areas include WTO accession, removal of non-tariff barriers in bilateral trade, improvement of investment climate, tax reform and approximation of the Ukrainian legislation with the European Union legislation. Underlining the EU's firm support to Ukraine's efforts for joining the WTO, the Action Plan also foresees looking at the feasibility of establishing an EU-Ukraine Free Trade Area following Ukraine's accession to the WTO. Priorities in other policy sectors include strengthening democratic institutions and rule of law, ensuring freedom of media and freedom of expression, enhancing EU-Ukraine consultation on crisis management, enhancing co-operation in disarmament, fighting corruption and enhancing transparency, improving migrant workers treatment and rights and enhancing and improving nuclear safety. The EU has promised to increase financial support to Ukraine to help with the implementation of the action plan with the ENPI. The European Investment Bank has promised to support also projects involving infrastructure investments in Ukraine.

In the economic sector, the action plan sets targets and methods, for example to strengthen the independence of the National Bank of Ukraine, implement privatisation programmes, reduce the involvement of the state in setting prices, enhance the functioning of a market economy, strengthen banking regulation and supervision, reduce regional imbalances and enhance competition policies. The functioning of customs and increase of food safety, sanitary and phyto-sanitary measures is also an objective in the action plan. The objectives in the social sector include enhancement of employment creation, poverty reduction, and improvement of social cohesion, education systems and public health management. Environmental safety and sustainable development are also included in the goals of the action plan. The targets were however not prioritised.

Both Ukraine and the EU monitor the implementation of the Plan and exchange their opinions. According to the Commission ENP progress report for Ukraine, good progress

has been made since 2005, however, implementation of reform strategies has lagged behind since the beginning of 2006, mostly due to long pre- and post-election periods of political instability. Ukraine has succeeded especially in various trade and trade-related improvements and at the moment it is very close to entering the World Trade Organisation (WTO) – on the WTO accession we will report in more detail in section 2.2.

2.1.3 Enhanced Agreement

According to the study of CEPS, IFV & ICPS (2006) a deep enhanced agreement between the EU and Ukraine would be most beneficial to both parties. A "normal" FTA agreement would have only minimal positive welfare effects for both parties. The Enhanced agreement is expected to be in line with the ENP and EU-Ukraine Action Plan and go beyond the respective WTO obligations for the parties. In general it should be a comprehensive and balanced agreement. This Enhanced FTA agreement is planned to have five-pillar structure:

1) Setting up an institutionalised political dialogue on common values in line with mutually accepted general principals governing the future relationship between the EU and Ukraine;
2) Establishing a WTO compatible FTA for goods and services including binding disciplines in non-tariff and regulatory areas (e.g. intellectual property rights, technical standards, competition, sanitary and phyto-sanitary rules, trade facilitation);
3) Foresee specific provisions regarding energy;
4) Contain provisions on cooperation on a broad range of areas of mutual interest;
5) Provide for developed institutional structures to ensure effective implementation of the agreement, including a dispute settlement mechanism.

As also indicated by the Terms of Reference, the enhanced agreement is expected to include new commitments in the following areas:

- Trade in goods, including industrial goods, agricultural products, processed agricultural products and fishery products;
- Technical barriers to trade and SPS;
- Trade in services (such as financial services, transport and telecommunication);
- Capital movements and payments;
- Government procurement;
- Competition;
- Intellectual property rights;
- Trade facilitation, Customs and Rules of Origin;
- Trade and sustainable development; and
- Energy.

According to the CEPS, IFV & ICPS (2006) report and the CASE (2006) study, one of the main requirements for the enhanced agreement is uncorrupted, transparent and consistent economic governance in Ukraine.

2.2 Ukraine's WTO Accession Status

Ukraine submitted its official request for joining the General Agreement on Tariffs and Trade (GATT) in late 1993 and the Working Party on the accession of Ukraine to the World Trade Organization (WTO) was established on 17 December 1993. The Memorandum of the Foreign Trade Regime was agreed upon in 1994. During the more than 13-year WTO accession process, Ukraine passed through intensive rounds of multilateral and bilateral negotiations with the WTO members, as well as through substantial legal transformations and trade liberalisation.

Presently, the negotiation process on Ukraine's accession to the WTO has approached its final stage as Ukraine has almost concluded its bilateral talks with interested countries and already agreed all import tariff lines for goods (which are reflected in Ukraine's tariff offer), as well as finalised its offer regarding conditions of market access for services[1]. In addition, Ukraine has already introduced a number of legal changes aiming at harmonising its legislation to the WTO rules, as well as at fulfilling Ukraine's accession commitments undertaken during multilateral and bilateral negotiations.

There still remain a few bottlenecks in the negotiation process, such as the level of domestic support to agriculture and bilateral negotiations with Kyrgyzstan, which should be resolved urgently to fully finalise Ukraine's accession to the WTO in the summer of 2007. Besides, to reap more benefits from WTO membership and international economic integration, Ukraine should further continue implementing deep legal and institutional reforms; first of all in areas like sanitary and phyto-sanitary measures, technical standards, intellectual property, and competition policy, aiming at creating a favourable business environment, strengthening Ukraine's competitiveness position and ensuring effective enforcement of national legislation.

This paragraph will analyse the status of the major issues regarding Ukraine's negotiation process, namely bilateral negations, multilateral negations and legal reform, as well as key Ukraine's accession commitments and the status of their implementation.

2.2.1 Bilateral market access negotiations in goods and services

Ukraine has concluded its bilateral negotiations on market access for goods and services with 49 out of 50 WTO member countries from its Working Party (see Table 2.1).

Table 2.1 Status of Ukraine's bilateral negotiations on market access

Bilateral protocols signed: 49 countries - Argentina, Armenia, Australia, Bulgaria, Brazil, Canada, China, Colombia, Cuba, Croatia, Czech Republic, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, EU, Georgia, Honduras, Hungary, Iceland, India, Indonesia, Israel, Japan, Latvia, Lithuania, Malaysia, Mexico, Moldova, Mongolia, Morocco, New Zealand, Norway, Panama, Paraguay, Peru, Poland, Romania, South Korea, Slovak Republic, Slovenia, Sri Lanka, Switzerland, Taiwan, Thailand, Turkey, Uruguay, and USA
Ongoing negotiations: 1 country – Kyrgyzstan

[1] "Accession Package" of each WTO acceding country consists of: the Schedule of Concessions and Commitments on Goods, the Schedule of Specific Commitments on Services, the Draft Working Party Report and the Protocol of Accession.

The relatively large number of WTO members having expressed their interest in negotiating market access conditions with Ukraine is an indication to the level of attractiveness of Ukraine's domestic market to its current and potential trading partners.

Negotiations with the USA started, in 1997, and were concluded only in March 2006. The main concerns of the USA regarded market access in audiovisual services, implementation and enforcement of national legislation on intellectual property rights protection. In particular protection of undisclosed information for pharmaceuticals and agricultural chemicals; Ukraine's participation in the Information Technology Agreement (ITA), etc.), sanitary and phyto-sanitary (SPS) measures and their conformity with international standards, eliminations of restrictions on branching in financial services (insurance and banking and securities), reduction of export duties on ferrous and non-ferrous scrap metals and joining sectoral initiatives were considered important.

The negotiations with other countries included a number of other important matters, for example, Australia expressed most interest in the issues of market access for sugar, sugar prices and other support for the sugar industry in Ukraine, the aggregate level of domestic support for agricultural products, intellectual property rights (application of geographical indications for certain types of products), and market access in legal services. Japan was concerned about certification of electric and electronic goods, application of sanitary-epidemologic expertise for audio and video products and restrictions on branching into financial services. The milestones of bilateral negotiations with Moldova were the introduction of a new free trade agreement between the counties, joint customs posts, licensing procedures for certain types of activities and services, and conditions of foreign natural persons' residence and employment in Ukraine.

The ongoing negotiations with Kyrgyzstan have been protracted so long and have not yet been concluded because of the Kyrgyz insistence on repaying the debt, which Ukraine inherited from the Soviet Union times (27 million US dollars). Kyrgyzstan also requested abolishing of antidumping measures for electric bulbs applied by Ukraine, as well as zero tariff bindings on a wide range of goods including the most sensitive for Ukraine: agricultural products. According to the Ukrainian government, the two countries have already achieved an agreement on the problematic issues, including the debt issue, and will sign a bilateral protocol in the nearest future.

2.2.2 Multilateral negotiations and legal reform

Since its establishment in December 1993, the Working Party on the accession of Ukraine to the World Trade Organization has been gathering 16 times for its formal meetings, with the last one taking place in June 2006. The Working party on Ukraine's accession to the WTO consists of 50 WTO Members (or 40 Members if the new composition of the enlarged European Union is taken into account).

The first draft of the Report of the Working Party summarising Ukraine's progress and conditions of entry was prepared in March 2004 and after that revised several times. Its latest revision took place in May 2006; currently the work on finalizing its wording is being implemented. The next 17th formal meeting of the Working Party is tentatively

scheduled for May 2007, when the recently introduced legal changes and the last version of Working Party's Report will be analysed and approved. [2]

In the framework of the Working Party multilateral sessions, all aspects of Ukraine's existing trade and legal regimes were discussed, and its accession commitments were formulated. During the course of multilateral negotiations, Ukraine had been gradually fulfilling the results of these negotiations through introducing a great deal of legal changes, which were to harmonise Ukraine's legislation with the provisions of the WTO Agreements and the commitments taken by Ukraine during the negotiation process. This process was notably sped up during the recent period (2005-2006), when the Ukrainian government managed to resolve a number of problematic issues that it had failed to resolve for quite some time. According to the Ukrainian Ministry of Economic Affairs, during the two last years, 38 WTO-related laws were adopted by the Parliament.[3] The latest legal changes, namely 20 draft laws, were passed during November-December 2006. [4]

During 2005, Ukraine passed 4 laws that amended the custom duty rates for many industrial and agricultural goods in accordance with Ukraine's market access commitments. Besides, many other market access barriers and discriminatory practices such as minimum prices on imports of alcoholic products, discriminatory taxes on petroleum and tobacco products, discriminatory practice with respect to usage of promissory notes for payments of VAT on imports, most discriminatory fees for rail transport (import, domestic, transit), trade related investment measures (TRIMS) in the free economic zones and technological parks, discriminatory excise and VAT rates in the automobile sector, foreign exchange surrender requirements (50%), tax exemptions previously granted to certain industries, the system of licenses and quotas applied to certain products, WTO-incompliant import/export licensing fees and SPS-related provisions, were eliminated.[5]

The most recently passed laws envisage the following policy changes: gradual reduction of export duties connected with ferrous and non-ferrous metals (export ban on scrap non-ferrous metals was eliminated and replaced by export duties), live cattle and leather raw materials (all effective upon the WTO accession); lowering the fees connected with import licensing for alcoholic and tobacco products; protection of intellectual property rights (geographical indication, protection of undisclosed information for pharmaceuticals and agricultural chemicals); abolishment of a ban on imports of old-aged vehicles to Ukraine (upon WTO accession), lifting of citizenship requirements for performing auditing and attorney services; amendment of two framework laws on veterinary medicine and on foreign economic activities; allowing establishment of branches of foreign banks and insurance companies (upon accession and in 5 years respectively), elimination of export quotas and trade related investment measures (TRIMS) in the sugar industry (upon accession); introduction of tariff quotas for importation of raw cane sugar

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2 This version will reflect recently adopted legal changes.

3 http://www.me.gov.ua/control/uk/publish/article?art_id=48387&cat_id=38238.

4 Ukrainian Government declared these drafts crucial for finalising Ukraine's WTO accession process and obtaining WTO membership.

5 The import/export licensing fees were made proportional to the value of rendered services instead of calculating and paying in ad valorem equivalent of the contract price.

amounted to 260 000 tons per year (upon accession) and elimination of import price control and quotas provisions with regard to the key agricultural commodities.

As of today, Ukraine adopted all framework laws connected with SPS, TBT, customs valuation, and intellectual property rights, essential for WTO accession. However, Ukraine is still required to develop a considerable amount of sub-legal acts to implement these framework laws and to ensure their effective enforcement. Besides, Ukraine has to refrain from introducing any new policies or legislation contradicting provisions of the WTO agreements and its commitments.[6]

Presently, Ukraine also continues to seek an agreement with the Working Party country members on the level of state support to agriculture, which is still an unresolved issue in the course of the negotiations. Moreover, there are some new requests of the Working Party Members addressing such issues as trade in biotechnological products, taxation in agriculture (e.g. abolishment of VAT privileges for domestic producers), certification and standards, and legislation harmonisation.

2.2.3 Ukraine's WTO commitments and their implementation

Many of Ukraine's accession commitments (including market access commitments, legal and rule of origin commitments) have been already implemented during the negotiation process, but still some of them will become effective only upon Ukraine's accession to the WTO or even thereafter, based on ex ante agreed transition periods.

In general, Ukraine, like any other WTO accession country, is obliged to ensure the implementation of two fundamental principles of the WTO multilateral trading system, namely most-favoured-nation (MFN) treatment and national regime in three main spheres of trade governed by the WTO – trade in goods, trade in services and intellectual property rights.[7]

2.2.4 Trade in goods

Market access commitments

The results of Ukraine's bilateral negotiations for market access in goods are incorporated in the Consolidated Schedule of Concessions and Commitments on Goods. According to the Ministry of Economic Affairs, as of today Ukraine has reached agreement on all tariff lines in its tariff offer, as well as on undertaking commitments to join 16 sectoral agreements.

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[6] After the WTO accession, the Ukraine's Accession Protocol will make up a part of the national legislation, and in case when Ukrainian laws stipulate provisions that contradict to the Ukraine's WTO obligations the latter will have legal supremacy over provisions of these laws (pursuant to the provision of the Constitution of Ukraine on Ukraine's international arrangements).

[7] That is, a WTO member cannot discriminate between its WTO trading partners (MFN treatment) and should treat imported and domestically produced goods equally after the foreign goods entered the domestic market (national treatment); the same concerns services, local trademarks, copyrights and patents (although the principles are applied a bit differently in each of these cases).

The key elements of Ukraine's tariffs offer include:

- Conversion of specific and combined tariffs to ad valorem duties;
- Setting up maximum bound rates at 10% level for most industrial goods and at 20% level for most agricultural products; exceptions are some sensitive products like sugar (50%) and sunflower-seed oil (30%);
- Joining 16 of the 19 sectoral initiatives, namely: agricultural equipment; chemistry; civil aircraft[8]; construction equipment; distilled spirits[9]; furniture; information technologies[10]; medical equipment; nonferrous metals; paper; pharmaceutical; scientific equipment; steel; textile and textile clothing; toys; and wood. For most of these products, binding tariff rates will be established at a zero level, however for textile and chemicals they will be non-zero;
- Ukraine's obligations on tariff binding at the end of implementation period (year 2010): Ukraine will apply the MFN tariff rates to imports from all WTO Members.[11] The average MFN rate for industrial products will be bound at the level of 4.85%, for agricultural products – 11.16%, for all products of the nomenclature of the Harmonized System (HS) – 6.28% (most tariffs should be harmonised with these obligations upon accession, however for some products transition periods till 2010 are allowed).[12]

In accordance with its market access commitments, Ukraine has been constantly liberalising its tariff protection in practically all sectors of the domestic market.[13] In particular, changes to Ukraine's Customs Tariff adopted in 2005, have lowered the privileged (MFN) tariff rates for many industrial and agricultural products (about 70% of the HS nomenclature) in accordance with Ukraine's tariff offer, reduced the excessive tariff rate differentiation, harmonised many full tariff rates with the MFN ones, and converted specific and mixed tariffs on many products to their ad valorem tariffs. As a result, while at the end of 2004, the average import duty rate across the entire commodity nomenclature was 10.47% with the weighted average rate equalling 7.7%, upon changes the same indicators were 6.28% and 5.09% respectively (see Table 2.2).

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8 Ukraine committed to join the Agreement on Trade in Civil Aircraft from 1 January 2010. Thus all duties on parts and aircraft will be eliminated by this date.

9 Ukraine committed to join this sectoral initiative after three years upon accession.

10 Ukraine committed to join the Information Technology Agreement (ITA) and eliminate tariffs on most information technology products upon accession. However for some products like computers and semiconductors, a transition period till 1 January 2010 is envisaged.

11 According to the Law "On Customs Tariff of Ukraine", Ukraine applies three different tariff rates: preferential (MFN rates for European countries, USA, Canada and some Asian countries), zero rates for countries that concluded free trade agreements with Ukraine (all CIS countries), and full rates (other countries).

12 *http://wto.inform.org.ua/attach/Stenograma.doc.*

13 Protection (via tariffs and non-tariff barriers) of certain products (first of all, agricultural and food products), on the contrary, has been increasing during the accession period. For some agricultural products (e.g. meat products, sugar, etc.), tariff protection was so high (up to 100-200% if converted from specific and mixed tariffs into ad valorem tariffs) that it almost prohibited the import of these products into Ukraine under the formal import procedures. Instead, these products were imported into Ukraine mainly through the free economic zones, or from countries with which Ukraine had free trade agreements (CIS countries), or under special import schemes, or illegally via smuggling practices. Imports in all of these cases meant that products entered the domestic market with paying zero tariff rates and VAT taxes. Therefore, high tariff rates appeared to be not very effective in the protection of the domestic market from import competition. This aspect will later be incorporated in the modeling scenarios.

Table 2.2 Harmonization of import tariffs with the WTO obligations undertaken in 2005

	Applied tariffs before changes to Customs Tariff, 2004	Applied tariffs after changes to Customs Tariff in 2005	Ukraine's WTO final obligations on MFN tariff binding
	Agricultural products		
Average bound rate	19.71	13.84	11.16
Weighed average bound rate	21.10	18.19	10.07
	Industrial products		
Average bound rate	8.29	4.40	4.85
Weighed average bound rate	6.70	6.11	4.77
	All products		
Average bound rate	10.47	6.51	6.28
Weighed average bound rate	7.77	7.02	5.09

Source: Ministry of Economy of Ukraine (http://wto.inform.org.ua/attach/Stenograma.doc).

To conclude, after recent tariff reductions, the currently applied tariff regime in Ukraine is roughly in line with its WTO commitments for most sectors of the economy. Customs duties applied to industrial products, their components, parts, as well as raw materials, are already lower than Ukraine's WTO commitments for these commodities. For many agricultural and food products (meat and dairy products, food-processing, spirits and alcoholic beverages, etc.) and some finished industrial products (e.g. certain pharmaceutical goods, automobiles, agricultural machinery, information technology products, medical equipment, etc.) tariffs rates will be further reduced upon the WTO accession.

Agricultural domestic support

The biggest source of tension during Ukraine's WTO accession negotiations concerned and concerns agriculture-related issues. One is the level of domestic support for the agricultural and food sectors (commodity groups 1-24 of the HS).[14] The main problem here is the lack of agreement among negotiators on the base period for domestic support to agricultural and food products, which actually determines the level of domestic support binding obligations of the acceding country. The Ukrainian negotiators suggest 1994-1996 years as the base period, during which domestic support to agriculture in Ukraine reached its highest level of USD 1.14 bn. In other words, the Ukrainian position is that the total aggregate measure of support (AMS) is to be bound at the level that exceeds its *de minimus* level (5% of the value of annual total agricultural output in the country).[15] If so, then Ukraine will likely be obliged to commit itself also to reduce its bound AMS level by 20% over the certain period (5 years).

[14] Except fishery and some other products.

[15] The value of annual agricultural output was USD 12.54 bn during the base period (in 2004 – USD 15.8 bn).

The WTO Members (such as the USA, Australia, etc.) insist on later and more representative periods in terms of factual agricultural policy of Ukraine, for example 2000-2002, during which Ukraine's total AMS equaled only USD 265 mln. Ukraine argues that this sum is not sufficient to implement the Strategy for Further Development of Agriculture in Ukraine submitted to the Working Party. Besides, WP Members have comments to Ukraine on the methodology of calculating the total AMS and other support tables (ACC/4). Namely they argue about including various tax privileges (e.g. VAT) in the total AMS in Ukraine. Ukraine has to reach a compromise with the Working Party Members on this tough issue in order to finalise its accession process. The possible compromise may come from choosing the later base period and correcting support tables in accordance with the Working Party's suggestions.
As to export subsidies in agriculture, Ukraine reported not to apply such subsidies and committed itself to abstain from applying them in the future.

Trade in services

Ukraine's schedule of specific commitments in services is among the most liberal offered by acceding countries, as well as the countries that have entered the WTO recently. A draft schedule of Ukraine's specific commitments contains sector-specific commitments in 150 out of the total of 155 subsections as identified by the WTO Services Sectoral Classification List.[16] The session of horizontal commitments covers such areas as land ownership, subsidies and other forms of state support, and entry and temporary stay of natural persons.
Ukraine committed itself to full liberalization in the three modes of service supply: 1) cross-border supply, 2) consumption abroad, 3) commercial presence for 139 out of 155 sub-sectors. Still, some limitations on commercial presence will be present under the WTO in such sectors as notary services (eligibility only for Ukrainian citizens), agricultural land (ownership only by Ukrainian citizens), education (universities led only by Ukrainian citizens), health services, medical and dental services (reassessment of professional qualifications), postal services (licensing required for mail and packages), as well as insurance, road transport, auditing services, audio-visual sector. Limitations on foreign investment will be allowed only for news agencies (35%). As such, in order to implement its commercial present commitments, Ukraine will have to abolish other existing restrictions on foreign investment for companies distributing printed editions (30%) in a 5 year transition period.[17] Besides, branching limitations will be abolished in banking sectors upon WTO accession and in the insurance sector within five year from accession. Moreover, upon WTO accession, non-residents in the insurance sector will be allowed to re-insure certain kinds of risks (connected with overseas transportation, commercial aviation, launching of spaceships and freight), whereas within in five years upon accession, Ukrainian persons will be able to purchase insurance policies from foreign insurance suppliers to insure any kinds of risks (cross-border supply).
As to Mode 4 of service supply 'presence of natural persons', Ukraine committed only to allowing access of senior employees (who may stay in Ukraine up to five years), as well as other service providers defined in Ukraine's commitments (up to 180 days).

[16] Around 80% of service commitments are full and the other 20% are conditioned (in particular, in banking, insurance, transport, telecommunications, education, audiovisual, and professional medical and legal services).

[17] All other limitations on the share of foreign investment in statuary funds of companies have already been eliminated.

Summing up, Ukraine's current legal framework is now largely in line with Ukraine's WTO service commitments. Ukraine has already liberalised to a great extent its trade regime by eliminating the WTO-incompliant and discriminatory restrictions on imports, exports and FDI. The introduced legal policy changes in the framework of Ukraine's WTO accession lead to a (partial) reform of Ukraine's trade related economic policies and practices such as customs proceedings, competition policy, intellectual property rights, quality standards and safety requirements, etc., in accordance with multilaterally accepted international standards developed to promote fair and undistorted trade and open competition, strengthened market-based institutions, improved transparency and predictability of the domestic business environment.

2.3 Existing economic situation and trends in the EU – Ukraine

2.3.1 European Union internal policy

In March 2000, in what has become known as the Lisbon Agenda, the EU Heads of States and Governments agreed to make the EU "the most competitive and dynamic knowledge-driven economy by 2010". The Agenda focused heavily on the role of innovation as a driving force for economic development, the importance of skills and learning in a knowledge-based economy, and the need for compatibility with social and environmental concerns and renewal. Although some progress was made, it was clear by the time of the mid-term review in 2005 that overall the EU was falling behind the ambitious targets it had set itself. Re-launching the Agenda in 2005, increased emphasis was given to two key areas: (a) delivering stronger, lasting growth, and (b) creating more and better jobs. The bedrock to meeting these challenges is the maintenance of stability-orientated macroeconomic policies and sound budgetary policies. Meanwhile, the renewed action programme gave priority to:

- Making the EU a more attractive place to invest and work:
    - Extending and deepening the internal market;
    - Improving European and national regulation;
    - Ensuring open and competitive markets inside and outside Europe;
    - Expanding and improving European infrastructure.
- Knowledge and innovation for growth:
    - Increasing and improving investment in research and development;
    - Facilitating innovation, the uptake of ICT and the sustainable use of resources;
    - Contributing to a strong EU industrial base.
- Creating more and better jobs
    - Attracting more people into employment and modernising social protection systems;
    - Improving the adaptability of workers and enterprises and the flexibility of labour markets;
    - Investing more in human capital through better education and skills.

2.3.2 Growth, inflation and unemployment

In 2000 after a sharp decline conditioned by a transitory shock the Ukrainian economy resumed its growth. Throughout 2000-2006 the economy showed average growth rate of 7.4% with a record high result of 12.1% in 2004. Noteworthy in 2006 the industrial output reached the level of 1990. However, the overall real GDP is still behind the pre-transition level. Inflation in Ukraine has been relatively high during the last years, but it has dropped substantially from the very high levels in the 1990's. For the European Union, during the same time period, GDP has been growing between 0,8% and 2,6% and inflation has been equally mild, around 2% annually. Figure 2.1 summarises these findings.

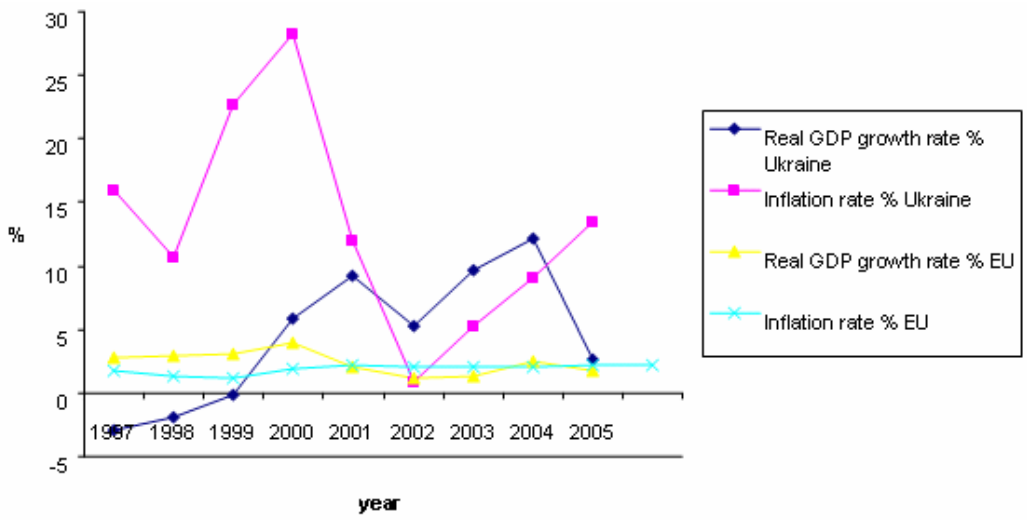
Unemployment in Ukraine has been relatively high, but declining. By 2005 it had declined to 7.2% from nearly 11.6% during the early twenty-first century. Unemployment in the EU areas has stayed around 8% during the recent years as is shown in Figure 2.2. Intensive sectoral restructuring negatively affected employment prospects: as said in 2000 about 11.6% of the labour force was without a job (according to the ILO methodology). The situation improved substantially in the following 6 years: in 2006, 6.8% of the economically active population was unemployed, which is far below the EU average level. However, according to the World Bank study, the low unemployment rate can be attributed to low labour force participation as many people quit the labour market with no hope of finding decent jobs in the future.

On the back of economic growth, population income is steadily expanding. Real wages grew at an average rate of 19.2% in 2002-2006. 43.2% of the total population income came from job earnings. In 2006 the per capita salary in Ukraine averaged at UAH 1041 (USD 206). Social payments remain the second largest source of the population income making about 39.5% of the overall income volume.

The gross capital formation has been rather steady in Ukraine and around 20% of GDP every year since 1997. That is around the same values as the EU areas' gross capital formation. Figure 2.4 shows this in detail.

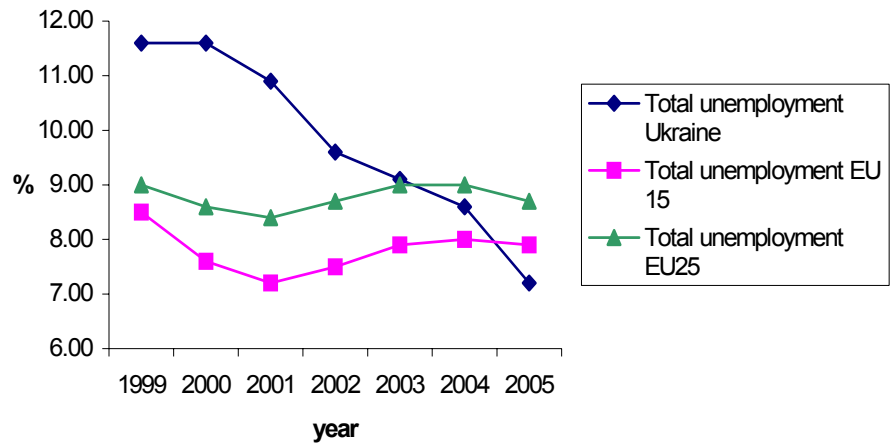
The current account in Ukraine has been in surplus since 2002 and in 2005 Ukraine had a surplus of +3,1% of GDP. The official Ukrainian currency, Hryvnia, is floating against the Euro and lately it has been depreciating against it (National Bank of Ukraine). The government debt in Ukraine was in 2005 only around 24% of GDP according to the World Bank, while in the EU-25 it was on average 63% of GDP (Eurostat).

Figure 2.1 GDP growth and inflation in Ukraine and the EU



Source: Eurostat

Figure 2.2 Total unemployment in Ukraine and the EU



Source: Eurostat

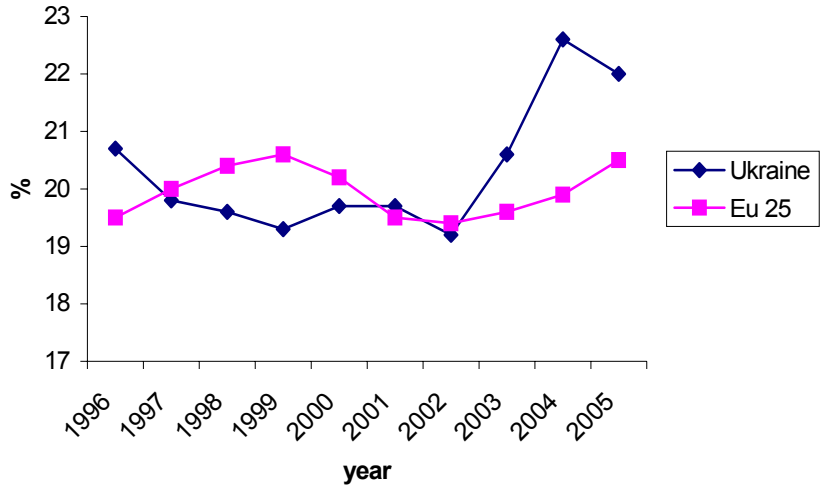
Figure 2.3 Sector level employment in Ukraine per sector (2004)

	Skilled / Unskilled	Number of people working in a sector	% of employment per sector
Agriculture, Fisheries, Forestry	SK	135921	0.49
Coal, Oil, Gas	SK	36217	0.13
Minerals NEC	SK	12720	0.05
Bovine cattle, sheep and goats, horse meat products	SK	8227	0.03
Vegetable oils and fats	SK	4912	0.02
Dairy products	SK	11522	0.04

	Skilled / Unskilled	Number of people working in a sector	% of employment per sector
Processed rice, Sugar	SK	5588	0.02
Food products nec	SK	19026	0.07
Beverages and tobacco	SK	20654	0.07
Textiles	SK	3257	0.01
Wearing apparel	SK	4199	0.02
Leather products	SK	2731	0.01
Wood products, Paper products, publishing	SK	21511	0.08
Petroleum, coal products	SK	16640	0.06
Chemical, rubber, plastic products	SK	32280	0.12
Mineral products nec	SK	21020	0.08
Ferrous metals, Metals NEC	SK	84786	0.31
Metal products	SK	21422	0.08
Motor vehicles and parts	SK	13880	0.05
Transport equipment	SK	17693	0.06
Electronic equipment; Machinery and Equipment	SK	45928	0.17
Manufactures nec	SK	9580	0.03
Electricity	SK	62801	0.23
Gas, Water	SK	26487	0.10
Construction	SK	46731	0.17
Trade	SK	98362	0.36
Transport nec, Water transport, Air transport	SK	83288	0.30
Communication	SK	22261	0.08
Financial services nec, Insurance	SK	142589	0.52
Business services nec, Renting	SK	139831	0.51
Recreational, entertainment, cultural and sporting activities, Social activities	SK	17724	0.06
Public administration, Education, Heatlh, Sewage, cleaning of streets and refuse disposal	SK	539470	1.95
Agriculture, Fisheries, Forestry	UNSK	4934904	17.85
Coal, Oil, Gas	UNSK	1233498	4.46
Minerals NEC	UNSK	433235	1.57
Bovine cattle, sheep and goats, horse meat products	UNSK	161206	0.58
Vegetable oils and fats	UNSK	96246	0.35
Dairy products	UNSK	225768	0.82
Processed rice, Sugar	UNSK	109503	0.40
Food products nec	UNSK	372789	1.35

	Skilled / Unskilled	Number of people working in a sector	% of employment per sector
Beverages and tobacco	UNSK	345058	1.25
Textiles	UNSK	54415	0.20
Wearing apparel	UNSK	70160	0.25
Leather products	UNSK	45633	0.17
Wood products, Paper products, publishing	UNSK	359379	1.30
Petroleum, coal products	UNSK	278008	1.01
Chemical, rubber, plastic products	UNSK	539293	1.95
Mineral products nec	UNSK	351168	1.27
Ferrous metals, Metals NEC	UNSK	1416467	5.12
Metal products	UNSK	357887	1.29
Motor vehicles and parts	UNSK	231895	0.84
Transport equipment	UNSK	295599	1.07
Electronic equipment; Machinery and Equipment	UNSK	767288	2.77
Manufactures nec	UNSK	160056	0.58
Electricity	UNSK	848224	3.07
Gas, Water	UNSK	357750	1.29
Construction	UNSK	1552564	5.61
Trade	UNSK	1989799	7.20
Transport nec, Water transport, Air transport	UNSK	2236310	8.09
Communication	UNSK	597732	2.16
Financial services nec, Insurance	UNSK	602058	2.18
Business services nec, Renting	UNSK	1004171	3.63
Recreational, entertainment, cultural and sporting activities, Social activities	UNSK	446665	1.62
Public administration, Education, Heatlh, Sewage, cleaning of streets and refuse disposal	UNSK	3447197	12.47
		27651215	**100**

Figure 2.4 Gross capital formation (% of GDP)

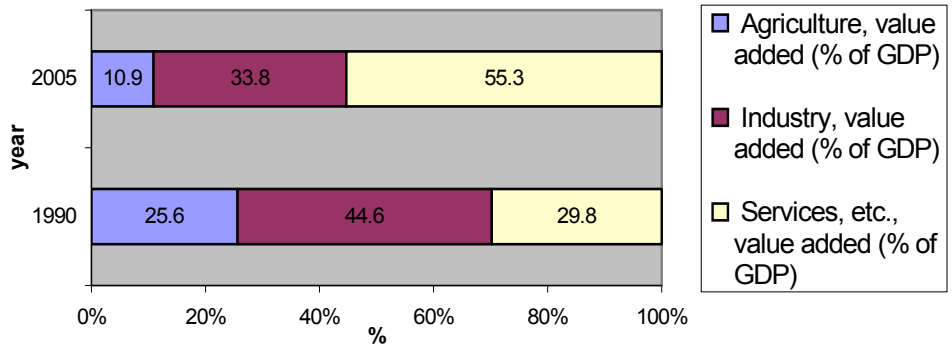


Source: Eurostat

The composition of output underwent substantial changes in the latest years: the share of services in GDP has been steadily growing. Figure 2.5, Figure 2.6 and Figure 2.7 show GDP composition by sectors for Ukraine and the EU. During the last 15 years from 1990 to 2005, agriculture and manufactures have lost some of their shares of GDP to services in Ukraine. While in 1990 agriculture accounted still for 25,6% of GDP, in 2005 its share had dropped to around 11%. Services on the other hand have grown from 30% of GDP to 55% representing the biggest sector in the Ukrainian economy currently. The services sector is also the biggest employer in Ukraine. The manufacturing sector used to account for 45% of Ukrainian GDP, but in 2005 this share had been reduced to a mere 34% (Eurostat). The largest industries in Ukraine measured by gross industrial production are: food and agricultural products processing, production of coke and refined petroleum products, metallurgy and processing of metal, machine building and chemicals. In the agricultural sector Ukraine is producing mostly grains, potatoes, sugar beet, milk and eggs. In the service sector, transport and travel services were the largest industries. Out of all the investments in 2005, the biggest share (24%) was invested in the manufacturing industry. A lot of investments were made also in the transport sector and in real estate operations (Ukrainian state statistics committee).

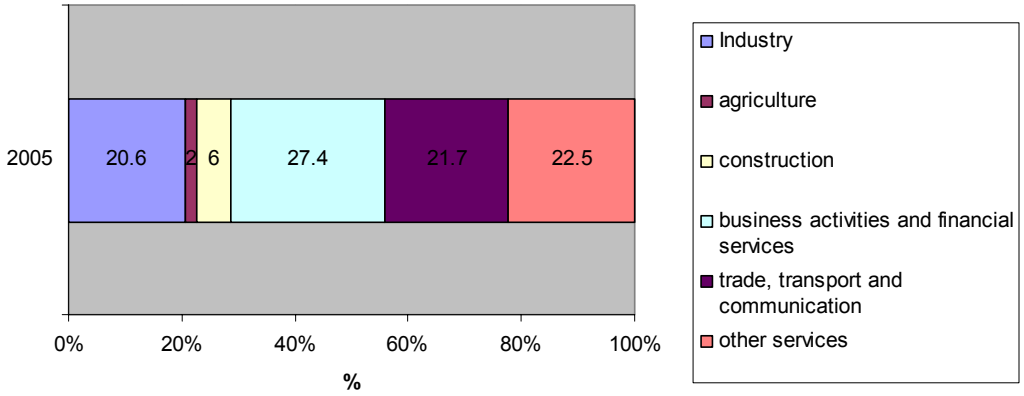
In 2005, the EU-25 area, services (including business activities and financial services, trade, transport and communication and other services) accounted for the largest share of GDP by far. Together they account for over 70% of GDP. Industry and construction were responsible for around 26% of GDP and agriculture for only 2%. In comparison to the change in the shares in Ukraine, it seems that the Ukrainian economy is rapidly moving in the EU direction: the agricultural and manufacturing shares of GDP are declining and the share of services is increasing.

Figure 2.5 GDP by sector in Ukraine



Source: Eurostat

Figure 2.6 GDP by sector in EU 25 (2005)



Source: Eurostat

Figure 2.7 Sector shares in Ukrainian production (2004)

	Sector production (mln US$)	Share of sector in Ukrainian total production (%)
Agriculture, Fisheries, Forestry	16.19	10.70
Coal, Oil, Gas	3.48	2.30
Minerals NEC	2.49	1.64
Bovine cattle, sheep and goats, horse meat products	1.66	1.10
Vegetable oils and fats	0.99	0.66
Dairy products	2.33	1.54
Processed rice, Sugar	1.13	0.75
Food products nec	3.84	2.54

	Sector production (mln US$)	Share of sector in Ukrainian total production (%)
Beverages and tobacco	3.71	2.45
Textiles	0.51	0.34
Wearing apparel	0.66	0.44
Leather products	0.43	0.28
Wood products, Paper products, publishing	2.81	1.85
Petroleum, coal products	7.74	5.11
Chemical, rubber, plastic products	5.18	3.42
Mineral products nec	2.01	1.33
Ferrous metals, Metals NEC	13.79	9.11
Metal products	3.48	2.30
Motor vehicles and parts	1.73	1.14
Transport equipment	2.20	1.45
Electronic equipment; Machinery and Equipment	5.72	3.78
Manufactures nec	1.33	0.88
Electricity	4.04	2.67
Gas, Water	1.97	1.30
Construction	7.08	4.68
Trade	14.46	9.56
Transport nec, Water transport, Air transport	10.53	6.95
Communication	3.62	2.39
Financial services nec, Insurance	5.08	3.35
Business services nec, Renting	7.30	4.83
Recreational, entertainment, cultural and sporting activities, Social activities	1.66	1.09
Public administration, Education, Heatlh, Sewage, cleaning of streets and refuse disposal	12.22	8.07
	151.37	**100**

Source: Social Accounting Matrix CGE – CASE Ukraine (2004)

Large-scale privatisation started in the mid-1990s and favoured restructuring through increased competition and inflow of private capital in major sectors of the Ukrainian economy. Increasing competition forced companies to modernise outdated equipment and increase investments in start-ups. Companies that managed to attract FDI lead the drive to competitiveness among domestic producers by introducing international standards of product safety and quality.

Large companies play a dominant role in the Ukrainian economy: small businesses accounted for about 12% of the overall output in 2006. The involvement of small

businesses in foreign trade is even less significant: slightly more than 6% of small businesses claimed that they exported in 2005. Regarding employment creation by SMEs, there are different views. According to the IMF the SMEs in Ukraine employ around 5,4% of all employed people, but due to data problems and inconsistency, a GFA report estimates that the real number would be actually around 40-43% after employment in medium size companies and within sole proprietors is also added. (GFA, 2006)

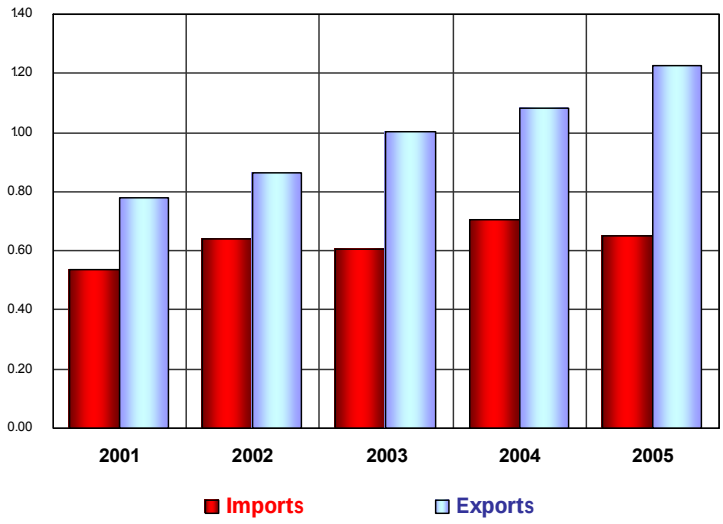
2.3.3 Evolution of EU trade with Ukraine

Size and direction of trade flows

The European Union currently represents the biggest trade partner for Ukraine with 30.2% of all trade actions, while in the past Russia used to be Ukraine's main trade partner. For the EU Ukraine is only a small trade partner with 0.9% of total EU trade going to or coming from Ukraine as Figure 2.8 shows. In 2005, Ukraine ranked 33rd in terms of EU import partners, 22nd in terms of export partners, and 29th in terms of overall trade (imports plus exports).

Over time, as Figure 2.9 shows, trade flows (in mln Euros) between the EU and Ukraine have steadily increased.

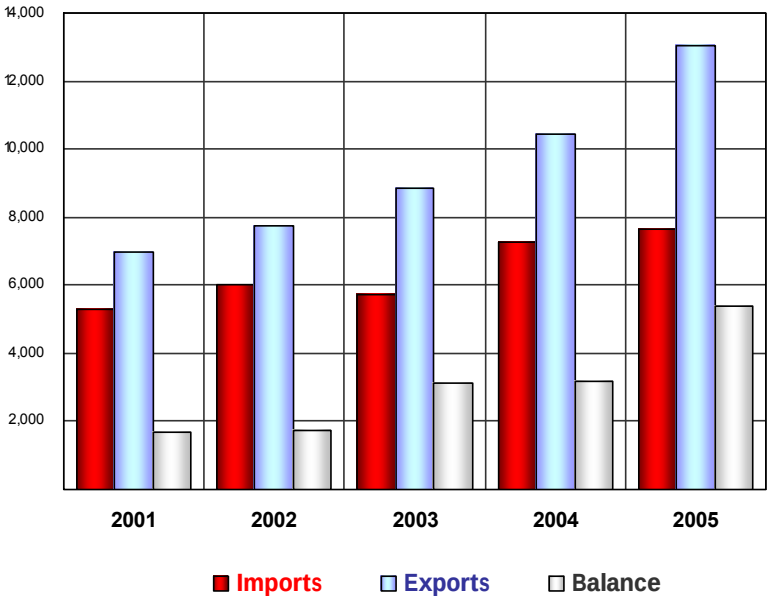
Figure 2.8 Ukraine share in total EU trade (%)



	2001	2002	2003	2004	2005
Imports	0.54	0.64	0.61	0.70	0.65
Exports	0.78	0.86	1.01	1.08	1.23

Source: EUROSTAT (Comext, Statistical regime 4), from DG Trade 15 Sept. 2006

Figure 2.9 Evolution of EU trade with Ukraine (mln Euro)



	2001	2002	2003	2004	2005	a.a.g.r.
Imports	5,276	6,025	5,715	7,270	7,668	
Change (%)		*14.2*	*-5.1*	*27.2*	*5.5*	*9.8*
Exports	6,967	7,758	8,830	10,460	13,045	
Change (%)		*11.3*	*13.8*	*18.5*	*24.7*	*17.0*
Balance	1,691	1,733	3,115	3,189	5,377	
Total Trade	12,243	13,783	14,545	17,730	20,713	
Change (%)		*12.6*	*5.5*	*21.9*	*16.8*	*14.0*

Source: EUROSTAT (Comext, Statistical regime 4), from DG Trade 15 Sept. 2006

In 2005, the EU ranked 2nd in terms of Ukraine's import partners (behind Russia), 1st in terms of export partners, and 1st in terms of overall trade (imports plus exports)
The role of Russia, although it is still the second largest trade partner for Ukraine, has gradually and substantially diminished. The most significant decline is registered for Ukraine's exports to Russia, which halved their share in total Ukraine's exports from 36 per cent in 1996 to 17 per cent in 2004. Export flows were redirected towards both the EU-25 and to the rest of the world, in particular Asia. The decrease in imports from Russia was far less significant, primarily because of its importance as a source of energy products for Ukraine.[18]

[18] Vinhas de Souza *et al* (2005).

Table 2.3 EU share in total Ukraine trade (%)

	2001	2002	2003	2004	2005
Imports	29.55	31.97	32.27	32.40	32.93
Exports	30.68	32.60	32.70	30.22	27.21

Source: IMF (Dots), from DG Trade 15 Sept. 2006

Figure 2.10 EU share in total Ukraine trade (%)

Composition of trade

Ukraine has large natural resources e.g. in different metals and natural gas. In 2005, Ukraine exported mainly iron and steel, agricultural products, energy products, chemicals, textiles and clothing and transport equipment to the EU-25. At the same time Ukraine imported mainly chemicals, transport equipment, power/non-electronically machinery, office- and telecommunications equipment and textiles and clothing from EU. Because of intra-industry trade patterns, Ukraine had actually a positive trade balance only in iron and steel, agricultural products and the energy sector in trade with the EU. Overall the trade balance of Ukraine with the EU is negative.

The structure of Ukraine's trade with the EU-25 is characterised by exports from Ukraine of raw materials and semi-processed goods, and imports by Ukraine of final products, primarily investment goods. In the Tables below, the summary of imports, exports and trade balance data according to Eurostat is given.

Table 2.4 European Imports from Ukraine

Products (Sitc Sections) by order of importance	Mio euro	%	Share of total EU imports
TOTAL	7,668	*100.0*	0.7
Manuf goods classif. chiefly by material	2,415	*31.5*	2.1
Crude materials inedible, except fuels	1,172	*15.3*	2.6
Mineral fuels, lubricants and rel. Materials	1,050	*13.7*	0.4
Machinery and transport equipment	589	*7.7*	0.2
Miscell. manuf. Articles	583	*7.6*	0.3
Chemicals and related prod., n.e.s.	497	*6.5*	0.5
Food and live animals	446	*5.8*	0.8
Animal and vegetable oils, fats and waxes	160	*2.1*	3.9
Commodit. and transactions n.e.c.	49	*0.6*	0.2
Beverages and tobacco	15	*0.2*	0.3

Source: EUROSTAT (Comext, Statistical regime 4), from DG Trade 15 Sept. 2006

Table 2.5 European Exports to Ukraine

Products (Sitc Sections) by order of importance	Mio euro	%	Share of total EU exports
TOTAL	13,045	*100.0*	1.2
Machinery and transport equipment	5,771	*44.2*	1.2
Manuf goods classif. chiefly by material	2,090	*16.0*	1.6
Chemicals and related prod., n.e.s.	1,998	*15.3*	1.2
Miscell. manuf. Articles	1,490	*11.4*	1.2
Food and live animals	507	*3.9*	1.4
Crude materials inedible, except fuels	209	*1.6*	1.1
Mineral fuels, lubricants and rel. Materials	164	*1.3*	0.4
Commodit. and transactions n.e.c.	155	*1.2*	0.5
Beverages and tobacco	110	*0.8*	0.7
Animal and vegetable oils, fats and waxes	26	*0.2*	1.1

Source: EUROSTAT (Comext, Statistical regime 4), from DG Trade 15 Sept. 2006

Table 2.6 European Trade Balance with Ukraine

Products (Sitc Sections) by order of importance	Balance Mio euro
TOTAL	5,377
Machinery and transport equipment	5,182
Chemicals and related prod., n.e.s.	1,501
Miscell. manuf. Articles	908
Commodit. and transactions n.e.c.	105
Beverages and tobacco	95
Food and live animals	61
Animal and vegetable oils, fats and waxes	-135
Manuf goods classif. chiefly by material	-324
Mineral fuels, lubricants and rel. Materials	-885
Crude materials inedible, except fuels	-963

Source: EUROSTAT (Comext, Statistical regime 4), from DG Trade 15 Sept. 2006

The composition of the Ukrainian exports remain highly concentrated with no substantial improvements in the last years: metals and derived products, chemical products, and mineral products made up about 61.7% of Ukrainian exports in 2006. Imports are dominated by mineral resources, namely gas and oil supplied from Russia. In 2006 minerals accounted for 30% of the overall commodity imports.

Trade in services

Trade in services between Ukraine and the EU was larger in total value than any other sector, as EU imported services from Ukraine worth 0.8 billion euros and exported worth 0.7 billion euros.

Ukraine's trade partners

Ukraine's other big trade partners – after the EU – are (in decreasing order, with share of total trade down to 3.5% in brackets): Russia (29.1%), Turkmenistan (4.1%), Turkey (3.8%), China (3.6%), Belarus and the USA (see also Table 2.7). The main trade partners of the EU at the moment are the USA, China, Russia, Switzerland and Japan.

Table 2.7 Ukraine's major trade partners

	Partners	Mio euro	%
1	EU	16,943	*30.2*
2	Russia	16,343	*29.1*
3	Turkmenistan	2,303	*4.1*
4	Turkey	2,118	*3.8*
5	China	2,027	*3.6*

	Partners	Mio euro	%
6	Belarus	1,472	*2.6*
7	USA	1,339	*2.4*
8	India	851	*1.5*
9	Kazakhstan	686	*1.2*
10	Korea	684	*1.2*
Source: IMF (Dots), from DG Trade 15 Sept. 2006			

FDI in Ukraine

Over the last few years the stock of FDI from the EU to Ukraine has been growing very rapidly. In 2004 FDI inflows amounted to 0.2 billion euros from the EU to Ukraine and the total stock of FDI in 2004 from the EU was 1.7 billion Euros according to Eurostat. At the beginning of 2007, the stock of FDI originating in the EU had risen to 15.9 billion USD, which equals around 11.8 billion euros. So the FDI stock has risen tenfold in three years time. Table 2.8 shows the 5 EU countries having most FDI in Ukraine. Germany is by far the largest source for FDI in Ukraine.

Table 2.8 FDI to Ukraine, Top 5 sending EU countries (in mln US$)

Country	Cumulative FDI to Ukraine at 1.1.2007 (volume in mln $)
Germany	5620,7
Cyprus	3011,7
Austria	1600,8
United Kingdom	1557,2
Netherlands	1493
EU total	15924

Source: State Statistics Committee of Ukraine, 2007

Ukraine remains one of the most open economies in the world: in 2006, export-to-GDP ratio equaled 47.2% while the import-to-GDP ratio stood at 50.1%. Openness of the economy gives it more opportunities to develop through deeper international specialisation. For many years net exports remained one of the driving forces behind economic growth in Ukraine. However, heavy reliance on foreign markets makes the economy very vulnerable to external shocks.

2.4 Existing social situation and trends in the EU – Ukraine

Ukraine has been rather explicit in expressing its desire to eventually become part of the EU. Whether this is feasible or realistic is not an issue for this report, but it has meant that the country has made improvements to the overall quality of life to meet EU standards, in addition to meeting political and economic requirements.

The EU/Ukraine Action Plan includes a section on social situation, employment, and poverty reduction, which envisages (1) strengthening cooperation on social matters, ensuring a closer approximation of Ukraine to the EU standards and practices in the area of employment and social policy; (2) introducing effective employment creation and poverty reduction measures, aimed at a significant reduction in the number of people with income below the poverty line and improved social cohesion, including sustainable systems for education, health and other social service with access for all. In addition one of the priorities for action is to "encourage dialogue on employment issues and best endeavours, in accordance with the Partnership and Cooperation Agreement (PCA), to ensure that treatment of migrant workers does not discriminate on grounds of nationality."

The main social indicators described in this section for the Ukraine, and where relevant for the EU include: (1) Poverty, including the number of people living under poverty line, GINI index, regional effects, etc.; (2) Labour issues, and particularly decent work as defined by the ILO; (3) Equality, relating to gender, race, religion, in areas such as education, employment, geographic location, etc.; (4) Health, including life expectancy, mortality rates, access to and quality of health services, sanitation, nutrition, etc.; and (5) Education, including primary, secondary and tertiary enrolment rates, literacy rates, access and quality issues, etc.

Whether all these indicators will also be considered in the impact assessment depends on their current status and the extent to which they are relevant to the eventual sectors and horizontal issues selected.

2.4.1 Poverty

With respect to social policy the EU/Ukraine Action Plan emphasises effective poverty reduction measures with an aim to significantly reduce the number of people with income levels below the poverty line.

Until 1999 poverty as a national problem was not recognised in Ukraine. There was no commonly accepted definition of poverty or a single methodology or strategy for poverty reduction. In 1999, after a careful selection and analysis of international experience in poverty monitoring, a relative poverty measure – 75 % of median expenditures per equivalent adult – was chosen to be an official poverty line definition in Ukraine. In the Presidential Decree issued on August 15, 2001 the Ukrainian Government explicitly recognised the problem of poverty as the inability of the household to provide for its basic needs and instated a relative poverty line definition as the basis of the first State Poverty Reduction Strategy. A methodology for measuring poverty comparable to international standards was established and poverty monitoring finally began in Ukraine.

Thus, in 2001, the proportion of the Ukrainian population defined as poor according to the international cost of living criteria for Central and Eastern European countries and the CIS (daily consumption below 4.3 USD, based on PPP) equaled 11%. According to the national poverty line definition, in 2001, the proportion of population below this line constituted 27.2%. Given this high level of poverty for the economy, the Ukrainian

government has made poverty reduction one of its primary goals. Poverty reduction indeed was the first of the eight UN Millennium Development Goals to be achieved by 2015 according to the document signed by Ukraine at the UN Millennium Summit in September 2000. The first target was set to reduce in half the proportion of people with a daily consumption below 4.3 USD measured at average purchasing power parity by 2015. And this target has already been met, the 'poor' portion has decreased significantly, to 3.2 % in 2004 from 11% in 2001. The second target was to reduce by one third the proportion of the poor population below the nationally defined level of poverty. According to the Ministry of Economic Affairs of Ukraine, in 2005 the 'poor' population constituted 27.1%, which is practically the same level as in 2001.

In 2005, the Ukrainian Government took concrete actions aimed at poverty reduction. These were concentrated on ensuring that the state minimum wage and level of social support for vulnerable groups of society continue to increase. More specifically, the Government significantly raised social aid for many vulnerable groups: newborn children and children under the age of three, children in low-income families, unemployed, retired, disabled, victims of work-place accidents.

2.4.2 Labour issues

The EU takes the ILO concept of Decent Work as its reference point for the social aspects of employment and unemployment. The decent work concept provides a converging focus for the strategic objectives of the ILO – to which the EU subscribes – namely rights to work, employment, social protection and social dialogue. As such it touches on issues of unemployment and underemployment, poor quality and unproductive jobs, unsafe work and insecure income, rights which are denied, gender inequality, exploitation of migrant workers, lack of representation and voice, and inadequate protection and solidarity in the face of diseases, disability and old age.[19]

According to the EU social policy, work can be characterised in terms of the multiple dimensions of *quality in work*, comprising on the one hand job characteristics and on the other hand work and the wider labour context. This notion is closely related to the Decent Work concept.

Present Ukraine labour legislation seems to address the main elements of the decent work concept.

Labour legislation

The main body of laws covering Ukrainian labour regulations is the Labour Code of Ukraine. Ukrainian labour legislation is inherited from Soviet times; therefore, the emphasis is on protecting the rights of employees. An illustration is article nine of the Labour Code, which states that the provisions of the individual employment agreements which worsen the working conditions of the employees compared to those stipulated by the Ukrainian labour legislation are considered ineffective. In fact, employment

[19] Source: www.ilo.org/public/english/decent.htm

protection legislation in Ukraine is significantly stricter than in other CEE countries and even stricter than in most OECD countries.

Ukrainian labour legislation provides certain guarantees to employees, including the following:

- Wages for time spent away from work for performing functions of trade union officer, appearing in court, voting and fulfilling other state or social responsibilities;
- Right to keep one's job while on a training programme;
- Wages while hospitalised;
- Severance pay in certain situations;
- Social benefits, such as: maternity leave, paid vacation and holidays;
- Minimum wage guidelines.

In addition, the following is provided by the labour legislation:

- Working week is not to exceed 40 hours;
- Overtime is generally prohibited, except for certain cases, in these exceptional cases time limitations are such that overtime may not exceed four hours during two consecutive days or 120 hours per year;
- Annual leave of 24 calendar days;
- Paid maternity leave for women 70 days prior and 56 days after the childbirth; women are also entitled to partially paid leave until the child reaches the age of three.

In terms of labour legislation, but also in terms of major indicators such as unemployment, labour participation and labour conditions, the Ukraine seems to perform quite well relative to some of the other transition economies and even relative to the EU average. However, Ukraine's performance 'on paper' is better than in practice, as several recent studies confirm.[20]

Since Ukraine's independence the following developments with regards to labour issues can be considered positive:

- Labour force participation and unemployment rates are not that bad and approximate the EU average;
- The proportion of women in the labour force is fairly high (48.9 per cent) and is similar to the situation in the EU;
- Between 2000 and 2004, the share of people who identified themselves with "middle class" increased from 9.2 per cent to 16 per cent;
- The share of wage and salaried employees covered by occupational injury insurance is quite high (84 per cent);
- With a collective bargaining coverage rate of 74.1 per cent, Ukraine is at the level of the EU average.

Negative developments and trends can be outlined as follows:

[20] Chernyshev, I. (2005) "Socio-economic security and decent work in Ukraine: A comparative view and statistical findings." Working Paper No. 76, Policy Integration Department, Statistical Development and Analysis Group, ILO, Geneva./ United Nations Development Programme (2006) "Ukraine. Poverty Alleviation." Millennium Development Goals Project. Ministry of Economy of Ukraine (http://www.undp.org.ua/).

- Monetary increase in wages and salaries has not been able to compensate for the loss in purchasing power caused by inflationary processes, therefore, when calculated in 1991 prices real wage growth was at the level of 51.8 per cent in 2004;
- Over 16 per cent of low pay workers earned less than 2 USD a day, which means that in 2004 the salary of low pay workers in Ukraine was less than the established minimum wage;
- In spite of a relatively low unemployment, the number of long-term unemployed grew almost tenfold. Ukraine's falling unemployment rate is largely a function of the negative population growth pattern than of the creation of new jobs;
- In comparison with the EU, Ukraine has the lowest incidence of employer-sponsored/organized training;
- Job-related training especially for women is a major concern. Moreover, the majority of the Ukrainian employees had received no promotion in the past five years;
- In spite of the decline in strike activity, the last decade witnessed continued erosion of the social security system and a deterioration of working condition in such accident prone industries as construction and mining.

Employment opportunities and labour market security

The Ukrainian economy grows at a high rate and, as mentioned above, unemployment is relatively low. At the same time productive job opportunities are scarce, especially in the formal sector. Many workers have a hard time finding a job, and many become discouraged and withdraw from the labour force.

Why is there a problem of scarcity of jobs in Ukraine? In transition economies jobs are created mainly by the private, usually small, firms. However, the size of this job-generating sector in Ukraine is significantly smaller (less than 30 percent of total employment) than in the most successful transition economies. The high costs of doing business in Ukraine deter entry of new firms. According to the World Bank Doing Business in 2006 report, Ukraine ranks among the last (with most complications for starting a business) countries in the region. For example, Ukraine and Belarus rank the last in the number of procedures to start a business (this number equals 15). Hence, there is a scarcity of jobs because there are few firms creating them.

Labour migration

There is emerging evidence on migratory flows from Ukraine to the EU countries such as Poland, Italy, Portugal, Spain, Greece and the Czech Republic. Given that a significant number of migrants engage in irregular forms of employment, it is difficult to estimate the actual numbers of male and female labour migrants from Ukraine working abroad. Official estimates of registered migrant workers in countries of origin and destination usually tend to underestimate the effect and at times differ from one another.

Out of a population of over 46 million people, Ukrainian authorities estimate that over two million Ukrainian women and men work abroad, with one million working in Russia, and the other million spread out mostly among EU countries (Poland – 300,000; Italy – 200,000; Czech Republic – 150,000; Portugal – 150,000; Spain – 100,000). The majority of these migrant workers come from rural areas of Ukraine's Western regions.

Unemployment and employment security

The labour market in Ukraine is at a relatively early stage of transition. Most labour is still employed in the public sector, which implies that the major wave of job and labour reallocation lies in the future. At the same time, despite low open unemployment, the labour market is depressed and productive job opportunities are few.

The unemployment rate, at about 7 percent, is relatively low by the standards of transition economies.[21] But the unemployment rate does not tell the whole story. The scarcity of job opportunities in Ukraine manifests itself largely in the relatively low labour force participation rate. Many workers have become discouraged by the futility of their job search and have withdrawn from the labour force. About 60 percent of the working age population are either employed or looking for a job. As a result the employment-to-population ratio, which is the most comprehensive indicator of the degree of utilisation of labour resources, is relatively low in Ukraine (around 60 per cent compared to the OECD average of 70 per cent).

Moreover, the official unemployment figure fails to completely account for hidden unemployment. For example, more than a third of rural residents of working age are technically unemployed, as the majority of the population working on their own small farms, do not consider themselves employed. Large numbers of working age rural residents are forced to move away from their places of residence in search of employment, including moving abroad. The number of officially registered unemployed citizens is unreliable, also for another reason: instead of registering with the state unemployment agency, many unemployed choose to leave the official labour market and move to the shadow economy.

Rights at work and social protection

Social dialogue and workplace relations also deserve a few comments. It is the case that the last decade has witnessed a positive historical change in the right of Ukrainian workers associate themselves. Today, instead of one All-Ukrainian Federation of Trade Unions with a reported 100 per cent membership, the country has a dozen of independent trade union organisations with their own federations and representation at both national and international levels. The reality of today is that in order to safeguard their level of representation and equipollent position in the process of social dialogue, the Ukrainian trade unions have to strengthen their positions. They need to demonstrate their ability to defend workers' rights in an environment characterised by growing competition coupled with the population's declining interest in their activities.

One measure of the failure of social dialogue is the recourse to strike. However, the absence of strike action could also indicate the absence of the right to strike. In a ten-year time span, the annual number of strikes diminished dramatically from 247 in 1995 to only 4 in 2004. However, this decrease in recourse to industrial action does not necessarily mean that social dialogue and workplace relations have improved proportionally in the reverse direction. For example, working conditions in Ukraine's mining industry are among the most dangerous in the world with a very high number of miners killed each year.

[21] Calculated using International Labor Organization methodology, year 2006.

2.4.3 Equality

The Constitution of Ukraine states that all citizens have equal constitutional rights and freedoms and prohibits discrimination based on race, gender, political, religious and other beliefs, ethnic and social origin, property status, linguistic or other characteristics.

Income distribution

A distinctly uneven income distribution is continuing to form in Ukraine, with the majority of the population concentrated in the low-income category. The gap between the rich and poor is widening.

Also regional income disparity is increasing in Ukraine. Substantial gaps between wage levels in different geographical regions of Ukraine remain pronounced. For instance, average wage level in 2006 in Donetsk oblast equals 1,204 UAH, while in Ternopil oblast it is only 731 UAH. The highest paying location remains Kyiv, averaging 1,737 UAH per month. The wage gaps are largest between the capital and provinces, especially those in the predominantly agrarian west of the country.

Sectoral income disparity is an issue in Ukraine as well. There is a significant differentiation in population income and consumption levels between different industries. Especially alarming is the fact that such professional groups as doctors, engineers, teachers, social sphere workers fall into the poorest categories. The fact that the specialists from the above-mentioned spheres belong to the low-income group can have a negative impact on the society's development potential. But the most critical situation remains in the agricultural sector, where the average wage in 2006 was UAH 553, reaching only 50 percent of the national average. However, it should be kept in mind that in the agricultural sector a significant share of labour compensation is delivered in-kind, creating a gap between accrued wage and actual labour compensation amounts and increasing the error in income level calculations for rural areas.

Gender Equality

In the process of Ukraine's development as a member of the world community and on its way towards integration with its European neighbours, gender equality is becoming an increasingly important issue in public dialogue at all levels. By now all national legislation regarding rights of men and women has been brought into accord with the international conventions ratified by Ukraine. Non-discrimination in employment and equal opportunities for men and women are guaranteed by the Ukrainian Constitution. Most international experts confirm that Ukraine has managed to adopt a gender-friendly national legislative environment, which guarantees that no one is discriminated against on the base of one's sex. Yet, constitutional norms can be implemented only under the condition that legally approved international standards of gender equality are implemented in the relevant institutions. The Millennium Development Goals targets and indicators are seen as milestones for providing gender equality and raising the profile of women in Ukrainian society. The first target was to achieve a gender ratio of at least 30:70 for either gender in legislative and executive office.

2004 gender equality data gives the following numbers: gender ratio among deputies of the Verkhovna Rada (women/men) - 5/95; gender ratio in oblast governments - 10/90; in municipal governments – 22/78; in village governments – 47/53, etc. Noteworthy is, that in 2005, for the first time in the history of independent Ukraine a woman was appointed Prime Minister.

The second target was to halve the gap in income levels between men and women. In 2002, the ratio of average wages of women as a percentage of average wages of men was 69.3% of that of men, and in 2003 – 68.6%. In 2004, this ratio decreased further to the level of 68.56%.

Summarising the performance on gender equality indicators, it is worth noting that progress in achieving most targets remains insufficient. It should be emphasised that Ukraine, which has traditionally high standards in women's education and significant achievements in developing legislation based on the principle of equal rights, has deliberately committed itself to a larger challenge than many other post-soviet countries.

2.4.4 Health

Health of the population is now viewed as an indicator of social and cultural progress and the overall quality of life. The 2002 report on the state of the European health care system by the World Health Organization (WHO) Regional Office for Europe says that investments in the health care system should be considered as a contribution to the development of the national economy and to the reduction of the poverty rate.

The medico-demographic crisis peaked in Ukraine in 1995-1996, caused by an abrupt drop in living standards during the period of socio-economic changes, unfavorable environmental conditions, socio-psychological stress, and reduced health care accessibility. Although the situation has improved since then, Ukraine falls behind economically developed nations in health and life expectancy indicators.

Major Health Problems

The major problems faced by Ukrainians today and which have been getting most attention lately are maternal health and child mortality; the spread of HIV/AIDS and tuberculosis.

The Ukrainian government is very supportive of maternal and child health and ranks it high among state priorities. Although it looks like Ukraine has almost fulfilled its obligations under the Millennium Development Goals 2005 both for maternal (to reach an indicator of 19.8 deaths per 100,000 live births in 2015), and child mortality rates (9.3 per 1,000 children less than one year old and 12.3 for under fives), these indicators appear rather high compared with the European ones. In particular, in 2004 in Ukraine, the infant mortality was 9.5 per 1,000 infants and maternal mortality – 13.7 per 100,000 live births.

The HIV/AIDS epidemic in Ukraine poses a serious threat to national security. According to official statistics, as of December 1st, 2006 there were over 70,000 officially

registered HIV-positive people in Ukraine, while experts estimate the real number to be approximately 377,000. At the end of 2006, the International HIV/AIDS Alliance in Ukraine reports on the implementation of the two largest HIV/AIDS programmes in Ukraine: 'Overcoming HIV/AIDS Epidemics in Ukraine' financed by the Global Fund to Fight AIDS, Tuberculosis and Malaria, and the USAID-supported project 'Scaling up the National Response to HIV/AIDS through Information and Services'. Some results have been already achieved, among which are the following: i) over 3,500 people are receiving life-saving AIDS treatment; ii) the groups most vulnerable to HIV have access to prevention and information services, including 31% of the injecting drug user population (over 102,000 individuals covered), 13% of women involved in commercial sex (over 14,000 women), and 23% of prisoners (about 26,000 people); iii) 406 medical institutions in all regions of Ukraine received medicines and other medical supplies.

Tuberculosis is no less important an issue than HIV/AIDS epidemic. Currently Ukraine is experiencing a tuberculosis epidemic. According to the official statistics the epidemic threshold has been significantly exceeded and as of beginning of 2007 there were 85 sick people with tuberculosis per 100 thousand. According to WHO representatives in Ukraine, the situation is getting more threatening: just 10 or 15 years ago tuberculosis was a disease of marginal level to people (people suffering from alcoholism, prisoners, etc.), and now everyone is at threat. Socially successful people and even children can become infected with tuberculosis. The WHO has outlined the target for each country - to detect 70% of "contagious" tuberculosis cases and have 85% of the detected patients cured. Ukraine has still a long way to go to get to these standard levels. According to WHO statistics, approximately 50-60% of all sick people are detected in Ukraine and about 65-70% of patients get cured. Another problem for Ukraine is that there are no modern laboratories and necessary methods for diagnosis especially for diagnosing multi-drug resistant TB (MDR TB), from which about 10% of patients in Ukraine suffer. In 2006, the Foundation for Development of Ukraine of SCM Company decided to fully finance a pilot project on struggle against MDR TB in Donetskaya Oblast. Two million euros were allocated for purchasing the necessary diagnose equipment and staff training.

In spite of some progress achieved by Ukraine in the most problematic areas, the general condition of the nation's health may be characterised as unsatisfactory. In Ukraine, compared to economically developed nations, the mortality rate of the population remains too high, including early death rates (child, maternal, able-bodied).

Healthcare System Financing

The general approach to financing the health care system in Ukraine has not changed since the Soviet times when it was mandatory, based on joint taxation and provided virtually free to the public. The Constitution of Ukraine, adopted in 1996, declares that "state and community health institutions provide medical services free of charge; the existent network of such institutions may not be reduced." The citizens` right to health insurance is also guaranteed in the same Article of the Constitution. Since most health facilities in Ukraine are state and community run, despite the existence of the private health care sector, the state budget and the budgets of local and regional self-governing bodies remain the major official source of health care financing.

The proportion of the budget allocated for health care in Ukraine cannot meet the needs of the public. The shortage of public funds results in the replacement of free-of-charge health care by medical services for a fee. Personal spending on health care is rapidly becoming more common. According to official statistics, in eight years (1996–2003) the proportion of private payments rose from 18.8% to 38.5% and, including informal payments, the estimate becomes 52%. A network of private health care providers and private health facilities has emerged in Ukraine since its independence. It is hard to estimate the population's spending on the services delivered by the private healthcare sector due to a lack of relevant statistics.

Birth and death rates

The birth rate in Ukraine has been declining — from 12.6 per 1,000 in 1990 to 7.7 per 1,000 in 2001. This is due to the ageing of the population and self-regulation of the number of children by families. This, in turn, is due to socio-economic conditions. However, starting from 2002 the birth rate has been stabilising: from 8.1 in 2002 to 9.8 in 2006. Death rates in Ukraine remain high – State Statistics Committee reports a figure of 16.2 (in the total population per 1000 individuals). Death rates among the rural population are higher than among the urban population.

2.4.5 Education

From the Soviet Union, Ukraine inherited quite an effective education system. Afterwards, it underwent fundamental changes, both positive and negative.

A sharp reduction of funding for education led to a rapid deterioration of its quality, a lowering of the general educational level of the population, and a devaluation of the social status of teachers, due to low salaries in the sector.

In recent years, Ukraine has made significant efforts to develop reform strategies and to undertake reform policies in the human development sector. The country continues to face challenges, however, and in the education sector these translate into unequal access, eroding quality and low efficiency in the use of resources.

2.4.6 The EU Perspective

In 2000 the EU launched the Lisbon Strategy or Lisbon Agenda, which focused on economic, social, and environmental renewal and sustainability based on the concepts of innovation, the 'learning economy' and *social and environmental renewal*. The strategy was reviewed in 2005 and updated – for the social component – with a Social Agenda for 2005-2010. This Social Agenda emphasises decent jobs and social justice as the pillars for the modernisation of the European Social Model. It is this modernised social model that the EU promotes not just within the EU, but also in its relations with other countries, especially ENP countries.

The principal areas of EU social policy, monitored through an annual social situation report, include: population; education and training; the labour market; social protection, income, poverty and social exclusion; gender equality; health and safety at work.

The social situation in the EU compares rather favourably to the Ukrainian situation, although within the EU, substantial differences can be observed. This is especially true for the EU enlarged to 27. Averages at the EU level for many indicators were affected by the enlargement, explaining some of the changes since 2003. Among the best performers are the Northern European countries, while Southern member states (notably Spain and Portugal, Greece and Italy) perform less. New member states' performance more closely matches the performance of these Southern member states. In general, EU enlargement has caused specific social pressures, through for instance migration and structural adjustments. In general, migration policies are becoming a higher priority among memener states and migration management is developing into a balancing act between openness and control, including issues such as the socioeconomic inclusion of migrant populations and measures to prevent discrimination.

Without going into the details of each indicator, or differences within the EU, Table 2.9 summarises the current situation for the EU and highlights the biggest differences within the EU.

Table 2.9 Overview of social situation in the EU[22]

Indicator	Situation EU
a) Population	• Aging population and immigration as main driving forces behind EU demographic changes; in some new member states (NMS) population decline due to emigration.
b) Poverty	• Approximately 16% of total EU population is at risk of poverty and approximately 30 million people are living in long term poverty. The relative poverty rate – those living below 60 percent threshold of median national income – varies considerably across member states from 8 percent in Denmark, to 23 percent in Portugal. • Existing regional disparities are addressed through the EU structural funds.
c) Labour issues	• Unemployment rate EU-27 decreased from 9% in 2003 to 7.9% in 2006, with highest levels in Poland (13.8%) and Slovakia (13.4%) and lowest level in Denmark and the Netherlands (3.9%). • Employment rate increased from 62.2% in 2000 to 64.3% in 2006. which is still below the target of 67% set by the EU member states in 2003. Moreover, with ageing population participation rates may in fact decline again. • Migrant workers: Demographic change in EU15 to a large extent determined by immigration, causing social and cultural tensions and inclusion and discrimination issues, while in NMS large out-migration and issue of brain drain. • Productivity and quality of work are core elements of the Lisbon Agenda. Although improvements are being made, productivity increases are lagging behind the United States in particular. • Employment opportunities; focus on creating balance between security and flexibility and on quality of work, education and training to remain competitive. • Minimum wages are enforced by law and apply nationwide to the majority of full time

[22] Sources: Eurostat Yearbook 2006; and COM(2004) 137 final Scoreboard on Implementing the Social Policy Agenda

	employees in each country. As is to be expected they vary widely across the EU-27. • Social dialogue: Social partners at national and EU levels discuss and negotiate labour policies. However, limited in NMS.
d) Equality	• Female employment rate was 57.1% in 2006, with the highest levels in Denmark (73.4% and the lowest in Malta (34.9%) and Poland (48.2%). This is seen as a result of effective EU and national policy to increase the participation of women in the labour market. However, the gender gap* remains 15%. • gender equality in education, • Income inequality – the ratio of total income received by the 20% of the population with the highest income to that received by the 20% of the population with the lowest income – was 4.9 for the EU-25 in 2005, with the highest inequality in Lithuania (6.9) and the lowest in Sweden (3.3). • The dispersion of regional employment rates by NUTS 2 regions, as expressed in a coefficient of variation is 11.9 for the EU-25 and 10.9 for EU-15. The4 highest regional variation in employment is found in Italy (16.0), while the Dutch coefficient is only 2.0. • Civil society involvement: At national levels, particularly in Northern Members States increasingly part of policy process (Government and Parliament). At EU level regular dialogue facilities in most DGs, although quality and intensity differs strongly. In NMS civil society still evolving.
e) Health	• Average life expectancy at birth was 78 years in 2006 (79 years in the old Member States and 74 years in the NMS). Life expectancy is higher for women, but the gender gap is closing. • Access to and quality of health services: In most countries there is some form of health insurance. Public health care expenditures are …% on average, but substantially higher in the old member states. • With ageing of the population increasing pressures on existing health care systems as well as pension funds; reforms being carried out in several member states. • Rules and regulations regarding hygiene and sanitation are strict. • Approximately 90% of population is connected to public water system and approximately 88% to sewerage system.
f) Education	• Enrolment rates are high, but educational attainment of the adult population lags behind Canada, Japan and United States. • Ambitious targets to increase tertiary education enrolment and reduce early leaving of schools.

* This is the difference between average gross hourly earnings of male paid employees and of female paid employees as a % of average gross hourly earnings of male paid employees. The population consists of all paid employees aged 16-64 that are at work 15+ hours a week.

2.5 Existing environmental situation and trends in the EU – Ukraine

2.5.1 Economic transition, recovery and the environment

Ukraine has favourable climate conditions and geographical location and moreover is endowed with an abundance in natural resources. But for decades abundant resources were wasted by an ineffective and environmentally unfriendly economic system that still today affects the extensive model of a developing economy. Thus the share of the fuel and power sector in Ukrainian industry is twice as much as in France, Germany or Italy; the share of metallurgy is almost three times more. “Dirty” industries prevail in the

Ukrainian economy; they have more than fourty percent of key assets and about one third of overall industrial output. The fuel and power sectors consume near three quarters of water in Ukrainian industry.

Since the date of the Independence Declaration (1991), the state formation and transition to a market economy have been marked by the decrease of the country's industrial potential. The economic decline was accompanied by an increase of a specific volume of a non-productive sphere in GDP: increases in social inequality. On the other hand, those processes caused a decrease of man-made burden on the environment. But as a result of capital outflow from the country and minor volumes of foreign direct investments (less than a hundred USD per capita), the general capital investments decreased, leading to deterioration of quality of machinery and production facilities, including decreasing environmental circumstances by over 50%.

Since 1999, the recovery of the Ukrainian economy has started. The total increase of GDP exceeded 22% during the last 3 years and had a positive impact on the socio-economic activities of the Ukrainian economy, including the trend of increasing of environmental protection expenditure. In 2005 Ukraine spent $882 million to protect the environment, allocating a similar share of income to environmental protection as do Central- and Eastern-European countries. However, environmental expenditure per capita remains low at less than 40 USD per year.

According to an OECD survey for 2000-2005, like in a majority of EECCA, wastewater receives the highest share of environmental expenditure: 49% of the total amount, air attracts 22%, waste about 15%, soil and groundwater – 11%, biodiversity and landscape – 2%, and other – 1%. Investment represents 22% of total environmental protection expenditure that is near 2% of the Gross Fixed Capital Formation (GFCF), similar to that in Germany. The share of environment in domestic investment has almost doubled since 2000.

Multilateral environmental assistance from international financial institutions (IFIS) is an important factor because over the period 2000-2005 Ukraine received 105 million USD, and became a major EECCA recipient in 2004.

But industrial recovery since 1999 also resulted in the tendency to go back to catastrophic pollution levels of the late Soviet period and a growing burden on the environmental infrastructure. This threat is more than real as dirty industries dominate in economy's recovery and specific figures of pollution have become apparent.

2.5.2 Metallurgy and steel

The major environmental impact is connected with ferrous metallurgy and the energy sector. Ukraine still has outdated and obsolete but powerful steel making plants and related coke production and metal mining. These sectors are responsible for about 40% of air emissions. The share of ferrous metallurgy in the structure of exports accounts for about 40%, that greatly helped in 2006 to save Ukraine from the economic crisis, when due to political instability, inflation, and increases in the price of natural gas amounted to

a negative trade balance of $6.667 billion. Also in 2006, Mittal Steel paid $4.8 billion for the "KrivorozhStal" plant. Important for this report is also to note that the internal market for the industry is fairly low: Ukraine exports 80% of its steel products.

To improve the environmental performance of the steel making industry, we have to substitute first of all 'open hearth' furnaces. More than half of the remaining outdated, energy wasting installations in the world are in Ukraine now – a very dubious honour. About 45% of Ukrainian steel is produced in open hearth furnaces, which are not operated in developed countries any more. For comparison in Russia about 20% of steel production is carried out that way and Russia plans to phase out the open hearth production method completely by 2010. Reconstruction of the industry is hindered by an unstable situation related to energy prices and strong competition at the global market place.

The Ukrainian steel making industry is supported by domestic sources of raw materials. The relatively low steel prices are explained by low costs of labour, iron ore, coke, scrap, and electricity.

2.5.3 Energy

Another activity with a large environmental impact, both for pollution and resources use, is the power sector. The current state of Ukrainian power plants in general can be described as critical. Installations put into operation in 1960 – 1970s by design and norms of the 1950s are physically and morally obsolete. The overwhelming majority of existing power plants is outdated.

Specific fuel consumption for the generation of electricity at thermal power plants increased by 17% till 373.7 g / (kWh). Coal provides the largest share, about 35%, of fuel raw material and – according to national development plans – will be even more intensively used.

Ukraine can be considered as one of the most ineffective countries for natural gas use, since it consumes more than fifteen hundred cubic meters of natural gas for $1,000 GDP. Cogeneration possibilities are usually not used, and energy efficiency is correspondingly about 34% instead of 90%.

Contrary to Russia, where electricity production was restored to the level before the slump of the 1990s, Ukraine still has significant unused capacities that create a big potential for export of electricity to neighbouring countries.

Poor dust control at power plants results in high emissions of participles, including heavy metals. Control equipment of SO_2 emissions is mostly absent, which is especially dangerous because of low quality fuel and very high content of sulphur in Ukrainian coal.

There were numerous governmental programmes for improving the situation but their usual feature is a failure to achieve its goals. This shortfall of environmental policy may be explained by a rather unbalanced way in which policy is developed; rather as an

internal ministerial document only than with proper and active participation of main stakeholders, including the public and various NGOs. Typically a list of projects is declared without secure funding, monitoring and control and enforcement measures.

2.5.4 What is happening at the moment?

Promising efforts started in 2006 with the practical implementation of Kyoto mechanisms and provisions of the IPPC directive. For May 2007 there are 5 joint implementation projects that got official letters of approval and became financially valid under the Kyoto Protocol procedures.

In 2007 the Green Investments Scheme Agency was created in Ukraine in order to use the country's significant potential for cooperation within the framework of the Kyoto Protocol, thus opening up the possibility of billions of USD of environmental assistance.

Implementation of the European concept of best available techniques for the main industrial sectors should drastically improve environmental regulation and environmental performance of the main polluters.

Other proposed measures like changes in the Tax Code of Ukraine are to stop negative environmental trends.

Large scale activities for joint implementation projects combined with proper environmental regulation based on international approaches, including technical standards and BAT (best available standards) recommendations may quickly improve investment conditions and help develop government procurement policy. It is the only way to secure the competitiveness of Ukrainian companies with the environment in mind.

According to official data, emissions from Ukrainian stationary sources have been on the increase during the last years: air emissions exceeding 4 million tonnes, and polluted water discharges are near 3.3 billion m^3.

2.5.5 Environmental effects of outdated production methods

Imperfect extraction technologies result in big losses of minerals, thus with absence of enhanced oil recovery systems, about 50% of the oil reserves is not extracted at Ukrainian deposits. The same levels of extraction apply also to sodium chloride and potassium chloride, with 40% for coal and 25% for metals.

Improper waste management at mineral extraction and industrial production resulted in formation of landfills with 20 billion tonnes of industrial waste. These waste deposits grow annually by 170-180 million tonnes while only 20-40% of the waste is utilised. For example around 1% of the territory of the most industrialised Donetsk oblast is under landfills.

2.5.6 Ukraine's nature and environment

Ukraine is historically famous for its rich nature, agriculture, and significant world's share of black soil. Nowadays it features the highest indicators in Europe as for ploughing-up of agricultural land, use of fresh surface water resources and deforestation; up to 54% of the land is ploughed up, about 10.6 million ha or 33% of the total area, including 44% of the best steppe fields suffer from wind and water erosion.

Annual water consumption is 23-25 km^3, including up to 6.0 km^3 of underground water. About 60% of water is used in industry with formation of discharges. The water use problem is further aggravated by prevailing consumption in industrial areas with low water resources.

Only 30% of the territory of Ukraine is under vegetation, and it is not natural growth mainly. Forests cover 10.4 million hectares and clean territories cover 8% only.

Fauna resources are presented mainly by fish (up to 90%). 70% of the fish catch comes from the Black Sea and Sea of Azov. The catch of fish decreased 2.5 times over the last 20 years, and this negative tendency continues at present. In the Dnipro river the yearly catch was about 22 thousand tonnes in the 1970s, while nowadays it is around 7-8 thousand tonnes only. The same drastic slump is true for game, with three times decreasing catch over the last 30 years.

At the same time new reserved territories are being established. At present time, the Fund of Natural Reserves of Ukraine comprises 7120 territories and objects totalling more than 2.7 million hectares in area; it makes 4.5% of the whole area of Ukraine.

2.5.7 Overall

In general, Ukraine demonstrates negative environmental trends for:

- Consumption of natural resources, including water and land use;
- Pollution of ambient air, water and soil, disposal of waste;
- Destruction of habitats, wild life and natural landscapes;
- Emergency situations; and
- State of public health.

These trends are quite evident though some figures can be disputed and revised. Like other countries in the region, Ukraine retains a traditionally comprehensive and thorough system of state reporting, where every enterprise fills numerous questionnaires on annual or even quarterly basis. But data quality is traditionally very poor, as it was never used for real policy making but rather used to serve unrealistic ambitions. A systematic cross-checks or balances-system is usually not in place in practice. For example, no Ukrainian annual energy balance has been prepared in Ukraine since independence. Moreover, for such crucial data, different governmental agencies produce their own figures that may differ significantly. Very cautiously should we also treat the official data of motor vehicles emissions, contrary to evident congestion of cars in modern Ukrainian cities, statistics shows several times decreases of such emissions.

According to Environmental Performance Review of Ukraine, it definitely strengthened its legislation using integration into international legal area. Ukraine ratified 27 key environmental conventions and, at present time, is a member of discussion around 26 other environmental conventions. At this time, 173 standards that represent European and international standards have been introduced in Ukraine, and this work actively goes on.

The State Committee of Statistics of Ukraine very recently introduced questionnaires for air pollution, waste management and environmental expenditures corrected for harmonisation with EU/OECD classifications and definitions. This questionnaire should significantly improve compatibility and reliability of environmental information.

Improvement of the environmental situation in Ukraine is impossible without the renewal and modernisation of technological infrastructure that aims to approach in its characteristics the EU standards. This will require financial domestic and foreign resources. The capital investment need for providing the fulfilment of priority arrangements related to environmental pollution is about 50-60 billion Euro.

2.6 Free Trade Agreement between the EU and Ukraine

As mentioned before, the negotiated Enhanced Agreement is planned to have a five-pillar structure: An institutionalised political dialogue based on common values in line with mutually accepted general principles governing the future relationship between the EU and Ukraine; A WTO-compatible FTA for goods and services, which will also include binding disciplines in non-tariff and regulatory areas; Specific provisions regarding energy; Provisions on cooperation in a broad range of areas of mutual interest; Developed institutional structures to ensure effective implementation of the Agreement, including a dispute settlement procedure.

With Ukraine already being a member of the WTO, and – in line with our analysis of paragraph 2.2 thereof – we need to see the FTA as a further deepening on top of Ukraine's WTO commitments, some of which have already been implemented, some take effect the moment Ukraine enters the WTO and some take effect via transition paths in the time afterwards. We summarise the majority of WTO commitments as follows:

- Lower custom duty rates for many industrial and agricultural goods – increased market access;
- Dropping of minimum prices on imports of alcoholic products;
- Dropping of discriminatory taxes on petroleum and tobacco products;
- SPS related protective provisions eliminated;
- Elimination of discriminatory fees for rail transport;
- Gradual reduction of export duties connected with ferrous and non-ferrous metals, live cattle and leather raw materials;
- Protection of intellectual property rights;
- Lifting of citizenship requirements for performing auditing and attorney services;
- Allowing establishment of branches of foreign banks and insurance companies;
- Elimination of TRIMS and export quotas in the sugar industry;
- Introduction of tariff quotas for importation of raw cane sugar;

- Setting up maximum bound rates of 10% for most industrial goods and of 20% for most agricultural products (exception sugar (50%) and sunflower-seed-oil (30%);
- Application of MFN rate by 2010 of 4.85% for industrial products, 11.16% for agricultural products and 6.28% for products of the nomenclature of the Harmonised System;
- Full liberalisation in mode 1 of service supply: cross-border supply;
- Full liberalisation in mode 2 of service supply: consumption abroad;
- Full liberalisation in mode 3 of service supply: commercial presence for 139 out of 155 sub-sectors;
- Limited liberalisation – in mode 4 of service supply: presence of natural persons (see section on WTO accession Ukraine);

Unresolved issues compared to a full Free Trade Area after the WTO negotiations for Ukraine as for now are among others:

- Effective implementation of all the agreed WTO commitments;
- Level of state support to agriculture;
- Remaining levels of tariffs in agricultural products (sensitive ones) and industrial goods;
- Still custom duty rates;
- Limited liberalisation of mode 4 of service supply: presence of natural persons;
- Limitation on commercial presence in sectors as notary services, education, health services, medical and dental services, postal services as well as insurance, road transport, auditing services and the audio-visual sector;
- Limitations on FDI encompasses news agencies;

As mentioned by the Terms of Reference, the new commitments that are expected to be negotiated as part of the FTA within the framework of the Enhanced Agreement lie in the areas of:

- Trade in goods, including industrial goods, agricultural products, processed agricultural products and fishery products;
- Technical Barriers to Trade and SPS;
- Trade in services (such as financial services, transport and telecommunications), establishment and investment;
- Capital movements and payments;
- Government Procurement;
- Competition;
- Intellectual Property rights;
- Trade facilitation, Customs and Rules of Origin;
- Trade and sustainable investment;
- Energy.

It is the information we obtain from the ‘unfinished issues’ with respect to Ukraine’s WTO accession combined with the information available form the Terms of Reference that we analyse to deduct the main negotiation issues for the FTA. It is also these issues we try to focus on in our analysis and try to incorporate as good as possible into the CGE modelling exercise of Chapter 3. In the next Chapter, we will also summarise the issue-wise analysis of the Terms of Reference below and map it into a modelling exercise.

Trade in Goods

Given the analysis on the outcomes related to the WTO negotiations of Ukraine, which entail a substantial liberalisation in goods and services, we expect the FTA to go beyond this level of liberalisation. In the ambitious scenario, we assume a zero tariffs in all sectors, also steel, agriculture and food. For the less ambitious scenarios we model some products (e.g. agricultural ones) to remain at WTO binded levels.

Energy

The energy sector is of significant importance to Ukraine because of its share in Ukraine's GDP as well as because of reasons of national security. Ukraine exports energy (electricity) to EU countries in Central and Eastern Europe and even though not very significant amounts, Ukraine intends to increase this share significantly. This makes energy an issue to model because it is likely to be discussed during the FTA negotiations. Not only does the CGE model ambitious and limited changes to the coal and gas sectors, also the electricity sector is analysed in an ambitious and less ambitious way via significant or less significant reductions in tariffs.

Trade in services

As part of the WTO commitments, service sectors are (partially) liberalised. Regarding trade in services, the most ambitious scenario is a full liberalisation under the FTA negotiations. However, because this is a very sensitive sector for the Ukrainian government, we developed two limited scenarios, one including limited services liberalisation going beyond WTO obligations and one where no further liberalisation takes place on top of the (already implemented) WTO commitments. Also we model barriers to FDI in services that lead to higher costs for foreign (financial) service providers. The extended FTA leads to a much larger reduction in these barriers to FDI than the limited FTAs.

Trade facilitation, Customs, and Rules of Origin

The rules for customs procedures, rules of origin, and other measures of trade facilitation are negotiated with the aim of bringing them largely in line with EU regulations. For the customs procedures in particular and trade facilitation in general, this leads to lower border costs for EU and Ukrainian products thus increasing market access. For the rules of origin, we envisage the FTA leading to lower technical barriers. The ambitious scenario envisages a far-reaching synchronisation and lower border costs and technical barriers while the limited FTA negotiations would lead to less synchronisation and thus higher border costs, technical barriers and smaller FTA effects.

Technical Barriers to Trade and SPS

Starting from the WTO commitments of Ukraine, for trade in goods we envisage the FTA to achieve substantially higher reductions in technical barriers and harmonisation on SPS standards. In both less ambitious scenarios we assume a limited elimination of this kind of NTBs. Harmonisation has to lead to lower preparation and adaptation costs from the side of the exporters both ways. Lower costs lead to more trade. The depth of the FTA determines the depth of the liberalisation in technical barriers and SPS.

Capital movements and payments

Increased capital flows through opening up and further liberalisation of the financial sector is important for obtaining working capital and reducing the costs of trade by reducing capital costs. The WTO commitments imply a partial liberalisation and international opening up of the financial sector, but within the framework of the extended FTA there is room for further improvement. Through tariff equivalent reductions in the financial sector – further-going or not, depending on the scenario – we include this in the CGE modelling.

Government procurement

Improvements in government procurement are important in reducing the costs of doing business and/or carrying out projects and increasing the efficiency of financial flows. In preparation for the WTO, Ukraine passed legislation on improving the process of government procurement in December 2006, so arguably an important step has been made. Depending on the scenario, the FTA could further increase the quality of government procurement by looking an enforcement of the new legislation or not. Through an increase in NTBs we model this into the scenarios.

Competition policy

Coming from a communist system over 16 years ago, a functioning market economy is a crucial part and goal of transition and a pre-requisite for joining the WTO. Competition policy in itself is difficult to model. However, policy that aims at increasing competition so as to increase efficiency and welfare gains through pro-competitive effects of trade are implicitly modelled in the CGE exercise. The extended FTA entails an ambitious competition policy while the more limited FTA scenarios look at a more modest policy engagement.

Intellectual Property Rights

Improvement Intellectual Property Rights (IPR) will increase security for foreign companies in doing business with Ukraine. An ambitious improvement, not only in legislation but also implementation of IPR leads to reductions in standard costs – the more encompassing the FTA the larger the reductions.

Trade and sustainable investment

Investments are a main determinant of economic growth. If the FTA can ensure (partial) focus of investments in the direction of sectors that promote sustainable development, trade patterns will also become ‘greener’. A free trade agreement may – through its output and employment effects – have asymmetric impacts on sectors and thus on sustainable development.

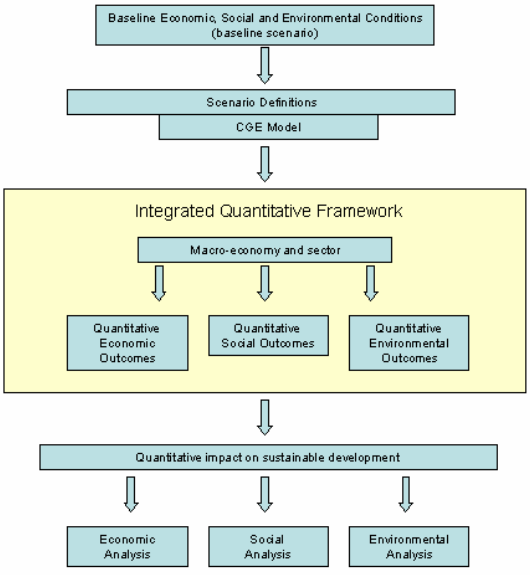
3 Macroeconomic analysis

3.1 Macroeconomic analysis

In this section we employ computable general equilibrium (CGE) modelling to analyse the economic consequences of the trade measures negotiated in the Free Trade Agreement between the European Union and Ukraine. We use the Harrison-Rutherford-Tarr (1996) Multi-Region Trade model for this analysis. As mentioned in the Handbook (2006), this CGE modelling aims to quantify the effects of the trade measures concluded in the FTA negotiations. Depending on the different envisaged scenario outcomes, different effects will result.

Within the sustainability framework of this study, it is this macroeconomic analysis that provides the first indication of likely sustainability effects resulting from the macroeconomic level. The indicators that we measure overall are: overall welfare changes, average real income, employment effects, effects on high- and low-skilled wages, price effects and net fixed capital formation. At the sector level – split out into 38 sectors – we investigate the effects of the FTA on sector output and sector employment. These calculated effects serve as input for the screening exercise in Chapter 1. Since the sustainability impacts, be it economical, social or environmental, must arise directly or indirectly from an initial economic impact, as is shown in Figure 3.1, the CGE model provides the starting point for the sustainability analysis.

Figure 3.1 CGE Methodology

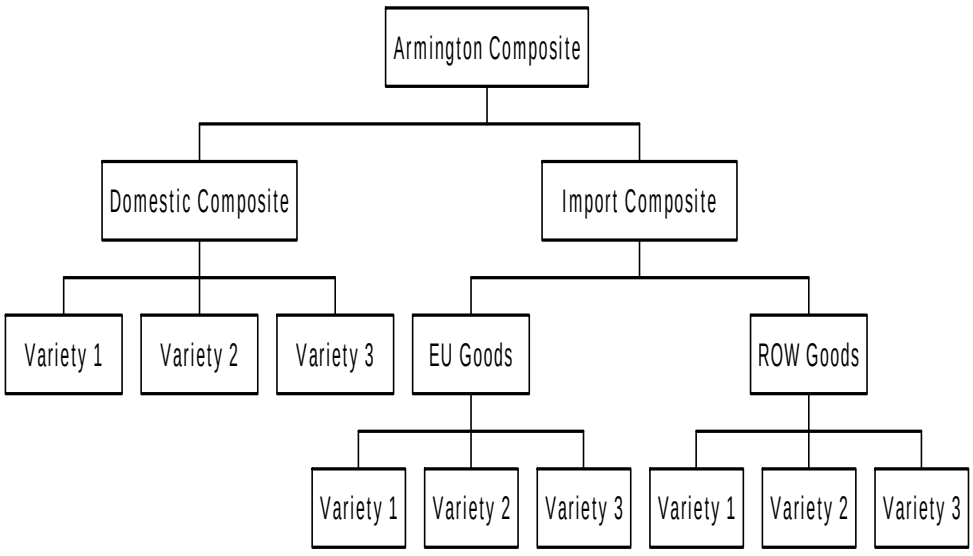


3.2 CGE: The Multi-Region Trade Model

The model employed in this study is a standard static computable general equilibrium model. It includes several price-wedge distortions such as factor taxes in production, value-added taxes, import tariffs and export subsidies. Factor taxes in production and value-added taxes remain unchanged in simulations. Production involves combination of intermediate inputs and primary factors (capital, skilled and unskilled labour). We assume a Constant Elasticity of Substitution (CES) function over primary factors and a Leontief production function combining intermediate inputs with factors of production composite. Primary factors are mobile across sectors within a region, but immobile internationally. Each region has a government, whose revenue is held constant at the benchmark level and a single representative consumer. The trade balance is also held constant in counterfactual simulations.

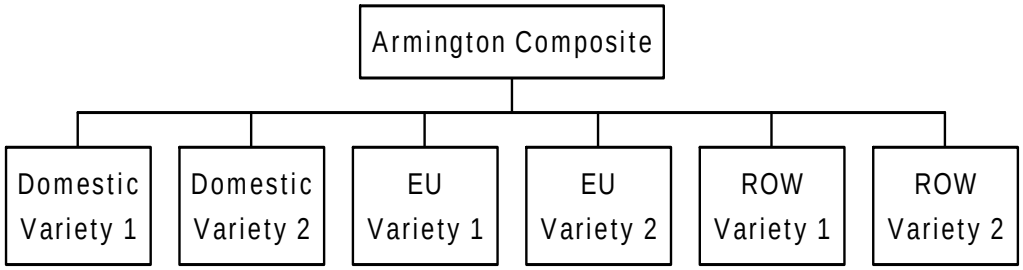
Demand for final goods arises from a Cobb-Douglas utility function. The demand structure is illustrated in Figure 3.2. Within each region, final and intermediate demands are composed of the same Armington aggregate of domestic and imported varieties. The composite supply is a nested CES function, where consumers first allocate their expenditures among domestic and imported varieties and then choose among imported varieties. In the imperfect competition case firm varieties enter at the bottom of the CES function. This approach allows for the differentiation in preferences for home and imported goods. The special form of this demand structure is firm level product differentiation. It requires the assumption that all elasticities of substitution between firms and products are equal. Demand is then represented by a single level CES function with all domestic and imported varieties competing directly, as illustrated in Figure 3.3.

Figure 3.2 Demand structure in the IRTS scenario – firm level product differentiation within an Armington aggregate



Source: HRT (1996a).

Figure 3.3 Armington composite with equal elasticities of substitution for all product varieties



Source: HRT (1996a).

A detailed description of the model equations, calibration and parameters employed is provided in Annex 8. It is built on the basis of the MRT – Multiregional Trade Model – by Harrison, Rutherford and Tarr (HRT) implemented in their evaluation of the impact of a completion of the Single Market (HRT, 1994 and HRT, 1996a), but has been modified in several ways to fit this analysis.

The social accounting matrix (SAM) for Ukraine has been prepared by experts from the Center for Social and Economic Research (CASE Ukraine). The original data sources used to construct the SAM include the official input-output table[23]; official production statistics; law on import duties and 10-digit import statistics from State Statistics Committee for tariff calculations. The reference year of the official input-output table is 2004, it includes 38 sectors, based on operating Classification of Economic Activities (KVED). The units of measurement are million Ukrainian Hryvnas (UAH). The Ukrainian I-O table is in basic prices, i.e. the elements of intermediate consumption and final consumption expenditures do not include transportation and trade margins and taxes on production and imports, but do include subsidies on production.

The data on the EU has been updated to 2004 based on the structure of the EU27 data in the Global Trade Analysis Project Version 6 database, which includes the national and regional input-output structures, bilateral trade flows, final demands pattern and government intervention benchmarked to 2001. The GTAP protection data for the EU27 has been updated based on Trains data. The benchmark database includes Ukraine, Russia, EU27 and the Rest of the World. It includes 32 sectors out of which 15 are subject to increasing returns to scale in the imperfect competition scenarios.

3.3 Model inputs

3.3.1 Tariff changes following accession to the WTO

The model is set on 2004 data, and that year's macroeconomic and trade variables are the basis for further simulations. The first modeling step is to assess the effects of Ukraine's joining of the WTO. Technically WTO accession will precede the FTA, whatever form it may have. Thus, WTO accession is the benchmark for scenarios describing deeper

[23] State Statistics Committee of Ukraine

integration of the EU and Ukraine's economies, i.e. FTA effects are compared to the post-WTO hypothetical macroeconomic and trade values.
The WTO accession scenario envisages tariff and NTBs reductions. 2004 weighted average tariffs are reduced to be in line with the Ukraine's WTO schedule of concessions and commitments. Noteworthy, most of tariff lines have been changed in 2005-2006 and currently are in full conformity with the WTO schedule. Nevertheless we expect that reduced tariffs effects have long-term nature and tangible results of tariff reduction will come in several years. Thus, we do not impose a new benchmark and stick to 2004 tariff structure as the initial point for the modeling. The NTBs are also expected to decrease somewhat as the result of the Ukraine's WTO accession. Ukraine still has to bring technical standards, SPS norms, licensing and customs procedures in line with the WTO multilateral agreements. We assume 30% reduction of NTBs in agriculture, forestry, fishing, and food manufacturing sector and 15% reduction in other manufacturing sector. NTBs reduction will impact trade flow with all Ukraine's trading partners.

3.3.2 Non-tariff barriers

One of the studies ordered by the European Commission before completion of the Single Market looked at the perception of EC producers as to the importance of barriers to be removed by the formation of the Single Market. It showed that the elimination of physical frontiers, costs and delays, harmonisation of national standards and regulations, and government procurement were the most important barriers to trade before 1992. Similar conclusions were reached after a survey of barriers to exports to the EU faced by the Ukrainian exporters (see Jakubiak et. al. 2006). Elimination or lessening of these impediments to trade is also likely to bring major benefits to Ukraine when it gains Single Market access thanks to a creation of a deep FTA. In modelling of a deep FTA we focus on reduction in border costs and delays, as well as reduction in costs of compliance with varying national standards and regulations. In addition we also study an impact of a reduction of barriers to FDI.

1. Border costs

One of the most observable barriers to trade is due to the existence of borders and customs formalities, which involve delays and various kinds of administrative costs. At the moment all goods from Ukraine exported to the EU and vice versa are stopped at the EU border for customs clearance. Border costs are modelled as additional purchases of a domestic transportation good which includes shipping, handling and warehousing for customs purchases.

Ukrainian border costs are approximated by the costs of customs clearance faced by the Ukrainian exporters to the EU in 2006. According to Jakubiak et al (2006) border costs amounted on average to 6% of the value of production. We assume that these costs will be reduced by 50% in the Extended FTA scenario and by 10% in the Limited FTA scenarios. We assume that lowering of border costs due to reform of customs procedures or decreases in corruption at the border reduces the costs to exporters from Russia, EU27 and the ROW in the same way.

Table 3.1 Border costs estimates

	Benchmark (2004)	WTO Accession	Extended FTA (c2)	Limited FTA (including services) (c31)	Limited FTA (no service liberalisation) (c32)
Border costs as a share of the value of exports	6%	6%	3.0%	5.4%	5.4%

2. Standard costs

The EC has been concerned with the elimination of the technical barriers to trade since its creation. However, the major effort of elimination of barriers to trade imposed by differing national regulations and standards was undertaken with the creation of the Single Market. The Single Market measures consist of 2,556 different mandated standards. This number rises to more than 20,000 when voluntary standards are considered.

Recently, CASE conducted a survey on NTBs faced by Ukrainian exporters to the EU (Jakubiak et al 2006). Among others, respondents (over 500 companies) were asked to assess costs associated with meeting EU technical standards and the duplication of efforts related to compliance with both national and the EU standards (existing for the majority of surveyed firms). Costs of meeting EU standards for Ukrainian producers are presented in Table 3.22.

Table 3.2 Percentage of yearly production costs spent by Ukrainian exporters to the EU in order to ensure products compliance with the EU norms, 2006

NACE	Industry	% of production costs	number of firms that answered
01	Agriculture, hunting and related service activities	14.0	3
02	Forestry, logging and related service activities	7.0	11
14	Other mining and quarrying	n/a	0
15	Manufacture of food products and beverages	10.4	9
16	Manufacture of tobacco products	n/a	0
17	Manufacture of textiles	2.3	3
18	Manufacture of wearing apparel; dressing and dyeing of fur	34.4	8
19	Tanning and dressing of leather; manufacture of luggage, and footwear	5.3	3
20	Manufacture of wood and of products of wood and cork	20.9	22
21	Manufacture of pulp, paper and paper products	15.0	2
22	Publishing, printing and reproduction of recorded media	0.0	0
23	Manufacture of coke, refined petroleum products and nuclear fuel	10.0	1
24	Manufacture of chemicals and chemical products	5.5	4
25	Manufacture of rubber and plastic products	5.6	5
26	Manufacture of other non-metallic mineral products	29.3	6
27	Manufacture of basic metals	5.0	1

NACE	Industry	% of production costs	number of firms that answered
28	Manufacture of fabricated metal products, except machinery and equipment	6.4	5
29	Manufacture of machinery and equipment n.e.c.	4.4	7
30	Manufacture of office machinery and computers	n/a	0
31	Manufacture of electrical machinery and apparatus n.e.c.	11.0	5
32	Manufacture of radio, television and communication equipment and apparatus	10.0	2
33	Manufacture of medical, precision and optical instruments, watches and clocks	20.0	1
34	Manufacture of motor vehicles, trailers and semi-trailers	12.3	3
35	Manufacture of other transport equipment	4.0	2
36	Manufacture of furniture; manufacturing n.e.c.	15.3	4
37	Recycling	5.5	2
Total/average		13.9	109

Source: own calculations based on survey described in Jakubiak et al (2006)

The differences in technical regulations and standards, which vary between domestic and the EU markets, require producers to manufacture or package goods in forms, which are different than for their domestic markets. Standardisation costs therefore increase the cost of production for exports and they are modelled as additional value added in each sector where trade takes place. This approach ignores the fixed cost elements of implementation of new standards. However, these are mostly one-off investments and their magnitude is not likely to be significant.

These estimates are based on a survey of exporters to the EU. We do not have similar numbers for the other countries and the impact of a Ukraine-EU FTA on them would be uncertain in any case. Hence in the simulations we assume that these costs apply only on exports to the EU. Any harmonization of legislation with the EU, wider availability of conformity assessment centres and with that lower prices of certification that would follow an EU-Ukraine FTA would lead to a reduction of these costs for Ukrainian exporters to the EU. In the WTO Accession scenario these costs are assumed to decrease by 30% in the case of agricultural and food products and by 15% in all other sectors. In an Extended FTA we assume that these costs will decrease by 50% and 35% respectively and in a Limited FTA reductions are assumed to decrease by 40% and 25% relative to their initial level in 2004. In the WTO Accession scenario these costs are assumed to decrease by 30% in case of agricultural and food products and by 15% in all other sectors.

Table 3.3 Standard cost reductions

	Benchmark (2004)	WTO Accession	Extended FTA (c2)	Limited FTA (including services) (c31)	Limited FTA (no service liberalisation) (c32)
Agriculture, Fisheries, Forestry	14	9.8	7.0	8.4	8.4
Coal, Oil, Gas	0	0	0	0	0
Minerals NEC	0	0	0	0	0
Bovine cattle, sheep and goats, horse meat products	10.4	7.3	5.2	6.2	6.2
Vegetable oils and fats	10.4	7.3	5.2	6.2	6.2
Dairy products	10.4	7.3	5.2	6.2	6.2
Processed rice, Sugar	10.4	7.3	5.2	6.2	6.2
Food products nec	10.4	7.3	5.2	6.2	6.2
Beverages & tobacco	10.4	7.3	5.2	6.2	6.2
Textiles	2.3	2.0	1.2	1.7	1.7
Wearing apparel	34.4	29.2	22.4	25.8	25.8
Leather products	5.3	4.5	3.4	4.0	4.0
Paper products, publishing, wood products	15	12.8	9.8	11.3	11.3
Petroleum, coal products	10	8.5	6.5	7.5	7.5
Chemical, rubber, plastic products	5.5	4.7	3.6	4.1	4.1
Mineral products nec	29.3	24.9	19.0	22.0	22.0
Ferrous metals, Metals NEC	5	4.3	3.3	3.8	3.8
Metal products	6.4	5.4	4.2	4.8	4.8
Motor vehicles and parts	12.3	10.5	8.0	9.2	9.2
Transport equipment	4	3.4	2.6	3.0	3.0
Electronic equipment; Machinery and Equipment	10	8.5	6.5	7.5	7.5
Manufactures nec	15.3	13.0	9.9	11.5	11.5

3. Barriers to FDI in services

We base our estimates on the barriers to foreign direct investment in services estimated by the IER (see Pavel et. al. 2006). The authors estimate tariff equivalents of barriers that discriminate against foreign service providers of telecommunication, transport and financial services. We model those barriers as additional purchases of value added in the amount equal to tariff equivalents by exporters or providers of those services from all the remaining regions (Russia, EU27 and the ROW). Hence we assume that in order to

provide financial services (banking insurance) in Ukraine foreign providers face the cost higher by 28.8% than local provides. The additional costs in transport sector amount to 11.7% and in communications to 3.2%. In simulations we assume that all providers will face an improved access to the Ukrainian market following and EU-Ukraine FTA. Hence these barriers are also reduced with respect to Russian and WTO providers of services.

Table 3.4 Barriers to FDI in services

	Benchmark (2004)	WTO Accession	Extended FTA (c2)	Limited FTA (including services) (c31)	Limited FTA (no service liberalisation) (c32)
Transport nec, Water transport, Air transport	16.7	11.7	0	6.7	11.7
Communication	4.9	3.4	0	2.0	3.4
Financial services nec	28.87	20.2	0	11.5	20.2

We assume that the barriers to foreign providers of services in Ukraine are reduced by 30% with the WTO accession and then by a further by 100% in an extended FTA scenario. In the first limited scenario these barriers are assumed to go down by 60% relative to the benchmark 2004 level and in the second limited FTA scenario, these barriers are assumed to remain at the post-WTO level.

3.4 Scenario specifications

Figure 3.4 What are the issues and how do we propose to model them?

Agenda Issues	WTO outcomes (with base scenario is 2004) (base)	Extended FTA (c1)	Limited FTA (including services) (c2)	Limited FTA (no service liberalisation) (c3)
	Abiding by the principles of non-discrimination and transparency among WTO partners			
Trade in Goods including industrial goods, agricultural products, processed agricultural products and fishery products	Fixing tariffs, mostly at low levels, with the most-favoured nation clause – base on WTO accession analysis	**Zero tariff** in all sectors extending the zero tariff principle to embrace the free movement of all goods, services, capital and (doubtless with longer transition periods) labour as well	Agriproducts remain at WTO binded tariff level, food product reduced by **30%,** rest to **zero** tariffs	Agriproducts remain at WTO binded tariff level, food product reduced by **30%,** rest to **zero** tariffs
Energy	Reducing barriers to trade in energy sector and related sectors	**Zero tariff** in electricity, gas & coals sectors	**Zero tariff** in electricity, gas & coals sectors	**Zero tariff** in electricity, gas & coals sectors
Trade in services (such as financial services, transport and telecommunications), establishment and investment	Opening many service sectors to free trade – base on WTO accession analysis – 30% reduction	For trade in services, complete sectoral coverage and convergence on internal market regulatory rules of the EU or best international standards: 100% reduction compared to 2004	Further limited liberalisation of services (but perhaps with only limited liberalisation in some sectors): 60% reduction compared to 2004	**No** further liberalisation of services
Trade facilitation, Customs and Rules of Origin	Adopting rules for customs procedures	Rules for customs procedures, trade facilitation and rules of origin largely in line with EU - 50% reduction compared to 2004	Partial adoption of rules for customs procedures – 10% reduction compared to 2004	Partial adoption rules for customs procedures – **10% reduction compared to 2004**

Agenda Issues	WTO outcomes (with base scenario is 2004) (base)	Extended FTA (c1)	Limited FTA (including services) (c2)	Limited FTA (no service liberalisation) (c3)
Technical Barriers to Trade and SPS	Observing rules for non-tariff barriers, with the principle of non-discriminatory 'national treatment' – reduction of 30% in agrifood sector; reduction 15% other sectors	For trade in goods, substantial elimination of non-tariff barriers through harmonisation or mutual recognition of technical standards with those of the EU (or both) – 50% reduction in agrifood sector; 35% other sectors compared to 2004	For trade in goods, limited elimination of non-tariff barriers through harmonisation or mutual recognition of technical standards with those of the EU (or both) – 40% reduction in agrifood sector; 25% other sectors compared to 2004	For trade in goods, limited elimination of non-tariff barriers through harmonisation or mutual recognition of technical standards with those of the EU (or both) – 40% reduction in agrifood sector; 25% other sectors compared to 2004
Capital movements and payments	Liberalisation of the financial sector and opening up of domestic capital markets	Further commitments in opening up the financial sector, including specific professions, reducing capital costs in Ukraine. Increased FDI inflows are expected because of the FTA. In a special gravity estimation this will be analysed further.	A limited increase in FDI flows is expected; in line with further commitments to opening up to foreign capital. In a special gravity estimation this will be analysed further.	A limited increase in FDI flows is expected; in line with further commitments to opening up to foreign capital. In a special gravity estimation this will be analysed further.
Government Procurement	Ambitious legislation passed as part of WTO negotiations in December 2006 regarding public procurement.	Ongoing improvements in the process of government procurement especially the focus on implementation. Ambitiously this could lead to a reduction in NTBs of **35%.**	More limited success in implementation of improved procedures regarding government procurement. A reduction of **25%** of NTBs is envisaged.	More limited success in implementation of improved procedures regarding government procurement. A reduction of **25%** of NTBs is envisaged.
Competition policy		Stronger commitments in competition policy, corporate governance and internal market regulation that are anchored to EU	Limited commitments in competition policy, limited improvements in corporate governance	Limited commitments in competition policy, limited improvements in corporate governance

Agenda Issues	WTO outcomes (with base scenario is 2004) (base)	Extended FTA (c1)	Limited FTA (including services) (c2)	Limited FTA (no service liberalisation) (c3)
		practices, and for selective elements of environmental standards		
Intellectual Property rights		Improved IPR increases security for companies doing business and resulting in de fact reductions in standard costs. The standard costs are expected to drop by another **20%** on top of WTO commitments.	Limited success in protecting IPR and thus limited reductions in standard costs of **10%** on top of WTO commitments.	Limited success in protecting IPR and thus limited reductions in standard costs of **10%** on top of WTO commitments.
Trade and sustainable investment		Adoption of accompanying policies, including technical assistance, infrastructure investment, education and training	Adoption of accompanying policies, including technical assistance, infrastructure investment, education and training	Adoption of accompanying policies, including technical assistance, infrastructure investment, education and training

3.4.1 Baseline scenario

The PCA which went into force on 1 March 1998 for an initial 10-year period will be automatically renewed if no party requests otherwise. The baseline scenario reflects the situation that no agreement is reached. Consequently the baseline scenario takes the automatic renewal of the PCA as point of departure. This scenario thus gives an impression of the autonomous development of the EU and Ukrainian economies.

Partnership and Co-operation Agreement Between the European Communities and Their Member States, and Ukraine

The PCA states that: the Parties are committed to liberalise trade, based on the principles contained in the GATT, as amended by the Uruguay Round; the Agreement will create a new climate for economic relations between the Parties and in particular for the development of trade and investment. Trade related articles of the PCA are summarised below.

Article 1 of the PCA states as one of the objectives: "to promote trade and investment and harmonious economic relations between the Parties and so to foster their sustainable development".

Article 4 of the PCA announces consultations on Ukraine's advances in market oriented economic reforms to allow the beginning of negotiations on the establishment of a free trade area.

Article 10 mentions that the Parties shall accord to one another most-favoured-nation treatment according to Article I, paragraph 1 of the GATT.

Article 21 mentions that trade in textile products shall be governed by a separate agreement.

Article 22 regulates the trade in products covered by the Treaty establishing the European Coal and Steel Community and the set up of a contact group on coal and steel matters.

Article 38 states that the Parties shall cooperate with the aim of developing a market-oriented service sector in Ukraine.

Article 44 mentions that treatment granted by either Party to the other shall be based on existing GATS obligations in respect of each service sector, sub-sector and mode of supply.

Article 49 mentions that Parties shall refrain from granting State aids which distort or threaten to distort competition insofar as they affect trade between the Community and the Ukraine.

Article 50 mentions that Ukraine shall continue to improve the protection of intellectual, industrial and commercial property rights to a level of protection similar to that existing in the Community.

Article 51 lists the areas for which there will be an approximation of laws including for customs law, company law, banking law, intellectual property, protection of workers at the workplace, rules on competition, public procurement, the environment, technical rules and standards.

Article 55 mentions on public procurement that parties shall cooperate to develop conditions for open and competitive award of contracts for goods and services through calls for tenders.

Article 60 explains that cooperation in Agriculture and the agro-industrial sector has the purpose of modernization, privatisation and restructuring of agriculture in Ukraine and development of domestic and foreign markets for Ukrainian products.

Article 61 says that cooperation in Energy shall take place within the principles of the market economy and the European Energy Charter and against a background of the progressive integration of the energy markets in Europe.

Article 67 mentions on Financial services that cooperation shall aim at facilitating the involvement of Ukraine in universally accepted systems of mutual settlements and the development of insurance services through joint ventures in the insurance sector in Ukraine.

Article 72 on Tourism mentions that the Parties shall increase and develop cooperation in the tourist trade.

It is these articles that we keep in mind regarding our scenario specifications below.

WTO Accession of Ukraine

The Governmental Commission on Ukraine's accession to the WTO has conducted bilateral negotiations with members of the Working Party on access to the market of goods and services. On goods market access, Ukraine has made large concessions. The maximum bound rate for agricultural produce will be 20 percent, with exceptions for sensitive products as sugar and sunflower-seed oil and certain goods subject to excise (wines, liqueur, vodka and tobacco products). The maximum rate of import duty for industrial goods will be ten percent and up to 15 percent for certain sensitive items for Ukraine. The Cabinet of Ministers of Ukraine has not more than once per year the possibility to change rates of import duties. The system of customs and tariff regulation complies with the provisions of the WTO Agreements. Rules on import licensing procedures are being notified to the WTO Secretariat. The list of goods, import of which is subject to licensing in any given year is approved annually by a Resolution of the Cabinet of Ministers of Ukraine. Access to the market for services has been extended by Ukraine’s specific commitments covering all 12 sectors of services determined by the WTO classifier of services. In eight sectors commitments cover all sub-sectors of the relevant classification. Concessions in services include the following. Limitations regarding citizenship in the sector of real estate and auditing services were cancelled, limitations on the share of foreign capital in the authorized fund of enterprises which supply services in telecommunications, transportation and insurance sectors were cancelled, conditions on employment of individuals in Ukraine were improved,

limitations of opening foreign banks in Ukraine and limitations of the share of foreign capital in the aggregate banking capital were cancelled. Ukrainian laws in the field of intellectual property rights protection have been changed and comply with provisions of TRIPS completely. Also the system of government procurement was made compatible with universally recognized rules. Measures in SPS and TBT fields are applied in Ukraine only to the extent necessary to protect the health of human beings, animals or plants. In the course of application of measures in SPS and TBT fields, there is no discrimination between domestic and foreign suppliers. In general, the existing system of technical regulation and application of sanitary and phyto-sanitary measures comply with the SPS Agreement and the TBT Agreement. In agriculture positive trends can be mentioned after the implementation of the land reform and the abandonment of state-run input supply mechanisms. Because Ukraine's WTO accession and related commitments will be realised within short irrespective of whether or not there will be an EU-Ukraine FTA the Ukraine's WTO obligations will need to be included in the baseline scenario.

3.4.2 Ambitious scenario (Scenario 1)

An ambitious scenario can be characterised as the development of the EU and Ukrainian economies under an enhanced agreement between the EU and Ukraine. The economic threats and opportunities offered under this deep and comprehensive FTA will be systematically taken into account.

The extended FTA is an optimistic scenario that includes phasing out import tariffs for the EU-Ukraine bilateral trade as well as substantial NTB reductions in addition to that expected under the WTO scenario. Standard costs are reduced by 50% for agrifood and 35% for other sectors relative to the benchmark period level of 2004 (by 20-35 p.p. relative to the post-WTO level) while we expect border costs to fall by 50% also. We expect that even if the optimistic scenario is implemented, some types of trade restrictions will still remain in place. Experience of the previous EU enlargements shows that full harmonisation of trade-related institutions and elimination of NTB-related costs is not a feasible scenario even in a reasonable decade-time horizon. The extended FTA also presumes full elimination of FDI barriers in service sector.

The results of this analysis will provide the background for our estimates regarding the expected sectoral pattern of development.

3.4.3 Two less ambitious scenarios (Scenarios 2 and 3)

We have developed two scenarios for a more limited FTA (pessimistic scenarios). First, we assume zeroing tariffs in the manufacturing sector (except for food products) without touching agricultural products. The intensity of the FDI barriers in service sector is reduced by 60%, while border costs for commodity trade fall by 10% relative to the benchmark period and standard costs drop either 40% or 25% depending on the sector. The scenario reflects the hypothetical setup when agricultural, forestry, fishing and food products are not covered by the FTA agreement, financial services are liberalized but only to a limited extent and NTBs are reduced but not ambitiously.

In the third scenario, also limited in extent, we exclude service sector liberalisation from the above scenario 2 while for the rest copying the second scenario. This scenario reflects the least optimistic expectation that the EU and Ukraine will allow for (limited) free trade in manufacturing and will postpone talks on service sector for the future. Also limited NTB reductions will be achieved.

3.5 Modelling results

Before shortly summarising the results, we would like to emphasise once more that the baseline data are defined to be 2004, so all changes we report are based on this baseline. The effects of the FTA scenarios alone constitute the difference between our outcomes of the WTO scenario and the effects of the FTA scenarios.

3.5.1 Summary of overall macroeconomic changes (welfare, income and wages)

Welfare effects (% change)

From the results it becomes clear that the positive welfare effects for all the defined regions in the model are largest in the Extended FTA (Scenario 1), where the integration is most far-reaching. Positive welfare effects are 1.959% for Ukraine while 0.138% for Russia and 0.026% for the EU. In the limited scenarios these amounts are 1.106% and 0.949% for the Ukraine respectively and 0.019% and 0.015% for the EU respectively. It must be noted that – even though relatively the largest positive welfare effects occur in the extended FTA – the magnitude of welfare changes for the EU are – as we expected – very small. This is due to the relative sizes of the Ukrainian versus the EU economies (0.6%). What also is worth mentioning is that every FTA scenario leads to larger welfare gains than just the WTO accession does for the EU and Ukraine. These outcomes reflect the pro-competitive effect of trade as well as the increased use of comparative advantage between the European Union and Ukraine. Overall the FTA appears to be a non-zero-sum game with the more extended FTA leading to larger welfare gains than the more limited scenarios.

Wage effects for low- and high-skilled workers

We observe a significant increase in the wages of both skilled- and unskilled workers in Ukraine as a consequence of the FTAs. Compared to 2004, the WTO scenario would predict an increase for high-skilled workers of 0.809% and for low-skilled workers of 0.835%. The FTAs including the WTO accession reach levels of 2.455% and 2.969% respectively for the extended FTA and 1.707% and 1.925% for scenario 2 and 1.650% and 1.633% respectively for scenario 3. This can be seen as a small but clear increase in the real wage bills in the EU and Ukraine.

The deeper the integration, the more significant the positive impacts on wage levels in Ukraine. In Ukraine, for all three scenarios, the wage increases are larger for the low-skilled workers than the high-skilled workers. For the EU, the wage impacts are negligible though seemingly positive for the high-skilled workers and negative for the low-skilled workers. This seems to be in line with traditional inter-industry trade theories. For Russia, the data show that the most limited FTA (scenario 3) has the strongest

downward pressure on Russian high- and low-skilled wages. The most extended FTA does the opposite.

3.5.2 Summary of sectoral effects (prices, output, imports, exports and employment)

From the Tables 3.3 to 3.7 we present the most important outcomes for the various FTA scenarios that we analysed.

Price changes per sector

If we focus on price changes in sectors, we observe that price changes in the European Union are very small, all below the 2% change compared to the WTO scenario we set as the border for a significant price impact.

For the transport sector in Ukraine, the more limited scenarios two and three lead to price increases of 2.5% and 3.1% respectively though this is not a significant increase on top the WTO scenario. A significant decrease in prices occurs in **processed rice and sugar** (-11.8%, -10.8%, -10.9% for the three scenarios respectively, **wearing apparel** (-4.8%, -5.0% and -5.1%), **leather products** (-8.8%, -9.0%, -9.1%). In the extended FTA there is also a substantial decrease in the price levels in the **wood products, paper products and publishing sector** of 2.8%, of **textiles** of 3.1% and of 2.2% in the **financial services nec and insurance sector**, neither of which occur in the more limited scenarios. Also large price decreases occur in the transport equipment sector (-10.6%, -10.7% and -10.9% in increasing order of scenario number) but this already happens mainly in the WTO scenario and not 'extra' in our FTA scenarios.

Output changes per sector

For output changes, we observe overall that there are only very small output effects for the European Union 27 regardless of the scenario that is simulated. We have presented the results in Table 3.7 if the impact was larger than +/- 0.05%; any smaller share we have rounded off to zero. Also for Russia and ROW the output changes were very small. However, for the production structure of the Ukrainian economy, WTO accession and the three FTA scenarios do have significant results – which is important because we want to look at the direct economic impacts as well as the indirect economic, social and environmental impacts we will look at at a later stage. We classify production changes to have a significant impact on the production structure of sectors and the Ukrainian economy if there is an impact effect of the scenarios that leads to a change in production of 2% compared to the WTO outcomes.

For the agriculture, fisheries and forestry sector, there is a significant impact though not very large compared if we look at the share of the effect that belongs to WTO accession. For **bovine cattle, sheep and goats, horse meat products** the extended FTA shows a significant increase in production which is also the case for scenarios one and two for the **vegetable oils and fats**. **Processed rice and sugar** show a very large production drop though as a consequence of the proposed FTA. In general, the agricultural production does not change tremendously compared to the WTO scenario because most agricultural tariff liberalisation has already taken place. Indeed, in the sectors where liberalisation has not gone so far (e.g processed rice and sugar or vegetable oils and fats) the effects seem to be largest because there is still sufficient scope for liberalisation. Compared to the

WTO scenario, there is a very large production increase in the **textiles sector** (20.4%, 16.3% and 14.7% for the three respective scenarios) as well as in **wearing apparel** (91.1%, 54.8% and 53.3% respectively) and **leather products** (16.4%, 9.6% and 8.6% respectively compared to 2004). In the extended FTA also the **wood products, paper products, publishing** (6.2%), **petroleum and coal products** (3.2%), **chemical, rubber and plastic products** (5.8%), **ferrous metals and metals nec** (6.2%), **metal products** (4.4%) and **manufactures nec** (6.9) show significant production increases. The sector **motor vehicles and parts** shows an increase compared to the WTO scenario also, where this increase is largest for the extended FTA and smallest for the most limited FTA (scenario three). The **transport equipment sector** is shrinking compared to the 2004 base data, but compared to the WTO scenario the FTAs would actually have a mitigating effect here. In case the WTO scenario has not yet fully had its impact, these outcomes suggest that the FTA would be beneficial for output (and employment as we'll see later) in the coming period of time. Finally, a sector that will be negatively affected by the extended FTA (-17%) and the limited FTA with services liberalisation (-8.5%) but not by the limited FTA without services liberalisation is the **financial services nec and insurance sector**.

If we do not only look at the output changes in percentages, but include the relative size of each sector, i.e. combining the results of Figure 2.7 and Table 3.7 into Table 3.8 we note that especially **processed rice and sugar**, **financial services nec and insurance** and **transport nec**, **water transport and air transport** show significant absolute losses (up to kUS$ 900) while sectors like **wearing and apparel, chemicals, rubber and plastic products** as well as **ferrous metals and metals nec**, and **electronic equipment, machinery equipment** gain substantially in production (up to kUS$ 960).

Export % value changes per sector

Looking at the percentage changes in the value of exports from the countries in the model to the rest of the world, we define a significant change in export structure as a change of +/- 10%.

Overall what is interesting to observe from Table 3.9 is that WTO accession and any of the three FTA scenarios leads only to significant ***in***creases in Ukrainian exports. Even though some sectors show shrinking exports, like communication, transport nec, water transport and air transport, recreational, entertainment, cultural and sporting activities, social activities, business services nec and renting and public administration, education, health, sewage, cleaning of streets and refuse disposal, none of these sectors see reductions of over 10% - the level of significance. On the contrary, we see that the FTA between the EU and Ukraine has a significant negative impact on Russian exports for certain sectors like dairy products, processed rice and sugar and beverages and tobacco. For the EU the percentage change in the value of exports because of the FTA is positive in general (with the exception of the sector processed rice and sugar) but relatively small. This seems to be limited evidence of trade diversion between Ukraine and Russia. The EU is also negotiating a similar FTA with the Russian Federation which may lead to increased levels of trade at the expense of non-FTA members. If the EU negotiates a similar trade agreement with Ukraine, this may in turn hurt non-FTA members (read: Russia). Since Ukraine and the Russian Federation do trade a lot together also, Russia

being the second largest trading partner of Ukraine after the EU, these effects should not be underestimated.

More specifically, we note that the positive percentage change in exports from Ukraine to the rest of the world is most pronounced in bovine cattle, sheep and goats, horse meat products, **vegetable oils and fats** (39%, 28% and 26% for the three scenarios), **textiles** (27%, 19%, 17% respectively), **wearing apparel** (147%, 94% and 92%), **leather products** (36%, 28% and 27%), **wood products, paper products, publishing** (40%, 23% and 21%), **mineral products nec** (44%, 24% and 22% for each of the FTA scenarios) and **manufactures nec** with respectively 49%, 31% and 30% increase in the value of exports compared to the 2004 base data. In general, sectors where there is most room for further liberalisation and where Ukraine has a comparative advantage, we see the largest export value increases. Some export value increases are only significant over 10% in case of the Extended FTA scenario: **dairy products** (23%), **processed rice, sugar** (20%), **food products nec** (20%), **beverages and tobacco** (16%), **petroleum, coal products** (14%), **chemical rubber and plastic products** (12%), **metal products** (14%), **motor vehicles and parts** (22%) and **electronic equipment, machinery and equipment** (27%). The sector **financial services nec and insurance** shows significant increases in exports of 33% and 18% respectively in both FTA scenarios where the services sector is liberalised.

Import % value changes per sector

Looking at the percentage changes in the value of imports from the countries in the model from the rest of the world, we define a significant change in import structure as a change of +/- 10%.

Overall the sectors show positive percentage changes in the value of imports for Ukraine as is to be expected as a consequence of further trade liberalisation. Most pronounced are **coal, oil and gas** (50%, 31% and 23% increase in the three scenarios), **processed rice and sugar** (63%, 56% and 56%), **textiles** (23% only in the extended FTA), **wearing apparel** (33%, 23% and 22% respectively), **leather products** (27%, 20% and 19%), **mineral products nec** (36%, 25% and 25%), **manufactures nec** (24%, 20% and 20%). In processed rice and sugar we clearly see a drop in Ukrainian domestic output combined with an increase in imports. In the service sectors we see increased value of imports in **recreational, entertainment, cultural and sporting activities and social activities** by 147%, 103% and 107% in the three modelled FTA outcomes respectively. For **financial services nec and insurance** the model outcomes are implausibly high (17015%, 8633% and 4184% for the three scenarios) which is due to the very small base upon which the trade measures are modelled. In case of a small base, any absolute increase (or decrease) will have a very large relative (%) effect.

Employment changes for high- and low-skilled workers per sector

The last effect we look at for each specified sector is the change in employment for high- and low-skilled workers. Any ‘large’ change in employment signifies a more than 2% change in the production structure of the Ukrainian economy, making it more likely for the sector to be analysed for economic, social and/or environmental impacts. We model the impacts for high- and low-skilled workers whereby both categories are defined as done by the International Labour Organisation (ILO) whereby the high-skilled workers

are managers and administrators and professionals. Low-skilled workers are tradepersons, salespersons, clerks and personal service workers, plant and machine operators, labourers and drivers as well as farm workers (Dimaranan and MacDougall, 2002).

In general we observe small differences between changes in employment for high- and low-skilled workers. As could be expected, in sectors like **agriculture,** where the employment opportunities are decreasing, the decrease is larger for the low-skilled than the high-skilled workers. Employment in the **financial services nec, and insurance** sector on the other hand decreases more for the high-skilled than the low-skilled workers. Overall we see a trend that employment changes for high- versus low-skilled workers are related to the skills-level required to work in this sector. Also we note that from the general macroeconomic analysis we observed that wages of the low-skilled workers rise more relatively than do wages of high-skilled workers.

The largest negative employment impacts, measured as the percentage change in the wage bill (i.e. percentage change in employment) are to be found in the **processed rice and sugar sector** (-28.7%, -28.2%, -28.7% for the three scenarios) and the **financial services nec, and insurance sector** (-17.5%, -8.7% for the service sector liberalisation scenarios only). Also for the Extended FTA the **transport nec, water transport and air transport sector** shows a decrease in employment (-1.5% compared to +3.2% in the WTO accession scenario). Other sectors show – when correcting for the WTO accession scenario – increases in employment: **vegetable oils and fats** (7.9%, 5.6% and 5.1%), **wearing apparel** (93.3%, 55.7% and 54.1%), **leather products** (16.8%, 9.8%, 8.8%), **wood products, paper products, publishing** (6.3% and 2.8% for scenarios one and two only), **chemicals, rubber and plastic products** (6.0%, 3.2% for scenarios one and two only), **electronic equipment and machinery equipment** (17,3%, 11,5% and 10,0% respectively). Again, like discussed before when looking at sectoral output effects, the **transport equipment** sector compared to 2004 shows lower levels of employment, yet compared to the WTO scenario, employment is much larger. Therefore, depending on whether the WTO outcomes have already materialised or not, we can see two effects. If not yet implemented we will see an adjustment path towards less employment (still) in the transport equipment sector. However, if already implemented, we will see a transition path towards more employment in this sector.

In absolute value of employment change – that is an increase or decrease in the number of people working in a sector, i.e. we combine Figure 2.3 and Table 3.11 into Table 3.12, we see that for skilled workers (that are a much smaller part of the total working population than unskilled workers), only the sector **financial services and insurance** has an negative impact larger than 15.000 jobs disappearing. With respect to the unskilled workers the effects are quantitatively much larger due to the fact a much larger share of the population is classified as 'unskilled' (93.8%) according to the ILO definition. Negative – and quantitatively significant – employment impacts occur in the **agricultural sector** (maximum –207.365 jobs), **processed rice and sugar sector** (-31.592 jobs), the **transport sector** and the **financial services and insurance sector** (-105.619 jobs). The largest employment creation takes place in the **wearing apparel sector** (65806 jobs in the extended FTA scenario), **chemical, rubber and plastic products sector** (32.417 jobs),

ferrous metals and metals nec (90.484 jobs), **motor vehicles and parts**, **construction** (47.819 jobs in the extended FTA scenario) and **trade** (29.369 jobs).

The presented results under this heading need to be interpreted with caution. Because the CGE model assumes full employment at all times, there are no increases or decreases in the level of employment. Instead there is a re-allocation of personnel inter-sectorally without affecting the total. Though not entirely realistic, this is a consequence of the model specifications used.

3.5.3 Summary of cumulative effects

In order to check for cumulative effects we carried out the following analysis. First of all we looked at scenario 1 (the extended FTA) overall – and at the effects. Secondly, we looked at the effects the individual measures had: tariff changes, standard cost changes, barriers to FDI changes and border cost changes. Any difference between the sum of the individual measures and the overall scenario outcomes would be 'interactions' between the individual measures. When carrying out this analysis, we however ran into the limitations of running a non-linear CGE model while assuming additivity of the individual trade measures would work. The summations did not yield any reliable or significant results, nor could they be interpreted as estimations of the individual trade measure.

3.6 Tables summarising modelling results

Below we summarise the CGE modelling outcomes in the various tables. For each of the tables we provide the effects for Ukraine, for the EU-27, for Russia and for Rest of the World (ROW).

Given the defined three scenarios, the tables provide the following information, based on the 2004 base scenario:

- Summary of macroeconomic changes (Table 3.5);
- Price changes (Table 3.6);
- Percentage changes in output (Table 3.7);
- Changes in absolute value of output (Table 3.8)
- Changes in imports (Table 3.9);
- Changes in exports (Table 3.10);
- Employment changes (Table 3.11);
- Absolute value of employment changes (Table 3.12).

Because of the uncertainties regarding the WTO accession of Ukraine, we have taken the year 2004 as the base year, executed the CGE study for the WTO accession as well as on the three scenarios. This implies that the presented results of the scenarios need to be read as WTO inclusive – which is exactly what the Terms of Reference require us to do.

Table 3.5 Summary of macroeconomic changes

Variable	Ukraine	Russia	EU-27	ROW
Scenario: WTO Accession				
Welfare	0.656	0.017	0.006	0.005
Income (return factors and taxes)	0.059	0.364	8.526	24.847
Skilled Wage (% change)	0.809	-0.004	0.001	-0.002
Unskilled Wage (% change)	0.835	-0.038	-0.001	-0.001
Scenario 1: Extended FTA				
Welfare	1.959	0.138	0.026	0.021
Income (return factors and taxes)	0.059	0.364	8.528	24.851
Skilled Wage (% change)	2.455	0.069	0.006	-0.001
Unskilled Wage (% change)	2.969	-0.047	-0.007	-0.005
Scenario 2: Limited FTA (including service liberalisation)				
Welfare	1.106	0.073	0.019	0.016
Income (return factors and taxes)	0.059	0.364	8.527	24.850
Skilled Wage (% change)	1.707	0.001	0.002	-0.004
Unskilled Wage (% change)	1.925	-0.068	-0.002	-0.003
Scenario 3: Limited FTA (excluding service liberalisation)				
Welfare	0.949	0.049	0.015	0.013
Income (return factors and taxes)	0.059	0.364	8.527	24.849
Skilled Wage (% change)	1.650	-0.017	0.002	-0.004
Unskilled Wage (% change)	1.633	-0.072	-0.001	-0.003

* All values are in billion US$ unless specified to be in %

Table 3.6 Price changes per sector (% change)

	WTO Accession				Scenario 1				Scenario 2				Scenario 3			
	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
	Ukr	RUS	EU27	ROW	Ukr	RUS	EU27	ROW	Ukr	RUS	EU27	ROW	Ukr	RUS	EU27	ROW
Agriculture, Fisheries, Forestry	-0,7	0,2	0,2	0,2	-0,1	1	0,9	0,9	-0,2	0,7	0,7	0,7	-0,4	0,5	0,5	0,6
Coal, Oil, Gas	0,3	0,2	0,2	0,2	1,1	1	1	0,9	0,8	0,7	0,7	0,7	0,6	0,5	0,6	0,6
Minerals NEC	0,2	0,3	0,2	0,2	-0,3	1	1	0,9	0,3	0,7	0,7	0,7	0,2	0,6	0,6	0,6
Bovine cattle, sheep and goats, horse meat products	0,6	0,2	0,2	0,2	-0,7	1	0,9	0,9	-0,1	0,7	0,7	0,7	-0,2	0,5	0,5	0,6
Vegetable oils and fats	-0,5	0,2	0,2	0,2	-1	0,9	0,9	1	-0,6	0,7	0,7	0,7	-0,6	0,5	0,5	0,6
Dairy products	-0,6	0,2	0,2	0,2	-1,6	0,9	0,9	1	-0,8	0,6	0,7	0,7	-0,8	0,5	0,6	0,6
Processed rice, Sugar	-1,9	0,2	0,2	0,2	-11,8	1	0,9	1	-10,8	0,7	0,7	0,7	-10,9	0,5	0,6	0,6
Food products nec	-0,5	0,2	0,2	0,2	-1,3	1	1	1	-0,7	0,6	0,7	0,7	-0,7	0,5	0,6	0,6
Beverages and tobacco	-1,5	0,2	0,2	0,2	-2,6	0,8	1	1	-2	0,6	0,7	0,7	-2	0,4	0,6	0,6
Textiles	0,2	0,2	0,2	0,2	-3,1	0,9	0,9	0,9	-1,7	0,7	0,7	0,7	-1,8	0,5	0,5	0,6
Wearing apparel	0,1	0,2	0,2	0,2	-4,8	0,9	0,9	0,9	-5	0,7	0,6	0,7	-5,1	0,5	0,5	0,6
Leather products	-3	0,2	0,2	0,2	-8,8	0,9	0,9	0,9	-9	0,7	0,7	0,7	-9,1	0,5	0,5	0,6
Wood products, Paper products, publishing	-1,6	0,2	0,2	0,2	-2,8	0,9	1	1	-1,7	0,7	0,7	0,7	-1,8	0,5	0,6	0,6
Petroleum, coal products	0,4	0,2	0,2	0,2	0,8	1	0,9	0,9	0,8	0,7	0,7	0,7	0,7	0,5	0,5	0,6
Chemical, rubber, plastic products	-0,4	0,2	0,2	0,2	-1,2	1	0,9	0,9	-0,9	0,7	0,7	0,7	-1,1	0,5	0,6	0,6
Mineral products nec	0,1	0,2	0,2	0,2	-1,4	1	0,9	1	-0,8	0,7	0,7	0,7	-0,9	0,5	0,6	0,6
Ferrous metals, Metals nec	0,1	0,2	0,2	0,2	-0,6	0,9	0,9	0,9	0,1	0,7	0,7	0,7	0,1	0,5	0,5	0,6

	WTO Accession				Scenario 1				Scenario 2				Scenario 3			
	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
	Ukr	RUS	EU27	ROW	Ukr	RUS	EU27	ROW	Ukr	RUS	EU27	ROW	Ukr	RUS	EU27	ROW
Metal products	-0,1	0,2	0,2	0,2	-1,8	0,9	0,9	1	-0,8	0,7	0,7	0,7	-0,9	0,5	0,5	0,6
Motor vehicles and parts	-0,1	0,2	0,2	0,2	-1,8	0,9	1	1	-1,5	0,6	0,7	0,7	-1,5	0,5	0,6	0,6
Transport equipment	-10,6	0,1	0,2	0,2	-10,6	0,8	0,9	1	-10,7	0,5	0,7	0,7	-10,9	0,4	0,6	0,6
Electronic equipment; Machinery and Equipment	-0,7	0,2	0,2	0,2	-1,6	0,9	0,9	0,9	-1,6	0,6	0,7	0,7	-1,7	0,5	0,5	0,6
Manufactures nec	-0,6	0,2	0,2	0,2	-2	1	0,9	1	-1,7	0,6	0,7	0,7	-1,8	0,5	0,6	0,6
Electricity	0,6	0,2	0,2	0,2	1,7	1	1	0,9	1,3	0,7	0,7	0,7	1,2	0,5	0,6	0,6
Gas, Water	0,5	0,2	0,2	0,2	1,4	1	1	0,9	1,1	0,7	0,7	0,7	1,1	0,5	0,6	0,6
Construction	0,4	0,2	0,2	0,2	0,8	1	0,9	0,9	0,7	0,6	0,7	0,7	0,6	0,5	0,6	0,6
Trade	0,8	0,2	0,2	0,2	1,5	1	1	0,9	1,3	0,6	0,7	0,7	1,5	0,5	0,6	0,6
Transport nec, Water transport, Air transport	2,5	0,2	0,2	0,2	1,7	1	1	0,9	2,5	0,7	0,7	0,7	3,1	0,5	0,6	0,6
Communication	0,8	0,2	0,2	0,2	1,9	1	1	0,9	1,5	0,7	0,7	0,7	1,5	0,5	0,6	0,6
Financial services nec, Insurance		0,2	0,2	0,2	-2,2	1	1	0,9	-0,4	0,7	0,7	0,7	0,6	0,5	0,6	0,6
Business services nec, Renting	0,7	0,2	0,2	0,2	1,7	1	1	0,9	1,3	0,7	0,7	0,7	1,3	0,5	0,6	0,6
Recreational, entertainment, cultural and sporting activities, Social activities	0,8	0,2	0,2	0,2	2	1	1	0,9	1,5	0,7	0,7	0,7	1,4	0,5	0,6	0,6

	WTO Accession				Scenario 1				Scenario 2				Scenario 3			
	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
	Ukr	RUS	EU27	ROW	Ukr	RUS	EU27	ROW	Ukr	RUS	EU27	ROW	Ukr	RUS	EU27	ROW
Public administration, Education, Heatlh, Sewage, cleaning of streets and refuse disposal	0,6	0,2	0,2	0,2	1,8	1	1	0,9	1,3	0,7	0,7	0,7	1,2	0,5	0,6	0,6
Aggregate investment	-0,9	0,2	0,2	0,2	-1,1	1	0,9	1	-1,1	0,6	0,7	0,7	-1,2	0,5	0,6	0,6

Table 3.7 Percentage changes in output per sector (% change)

	WTO Accession				Scenario 1				Scenario 2				Scenario 3			
	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW
Agriculture, Fisheries, Forestry	-3,3	-0,1			-4,1	-0,1		0,1	-3,6			0,1	-3,9			0,1
Coal, Oil, Gas	-1,7	0,1			0,1	0,2		0,1	-0,9	0,2			-2	0,2		
Minerals NEC	-2,3	0,3	0,1		-1,5	0,5		0,1	-1,7	0,3	0,1	0,1	-3,2	0,4	0,1	0,1
Bovine cattle, sheep and goats, horse meat products	8,6	0,1			10,1	0,1			8,5	0,1	-0,1		8	0,1		
Vegetable oils and fats	3,6				7,7	-0,2	-0,1		5,6			0,1	5			0,1
Dairy products	1,7	-0,6			2,1	-2	0,1		2,5	-1	0,1		2	-1	0,1	
Processed rice, Sugar	-3,3	-0,1			-28	-0,3		0,1	-27,8	-0,1		0,2	-28,2	-0,1		0,2
Food products nec	1,6				2,5	-0,2			2,4		0,1	0,1	1,8			0,1
Beverages and tobacco	-2,4	-1,7	0,1	0,1	-2,9	-2,7	0,1		-2,8	-2,1	0,1	0,1	-3,2	-2,1	0,1	0,1

	WTO Accession				Scenario 1				Scenario 2				Scenario 3			
	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW
Textiles	2	0,3			20,4	-0,4			16,3	-0,3			14,7	-0,2		
Wearing apparel	22,5	0,2	-0,1		91,1	-2,1	-0,1	-0,1	54,8	-2	-0,1	-0,1	53,3	-2	-0,1	-0,1
Leather products	-0,5	-0,2		0,1	16,4	-0,5		0,1	9,6	-0,5		0,1	8,6	-0,5		0,1
Wood products, Paper products, publishing	-0,2	-0,5	0,1		6,2	-0,7			2,8	-0,4	0,1	0,1	1,7	-0,4	0,1	0,1
Petroleum, coal products	0,9				3,2	0,1	-0,1		2,3				1,7			
Chemical, rubber, plastic products	0,1	-0,2			5,8	0,4			3,2	-0,3	0,1		2	-0,3	0,1	
Mineral products nec	1,2	0,1			1,8	-0,1			-0,4		0,1		-1,3		0,1	
Ferrous metals, Metals nec	-0,7	0,2	0,1		6,2		-0,1	-0,1	2,2	0,2	0,1	0,1	0,8	0,3	0,1	0,1
Metal products	1,3	0,1			8,8	-0,5			4,1	-0,2	0,1	0,1	2,9	-0,2	0,1	
Motor vehicles and parts	8,2				15,3	0,1			11,2	-0,1	0,1	0,1	9,6	-0,2	0,1	0,1
Transport equipment	-12	3	0,1		-5,4	2,4	0,1		-8,6	2,3	0,1	0,1	-9,7	2,3	0,1	0,1
Electronic equipment; Machinery and Equipment	7,1	-0,3			16,8	0,3			11,3	-0,7			9,9	-0,7		
Manufactures nec	1,9				6,9	-0,3			2,2	-0,1			1,6	-0,1		
Electricity	-0,1				2,2				0,8				0,1			
Gas, Water	0,3				1,3				0,5				0,3			
Construction	1,5				3	0,2			2,1	0,1			2	0,1		
Trade	0,2	0,1			1,4	0,1			0,5	0,1				0,1		
Transport nec, Water transport, Air transport	3,2	-0,3			-1,5	-0,2	0,1		1,3	-0,2			2,5	-0,3		

	WTO Accession				Scenario 1				Scenario 2				Scenario 3			
	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW
Communication	-0,7	0,1			-1,8	0,2			-1,3	0,2			-1,1	0,1		
Financial services nec, Insurance	-3,7	0,5			-17	2,2	0,1		-8,5	1,2			-3,8	0,6		
Business services nec, Renting	-0,1	0,1			-0,2	0,1			-0,3	0,1			-0,4	0,2		
Recreational, entertainment, cultural and sporting activities, Social activities	-0,1	0,1				0,1			-0,3	0,1			-0,4	0,1		
Public administration, Education, Heatlh, Sewage, cleaning of streets and refuse disposal						0,1			-0,2	0,1			-0,3	0,1		
Aggregate investment	1,6				3,1	0,2			2,3	0,1			2,2			

Table 3.8 Changes in absolute value of output per sector for Ukraine (mln US$)

		WTO Accession		Scenario 1		Scenario 2		Scenario 3	
	Production (mln US$)	% Change Production	Change production (mln US$)	% Change Production	Change production (mln US$)	% Change Production	Change production (mln US$)	% Change Production	Change production (mln US$)
Agriculture, Fisheries, Forestry	16.19	-3.3	-0.534	-4.1	-0.664	-3.6	-0.583	-3.9	-0.631
Coal, Oil, Gas	3.48	-1.7	-0.059	0.1	0.003	-0.9	-0.031	-2	-0.070
Minerals NEC	2.49	-2.3	-0.057	-1.5	-0.037	-1.7	-0.042	-3.2	-0.080
Bovine cattle, sheep and goats, horse	1.66	8.6	0.143	10.1	0.168	8.5	0.141	8	0.133

		WTO Accession		Scenario 1		Scenario 2		Scenario 3	
	Production (mln US$)	% Change Production	Change production (mln US$)	% Change Production	Change production (mln US$)	% Change Production	Change production (mln US$)	% Change Production	Change production (mln US$)
meat products									
Vegetable oils and fats	0.99	3.6	0.036	7.7	0.076	5.6	0.056	5	0.050
Dairy products	2.33	1.7	0.040	2.1	0.049	2.5	0.058	2	0.047
Processed rice, Sugar	1.13	-3.3	-0.037	-28	-0.316	-27.8	-0.314	-28.2	-0.318
Food products nec	3.84	1.6	0.061	2.5	0.096	2.4	0.092	1.8	0.069
Beverages and tobacco	3.71	-2.4	-0.089	-2.9	-0.108	-2.8	-0.104	-3.2	-0.119
Textiles	0.51	2	0.010	20.4	0.104	16.3	0.083	14.7	0.075
Wearing apparel	0.66	22.5	0.148	91.1	0.601	54.8	0.362	53.3	0.352
Leather products	0.43	-0.5	-0.002	16.4	0.070	9.6	0.041	8.6	0.037
Wood products, Paper products, publishing	2.81	-0.2	-0.006	6.2	0.174	2.8	0.079	1.7	0.048
Petroleum, coal products	7.74	0.9	0.070	3.2	0.248	2.3	0.178	1.7	0.132
Chemical, rubber, plastic products	5.18	0.1	0.005	5.8	0.300	3.2	0.166	2	0.104
Mineral products nec	2.01	1.2	0.024	1.8	0.036	-0.4	-0.008	-1.3	-0.026
Ferrous metals, Metals NEC	13.79	-0.7	-0.097	6.2	0.855	2.2	0.303	0.8	0.110
Metal products	3.48	1.3	0.045	8.8	0.307	4.1	0.143	2.9	0.101
Motor vehicles and parts	1.73	8.2	0.142	15.3	0.264	11.2	0.193	9.6	0.166
Transport equipment	2.20	-12	-0.264	-5.4	-0.119	-8.6	-0.189	-9.7	-0.214
Electronic equipment; Machinery and Equipment	5.72	7.1	0.406	16.8	0.960	11.3	0.646	9.9	0.566
Manufactures nec	1.33	1.9	0.025	6.9	0.092	2.2	0.029	1.6	0.021
Electricity	4.04	-0.1	-0.004	2.2	0.089	0.8	0.032	0.1	0.004
Gas, Water	1.97	0.3	0.006	1.3	0.026	0.5	0.010	0.3	0.006

		WTO Accession		Scenario 1		Scenario 2		Scenario 3	
	Production (mln US$)	% Change Production	Change production (mln US$)	% Change Production	Change production (mln US$)	% Change Production	Change production (mln US$)	% Change Production	Change production (mln US$)
Construction	7.08	1.5	0.106	3	0.212	2.1	0.149	2	0.142
Trade	14.46	0.2	0.029	1.4	0.203	0.5	0.072		
Transport nec, Water transport, Air transport	10.53	3.2	0.337	-1.5	-0.158	1.3	0.137	2.5	0.263
Communication	3.62	-0.7	-0.025	-1.8	-0.065	-1.3	-0.047	-1.1	-0.040
Financial services nec, Insurance	5.08	-3.7	-0.188	-17	-0.863	-8.5	-0.432	-3.8	-0.193
Business services nec, Renting	7.30	-0.1	-0.007	-0.2	-0.015	-0.3	-0.022	-0.4	-0.029
Recreational, entertainment, cultural and sporting activities, Social activities	1.66	-0.1	-0.002			-0.3	-0.005	-0.4	-0.007
Public administration, Education, Heatlh, Sewage, cleaning of streets and refuse disposal	12.22					-0.2	-0.024	-0.3	-0.037

Table 3.9 Changes in value of exports per sector (% change)

	WTO Accession				Scenario 1				Scenario 2				Scenario 3			
	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW
Agriculture, Fisheries, Forestry	10	-1		1	19		1	2	14			2	13			2
Coal, Oil, Gas	-6	1			-4	1	1	1	-5	1	1	1	-7	1	1	1
Minerals NEC	-4			1	-1	3	1	2	-3		1	1	-4		1	1

	WTO Accession				Scenario 1				Scenario 2				Scenario 3			
	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW
Bovine cattle, sheep and goats, horse meat products	21	1		-2	47	-1	1		34				33			
Vegetable oils and fats	16	-1			39	-2			28	-2			26	-2		
Dairy products	8	-12	1	-1	23	-36	2	-2	16	-19	1	-1	14	-19	1	-1
Processed rice, Sugar	8	-18	-1	4	20	-35		18	14	-35	-2	18	13	-35	-2	18
Food products nec	7				20		1	1	13		1	1	12		1	
Beverages and tobacco	5	-21	1	3	16	-30	2	3	11	-26	1	4	10	-26	1	4
Textiles		1			27		1	1	19		1	1	17		1	
Wearing apparel	34	1		1	147	-7	2	-1	94	-7	1		92	-8	1	
Leather products	5	-6			36	-10	1	1	28	-12	1	1	27	-12	1	1
Wood products, Paper products, publishing	13	-2	1		40	-1	1		23	-1	1		21	-1	1	
Petroleum, coal products	3				14	1	1		8	1	1		7	1	1	
Chemical, rubber, plastic products	2	-1			12	2	1	1	8		1	1	6	-1	1	1
Mineral products nec	9				44	-4	2		24	-4	1		22	-4	1	
Ferrous metals, Metals NEC			1		8	1	1		3	1	1		2	1	1	
Metal products	2				14	-1	1		7	-1	1		6	-1	1	
Motor vehicles and parts	9				22	4	1	1	17	-5	1	1	15	-5	1	1
Transport equipment	7	3			16	2	1	1	12	2	1	1	11	2	1	1
Electronic equipment; Machinery and Equipment	11	-1			27	2	1	1	19	-2	1	1	18	-2	1	

	WTO Accession				Scenario 1				Scenario 2				Scenario 3			
	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW
Manufactures nec	14				49	-1	1	1	31		1	1	30	-1	1	
Electricity	-3				-6	1	1	1	-4	1	1	1	-5	1	1	1
Gas, Water							1	1		1	1	1		1	1	1
Construction	-1	1			3	1	1	1	1	2	1	1		2	1	1
Trade	-5	2			-4	3	1	1	-5	3	1	1	-8	4	1	1
Transport nec, Water transport, Air transport	-5	-2			-7	1	1	1	-6		1	1	-7	-1	1	1
Communication	-5	1			-9	1	1	1	-7	2	1	1	-8	1	1	1
Financial services nec, Insurance	-4	8			-2	33	2	2	-4	18	1	1	-7	9	1	1
Business services nec, Renting	-4	1			-6	1	1	1	-5	1	1	1	-7	1	1	1
Recreational, entertainment, cultural and sporting activities, Social activities	-5	1			-8	1	1	1	-6	1	1	1	-7	1	1	1
Public administration, Education, Heatlh, Sewage, cleaning of streets and refuse disposal	-3	1			-6	1	1	1	-4	1	1	1	-5	1	1	1

Table 3.10 Changes in value of imports per sector (% change)

	WTO Accession				Scenario 1				Scenario 2				Scenario 3			
	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW
Agriculture, Fisheries, Forestry	26		1		39	1	4		30		3		29		2	
Coal, Oil, Gas	12		5		50		23		31		17		23		13	
Minerals NEC	1		1		14		6		6		5		5		3	
Bovine cattle, sheep and goats, horse meat products	-12	9	1		7	104	2	1	-1	49	2	1	-1	31	2	1
Vegetable oils and fats	2	3	1		5	26	3	1	2	14	2	1	2	9	2	1
Dairy products	3	2		2	13	11	1	9	4	6		7	4	5		5
Processed rice, Sugar	10	5	1	1	63	66	3	3	56	34	2	2	56	22	2	2
Food products nec	3				11	2	2	1	4	1	1	1	4	1	1	1
Beverages and tobacco	13	3		1	22	12		3	17	8		2	17	6		2
Textiles	4	1			23	3	1	1	13	1	1	1	12		1	
Wearing apparel	5	1	1		33	5	3	1	23	3	2		22	2	2	
Leather products	8	1			27	9	1	1	20	4	1	1	19	2	1	1
Wood products, Paper products, publishing	8				17	1	1	1	11	1	1	1	10		1	1
Petroleum, coal products			1		5		3	1	2		2	1	1		2	1
Chemical, rubber, plastic products	1				6	1	1	2	4			1	3			1
Mineral products nec	6				36	3	1	2	25	1	1	1	25			1
Ferrous metals, Metals NEC					2		2	2	1		1	1	1		1	1
Metal products	1				4	3	1	1	2	1	1	1	2	1	1	1
Motor vehicles and parts		3		1	5	11		3	3	7		2	2	5		2

	WTO Accession				Scenario 1				Scenario 2				Scenario 3			
	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW
Transport equipment	9	1			12	1	1	1	10	1	1	1	10	1		1
Electronic equipment; Machinery and Equipment	1	2			7	6	1	1	4	4	1	1	4	3	1	1
Manufactures nec	7				24	1	1	1	20	1	1	1	20		1	
Electricity						2	1	1		1	1	1		1	1	1
Gas, Water						7	2	1		3	2			2	1	
Construction	7				8	4	1	1	8	2	1	1	8	1	1	1
Trade	3	1			5	20	1	1	4	8	1	1	5	4	1	
Transport nec, Water transport, Air transport	-12				3		1	1	-6		1	1	-11			1
Communication	7				22	1	1	1	13		1	1	9		1	
Financial services nec, Insurance	3797	1			17015	6	1	1	8633	3	1	1	4184	2		1
Business services nec, Renting	6				12	4	1	1	9	2	1	1	10	1	1	1
Recreational, entertainment, cultural and sporting activities, Social activities	68				147	5	1	1	103	2	1	1	107	1	1	1
Public administration, Education, Heatlh, Sewage, cleaning of streets and refuse disposal	6				14	2	1	1	9	1	1	1	10		1	

Table 3.11 Changes in employment of high-skilled and low-skilled persons per sector (% change)

	Skil-led / Un-skil-led	WTO Accession a UKR	b RUS	c EU27	d ROW	Scenario 1 e UKR	F RUS	g EU27	h ROW	Scenario 2 i UKR	j RUS	k EU27	l ROW	Scenario 3 m UKR	n RUS	o EU27	p ROW
Agriculture, Fisheries, Forestry		-3,285	-0,059	-0,041	0,046	-4,181	-0,137	-0,022	0,079	-3,668	-0,036	-0,041	0,072	-4,013	-0,021	-0,043	0,068
Coal, Oil, Gas	SK	-1,667	0,115	-0,003	0,008	0,052	0,187	0,019	0,068	-0,89	0,206	-0,011	0,027	-2,03	0,199	-0,013	0,019
Minerals NEC	SK	-2,287	0,289	0,089	0,041	-1,542	0,532	0,004	0,084	-1,704	0,281	0,12	0,085	-3,267	0,374	0,14	0,082
Bovine cattle, sheep and goats, horse meat products	SK	8,629	0,056	-0,032	-0,021	10,387	0,055	-0,01	0,01	8,652	0,085	-0,051	-0,007	8,116	0,093	-0,049	-0,008
Vegetable oils and fats	SK	3,653	0,015	-0,011	0,017	7,939	-0,175	-0,074	-0,019	5,654	0,034	0,01	0,071	5,083	0,047	-0,003	0,052
Dairy products	SK	1,739	-0,592	0,042	0,007	2,197	-2,026	0,134	-0,008	2,547	-1,021	0,092	0,037	2,018	-0,989	0,081	0,027
Processed rice, Sugar	SK	-3,321	-0,073	-0,026	0,045	-28,71	-0,282	0,004	0,149	-28,23	-0,089	-0,014	0,209	-28,66	-0,092	-0,027	0,193
Food products nec	SK	1,618	-0,01	0,014	0,024	2,565	-0,18	0,031	0,016	2,4	0,012	0,056	0,066	1,841	0,015	0,043	0,053
Beverages and tobacco	SK	-2,447	-1,668	0,054	0,057	-2,959	-2,754	0,138	0,044	-2,808	-2,155	0,109	0,102	-3,281	-2,108	0,095	0,09
Textiles	SK	1,983	0,262	0,022	0,005	20,909	-0,454	0,023	-0,024	16,597	-0,267	0,042	0,017	14,985	-0,222	0,034	0,009
Wearing apparel	SK	22,709	0,24	-0,054	-0,032	93,325	-2,092	-0,123	-0,093	55,708	-1,983	-0,066	-0,073	54,172	-1,971	-0,064	-0,072
Leather products	SK	-0,527	-0,185	-0,043	0,059	16,825	-0,501	0,032	0,063	9,763	-0,531	0,036	0,059	8,75	-0,514	0,031	0,055
Wood products, Paper products, publishing	SK	-0,217	-0,483	0,057	0,023	6,336	-0,714	0,037	-5E-04	2,813	-0,397	0,113	0,081	1,773	-0,371	0,094	0,062
Petroleum, coal products	SK	0,923	-0,011	-0,025	0,004	3,267	0,114	-0,065	0,021	2,316	0,037	-0,037	0,016	1,707	0,025	-0,039	0,012
Chemical, rubber, plastic products	SK	0,145	-0,203	0,033	0,012	5,981	0,391	0,006	0,005	3,229	-0,301	0,065	0,041	2,074	-0,281	0,055	0,032
Mineral products nec	SK	1,231	0,083	0,019	0,012	1,795	-0,098	0,033	0,003	-0,368	-0,042	0,079	0,044	-1,283	-0,037	0,069	0,034
Ferrous metals, Metals NEC	SK	-0,675	0,187	0,079	0,026	6,356	-0,019	-0,061	-0,073	2,224	0,249	0,098	0,061	0,772	0,319	0,098	0,051
Metal products	SK	1,303	0,069	0,022	0,015	9,013	-0,492	-0,006	-0,011	4,147	-0,213	0,067	0,052	2,946	-0,17	0,056	0,04
Motor vehicles and parts	SK	8,241	-0,02	0,031	0,025	15,673	0,076	0,011	-0,024	11,368	-0,135	0,13	0,095	9,732	-0,151	0,103	0,073
Transport equipment	SK	-12,07	3,009	0,089	0,018	-5,565	2,393	0,075	0,02	-8,737	2,36	0,141	0,082	-9,87	2,33	0,126	0,068
Electronic equipment; Machinery and	SK	7,144	-0,305	0,008	-0,001	17,255	0,332	-0,006	-0,004	11,473	-0,703	0,035	0,012	10,037	-0,655	0,03	0,007

	Skil-led / Un-skil-led	WTO Accession				Scenario 1				Scenario 2				Scenario 3			
		a	b	c	d	e	F	g	h	i	j	k	l	m	n	o	p
		UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW
Equipment																	
Manufactures nec	SK	1,899	-0,01	0,015	0,003	7,027	-0,268	0,015	0,012	2,255	-0,092	0,049	0,022	1,663	-0,082	0,041	0,016
Electricity	SK	-0,074	-0,03	0,008	0,008	2,204	0,002	0,02	0,013	0,789	-0,048	0,015	0,023	0,124	-0,035	0,014	0,019
Gas, Water	SK	0,296	-0,029	0,003	0,004	1,308	0,037	0,021	0,02	0,55	-0,018	0,007	0,013	0,291	-0,024	0,006	0,01
Construction	SK	1,463	0,027	0,0004	-7E-04	3,064	0,157	0,028	0,02	2,171	0,069	-0,001	-0,003	2,047	0,054	-4E-04	-0,002
Trade	SK	0,154	0,066	0,004	0,002	1,469	0,079	0,023	0,021	0,47	0,091	0,008	0,008	0,003	0,096	0,008	0,007
Transport nec, Water transport, Air transport	SK	3,213	-0,294	-0,016	-0,003	-1,586	-0,244	0,058	0,039	1,279	-0,17	0,021	0,021	2,492	-0,292	0,003	0,013
Communication	SK	-0,686	0,089	0,007	0,002	-1,843	0,169	0,036	0,027	-1,347	0,156	0,016	0,007	-1,137	0,134	0,012	0,005
Financial services nec, Insurance	SK	-3,78	0,514	0,015	0,005	-17,46	2,272	0,082	0,039	-8,656	1,171	0,038	0,015	-3,871	0,599	0,021	0,009
Business services nec, Renting	SK	-0,137	0,091	0,004	0,001	-0,223	0,055	0,025	0,024	-0,331	0,15	0,009	0,006	-0,455	0,154	0,008	0,004
Recreational, entertainment, cultural and sporting activities, Social activities	SK	-0,059	0,055	0,005	-5E-05	0,015	0,119	0,024	0,024	-0,287	0,109	0,012	0,001	-0,429	0,102	0,009	0,0009
Public administration, Education, Heatlh, Sewage, cleaning of streets and refuse disposal	SK	-0,046	0,026	-9E-04	9E-05	0,037	0,12	0,025	0,024	-0,022	0,066	-0,004	0,0004	-0,307	0,06	-0,003	0,0003
Agriculture, Fisheries, Forestry	UNSK	-3,285	-0,059	-0,041	0,046	-4,202	-0,137	-0,022	0,079	-3,676	-0,036	-0,041	0,072	-4,012	-0,021	-0,043	0,068
Coal, Oil, Gas	UNSK	-1,668	0,115	-0,003	0,008	0,052	0,187	0,019	0,068	-0,892	0,206	-0,011	0,027	-2,029	0,199	-0,013	0,019
Minerals NEC	UNSK	-2,288	0,289	0,089	0,041	-1,55	0,531	0,004	0,084	-1,707	0,281	0,12	0,085	-3,266	0,374	0,14	0,082
Bovine cattle, sheep and goats, horse meat products	UNSK	8,631	0,056	-0,032	-0,021	10,439	0,055	-0,01	0,01	8,67	0,085	-0,051	-0,007	8,115	0,093	-0,049	-0,008
Vegetable oils and fats	UNSK	3,654	0,015	-0,011	0,017	7,979	-0,174	-0,074	-0,019	5,666	0,034	0,01	0,071	5,082	0,047	-0,003	0,052
Dairy products	UNSK	1,74	-0,591	0,042	0,007	2,208	-2,023	0,134	-0,008	2,552	-1,02	0,092	0,037	2,018	-0,988	0,081	0,027
Processed rice, Sugar	UNSK	-3,322	-0,073	-0,026	0,045	-28,85	-0,282	0,004	0,149	-28,29	-0,089	-0,014	0,209	-28,66	-0,092	-0,027	0,193

	Skil-led /	WTO Accession				Scenario 1				Scenario 2				Scenario 3			
	Un-skil-	a	b	c	d	e	F	g	h	i	j	k	l	m	n	o	p
	led	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW	UKR	RUS	EU27	ROW
Food products nec	UNSK	1,619	-0,01	0,014	0,024	2,578	-0,179	0,031	0,016	2,405	0,012	0,056	0,066	1,841	0,015	0,043	0,053
Beverages and tobacco	UNSK	-2,448	-1,667	0,054	0,057	-2,974	-2,751	0,138	0,044	-2,814	-2,153	0,109	0,102	-3,28	-2,107	0,095	0,09
Textiles	UNSK	1,983	0,262	-0,022	0,005	21,014	-0,454	0,023	-0,024	16,633	-0,267	0,042	0,017	14,982	-0,222	0,034	0,009
Wearing apparel	UNSK	22,715	0,24	-0,054	-0,032	93,794	-2,089	-0,123	-0,093	55,828	-1,982	-0,066	-0,073	54,163	-1,97	-0,064	-0,072
Leather products	UNSK	-0,527	-0,185	-0,043	0,059	16,909	-0,5	0,032	0,063	9,784	-0,531	0,036	0,059	8,749	-0,051	0,031	0,055
Wood products, Paper products, publishing	UNSK	-0,217	-0,483	0,057	0,023	6,368	-0,713	0,037	-5E-04	2,819	-0,397	0,113	0,081	1,773	-0,371	0,094	0,062
Petroleum, coal products	UNSK	0,923	-0,011	-0,025	0,004	3,283	0,113	-0,064	0,021	2,321	0,037	-0,037	0,016	1,707	0,025	-0,039	0,012
Chemical, rubber, plastic products	UNSK	0,145	-0,202	0,033	0,012	6,011	0,391	0,006	0,005	3,235	-0,301	0,065	0,041	2,073	-0,281	0,055	0,032
Mineral products nec	UNSK	1,231	0,083	0,019	0,012	1,804	-0,098	0,033	0,003	-0,369	-0,042	0,079	0,044	-1,283	-0,037	0,069	0,034
Ferrous metals, Metals NEC	UNSK	-0,675	0,187	0,079	0,026	6,388	-0,019	-0,061	-0,073	2,229	0,248	0,098	0,061	0,772	0,319	0,098	0,051
Metal products	UNSK	1,303	0,069	0,022	0,015	9,058	-0,492	-0,006	-0,011	4,156	-0,213	0,067	0,052	2,945	-0,17	0,056	0,04
Motor vehicles and parts	UNSK	8,243	-0,02	0,031	0,025	15,752	0,076	0,011	-0,024	11,392	-0,135	0,13	0,095	9,73	-0,151	0,103	0,073
Transport equipment	UNSK	-12,07	3,008	0,089	0,018	-5,593	2,39	0,075	0,02	-8,756	2,359	0,141	0,082	-9,869	2,329	0,126	0,068
Electronic equipment; Machinery and Equipment	UNSK	7,146	-0,304	0,008	-0,001	17,342	0,331	-0,006	-0,004	11,498	-0,703	0,035	0,012	10,036	-0,065	0,03	0,007
Manufactures nec	UNSK	1,899	-0,01	0,015	0,003	7,063	-0,268	0,015	0,012	2,26	-0,092	0,049	0,022	1,663	-0,082	0,041	0,016
Electricity	UNSK	-0,074	-0,03	0,008	0,008	2,215	0,002	0,02	0,013	0,791	-0,048	0,015	0,023	0,124	-0,035	0,014	0,019
Gas, Water	UNSK	0,296	-0,029	0,003	0,004	1,315	0,037	0,021	0,02	0,551	-0,018	0,007	0,013	0,291	-0,024	0,006	0,01
Construction	UNSK	1,463	0,027	0,0004	-7E-04	3,08	0,157	0,028	0,02	2,175	0,069	-0,001	-0,003	2,047	0,054	-4E-04	-0,002
Trade	UNSK	0,154	0,066	0,004	0,002	1,476	0,079	0,023	0,021	0,471	0,091	0,008	0,008	0,003	0,096	0,008	0,007
Transport nec, Water transport, Air transport	UNSK	3,214	-0,293	-0,016	-0,003	-1,594	-0,243	0,058	0,039	1,282	-0,17	0,021	0,021	2,492	-0,292	0,003	0,013
Communication	UNSK	-0,686	0,089	0,007	0,002	-1,852	0,168	0,036	0,027	-1,35	0,156	0,016	0,007	-1,136	0,134	0,012	0,005

	Skil-led / Un-skil-led	WTO Accession a UKR	b RUS	c EU27	d ROW	Scenario 1 e UKR	F RUS	g EU27	h ROW	Scenario 2 i UKR	j RUS	k EU27	l ROW	Scenario 3 m UKR	n RUS	o EU27	p ROW
Financial services nec, Insurance	UNSK	-3,781	0,514	0,015	0,005	-17,54	2,269	0,082	0,039	-8,674	1,17	0,038	0,015	-3,87	0,599	0,021	0,009
Business services nec, Renting	UNSK	-0,137	0,091	0,004	0,001	-0,225	0,055	0,025	0,024	-0,332	0,15	0,009	0,006	-0,455	0,154	0,008	0,004
Recreational, entertainment, cultural and sporting activities, Social activities	UNSK	-0,059	0,55	0,005	-5E-05	0,015	0,119	0,024	0,024	-0,287	0,109	0,012	0,001	-0,429	0,102	0,009	0,0009
Public administration, Education, Heatlh, Sewage, cleaning of streets and refuse disposal	UNSK	-0,046	0,026	-9E-04	9E-05	0,037	0,12	0,025	0,024	-0,222	0,066	-0,004	0,0004	-0,307	0,06	-0,003	0,0003

Table 3.12 Changes in absolute numbers of employment of high-skilled and low-skilled persons per sector

			WTO		Scenario 1		Scenario 2		Scenario 3	
	Skilled / Unskilled	People working in sector	% Change employment	Change nr. of people	% Change employment	Change nr. of people	% Change employment	Change nr. of people	% Change employment	Change nr. of people
Agriculture, Fisheries, Forestry	SK	135921.75	-3.285	-4465	-4.181	-5682.9	-3.668	-4986	-4.013	-5455
Coal, Oil, Gas	SK	36217.70	-1.667	-604	0.052	18.8	-0.89	-322	-2.03	-735
Minerals NEC	SK	12720.56	-2.287	-291	-1.542	-196.2	-1.704	-217	-3.267	-416
Bovine cattle, sheep and goats, horse meat products	SK	8227.77	8.629	710	10.387	854.6	8.652	712	8.116	668
Vegetable oils and fats	SK	4912.31	3.653	179	7.939	390.0	5.654	278	5.083	250
Dairy products	SK	11522.94	1.739	200	2.197	253.2	2.547	293	2.018	233
Processed rice, Sugar	SK	5588.93	-3.321	-186	-28.706	-1604.4	-28.227	-1578	-28.663	-1602
Food products nec	SK	19026.73	1.618	308	2.565	488.0	2.4	457	1.841	350
Beverages and tobacco	SK	20654.37	-2.447	-505	-2.959	-611.2	-2.808	-580	-3.281	-678

			WTO		Scenario 1		Scenario 2		Scenario 3	
	Skilled / Unskilled	People working in sector	% Change employment	Change nr. of people	% Change employment	Change nr. of people	% Change employment	Change nr. of people	% Change employment	Change nr. of people
Textiles	SK	3257.20	1.983	65	20.909	681.0	16.597	541	14.985	488
Wearing apparel	SK	4199.62	22.709	954	93.325	3919.3	55.708	2340	54.172	2275
Leather products	SK	2731.48	-0.527	-14	16.825	459.6	9.763	267	8.75	239
Wood products, Paper products, publishing	SK	21511.61	-0.217	-47	6.336	1363.0	2.813	605	1.773	381
Petroleum, coal products	SK	16640.89	0.923	154	3.267	543.7	2.316	385	1.707	284
Chemical, rubber, plastic products	SK	32280.82	0.145	47	5.981	1930.7	3.229	1042	2.074	670
Mineral products nec	SK	21020.07	1.231	259	1.795	377.3	-0.368	-77	-1.283	-270
Ferrous metals, Metals NEC	SK	84786.29	-0.675	-572	6.356	5389.0	2.224	1886	0.772	655
Metal products	SK	21422.27	1.303	279	9.013	1930.8	4.147	888	2.946	631
Motor vehicles and parts	SK	13880.71	8.241	1144	15.673	2175.5	11.368	1578	9.732	1351
Transport equipment	SK	17693.84	-12.068	-2135	-5.565	-984.7	-8.737	-1546	-9.87	-1746
Electronic equipment; Machinery and Equipment	SK	45928.03	7.144	3281	17.255	7924.9	11.473	5269	10.037	4610
Manufactures nec	SK	9580.58	1.899	182	7.027	673.2	2.255	216	1.663	159
Electricity	SK	62801.17	-0.074	-46	2.204	1384.1	0.789	496	0.124	78
Gas, Water	SK	26487.29	0.296	78	1.308	346.5	0.55	146	0.291	77
Construction	SK	46731.27	1.463	684	3.064	1431.8	2.171	1015	2.047	957
Trade	SK	98362.87	0.154	151	1.469	1445.0	0.47	462	0.003	3
Transport nec, Water transport, Air transport	SK	83288.07	3.213	2676	-1.586	-1320.9	1.279	1065	2.492	2076
Communication	SK	22261.67	-0.686	-153	-1.843	-410.3	-1.347	-300	-1.137	-253
Financial services nec, Insurance	SK	142589.71	-3.78	-5390	-17.455	-24889.0	-8.656	-12343	-3.871	-5520
Business services nec, Renting	SK	139831.54	-0.137	-192	-0.223	-311.8	-0.331	-463	-0.455	-636

			WTO		Scenario 1		Scenario 2		Scenario 3	
	Skilled / Unskilled	People working in sector	% Change employment	Change nr. of people	% Change employment	Change nr. of people	% Change employment	Change nr. of people	% Change employment	Change nr. of people
Recreational, entertainment, cultural and sporting activities, Social activities	SK	17724.69	-0.059	-10	0.015	2.7	-0.287	-51	-0.429	-76
Public administration, Education, Heatlh, Sewage, cleaning of streets and refuse disposal	SK	539470.23	-0.046	-248	0.037	199.6	-0.0222	-120	-0.307	-1656
Agriculture, Fisheries, Forestry	UNSK	4934904.59	-3.285	-162112	-4.202	-207364.7	-3.676	-181407	-4.012	-197988
Coal, Oil, Gas	UNSK	1233498.97	-1.668	-20575	0.052	641.4	-0.892	-11003	-2.029	-25028
Minerals NEC	UNSK	433235.73	-2.288	-9912	-1.55	-6715.2	-1.707	-7395	-3.266	-14149
Bovine cattle, sheep and goats, horse meat products	UNSK	161206.06	8.631	13914	10.439	16828.3	8.67	13977	8.115	13082
Vegetable oils and fats	UNSK	96246.38	3.654	3517	7.979	7679.5	5.666	5453	5.082	4891
Dairy products	UNSK	225768.02	1.74	3928	2.208	4985.0	2.552	5762	2.018	4556
Processed rice, Sugar	UNSK	109503.46	-3.322	-3638	-28.85	-31591.7	-28.288	-30976	-28.658	-31382
Food products nec	UNSK	372789.01	1.619	6035	2.578	9610.5	2.405	8966	1.841	6863
Beverages and tobacco	UNSK	345058.56	-2.448	-8447	-2.974	-10262.0	-2.814	-9710	-3.28	-11318
Textiles	UNSK	54415.83	1.983	1079	21.014	11434.9	16.633	9051	14.982	8153
Wearing apparel	UNSK	70160.17	22.715	15937	93.794	65806.0	55.828	39169	54.163	38001
Leather products	UNSK	45633.05	-0.527	-240	16.909	7716.1	9.784	4465	8.749	3992
Wood products, Paper products, publishing	UNSK	359379.98	-0.217	-780	6.368	22885.3	2.819	10131	1.773	6372
Petroleum, coal products	UNSK	278008.11	0.923	2566	3.283	9127.0	2.321	6453	1.707	4746
Chemical, rubber, plastic products	UNSK	539293.94	0.145	782	6.011	32417.0	3.235	17446	2.073	11180
Mineral products nec	UNSK	351168.14	1.231	4323	1.804	6335.1	-0.369	-1296	-1.283	-4505
Ferrous metals, Metals NEC	UNSK	1416467.35	-0.675	-9561	6.388	90483.9	2.229	31573	0.772	10935

			WTO		Scenario 1		Scenario 2		Scenario 3	
	Skilled / Unskilled	People working in sector	% Change employment	Change nr. of people	% Change employment	Change nr. of people	% Change employment	Change nr. of people	% Change employment	Change nr. of people
Metal products	UNSK	357887.34	1.303	4663	9.058	32417.4	4.156	14874	2.945	10540
Motor vehicles and parts	UNSK	231895.68	8.243	19115	15.752	36528.2	11.392	26418	9.73	22563
Transport equipment	UNSK	295599.01	-12.071	-35682	-5.593	-16532.9	-8.756	-25883	-9.869	-29173
Electronic equipment; Machinery and Equipment	UNSK	767288.54	7.146	54830	17.342	133063.2	11.498	88223	10.036	77005
Manufactures nec	UNSK	160056.23	1.899	3039	7.063	11304.8	2.26	3617	1.663	2662
Electricity	UNSK	848224.45	-0.074	-628	2.215	18788.2	0.791	6709	0.124	1052
Gas, Water	UNSK	357750.72	0.296	1059	1.315	4704.4	0.551	1971	0.291	1041
Construction	UNSK	1552564.76	1.463	22714	3.08	47819.0	2.175	33768	2.047	31781
Trade	UNSK	1989799.92	0.154	3064	1.476	29369.4	0.471	9372	0.003	60
Transport nec, Water transport, Air transport	UNSK	2236310.50	3.214	71875	-1.594	-35646.8	1.282	28670	2.492	55729
Communication	UNSK	597732.80	-0.686	-4100	-1.852	-11070.0	-1.35	-8069	-1.136	-6790
Financial services nec, Insurance	UNSK	602058.12	-3.781	-22764	-17.543	-105619.1	-8.674	-52223	-3.87	-23300
Business services nec, Renting	UNSK	1004171.17	-0.137	-1376	-0.225	-2259.4	-0.332	-3334	-0.455	-4569
Recreational, entertainment, cultural and sporting activities, Social activities	UNSK	446665.53	-0.059	-264	0.015	67.0	-0.287	-1282	-0.429	-1916
Public administration, Education, Heatlh, Sewage, cleaning of streets and refuse disposal	UNSK	3447197.53	-0.046	-1586	0.037	1275.5	-0.222	-7653	-0.307	-10583
		27651215								

3.7 Gravity estimates on FDI in Ukraine

This part of the report is devoted to the estimation of the impact of an FTA between the EU and Ukraine on potential FDI inflows into Ukraine. An important aspect of trade linkages is involvement or potential involvement in free trade agreements, customs union and supra-national economic structures, such as the European Union. Third party countries may invest into such regions to avoid tariffs on exports, while the enhanced growth and trade from the economies of scale of integration provide a demand stimulant to FDI. Within the EU context, the prospect of an EU-Ukraine FTA might be viewed by potential investors as reducing country risk; both because it serves as an external validation of progress in the reform process, and because it signals higher macro-economic, institutional, legal and political stability. In our econometric work, we therefore analyse the indirect impact of EU-Ukraine FTA via business-environment risk on FDI in Ukraine.

We make our forecasts based on a gravity model, which we estimated for 12 developing/transition countries (countries-recipients) and 31 OECD countries (countries-donors). For a fuller description of the model please refer to Appendix 10. FDI inflows into a host country are modelled to be a function of both source and recipient countries' GDP and geographical proximity; coupled with traditional FDI determinants like labour costs, a degree of openness of the economy, the friendliness of business environment and the WTO membership.

Our key matter of interest in this analysis is the impact of a business environment index (BEI), which enables us to estimate the impact of an FTA with Ukraine at a later stage. We find that the Economist Intelligence Unit (EIU) business environment index plays an important part in explaining bilateral FDI flows in our sample. The index ranks countries (with lower values standing for less friendly countries) according to 10 aspects of business environment, including market opportunities, macroeconomic environment, political environment, infrastructure, private enterprise policy, labour market, tax regime, financing, foreign trade and exchange regime, and policy environment for foreign investment.

The results of our model are consistent with the conclusions of other studies analysing determinants of FDI in transition/developing countries. In line with previous research we find the gravity factors (GDP of home and host countries, and distance between the two countries) to have a significant effect on FDI flows. We also find the level of the domestic debt, degree of country's openness and labour costs to affect significantly FDI flows. The impact of the EIU business environment index is significant and positive, which is in line with our expectations.

The estimated coefficients are in line with the estimates in the comparable studies, CEPS (2002) in particular. According to our model, one percent increase in the value of the business environment index (BEI) will result in 1.38 percent increase in the amount of FDI inflow into Ukraine. This is a considerable increase given the model is estimated in flows and this increase is expected to happen every year.

As was stated above, the impact of an FTA with Ukraine is approximated by the impact of change in its business environment to the level of CEE countries. Hence, we estimate a change in FDI inflows to Ukraine considering its business environment improving by 10%, 20% and 30% respectively. Correspondingly, an increase by 10% in Ukraine's EIU business environment index (from 4.6 to 5.06) brings its business quality to the level of Kazakhstan, whereas an increase of 20% (from 5.06 to 5.52) corresponds to Ukraine being perceived by international investors nearly as business friendly as the Russian Federation. The largest improvement considered in this study is 30% (BEI value of 5.98). It sets Ukraine's business climate above that of neighbouring Turkey, yet it is still quite far away from that of the Eastern European advanced transition economies like Poland, Slovakia and Hungary. Please see Table 3.13 for corresponding values of the EIU Business Environment Index.

Table 3.13 EIU Business Environment Index, 2005

Country	2005
Brazil	6.50
Bulgaria	6.00
China	5.70
Czech Republic	7.10
Hungary	6.80
India	5.50
Kazakhstan	5.10
Poland	6.80
Russia	5.50
Slovakia	6.90
Turkey	5.70
Ukraine	4.60

Source: Economist Intelligence Unit

As a result, the amount of potential FDI inflows into Ukraine are estimated to increase by 14%, 29% and 44% respectively (see Table 3.14). In absolute terms it means that annual FDI flows into Ukraine will increase from USD 9,137mln (OECD countries, 2003) to USD 417mln, 470mln and 525mln corresponding to 10%, 20% and 30% improvement in its business environment. This is, of course, a lower bound estimate for FDI as it does not include potential changes in other variables (which have a sizeable impact also), like, for example, GDP, GDP per capita etc.

Table 3.14 Estimated changes to FDI flows to Ukraine

BEI change	% increase in FDI flows to Ukraine	Estimated FDI flows, OECD countries, USD mn
10%	14	417
20%	29	470
30%	44	525

FTA impact on stock of FDI

Furthermore, we have estimated an impact of the FTA with the EU on the stock of FDI in Ukraine until 2020. According to our estimates, FDI stock will increase from USD 17,311mn in 2005 (NBU) to USD 19,911mln; 36, 407mln and 140,472mln in 2020 or 85%, 110% and 612% increase of the current value according to our 3 scenarios (please see Table 3.15).[24] Again, this is a lower bound estimate of an increase in FDI stock due to the impact of the EU-Ukraine FTA only (not considering changes in the GDP and related variables).

Table 3.15 Estimated changes to FDI stock, Ukraine, 2020

BEI change	% increase in FDI stock in Ukraine	Increase in FDI stock, OECD countries, USD mn
10%	85	19911
20%	110	36407
30%	612	140472

Thus, a free trade agreement with the EU is likely to have a substantial impact on FDI inflows into Ukraine. If economic, institutional and political reforms are entrenched and enhanced (resulting in the overall business environment improving to the level of neighbouring CEE countries), Ukraine will enjoy a sizeable increase in FDI inflows. It is obvious that the level of domestic reform has a significant impact on the improvement of the business environment and, as a result, on FDI inflows between Ukraine and the EU. Hence, a free trade agreement with the EU should not be regarded as a substitute for domestic reforms, but as a complement and, as a matter of fact, a consequence of internal institutional and economic development of Ukraine.

[24] These estimates are obtained assuming that FDI inflows increase annually according to our estimates (Table 3.14) starting 2005 until 2020.

4 Screening

4.1 Overview of screening

The purpose of screening is to identify those sectors or issues that are considered to be worth examining further to find if there is a potential causal link to a sustainability impact. In order carry out the screening exercise, we have gathered the information in Chapter 2 and carried out the CGE modelling in Chapter 3. There are several criteria for selecting a sector or activity as explained in the Inception Report as well as in the Handbook (2006). They will each be discussed a little further on.

The evaluation of the overall macroeconomic situation and sectors that are of major importance to the Ukrainian economy was made in Chapter 2. The evaluation of the initial economic effects of the trade agreement is made through the CGE framework, namely the Multi-Region Trade Model model based on earlier work by Harrison, Rutherford and Tarr (1996a). Making use of utility and profit maximisation, the multi-region trade model is a tool for analysing market- as well as inter-market transactions. The important characteristic of the model is its ability to quantitatively assess the impacts of economic policy changes on the industrial structure, resource allocation, income allocation, and other items through changes in relative prices and the changes in the behaviour of economic entities in response to relative price changes.

On the basis of the overall macroeconomic situation and the macroeconomic CGE analysis, it is possible to determine which sectors are likely to be the most economically affected by the trade agreement. If some sectors are affected in terms of their production structures, there may be indirect economic, social and/or environmental effects. In the latter case, a screening exercise may also be worth conducting.

The screening exercise is conducted on the basis of the results of the macroeconomic model. In this phase, we identify those sectors where a sustainability impact is likely to occur. In-depth assessments concerning these sectors have then to be undertaken. The scoping exercise aims to determine the objectives and methods of the in-depth assessment studies that are intended to produce the information required for the social and environmental assessment of potential sustainability impacts. Its basis is the outcome of the screening exercise, which has established a link between the trade agreement or other policy change under study and economic consequences in the areas it considers to be of interest.

In order to identify the sectors and horizontal issues, which should be studied further, a large number of sectors and horizontal issues are assessed with the screening criteria. For the screening the sectors and horizontal issues are partially grouped. The screening

criteria provide the first identification of the potential sustainability impacts that result from the trade measures or measures that are related to the sector/issue. The screening criteria were selected in order to get as much valuable information as possible for the selection. The sectors/issues for phase two of the study will be selected at the end taking into account all of the criteria. Five sectors will be selected for further study out of a total of 12 sectors in the screening phase. Similarly there will be 3 horizontal issues selected out of a total of 9 issues.

The screening of the five sectors and three horizontal issues takes place, making use of the following criteria:

a. The (macroeconomic) importance of a sector/horizontal issue for Ukrainian – EU relations (e.g. through share of GDP, employment);
b. The size of the expected impact of the FTA within the context of the EA between the EU and Ukraine;
c. The expected economic, social and/or environmental impact of the sector for the EU and Ukraine;
d. The comments and feedback from the consultations with key stakeholders and civil society;

First criterion: The macroeconomic importance of the sector/horizontal issue for EU-Ukraine relations measured by output, employment, growth and trade shares.

The first criterion that will be used is measuring the importance of the sector/horizontal issues. As an indicator of the importance of the sector/horizontal issue, we will use the share of total output created by the sector, number of people employed in the sector, recent growth rates and share of total trade. The values are checked for both the EU area and for Ukraine. For example a sector with big output and employment share can be considered important to study further even if the effects of the EA-FTA seem to be small in percentage for that sector as even small percentage changes can have then relatively large effects.

Second criterion: The projected sustainability impact of the trade measures in the FTA, calculated with the CGE model.

The results of the CGE model will be used as a criterion as well for the selection of the sectors/horizontal issues to be studied further. If the expected impact of the trade measures in the FTA will be large in some sectors in either the EU area or in Ukraine according to the models results, it can be an indication that the effects in that specific sector/issue should be studied in detail. The CGE model will calculate the impacts for both areas and all the effects will be considered during the selection.

Third criterion: The expected economic, social and environmental impact on the sector/issue.

The expected impacts, based on the CGE model and other information, on the different sustainability indicators will be assessed for both the EU and Ukraine. In the selection of the sustainability indicators, coverage, exclusivity and balance of the indicators was used as selection criteria. Every theme of sustainable development has many core indicators (i.e. sub-themes) in order to guarantee this coverage. The core economic indicators include real income, fixed capital formation, trade and government finance. The social effects are assessed for poverty, health, education, gender equality and labour issues. The

environmental effects are assessed for atmosphere, land, biodiversity, environmental quality and fresh and wastewater. Large estimated changes in any of the sustainability indicators will be taken into account in the selection process.

Fourth criterion: The comments and feedback received from stakeholders and civil society through the consultation process.

The consultation process and the comments and feedback from different key stakeholders and civil society are considered as a very important source for information as well. All of the information gathered via the consultation process is taken into account, when choosing for the sectors and horizontal issues that are studied in detail during the phase 2 of the project. Especially the comments of key stakeholders of the studied sector from both the EU and Ukraine will be valued.

4.2 Sustainability impact indicators and dimension

When screening for a likely sustainable economic, social and/or environmental, the following Table 4.1, summarises the variables and specific indicators this study will take into account.

Table 4.1 Sustainability impact indicators

Area	Core Indicator	Specific Indicators
1. Economic	a) Real Income	GDP per capita, Net value added, consumer effects, effect on prices, variety of goods and services
	b) Fixed capital formation	Gross fixed capital formation, Private and public capital formation, FDI
	c) Trade	Balance of trade in goods and services, Volume of trade in goods and services, Terms of trade
2. Social	a) Poverty	People living under poverty line, GINI index, regional effects
	b) Health	Life expectancy, Mortality rates (maternal, child), Access to health services, sanitation, nutritional levels
	c) Education	Primary, secondary and tertiary enrolment rates, literacy rates
	d) Labour issues (incl. Employment and decent work)	Unemployment, Productivity and quality of work, Rights at work, Employment opportunities, wage effects, self-employment
	e) Equality	Gender equality in employment and employment opportunities, gender equality in education, social protection, social dialogue

Area	Core Indicator	Specific Indicators
3. Environmental	a) Atmosphere	CO2 emissions, air quality, quantity of dangerous chemicals in atmosphere (dangerous to ozone layer or to humans)
	b) Land	Land use in agriculture, forest, desertification, urbanization, natural resource stocks
	c) Biodiversity	Number of species, protected areas, ecosystem
	d) Environmental quality	Waste management, energy resources
	e) Fresh and waste water	Quantity of water use, Access to safe drinking water, Water quality, Quantity of waste water, Cleaning of waste water, Water supply

We will screen the horizontal issues on the basis of hypotheses. From the impact of the FTA on the issue a causal chain is presupposed through a change in the production structure to a potential social or environmental sustainability impact. If there is no impact of the FTA on the horizontal issue that leads to hardly any change in the production structure or production methods we assume that there will be no effects on social and environmental sustainability. In this case the horizontal issue or area will not be selected for further study.

Horizontal issues suggested during the kick off meeting to be included in the screening were government procurement, SPS, technical barriers and trade facilitation.

4.2.1 Sectors

At the sector level screening has taken place. The identification of sectors for further analysis has followed the screening criteria as presented above:

The selection of sectors is made as follows:

1. The importance of the sector macro-economically for Ukraine;
2. The magnitude of change of the structure of the sector as a consequence of the FTA;
3. The sustainability impact the change in sector structure will have economically, socially and environmentally;
4. The views and visions of the key stakeholders and civil society.

Examples of sectors for which policy changes can be negotiated may be agriculture, steel, telecommunications, textiles and machinery & equipment.

Sources that we used to determine the initial economic effects of the trade agreement include:

- Summarised information provided by officials of the DG Trade of the European Commission on the contents of the FTA to be negotiated;
- The CGE model simulations of the baseline and trade agreement scenarios;
- The sources of information mentioned in the introduction;
- The information provided by the participants of the kick-off meeting of the TSIA in Brussels.

For the first economic effects we will look at the results of the trade agreement scenario that will reveal the changes in output and employment at sector level. Next to these initial economic effects, following from the changed trade policy regime under the FTA, there will be potential social and environmental sustainability impacts. For example, at sector level there may be a decrease in production and employment, which in certain regions may lead to unacceptable levels of unemployment and poverty and/or to an improved environment. However, it needs to be clearly noted that we will select sensitive sectors, not only with negative effects but also with positive effects.

Causal chain analyses are used to identify the cause-effect links between the proposed trade measures that have important economic effects at sector level and which consequently may result in social and environmental impacts. On the basis of these causal chain analyses the sector selections in the next sections has been made.

The impact of deep integration will be higher (more than the macro-economic growth effects) for those sectors that have the highest import tariffs and price elasticities for imports.

4.2.2 Horizontal issues

Horizontal issues or other areas for further study have also been screened. The identification of issues for further analysis has followed the same screening procedure for the selection of sectors as set out in the previous chapter.

The selection of horizontal issues is made as follows:

1. The importance of the issue macro-economically for Ukraine;
2. The magnitude of change of the issue as a consequence of the FTA;
3. The impact that the issue will have economically, socially and environmentally;
4. The views and visions of the key stakeholders and civil society.

Examples of horizontal issues for which policy changes can be negotiated may be technical standards, SPS, government procurement and investments. A change in FDI policy which leads to opening of sectors to foreign investments may bring about changes in the production techniques –e.g. an increased scale of production- which can result in sustainability issues. A removal of a non-tariff barrier may change the production structure and consequently may also have social and environmental impacts which are worthwhile to study further.

When issues can be linked to structural changes in the gender division of labour, or to geographic disparities in economic activity the potential social consequences may be identified for further study. When issues can be linked to pollution problems or to the use of scarce non-market resources the environmental consequences of these issues may be investigated.

4.3 Screening for major sectors in the EU-Ukraine trade relationship

Looking at the first criterion, we have to identify the major sectors in the EU-Ukraine trade relationship. As mentioned in the inception report we look at the share of sectors in total Ukrainian output as well as the share of employment of each sector in total Ukrainian employment. Based on these two criteria, we can make a rating of most important sectors. In order of importance these are:

Table 4.2 Most important sectors in Ukraine (employment share in Ukrainian output)

Nr	Sector	Percentage share of sector in Ukrainian employment
1	Agriculture, Fisheries, Forestry	18.34
2	Public administration, Education, Health, Sewage, cleaning of streets and refuse disposal	14.42
3	Transport nec, Water transport, Air transport	8.39
4	Trade	7.55
5	Construction	5.78
6	Ferrous metals, Metals NEC	5.43
7	Coal, Oil, Gas	4.59
8	Business services nec, Renting	4.14
9	Electricity	3.29
10	Electronic equipment; Machinery and Equipment	2.94
11	Financial services nec, Insurance	2.69
12	Communication	2.24

Table 4.3 Most important sectors in Ukraine (output share in Ukrainian output)

Nr	Sector	Percentage share of sector in Ukrainian production
1	Agriculture, Fisheries, Forestry	10.70
2	Trade	9.56
3	Ferrous metals, Metals NEC	9.11
4	Public administration, Education, Health, Sewage, cleaning of streets and refuse disposal	8.07
5	Transport nec, Water transport, Air transport	6.95
6	Petroleum, coal products	5.11
7	Business services nec, Renting	4.83
8	Construction	4.68
9	Electronic equipment; Machinery and Equipment	3.78

Nr	Sector	Percentage share of sector in Ukrainian production
10	Chemical, rubber, plastic products	3.42
11	Financial services nec, Insurance	3.35
12	Electricity	2.67

The sectors **agriculture, forestry and fishing, Public administration, Education, Health, Sewage, cleaning of streets and refuse disposal, transport nec, water transport, air transport, trade, construction** as well as **ferrous metals and metals nec, business services nec and renting, electricity, electronic equipment and machinery equipment and financial service nec and insurance** are present in both columns and thus are of significant importance for the Ukrainian economy both in terms of output and in terms of employment.

4.4 Screening for major output and employment impacts, i.e. changes in production structure, as a consequence of the FTA

The second criterion for screening is the size of the direct economic impact, measured by output and employment impacts as a consequence of the FTA negotiations and resulting trade measures. These impacts, as shown in the Tables of Chapter 3, can be measured in terms of percentage changes or in terms of absolute changes in employment and output. An additional factor to take into account is the fact that we have modelled three likely outcomes of the FTA negotiations: the extended FTA and two more limited FTAs. For the screening purpose and focus of this study we will present the most extended FTA effects only (for the outcomes on the other scenarios we refer to the Tables in Chapter 3) because it has the most extreme outcomes in terms of employment and output. The two less ambitious FTAs remain inside the boundaries of the extended FTA scenario, meaning their effects are in any case more limited.

Percentage changes in output

When analysing the economic impact, we find that **wearing apparel, textiles, electronic equipment and machinery equipment, leather products, motor vehicles and parts, metal products, vegetable oil and fats, manufactures nec, wood products, paper products and publishing** as well as **ferrous metals and metals nec, chemical, rubber and plastic products** are among the sectors with the largest positive percentage change in output while the sectors **processed rice and sugar as well as financial services nec and insurance, transport equipment and agriculture, fisheries and forestry** are among the sectors with the largest negative percentage change in output.

Absolute changes in output

We find that the largest absolute changes in output occur in the following sectors as presented in Table 4.4: **electronic equipment, machinery and equipment, ferrous metals, metals nec, wearing apparel, metal products, chemical, rubber and plastic products, agriculture, fisheries and forestry, financial services nec and insurance and processed rice and sugar.**

Table 4.4 Absolute values of economic impact of the extended FTA (change in production)

	% Change Production	Change production (mln US$)
Electronic equipment; Machinery and Equipment	16.8	0.960
Ferrous metals, Metals NEC	6.2	0.855
Wearing apparel	91.1	0.601
Metal products	8.8	0.307
Chemical, rubber, plastic products	5.8	0.300
Motor vehicles and parts	15.3	0.264
Petroleum, coal products	3.2	0.248
Construction	3	0.212
Trade	1.4	0.203
Wood products, Paper products, publishing	6.2	0.174
Bovine cattle, sheep and goats, horse meat products	10.1	0.168
Transport nec, Water transport, Air transport	-1.5	-0.158
Processed rice, Sugar	-28	-0.316
Agriculture, Fisheries, Forestry	-4.1	-0.664
Financial services nec, Insurance	-17	-0.863

Absolute changes in employment

The largest absolute changes in employment occur in the sectors as presented in Table 4.5. Clearly the absolute impact occurs most among the unskilled workers with one exception: **financial services nec and insurance**, that shows a significant decrease in employment in absolute terms. The largest decrease in employment however comes from the sector **agriculture, fisheries and forestry**. Sectors that show large employment increases in absolute terms are **electronic equipment and machinery and equipment, ferrous metals and metals nec, wearing apparel and construction** (all over 40.000 jobs of employment increase).

Table 4.5 Absolute values of economic impact of the extended FTA (absolute changes in employment)

	Skilled / Unskilled	% Change employment	Change nr. of people
Electronic equipment; Machinery and Equipment	UNSK	17.342	133063.2
Ferrous metals, Metals NEC	UNSK	6.388	90483.9
Wearing apparel	UNSK	93.794	65806.0
Construction	UNSK	3.08	47819.0
Motor vehicles and parts	UNSK	15.752	36528.2
Metal products	UNSK	9.058	32417.4
Chemical, rubber, plastic products	UNSK	6.011	32417.0
Trade	UNSK	1.476	29369.4
Wood products, Paper products, publishing	UNSK	6.368	22885.3
Electricity	UNSK	2.215	18788.2
Bovine cattle, sheep and goats, horse meat products	UNSK	10.439	16828.3
Transport equipment	UNSK	-5.593	-16532.9

	Skilled / Unskilled	% Change employment	Change nr. of people
Financial services nec, Insurance	SK	-17.455	-24889.0
Processed rice, Sugar	UNSK	-28.85	-31591.7
Transport nec, Water transport, Air transport	UNSK	-1.594	-35646.8
Financial services nec, Insurance	UNSK	-17.543	-105619.1
Agriculture, Fisheries, Forestry	UNSK	-4.202	-207364.7

Relative changes in employment (%)

The largest absolute changes in employment do not necessarily coincide with the largest percentage changes in employment. Some small sectors show large percentage changes but in absolute terms are not very important. For example, **agriculture, forestries and fishery** decrease by only 4.2% yet the absolute employment impact is over –200.000 jobs, while the **beverages and tobacco** sector decreases by 3.0% in relative terms and by –10.262 jobs only due to its much smaller relative size.

The largest relative changes in employment occur in the sectors **wearing apparel, textiles, electronic equipment and machinery equipment** as well as **leather products and motor vehicles and parts**. Also large relative – negative – changes in employment occur in **processed rice and sugar, financial services nec and insurance, transport equipment and agriculture, forestries and fishery**.

4.5 Screening for resulting economic, social and/or environmental impacts as a consequence of the FTA

4.5.1 Social impacts

If we combine the current social situation of Ukraine as described in section 2.4 with the output and employment changes and the characteristics of the various industries a general picture of indirect social impacts starts to emerge.

With changes in production structures in various sectors, we expect certain social impacts to occur. First of all, when we look at poverty, a decrease in employment and output for the **agriculture, fisheries and forestry** sector – mainly located in the already poor western parts of Ukraine – combined with an increase in production in **chemicals, rubber , ferrous metals and coal** production – mainly located in the eastern parts of Ukraine, may lead to further geographical income disparities inside the country in favour of the eastern parts. Secondly, overall for Ukraine, given the positive wage effects for the unskilled workers we expect the FTA to contribute to Ukraine alleviating people that currently live on an income below the poverty line. Thirdly, with an expected increase in the quality of production methods to meet EU technical standards, attention to sanitary- and phytosanitary measures and conditions for employment, we imagine a possible positive effect on the health levels in Ukrainian society. Fourthly, through the FTA we expect the EU and Ukraine to agree on standards for quality of work that lead to improvement of the working conditions, especially in manufacturing industries like **ferrous metals, metals nec, chemical, rubber and plastic products, electronic**

equipment, machinery equipment and petroleum and coal products. The improvement of the quality of work is the more important because most of the aforementioned sectors are expected to increase upon negotiating an FTA. Even though the CGE model assumes full employment, we imagine that in the short-run for the sectors with large expected negative changes in employment, social issues related to unemployment will become more pronounced and need to be dealt with. This involves sectors like **agriculture, fisheries and forestry, financial services nec and insurance, transport, processed rice and sugar and transport equipment.** Finally, with respect to gender equality, an increase in the wearing and apparel, leather and textiles sectors will lead to larger employment of women in Ukraine – since these have been traditionally the sectors where many more women find jobs than men.

4.5.2 Environmental impacts

If we combine the current environmental situation of Ukraine as described in section 2.5 with the output and employment changes and the characteristics of the various industries an general picture of indirect environmental impacts starts to emerge.

Several air polluting industries like **electronic and machinery equipment, metal products, ferrous metals and metals nec, chemical, rubber and plastic products** are expected to grow as a consequence of the FTA, both in relative and in absolute terms. This will have a negative impact on air emissions (CO2, SO2, small particles) and makes it likely these industries will account for more than 40% of air emissions in the future unless action is taken related to the methods of production.

An increase in the use and production of energy (**petroleum and oil products**) will lead to an increase in the use of coal for the production of **electricity** which will also have an environmental impact, both for the quality of the air and for the use of energy resources.

With **agriculture, forestries and fishery** and **processed rice and sugar** among the sectors that will shrink most, both in terms of employment and in terms of output as share of Ukrainian GDP, there will be environmental impacts via land use in agriculture and natural resource stocks.

Overall, if the (extended) FTA leads to a relative increase in the share of polluting industries, there will be negative environmental consequences that need to be analysed and discussed at a later stage.

4.6 Screening based on consultation with key stakeholders and civil society

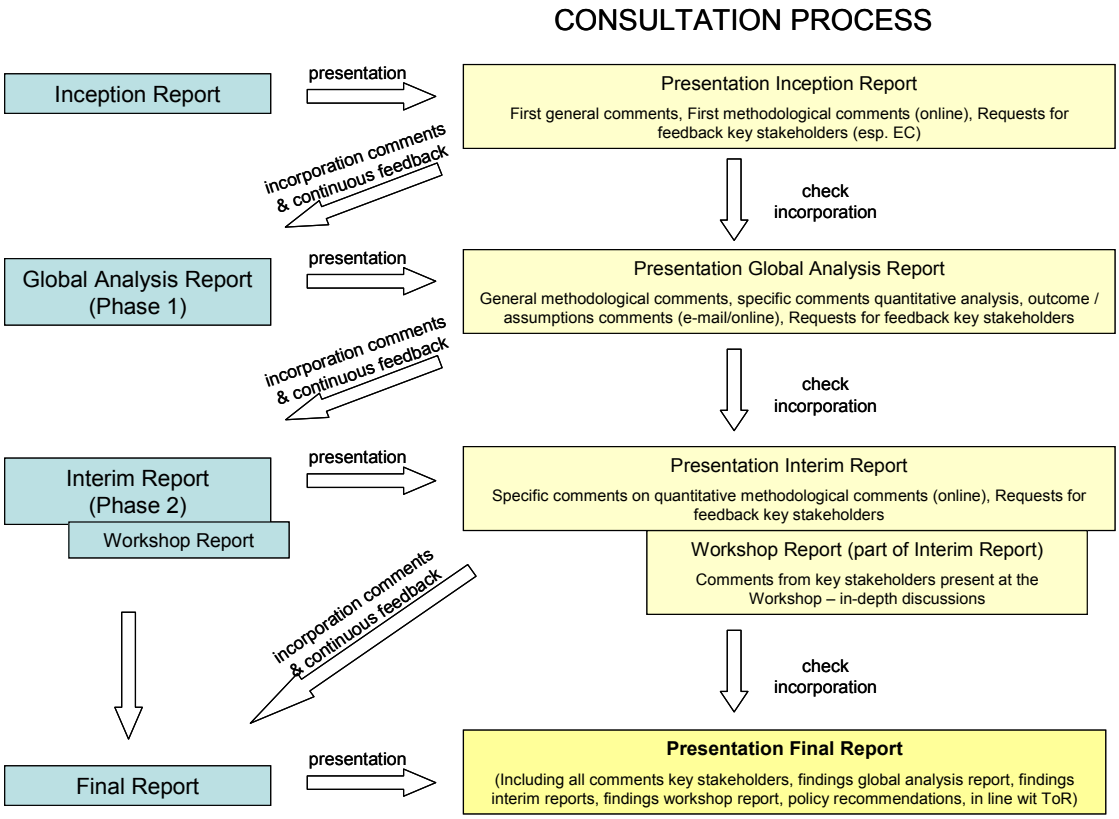
The consultation process is part of the Trade Sustainability Impact Assessment (Trade SIA) and it is conducted in parallel to the other phases of the project. The purpose of the consultation process is to increase transparency, involve key stakeholders and the general public, support the consultants, improve the recommendations and increase credibility and legitimacy of the Trade SIA. The consultation happens via the collection of feedback

from TSIA EU Ukraine stakeholders, dissemination of information and reports, engaging in two-way dialogue, organising of meetings and continuous dialogue between and with in the consortium and all stakeholders. Figure 4.1 below shows the consultation process in line with the other phases of the project and how the comments are incorporated in the process. All received information and feedback is gathered and processed and the consultation of stakeholders influences e.g. the selection of sectors and horizontal issues to be studied in phase 2 as well as mitigating and enhancement recommendations.

A large number of key stakeholders are contacted and invited to take part in the consultation process. We have made the list of contacts as exhaustive as possible to guarantee a balanced coverage of all parties. Therefore it includes for example branches of the Ukrainian government, a large number of European Union Institutions, civil society, third country governments (e.g. Russia), producer and consumer organisations and regional experts. The general public is also encouraged to take part in the consultation process. Civil society in this context includes business people, academics and different NGOs (environmental and social NGOs in Ukraine and in the EU). A database is created to manage the consultation process and to help to process all the received comments. Appendix E includes a list of all the contacts with Ukrainian and EU stakeholders throughout the whole project.

In addition to the contacts with the key stakeholders, other tools are used as well for the dissemination of information, collection of feedback and keeping up of the dialogue. First of all, the website www.trade-sia.ecorys.com is operational for the collection and dissemination of information. All important information from the consortium to stakeholders as well as all the reports are published on the website and the website has a feedback form for the comments of stakeholders and other interested parties. The website has also an online forum for online conversations between the different stakeholders of the Trade SIA. Many meetings with different stakeholders are also organised. These include e.g. the working meetings with the Commission, working meetings with the Ukrainian government and key stakeholders, public meetings in EU and meeting with civil society in Ukraine. A workshop will be also organised in Ukraine on 9th of July for key stakeholders.

Figure 4.1 Consultation process



In this draft report, we cannot yet report on detailed consultations with and feedback from stakeholders and civil society because several of the activities still have to take place. Therefore, this section will be updated over time when reactions and feedback come in.

4.7 Sector and horizontal issue selection, including social and environmental impacts

Having worked through the four screening criteria for sectors specified in as much detail as possible and horizontal issues as taken from the Terms of Reference, we can now summarise and select the sectors and horizontal issues of importance for the negotiations of this Free Trade Agreement.

Regarding the sectors, they have been discussed above in detail. The horizontal issues have been linked to individual sectors wherever we felt the issues were important, but mostly they have been used as inputs into the CGE model where we split the trade measures into tariffs, standard costs (e.g. sanitary and phyto-sanitary measures or government procurement), border costs (e.g. customs duties, border controls) and barriers to FDI and trade in services.
In sum the screening criteria for the selection of sectors are based on the importance of the sector, the economic changes at sector level and finally the linkages between output

and employment at sector level and social and environmental sustainability. The screening criteria for the selection of horizontal issues are based on the importance for the various scenarios in the FTA, the calculated effects on output and employment as well as environmental and social impacts of the horizontal issue. As mentioned before, the involvement of key stakeholders and civil society is to be carried out after the creation of this draft Global Analysis Report.

Table 4.6 summarises the findings regarding sectors and horizontal issues with respect to the pre-defined screening criteria.

Table 4.6 Screening and selection of sectors and horizontal issues

	Cr1: Importance of sector/issue	Cr2: Economic Impact (output / employment)	Cr 3: Social / environmental effects	Cr4: Comments civil society
Agriculture (meat, dairy) and food products	√	√	√	NA
Petrochemicals and chemicals	√	√	√	NA
Pharmaceuticals				NA
Textiles		√		NA
Metallurgy	√	√	√	NA
Automotive, motor vehicles		√	√	NA
Machinery and electronics	√	√	√	NA
Energy	√	√	√	NA
Transport	√			NA
Distribution services	√			NA
Construction		√	√	NA
Banking				NA
Telecom			√	NA
Trade in services	√	√	√	
Environmental goods / technologies			√	NA
Investment conditions		√		NA
Sanitary- and Phytosanitary measures	√	√	√	NA
Technical standards for industrial products	√	√	√	NA
Government procurement	√			NA
Competition policy		√		NA
Intellectual property rights	√		√	NA

Based on the above Table that summarises our screening criteria – conditional upon feedback from civil society – we propose to analyse the following sectors and horizontal issues:

Selected sectors

The largest absolute changes in employment do not necessarily coincide with the largest Sectors:

- Agriculture (split out into various subcategories)
- Petrochemicals and chemicals
- Metallurgy

- Machinery and electronics
- Energy

Selected horizontal issues

- Technical standards for industrial products
- Trade in services
- Competition policy

Having selected the sectors and horizontal issues for further research, we now turn to the scooping phase in order to determine the objectives and method for further research of the selected sectors and horizontal issues.

5 Scoping

5.1 Overview of Scoping

The evaluation of the initial economic effects of the trade agreement is made through a Computable General Equilibrium (CGE) framework. This CGE analysis has a nearly comprehensive coverage of the economic impacts. The Screening exercise is subsequently conducted on the basis of the results of the macroeconomic model. In the Screening phase the sectors and horizontal issues for further research are selected.

The Scoping exercise then aims to determine the objectives and methods of the in-depth assessment studies of screened sectors and horizontal issues that are intended to produce the information required for the social and environmental assessment of potential sustainability impacts. As said, the basis of the scooping exercise is the outcome of the screening exercise, which has established a link between the trade agreement or other policy changes under study (e.g. WTO accession) and economic consequences in the areas it considers to be of interest.

5.2 Sectors

The aim of this Chapter with respect to the sectors is to give a short and summarised description of each sector and link this description to potential economic, social and environmental effects that then need to be studied in-depth during Phase 2 of the Trade Sustainability Impact Assessment.

5.2.1 Agriculture

Ukraine is endowed with natural resources which creates a good basis for the potential development of the agricultural sector. Over 40 million hectares of land could be used for crop production with more than 50% of the area consisting of high quality chernozem soils (‘black earth’). The favourable resource environment defines the role of the sector within the Ukrainian economy.

At the aggregate level, agriculture is the fourth largest sector of the economy after manufacturing, transportation and trade in services. On average, the value-added from agriculture comprises more than 10% of GDP. The main output is created from grain, crops and vegetables in crop production plus meat and milk in animal production. The majority of output is produced by the private sector; more than 60% of agri-production is supplied by rural households.

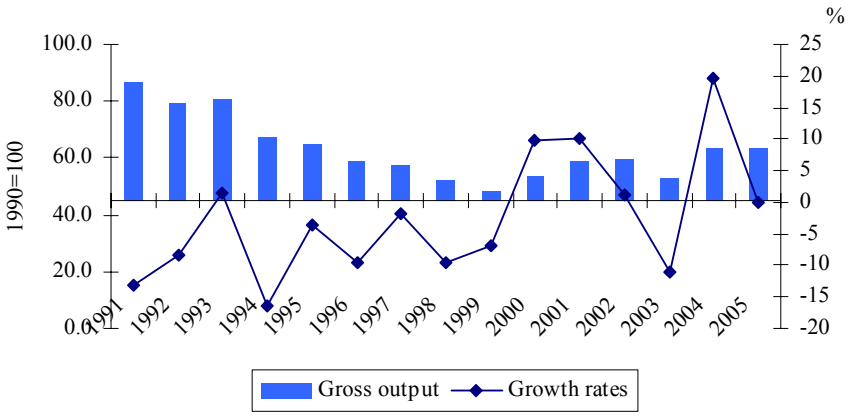
Despite good potential, the sector was developing poorly during the transition period. The average dynamics of agricultural output for the last fifteen years were negative and amounted to -3.0% per year. Even in 2005 the volume of production of the sector was only 63.4% of 1990 production level (see Figure 5.1). The major impediments for the development are efficiency of markets for agri-products are the monopoly of large traders, the inefficient subsidising system and the absence of a land market and a moratorium for agriculture land sales.

Although performance of agriculture was rather weak, a large part of Ukrainian labor force is still engaged in the agri-production. The sector officially employs over 4.5 million people which is close to 20% of the employed population. Meanwhile in rural areas 10.7 million people (2006) reside that all are within the economically active age. Low productivity at the sector translates into low incomes. Large parts of rural inhabitants live beyond the poverty level (37% in 2001, World Bank 2004). Traditionally, rural wages were about two times lower than the average for Ukraine.

Agriculture constantly increases its involvement in foreign trade. After 1990 the role of agriculture in exports declined strongly while during recent years exporting capacities improved. In 2006, Ukraine exported 24.5% of gross output of the sector. Imports amounted to 16.5% of the sector output for the same period.

The importance of agricultural products in the trade balance still is not very large. The total volume of agriculture exports constituted 12.2% of merchandise exports in 2006. Import volumes comprised only 7.0% of agricultural imports. The key export item is grain while fish and tobacco are the most significant imported products (see Table 5.1).

Figure 5.1 Gross agriculture output, 1991-2005



Source: State Statistics Committee of Ukraine

Table 5.1 Export and import of agriculture products, 2006*

	Exports		Imports	
	Million USD	Share in total exports, %	Million USD	Share in total imports, %
Total agriculture products	**4713.4**	**12.2**	**3166.5**	**7.0**
Live animals and livestock products	**396.5**	**1.0**	**649.0**	**1.4**
including:				
Milk and milk products; eggs; honey	340.4	0.9		
Fish and crustacea			361.2	0.8
Crop products	**1951.1**	**5.1**	**671.7**	**1.5**
including:				
Grains	1354.2	3.5		
Oil seeds and fruits	314.4	0.8		
Fruits and nuts, citrus plants			267.9	0.6
Animal fat and crop oils	**971.4**	**2.5**	**191.1**	**0.4**
Food products	**1394.4**	**3.6**	**1654.7**	**3.7**
including:				
Cocoa and cocoa semi-products	259.9	0.7	222.9	0.5
Products of fruits, vegetables processing			193.2	0.4
Alcoholic and non- alcoholic beverages	417.2	1.1	189.4	0.4
Tobacco			332.8	0.7

* - at the table suggested only products with significant trade volumes.

Source: State Statistics Committee of Ukraine

For Phase 2, we need to look carefully at the economic impacts (output and employment) that involve large numbers of unskilled workers in areas that are already among the poorest in Ukraine. Next to the real income effects, we need to look at labour issues, ie. the social impact of unemployment, decent work and wage effects. Also horizontal measures of SPS and technical standards in agricultural production – that are likely to be part of the FTA – will have to be further investigated. Environmentally, effects on the production structure of agriculture may have effects on the land us and natural resource stocks. Regarding other related sectors analysed in the CGE model, we need to look at cattle and related environmental effects and at the sugar sector for employment effects and technical standards.

5.2.2 Mining/extraction

Ukraine is richly endowed with mineral fuels, ferrous and non-ferrous minerals. Mineral fuels include coal, gas and oil; together they account for 63% of total production sold by the mining sector (coal takes 40% and gas and oil 23%). Domestic extraction provides for 25% of Ukraine's gas, 25% of oil and 82% of coal consumption. The ferrous minerals production is highly developed in Ukraine (it accounts for 30% of total mining production

sold). Ukraine is the world's second-largest producer of manganese ore and the fifth-largest producer of iron ore. Among the other ferrous minerals produced are nickel, lead, uranium and titanium. Due to Ukraine's focus on energy and ferrous minerals extraction, little attention was paid to non-ferrous and precious metals production (7% of total production sold by the sector).

Ukrainian mining suffered severe production losses after the break-up of the Soviet Union; however, in 2000-2006 the industry has been steadily growing (up to 5.8% year-on-year in 2006) primarily because of an increase in non-energy minerals production, particularly the production of ferrous minerals. The latter is stimulated by the increased demand from Ukraine's metallurgy sector, which is developing at high rates. Despite the priorities of self-sufficiency in energy minerals declared in the Energy Strategy of Ukraine till 2030, the extraction of gas, oil and coal is not developing very fast due to the lack of investment and outdated technologies. Besides, redundant mining equipment and outdated methods of production decrease the efficiency of the sector.

Mining is important in Ukraine under economic sustainability issues. In 2005 it constituted 4.8% of GDP and 4.4% of Ukrainian gross output. Besides, export of minerals is the second-largest article in Ukraine's export to the EU countries (24.5% of total exports to the EU, including electricity, though its share is insignificant). In 2005 the major products exported to the EU were coke, natural gas and petroleum oils.

The key legislation regulating mineral resources activity in Ukraine is The Mineral Resources Code. The Code secures state control over the sphere of mineral resource exploitation, determines the procedures resources' exploration and stipulates the rules for licensing of extraction activities. The Committee of Geology and Mineral Resources is responsible for managing Ukraine's mineral resources, including the issuing of mineral licenses. The Ministry of Coal regulates all the activities in coal mining.

At present coal industry restructuring is a topical issue in Ukraine. There are 138 coal mines operating in Ukraine, most them are state-owned (state-owned mines provide about 90% of coking and energy coal output). The government is planning to initiate a large-scale privatization in order to encourage private participation in this segment and increase its efficiency.

Currently the sector employs 3.7% of total labour but as a consequence of the FTA under negotiation this may increase significantly as several sectors like minerals nec, ferrous metals, and metals nec, mineral products nec, petroleum and coal products are likely to significantly increase in output and employment. Given the fact these sectors use outdated technologies and are rather inefficient and polluting we need to analyse carefully the environmental sustainability impacts, notably on the atmosphere and environmental quality. Pollution of fresh and re-use of waste water are also issues that may be looked into. Within the framework of the FTA also the trade flows of this sector needs to be looked at since mining and mining products constitute a large share of Ukrainian exports. Social sustainability impacts are present with respect to health issues and labour issues including decent work, employment and wage effects in the aforementioned sectors.

5.2.3 Food

Food industry belongs to the fastest growing and most important industries of Ukraine. In 2005, the food industry produced 7.8% of GPD (11.6% of gross output). 3.3% of the labour force of Ukraine was employed in the industry in 2005. We observe a tendcy by the industry to gradually decrease employment within the sector while enhancing its factor efficiency. Since 2000, it has been showing stable growing production and export volumes trends (see Table 5.2). Its average annual growth rate constituted about 15% over the 2000-2006 period. In 2005 the industry grew by 13.7% compared to the previous year. The main contributors to such a fast industry's development in 2005 were fruits and vegetable processing industry (+29.8% growth), production of drinks (+24.0%), tobacco manufacturing (+18.2%), and dairy products (+15.6%)[25].

Table 5.2 The role of food industry in Ukraine, 2005

Indicators	%
Share in GDP	7.8
Share in gross output	11.6
Share of employed	3.3
Growth rate	13.7
Share in total exports	7.1
Share in total imports	4.8
Share in total Ukraine's export to EU	4.0 (3.6)*
Share in total Ukraine's export to EU	3.4*

Source: State Statistics Committee of Ukraine.

Note: * data is from EUROSTAT (Comext, Statistical regime 4), 15-24 HS groups.

The food industry possesses high export potential, as the stable and positive export dynamics show. Ukraine is a net exporter of many agricultural and food products such as vegetable oils and seeds, cereals, dairy products, etc. At the same time, imports of finished processed food products into Ukraine usually exceed exports. Most food sectors export considerable parts of their produce, reaching up to 50% in some of them (for example production of vegetable products). According to official statistics, the share of the food industry[26] in the total Ukrainian export equaled 7.1% in 2005, and 4.8% in total imports. The major destination markets of Ukrainian food products are the Russian Federation and other CIS countries which is explained by the similarity of applied food safety and quality standards by these countries, consumer preferences, border proximity and on-going free economic agreements with CIS countries[27]. This is especially true for Ukrainian dairy and meat processing industries, which supply to CIS markets up to 90% of their exports. Such a poor geographical export diversification makes these sectors very sensitive to trade protection measures applied by importing countries[28].

[25] According to the State Statistics Committee of Ukraine.

[26] 04, 11, 15-24 HS commodity lines.

[27] It should be noted that free economic agreements between Ukraine and CIS countries do not cover all food products. The usual exceptions from free trade agreements include sugar and sugar products, confectionary, ethyl spirits, tobacco products, etc.

[28] That was a case in 2006 when the Russian Federation introduced prohibition on import of these products from Ukraine accusing Ukrainian producers and veterinary and sanitary authorities of insufficient control over food safety.

Ukraine's export of food processed products to the EU accounts only for about 4% of its total export to the EU and for only 15% of its total food exports. The most important products for Ukraine in trade with the EU include 15 HS group (vegetable oils, first of all, sunflower oil)[29], 23 HS group (residues and waste from the food industries; prepared animal fodder), 22 HS group (beverages and spirits), and 20 HS group (preparations of vegetables and fruits)[30]. The access of Ukrainian food exporters to the European market is very limited, first of all, due to inadequate safety and quality of Ukrainian food products and their incompliance with the EU safety and quality standards.

The food industry is considered one of the most attractive Ukrainian industries by foreign and domestic investors. The most interesting to foreign investors, mostly from Russia and the EU countries, are confectionary industry (first of all, chocolate production), production of juices and dairy production. The ongoing structural transformations of the food industry make it more concentrated and efficient. Export-oriented large food processing manufactures are actively implementing modern production technologies; many of them have already introduced ISO and HACCP quality control systems, and are applying internationally accepted high quality standards thus ensuring the competitiveness of their products in international and domestic markets. Many Ukrainian food processing enterprises are working under "cut-and-make" schemes with EU companies. Yet, competitiveness and safety and quality characteristics of foodstuffs produced by small-scaled food producing enterprises with limited financial and investment resources are rather low, reducing their potential export possibilities to the EU and other international markets.
Harmonization of national safety and quality mandatory requirements with the European and Codex Alimentarius standards are essential to enable Ukrainian food processing industry to take more advantages of increasing trade opportunities due to the WTO accession and the FTA with the EU.

To conclude, for the food industry the main issues to be covered are technical standards (quality in health and safety) as well as reductions in border costs. Increases in production are already under way but need to be continued further. Next to the direct issues, the popularity of the food industry with foreign and domestic investors also warrants a detailed analysis regarding FDI and barriers to FDI.

5.2.4 Textiles

After its dramatic decline during the 1991-99s (by more than 92% in physical terms), the role of the textile industry in the Ukrainian economy remains rather limited. In 2005, textiles (including clothing) and leather industries accounted only for 1.6% of gross output produced in the country and for 1.4% of its GDP, even though the FTA indicates large percentage changes in output and employment as likely effects. The industry started recovering since 2001 (mainly, as a result of abolishing the EU quantitative restrictions on imports of textiles from Ukraine) and revealed positive growth dynamics over the recent period (see Table 5.3). However, in 2005 its growth again slowed down to a

[29] It accounted for more than half of total export of food products to the EU.
[30] In accordance with official statistics for 2005 year.

meagre 0.3% compared to the previous year. The industries finished 2006 with a negative growth rate of 1.9% compared to the previous year[31] (in particular, the textile industry decreased by 4.8%, while leather goods production grew by 10.3%). The number of employed people in these industries has been gradually declining over the last decade: only 1% of the Ukraine's labour force was employed in textile and leather industries in 2005 (1.9% in 2000). However, the FTA negotiations suggest that positive impacts on employment and output are to be expected.

Table 5.3 The role of textile and leather industries of Ukraine, 2005

Indicators	%
Share in GDP	1.4
Share in gross output	1.6
Share of employed	1.0
Growth rate	0.3
Share in total exports	3.2
Share in total imports	4.2
Share in total Ukraine's export to EU	9.4 (7.7*)

Source: State Statistics Committee of Ukraine.

Note: * data is from EUROSTAT (Comext, Statistical regime 4).

In the structure of Ukraine's foreign trade, the share of textiles (50-63 HS lines) and leather (41-43 HS lines) products in total Ukrainian export amounts 3.2% in 2005 and 4.2% in total imports. Official imports of textile and leather products to Ukraine exceeded their exports by 1.35 times in 2005. In the geographical breakdown, China is a main importer of textile products into Ukraine (about 50-60% of the official imports and most unofficial imports), and the EU is the main destination market for Ukrainian exported textile and leather products.

Textile and leather products rank significantly in bilateral trade between Ukraine and the EU. In accordance with the official national statistics, these products contributed 9.4% to the total Ukraine's export to the EU in 2005 (or about 7.7% in accordance with EUROSTAT statistics)[32]. Trade with the EU is essential for sector's export activities since about 75% of Ukrainian export of textile and leather products is destined to the EU market. The major commodity groups of the Ukrainian export to the EU are textile articles of apparel and clothing accessories (85% of the exported textile products) and raw hides and skins (80% of the exported leather products). At the same time, man-made staple fibres, wool and woven fabric and man-made filaments are the main products imported to Ukraine from the EU. Such a distinct structure of the EU-Ukraine textile

[31] This negative tendency has been resulted from due decline of the textile production under "cut-and-made" arrangements (due to introduction of new administrative barriers), as well as from the expansion of official and unofficial import of textile products, first of all, from Asian countries into Ukraine. The increase of the official import was triggered by the reduction in import tariff rates for textile products undertook by the Ukrainian Government in 2005 (in line with Ukraine's WTO commitments).

[32] It should be noted here, that there is some discrepancy between Ukrainian and European official trade statistics that reflects the existing trade companies' practice to minimize payments of import duties and value added tax by "correcting" the custom value of exported/imported goods. This is rather usual situation for trade in textiles in Ukraine, which constitutes a severe problem for Ukrainian textile industry.

trade reflects the fact, that majority of Ukrainian apparel manufacturers operates and trades with the EU under "cut-and-make" schemes.

The share of trade in textile and leather products with Ukraine in the EU foreign trade data is not significant. According to EUROSTAT, in 2005 textile and leather products from Ukraine accounted for only 1.86% of total import to the EU, and the EU export of these products to Ukraine was 3.57% of the total EU export.

Pursuant to Article 21 of the Partnership and Cooperation Agreement between the EU and Ukraine, bilateral trade in textiles is subject to the Agreement on Trade in Textile Products[33]. This agreement stipulates legal and administrative conditions for trade in textiles and clothing between countries, including import tariffs and other non-tariff restrictions. The EU-Ukraine trade in textile products underwent substantial liberalisation over the recent period. Ukraine's import tariffs were decreased to the level of the EU bound tariffs. In early 2001, the EU abolished all quantitative restrictions on the import of textile products from Ukraine. Import and export licensing requirements for all textiles and clothing products were eliminated in 2005. All the above brought about the intensification of the EU-Ukraine bilateral trade relations and contributed to the sector's revival after its crisis in the 90s.

Presently, a range of serious problems exist that hinder further development and growth of the Ukrainian textile industry, such as:

- considerable unofficial import flows of textile products into Ukraine that prevent the industry from competing on fair conditions with these products in the domestic market;
- low enforcement of custom valuation procedures, inappropriate border controls and extensive smuggling practices and shadow textile production as well as an unfavourable regulatory environment in Ukraine – all this undermines the role of industry's tariff protection, leading to tax evasions and competition erosion in the sector; and
- high dependence of Ukrainian textile enterprises on the supplies of imported raw materials under the "cut-and-made" schemes, further aggravated by inadequate quality of the domestically produced raw materials.
- low competitiveness of Ukrainian textile products in the world and domestic markets in terms of quality, price and assortment; incompliance of the national mandatory standards with the international and European technical regulations, low implementation of international product certification and quality control systems, energy intensive and outdated production technology of the industry, etc.

With respect to a further analysis, we do not recommend textiles to be included. Even though we expect large positive impacts on output and production from the FTA and textiles are subject to various issues like technical standards, border limitations and parallel market competition, the absolute size of the sector is too small to generate major impacts. Also compared to other industries, the anticipated environmental and social sustainable impacts are moderate.

[33] It was signed in May 1993 and extended until 31 December 2007. The Agreement will be automatically terminated upon Ukraine's accession to the WTO.

5.2.5 Metallurgy

Metallurgy is a key sector of Ukraine's industry. Metal is the most important export article of Ukraine and its production is an important input factor for machinery and metalworking industries. In 2005 Metallurgy and metal processing contributed with 32.6 percent to total exports. It produced 5.1 percent of GDP while employing 3 percent of the working population.

The Ukrainian steel industry depends to a large extent on export demand because domestic demand is only one quarter of total domestic steel production. Ukraine has one of the worlds lowest unit costs to produce steel, but at the same time the industry is technologically old-fashioned and needs substantial amounts of investment to improve its infrastructure. Moreover metallurgy in Ukraine is the second most raw material intensive industry after petroleum production. Material expenses in 2005 constituted 82.5 percent of the final costs of the product, while labour remuneration accounted for 7 percent only.

Metallurgy has become one of the most attractive industries for foreign investors. In 2004 around 5% of total stock of FDI to Ukraine was invested into the metallurgy industry, while at the end of 2005 the share of investments had already increased to 33%.

After a major reduction in volumes of production in 1990-1992, the Ukrainian metallurgy sector has been showing steady year-to-year growth, as can be seen in Figure 5.2. A slight decrease in 2005 and later in the beginning of 2006 can be explained by a decrease in world prices (Figure 5.3), which coincided with increases in gas prices for Ukraine (January 2006) which led to cost increases.

Figure 5.2 Growth rate of the Ukrainian metallurgy sector

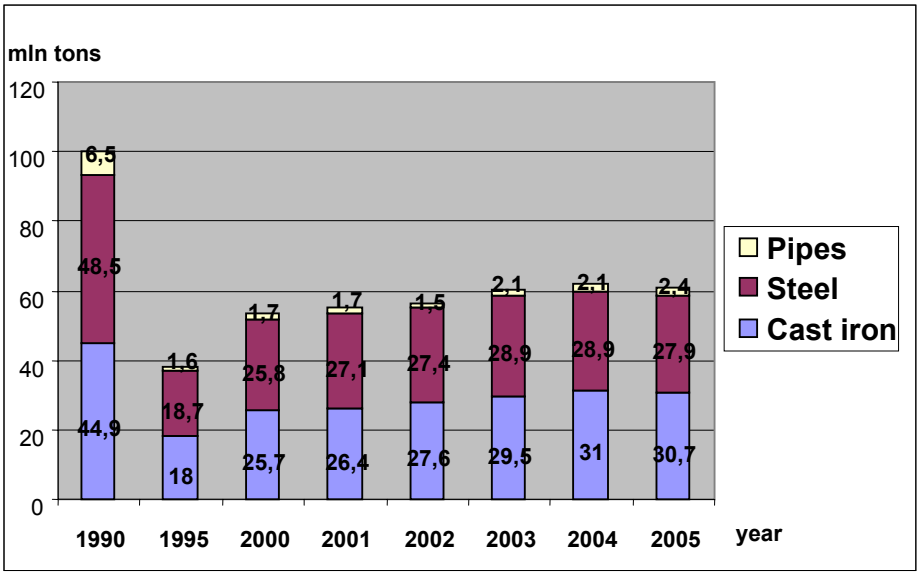
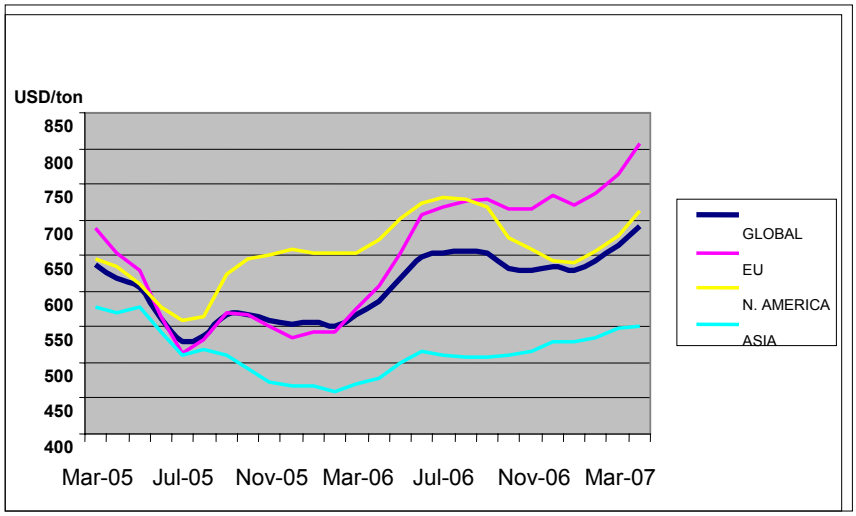


Figure 5.3 Steel composite price



Due to the high market prices and geographical proximity, the EU plays a vital role in Ukrainian steel exports. In 2005 an agreement was signed in Brussels between the Ukrainian Government and the European Union on trade in certain steel articles for 2005 – 2006. The Agreement's conclusion was a key event in relations between Ukraine and the European Union, as it formalised the parties' relations in steel trade. The Agreement provided for an increase in Ukraine's quota for exports of flat-rolled and assorted rolled steel articles to the EU, conditional upon Ukraine's export duties on ferrous scrap metal will not exceed 30 euros per ton. The Agreement also specifies that Ukraine's steps to lower export duties, levied on exports of ferrous metal scrap, will be followed by the EU move to increase Ukraine's quota. Quotas and their usage are given in Table 5.4.

Table 5.4 Steel quotas and deliveries

Ukrainian deliveries of quoted steel to the EU (thousands tons)					
	2003	2004	2005	2006	2007
Quota	184,546	606,824	988,93	1 004,5	1320**
Delivered	118	549,4	922	1097,29*	
Percent of quota used	64	90,54	93,23	98,24	
*including quota remaining from 2005 ** To be ratified in summer 2007					

The Agreement shall be automatically renewed year by year provided that neither Party gives the other Party written notice of denunciation of the Agreement at least six months before it expires. With each yearly renewal, quantities in every product group shall be increased by 2.5%, However for 2007 a greater increase is planned because of the enlargement of the EU to Romania and Bulgaria. In the event that Ukraine joins the World Trade Organisation (WTO) the Agreement shall be terminated and the quantitative limits shall be abolished as from the date of accession.

The above quantitative limitations do not cover Ukraine's exports of flat-rolled steel and other steel articles, which are meant for shipbuilding, repairs and construction of rigs and floating platforms for offshore drilling.

In 2005 Ukraine increased its export to the EU to 4.5 million tons of ferrous metals and correspondingly up to 5.1 million tons of all metals, in this way occupying the third place among main steel exporters into the EU after Russia and China. It needs to be mentioned that the precise volume of Ukrainian steel exports to the EU is hard to determine as a part of it is exported though third countries (off-shore).

Given the significant impact of the metallurgy sector on the Ukrainian economy and its importance for EU-Ukrainian trade relations, we propose to analyse this sector further. Though several obligations will be dropped upon Ukraine joining the WTO, several important issues remain. The metallurgy sector shows large anticipated impacts from the FTA in terms of increases in output and employment. Also the metallurgy sector is one of the more polluting ones which may warrant an environmental impact assessment. Social impacts focus on poverty reduction, and mostly labour issues like productivity, upgrading the production facilities and inflow of FDI. The latter means we investigate the barriers to FDI and issue of sustainable investment.

5.2.6 Energy

Energy sector comprises the production and distribution of electricity, heat and gas[34]. This sector can be identified as significant under economic criteria, because its contribution to GDP and gross output in 2005 was at 4.2% and 3.5% respectively. The importance of these activities is also highlighted in terms of national security. In total production sold by the sector[35], electricity generation and distribution take a major share of 85% (electricity production - 27%, and distribution at 58%), gas and heat account for only 9% and 6% respectively.

A share of electricity exported to the EU countries (Poland, Romania, Slovak Republic and Hungary) accounted for 0.4% of total Ukraine's exports to the EU in 2005 and for 4.5% of total electricity production in Ukraine. Though the shares are insignificant, Ukraine is planning to increase exports by expanding the capacities of Burshtyn Island, which is connected to UCTE.

Labour intensity of the sector goes along with its gross output. In 2005, the sector employed 3.8% of total labour, which is comparable to other manufacturing industries. During the last years the sector didn't show stable macroeconomic dynamics, because the demand on the sector's services is strongly subject to weather conditions. During 2000-2005, energy's yearly growth rates didn't go above 4.7% per annum, but in 2006 they reached 6.7% because of the extremely cold winter and, therefore, increased demand for energy products from households and industry. As of today, much of the sector remains in public hands. Electricity generation, except for one company, and half of the

[34] Under 'gas' we mean gaseous fuel
[35] The volume of products sold, UAH

distribution companies are operated by the state[36]. However, the Cabinet of Ministers has already approved the further privatisation of six distribution companies. Heat production is controlled either by the state or by local authorities while a small part of heat generation companies is in private ownership. Gas processing plants are also incorporated into the structure of state companies.

The energy sector is highly sensitive to environmental sustainability issues, because 45% of electricity is produced in Ukraine by thermal power stations, which together with heat producers are one of the largest emitters of CO2. The major reasons are the high level of equipment depreciation and outdated networks, which result in heat and electricity losses. Moreover, the energy sector is of strategic importance for Ukraine but also – in terms of energy throughput – for the European Union. Next to the strategic importance, the FTA also suggests considerable impacts in terms of output and employment changes for the energy sector. We propose to further analyse the sustainability effects in the next phase of this study.

5.2.7 Telecommunications

Telecom plays an important role in the social and economic activities of society, providing prompt and interactive transfers of information. Telecommunication is a very fast growing sector of the Ukrainian economy. Revenues of enterprises from communication services have been showing impressive average growth rates of 32% annually starting from the year 2000, thus increasing four times in 5 years. In 2005, the telecom sector employed 250 000 people and created 3% of the country's GDP.

Following the global trend, the highest growth could be observed in mobile communication, which in 2005 brought 12 times more revenues to the companies, than in 2000. As a result in 2005 mobile communication accounted for 52% of all telecom services. Another important development is spreading of the Internet. In 2005 almost 18% of the Ukrainian population was a regular user of the Internet.

Fast developments and the use of modern technologies play decisive roles in investment decisions. Hence telecommunication in 2005 attracted relatively large investments: while being a relatively small sector of economy it drew UAH 7.2 billion in one year.

One of the major characteristics of the Ukrainian telecom sector is its distributional imbalance among the population. All modern services are concentrated in the big cities leaving rural population with traditional analogue land line services only.

Telecom in small cities and villages is characterised by the use of outdated and depreciated equipment and fixed telephone networks which hold back development of telecommunication and lower the efficiency of the labour force.

Given the domestic nature of the telecommunication sector, the relatively small share in Ukrainian output and employment and small expected changes in wages, output and

[36] Privatization of thermal and nuclear power plants is banned by law in Ukraine

employment we have decided not to propose this sector for further analysis. This, in spite of an existing social impact that relates to the divisions an unevenly spread telecommunications network causes between the cities and the countryside.

5.2.8 Chemicals

Manufacturing of chemicals and chemical products is one the basic industries in Ukraine. In 2005 it accounted for 2.7% of GDP and 4.1% in gross output of Ukraine. This sector is basically export-oriented – 43% of total output was exported in 2005. Besides, it takes a considerable share of Ukrainian total exports (8.9% in 2005), as well as in exports to the EU countries (7.0% of Ukraine's export to the EU in 2005).

During 2000-2004 the industry has been growing at high rates of up to 14.4% in 2004 because of stable gas prices in Ukraine and elevated world prices for chemicals and chemical products. But starting from 2005, the industry growth slowed down and showed a meager 3.2% growth rate in 2006. The major reason for this is the industry's high exposure to gas price increases. In Ukraine the chemical industry consumes 25% of all the gas used in the industrial sector. Looking at the structure of products sold by the sector, the majority is basic chemicals (42.5% - largely fertilizer production) and second comes the production of rubber and plastic products that account for 27%.There are six large chemical plants in Ukraine, and their major specialisation is in nitrogen fertiliser production. Gas accounts for 70-90% in the cost structure of these products. Therefore, a gas price increase by 37% like in 2006 substantially increased production costs and reduced the profitability of chemical enterprises.

The chemical industry is not very labour intensive compared to the share of gross output in GDP. In 2005 the industry employed 1.3% of total labour while accounting for 3.4% of total Ukrainian production.

The sector is subject to environmental sustainability issues because nitrogen production yearly generates several millions of CO2e emissions of nitrous oxide.[37] Gas price increases in 2006 have already pushed chemical enterprises to launch energy-saving projects, that may lead to improved environmental conditions. The estimations for changes in the production structure of the chemicals industry because of the trade measures negotiated in the FTA are significant in relative terms and given the importance of the chemical sector for Ukrainian output, with respect to output also in absolute terms. Social sustainability indicators that need to be addressed are productivity and improved quality of work.

5.2.9 Machinery and electronic equipment

Machinery construction plays a vital role in the economic development of any country because it is an industry that produces the intermediate parts needed for final goods

[37] CO2e – CO2 equivalent

production. Therefore, machinery construction has a direct influence on the development of other sectors of economy.

In 2005 machine building, repair and assembly of machines and equipment provided 4.7 percent of GDP, while employing 5.5 percent of the labour force. Such a low share can be explained by the economic crisis of 1991-1997. During these years machinery construction experienced one of the biggest recessions of any sector in the Ukrainian economy. Production of some of the articles decreased by 90-95 percent compared to their Soviet time levels. For example, production of cars has decreased by 98.9%, tractors by 95.6%, buses by 87.7% and domestic appliances by 98.7%. The main reason for this downturn was the discrepancy between the asked price and low quality of goods produced. Table 5.5 shows a summary of the mechanical engineering sector.

During the last years the highest growth rate was demonstrated by the manufacturing of automobiles, which was due to foreign investments and growth of internal demand, manufacturing of household appliances and manufacturing of office and computing equipment, due to growth in income of population, inflow of investments, increases in bank credits and the availability and need to renovate capital assets. However domestic demand for large machines, such as agricultural machines, trucks and tractors remains low; this leads to growth in unused production capacities which – at some places – reaches levels of 40-50 percent. Lowering of the investment activities has a negative impact on the industry and so did late payments for machines taken on lease by agricultural companies. The opportunity for growth of this sector is very much diminished by lack of investments. Among the possible ways to improve the situation with machinery construction in Ukraine we can mention the improvement of the technological level of large agricultural machinery, the production of modern ecologically clean engines, and the use of metals with modern protection against corrosion.

Out of all Ukrainian exports of machinery and equipment about 17.4 percent goes to the EU, while imports from the EU-25 in 2005 exceeded 75 percent of the total imports.

Table 5.5 Output indices of mechanical engineering, by type of activity

Output indices of mechanical engineering, by type of activity

	2001	2002	2003	2004	2005
Machine building, repair on and assembly of machines and equipment	118,8	111,3	135,8	128,0	107,1
manufacturing of machines for processing of agricultural products	102,8	94,0	116,4	136,4	102,8
manufacturing of machines for textile industry	116,4	117,0	84,9	98,8	124,0
manufacturing of household appliances	124,7	119,5	137,1	121,0	122,1
manufacturing of office and computing equipment	86,9	124,0	128,3	143,0	129,8
manufacturing of automobiles	114,6	123,3	219,2	163,3	122,8

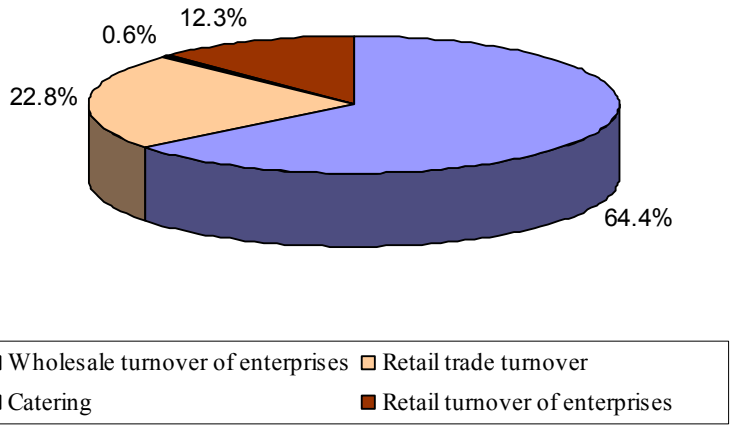
The machinery and equipment sector is one of the larger sectors in terms of employment and output in Ukraine. When we look at the expected changes in output and employment, this sector tops the charts in absolute values. Changes of 16.8% in production (960 kUS$) and 17.3% in employment (133.000 persons) make this the number one sector in terms of changes in its production structure. Given the depressed state of the sector, the FTA may

just be what is needed to boost it into higher levels of productivity, employment generation and output levels. We also envisage the large expected changes in the production structure to have social sustainability effects (employment, quality of work and productivity effects) as well as environmental effects – this sector has an effect on the atmosphere and environmental quality (energy resources).

5.2.10 Distribution services

Distribution services is among the largest service sectors of the Ukrainian economy. Its contribution to GDP has been gradually increasing during the transition period and currently comprises almost 13.0% of GDP (2006). Wholesale trade takes the biggest share in the structure of the sectors' output. In 2005 wholesale turnover of enterprises amounted to 64.4% (see Figure 5.4).

Figure 5.4 Structure of distribution services sector, 2005



Source: State Statistics Committee of Ukraine

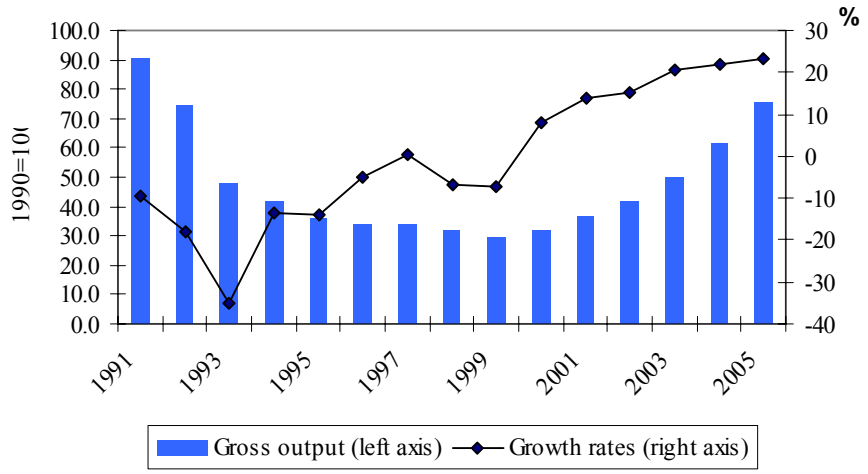
Wholesale turnover of more than 60% (2005) consists of sales of intermediary inputs with large shares of fuels and ferrous metals. Retail trade in turn is composed of foods (41.6%) and non-food products (58.4%) with significant contributions of petroleum and pharmaceutical products.

The distribution services employ around 20.0% (2005) of the total number of employed Ukrainians which is more than 4.5 million people. Labour earnings at the sector are below the Ukrainian average.

In 2006 distribution services was the third most profitable sector according to official statistics which obviously attracted investments. In volume of FDI the sector claimed second place after finances. As of January 1st, 2007, the FDI stock of the sector amounted to USD 2.3 billion which is 10.7% of total direct investments in Ukraine.

During the transformation period the volume of provided distribution services decreased by 300% in line with a general macroeconomic deterioration. Only in the middle of the nineteen-nineties some recovery took place after strengthening of household incomes. Until 2005, the volume of retail turnover had only reached 75% of the 1990 level (see Figure 5.5).

Figure 5.5 Retail trade turnover, 1991-2005



Source: State Statistics Committee of Ukraine

Given the small impact of the FTA on the distribution services sector we propose not to continue with this sector in spite of its relative size in the Ukrainian economy. Also the sector is mostly domestically focused.

5.2.11 Transport

Transportation is an important sector in Ukraine. It provides 8.6% of total GDP or 28.7% of all services and is responsible for 14.4% of the total budget income. Due to Ukraine's geographic position of transit country between Russia and the European Union a major part of transportation services is provided to foreign companies. Thus in 2005, the share of transportation in total exports of Ukraine comprised 11.2%.

Transport has developed strongly recently. Passenger transportation in 2005 constituted 105.4% of its level in the year 2000, while freight traffic grew by 20.2% in five years. However the transportation sector is still very much below its level in 1990. Passenger and freight transportation accounts for only 54.7% and 45.6% of their pre-1990 levels respectively. An increase in transport activity in Ukraine is inevitable and necessary for economic growth. However even under a scenario of vigorous trade expansion, significant traffic recovery in the short to medium term is not likely.

Before 1990, Ukraine had a relatively efficient transportation system with lots of people taking public transport. Nowadays, more open markets push for individual mobility and

create a constantly increasing demand for road based transportation. Yet the transport sector and road networks in Ukraine have not been modernised accordingly and are not ready to provide the contemporary high speed transport services needed for a smooth operation of Ukraine's large economy. In order to continue growing, the national economy needs all types of transportation to meet production and non-production demands of the population.

The transport sector suffers from a state monopoly: the entire national road network, railway system, ports and airports as well as many organisations involved in transport-related maintenance and construction, are still state-owned units reporting to the Ministry of Transport. This strong state presence coupled with limited investment capacity, limits technical innovations in transport and leads to a pace of reform in the sector that is too slow to take full advantage of the opportunities offered.

One of the major issues in transport is insufficient cost recovery. Existing user charges, tariffs and fares are often insufficient or inappropriate to cover the cost of maintenance and renewal of the core assets required. Consequently, the asset base of the transport sector is eroding, and rehabilitation, maintenance and renewal backlogs are mounting. The situation is aggravated by the oversupply of outdated transport infrastructure. During the middle and the end of the twentieth century Ukraine’s infrastructure was designed to handle many times more traffic, than it can now. As a result Ukraine faces a very high level of maintenance compared to its traffic levels and subsequently technical innovation and technological upgrading needs are not being sufficiently addressed.

In spite of the importance of the transport sector in the Ukrainian economy we do not identify major changes in production structure as a consequence of the FTA, nor do we envisage large sustainability impacts. Indirectly, an improved transport sector may lead to more cars and vehicles on the roads, but it may also lead to more public transport and more efficient cars which means that we cannot determine the nature of the environmental impact.

5.2.12 Construction

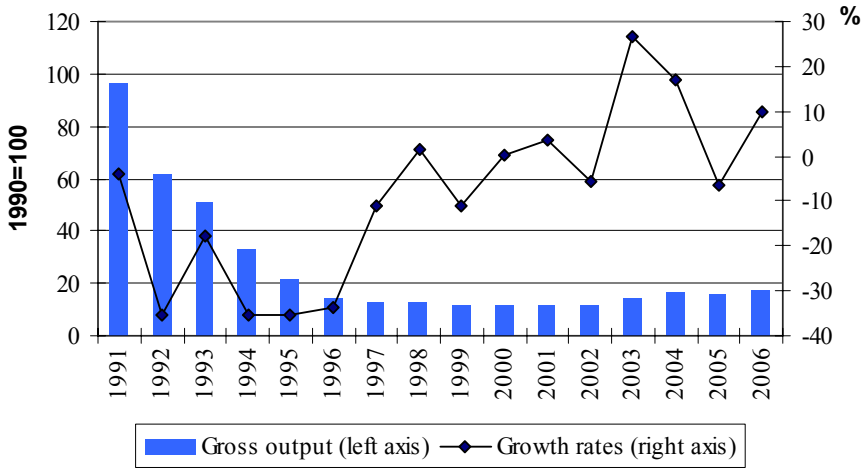
Construction is a medium size sector in Ukraine contributing 4.4% to GDP (2006) and employing about 0.9 million of Ukrainians which is 4.5% of the employed population. The role of the government in this area is limited. Mostly private companies are operating in this sector (98% in 2005).

The key work-volumes are related to construction of buildings (55% of works in 2004) and construction of roads (13.8%). Building construction is financed mainly by private investors (72.1% in 2005). While roads and other infrastructure utilities are supported from public funds.

Gross output of the sector slumped drastically during transition period and did not manage to recover until present time (see *Figure 1.1*). In 2006 the volume of works produced amounted to 17% of 1990 level. Only during recent years some growth was observed at the sector.

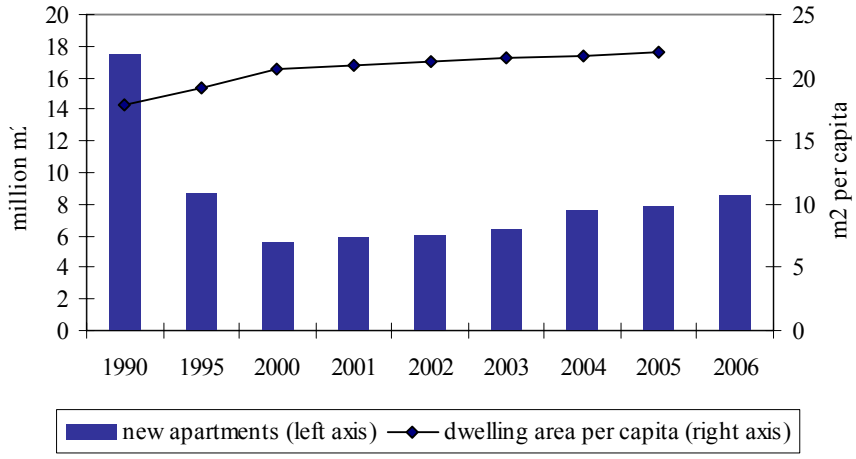
In line with the general trend, the volume of residential construction also decreased. In 2006 newly erected apartments comprised only 50% of the level of 1990 (see Figure 5.6). Interestingly, despite a reduction in the sectors' output the dwelling area in per capita terms increased slightly due to depopulation of Ukraine. Specifically, in 2005, the living area was equal to 22 m^2 per capita which is slightly better than in 1990 (17.8 m^2 per capita).

Figure 5.6 Gross output in construction, 1991-2006



Source: State Statistics Committee of Ukraine

Figure 5.7 Apartments and dwelling area



Source: State Statistics Committee of Ukraine

The sector does not play any significant role in foreign trade. Ukraine used to be a net importer of construction services although the situation has changed recently. Currently the account on these services is almost balanced. And the volumes of both exports and imports was only 2.0% of total exports/imports of services.

We do not propose to further investigate this sector.

5.3 Horizontal issues

Next to sector selection and scoping for deeper analyses regarding sector studies, the Terms of Reference also clearly specify the selection of at least three horizontal issues for further analysis. In the above sections some issues have been addressed, but below we focus on the horizontal issues specifically.

5.3.1 Trade in services

In the last five years services accounted for 17.5% of the overall Ukrainian exports and 7.4% of total imports. Russia is the leading importer of Ukrainian services (41.8%), the EU follows next with a share of 30%.

Ukraine benefits from its geographical position and provides transportation services by water, roads, railways, and pipelines which all in all account for 71% of the overall services exports. Having a huge transit potential, Ukraine aims to improve the quality of services and modernise the transport infrastructure. So far, the progress has been quite limited, however. Many long-term infrastructure projects failed to start as the government could not develop a coherent development strategy. Attempts to attract private capital for infrastructure projects were not successful because the country lacked an effective regulatory regime and long-term investment risks remain too high.

Pipeline transportation is the major source of export revenues for Ukraine. The country earned about US$ 2.5 billion in 2006 transporting Russian gas and oil to Europe. A well developed pipeline network makes Ukraine the most important transit country for Russian natural resources. The Russian company “Gazprom” initiated the creation of an international consortium to manage the Ukrainian pipeline network by setting up a new company. However, the network is still owned by Ukraine and managed by the Ukrainian government.

The export of professional and technical services has been steadily increasing over the last decade and currently they account for about 11.3% of total service export value; construction services provide for 3.4%. Despite its huge potential, the tourism sector in Ukraine plays a modest role. According to the estimates of the State Statistics Committee, tourism services exports equaled a modest USD 0.25 billion in 2006. The initiative of the government to grant visa-free short terms stays for the citizens of the EU, USA, and Japan generated its first positive results: the tourist and business visitors’ inflows intensified lately. The long-run positive effects of the government’s decision is difficult to estimate.

Over 47% of services are imported to Ukraine from the EU (Russia accounts for about 16%). Professional and technical services are the most important import group (18.3% of overall volumes). Financial services remain the second most important import group: Ukrainian companies involved in international trade are spending more to get high-quality banking and insurance services abroad.

The official import statistics, however, significantly underestimates the volume of service imports. Most of the services are supplied by EU residents to Ukraine through commercial presence (mode 3 under GATS). Commercial presence becomes a way to overcome trade barriers and limitations as to other modes of service supply (i.e. trans-border service supply).

Foreign, and in particular the EU companies, are increasing their presence in most service sectors. For instance, the last-year wave of merges and acquisitions made the EU the largest FDI holder in the Ukrainian banking sector. Beside, Ukrainian companies owned by the EU residents are playing more and more important role in retail and wholesale trade, insurance, transport and telecommunication.

Trade in services is a key issue for the EU-Ukrainian partnership. The liberalisation scenarios show that an extended FTA will have major economic and social impacts through changes in the production structure of Ukraine. The sector financial services nec, and insurance will shrink substantially in terms of output and employment under the extended FTA assumptions but less under the less ambitious scenarios. This will cause social sustainability issues regarding employment and employment opportunities because the decrease will affect both high-skilled and low-skilled workers in terms of employment and wages. It also poses questions for the educational system. This is an important sector for further analysis.

5.3.2 Investment conditions

National Policy Framework

Among its priorities for action the Action Plan includes: [38]

- improving the investment climate through non-discriminatory, transparent and predictable business conditions, simplified administrative procedures and by the fight against corruption.

Ukraine aims to create a free market economy in which private capital would play a role in the economic development of the country. In this respect, it recognises the importance of FDI and hence it seeks to create an enabling investment climate for its attraction.

The main legislations regulating investment in Ukraine include the Law “On Investment Activities” of January 18, 1991 and the Law “On the Regime of Foreign Investment” of March 19, 1996. Ukrainian legislation enables foreign investors to freely invest into the Ukrainian economy, on the same basis as domestic investors because the Law “On

[38] EU-Ukraine Action Plan, Priorities for Action.

Investment Activities" stipulates equal rights and conditions for domestic and foreign investors.

The Law "On the Regime of Foreign Investment" (hereinafter called the Law) addresses specific issues of foreign investment. Foreign investors may enter into the market through incorporation of a new company wholly/partially foreign-owned, acquisition of an interest in an already existing one; establishing a wholly-owned subsidiary or a branch, or acquiring an existing company; any kind of real or other property, shares of stock, bonds and/or other securities; land use rights or concessions for the development of natural resources. The Law applies a 10% equity threshold when defining foreign direct investment, which means that the share of the foreign investor must make up at least 10 percent of the target firm's equity capital. Furthermore, the Law provides important guarantees to foreign investors, among which protection against changes in legislation, protection against nationalisation, guarantee for compensation and reimbursement of losses, guarantee in the event of the termination of investment activity, guarantee of repatriation of profits. The Law also provides equal treatment of foreign and Ukrainian-owned businesses.

However, there are certain restrictions for foreign investors in the fields of insurance, publishing, information agencies, broadcasting and the manufacture of weapons and alcoholic spirits. Mostly these restrictions are the juridical limitation concerning the rights of establishment or maximum percentage rate of the foreign investments in the statutory fund of the enterprise.

Moreover, one of the major remaining prohibitions in Ukraine is the one on ownership of agricultural land. It is still prohibited for foreigners to own agricultural land in Ukraine. However, agricultural land cannot be sold or bought by nationals of Ukraine either. A decisive step in the adjustment of legal relations in land property and foreign investment attraction has become the Land Code of Ukraine of October 25, 2001, which grants the right to acquire non-agricultural land to foreign legal entities and foreign citizens for commercial purposes. Yet, rather complicated and bureaucratic procedure of land plots assignment involves a great deal of red tape for foreign investors to acquire property rights in Ukraine. Foreign citizens and legal entities also have the right of ownership to apartments, houses, and other facilities. The Civil Code of Ukraine and the Commercial Code of Ukraine which came into force on January 1, 2004 clearly stipulate property rights. Yet, a lot of different standards and legislative acts regulating the procedure of constructing real estate artificially complicate the situation; resulting in red-tape and corruption and making the most conscientious investors unable to carry out construction strictly in line with the requirements of Ukrainian legislation.

As to the movement of capital the Action Plan specifies:

- ensure the free movement of capital relating to direct investments;
- guarantee the protection of foreign investments as well as the liquidation or repatriation of these investments and of any profits stemming there from[39].

[39] EU-Ukraine Action Plan, Article 2.3.3 Movement of Capital and Current Payments.

In line with these commitments a noticeable improvement was implemented in 2005 by the National Bank of Ukraine. In May 2005 the National Bank cancelled the resolution with numerous restrictions on making, selling and repatriating foreign investments in Ukraine[40], and in August 2005 introduced another resolution on foreign investment transactions[41] eliminating the majority of restrictions present in the preceding resolution. Namely, the new resolution permits direct transfers of money from investor's account to recipient's firm account without previously mandatory use of investment accounts (at Ukrainian bank).

Speaking in general about foreign exchange controls, the Ukrainian currency is not fully convertible, but the foreign exchange market is being continually liberalised. Profits, revenues, and other proceeds in foreign currency may be transferred without restriction, provided taxes and other mandatory payments are covered first. Profits may be repatriated freely. Revenues and investments may be withdrawn from Ukraine within six months upon the termination of the investment activity.

International Framework

International framework includes multilateral and regional instruments, as well as bilateral treaties. Ukraine is a party to many multilateral and regional instruments such as the Paris Convention for the Protection of Industrial Property of 20 March 1883; the Declaration on International Investment and Multilateral Enterprises, adopted by the Council of the Organization for Economic Cooperation and Development on 21 June 1976, etc. Bilateral treaties aimed at promotion of investments include bilateral investment treaties (BITs) and bilateral treaties for the avoidance of double taxation. As of June 1, 2006 Ukraine has signed BITs with 61 countries, including 24 countries of the European Union.

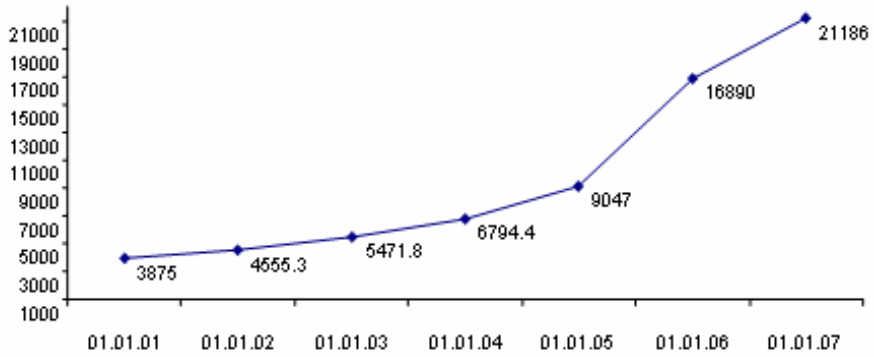
FDI in brief

Following a drop in 1999, FDI inflows to Ukraine resumed their upward trend in 2000. By 2001, FDI inflows recovered and even exceeded their 1998 level. Since then, FDI to Ukraine has been steadily growing. Cumulative FDI estimated as of January 1, 2007 equals US$ 21,186.0 million, which is 25.4 % more than in the beginning of 2006 (see the chart below).

[40] Resolution of the National Bank of Ukraine N482 'On approving the regulations on the procedure for making monetary foreign investments in Ukraine and returning investments to foreign investors, as well as repatriating profits, income and other means derived from investment activity in Ukraine' dated October 14, 2004.

[41] Resolution of the National Bank of Ukraine N280 'On resolving issues concerning foreign investments into Ukraine' dated August 10, 2005.

Figure 5.8 Cumulative foreign direct investment into Ukraine (million US$)



The share of FDI from the European Union (EU) to Ukraine in total foreign direct investment has been growing as well. Thus, cumulative FDI from the EU in 2004, 2005 and 2006 equaled US$ 4946.3 million, US$ 12069.9 million, and US$ 15924.0 million, which comprises 54%, 71% and 75% of total FDI respectively. The leading positions among EU members in investing into Ukraine are taken by Germany, Cyprus, Austria, United Kingdom, and The Netherlands (in descending order as of 01.01.2007).

As of January 1, 2007 the largest share of FDI is accumulated in the financial sector. This sector is also the leader in FDI inflow for 2006. The lion's share goes under banks' acquisitions by foreign financial groups. The financial sector is followed by wholesale trade and real estate sectors, for which the FDI stocks as of January 1, 2007 comprise US$ 2264 million and US$ 1773.4 million correspondingly.

5.3.3 Government procurement

Recently the stance with government/public procurement underwent significant improvements especially in terms of fair chances for foreign participants. Although this sphere of economic activity still remains one of the most non-transparent and corrupt, the amendments to Ukrainian legislation (December 1st, 2006) created a good basis for enhancement of procurement quality and reduction of related costs.

The procurements are regulated by the Law of Ukraine "On Government Procurement of Goods, Works and Services". The law is applied to purchases above UAH 20 thousand for services and UAH 50 thousand for works and is not related to purchase of monopoly-originated goods or services like natural gas, communal utilities etc. Tenders under the law should be organised by public central and regional administration, companies founded by state or regional power bodies, and companies with more than 50% of state ownership.

The control over tender procedures was dispersed among executive bodies for the creation of a checks and balances system. However, the mechanism looks cumbersome and inefficient. The Antimonopoly Committee of Ukraine was defined as the responsible

institution for the creation of a competitive environment, coordination of procurements, monitoring and controlling[42]. The performance of the Antimonopoly Committee in the procurement field is monitored by the Inter-Departmental Commission of Accounting Chambers of Ukraine. The commission also is responsible for transparency and openness of public procurements.

Another body for procurement process monitoring is the Tender Chamber of Ukraine (TCU). The TCU was claimed to be an instrument of civil society control over public procurements. It is a union of NGOs and is acting as an information, expertise, and advising center. Enterprises and administrations are obliged to provide all required information about tenders upon request of the TCU. The TCU can provide expertise on lawfulness of procurements, is responsible for dissemination of adds on public procurement through internet and via the publication of an informational bulletin.

Till the end of 2006, the major complaints of the EU with respect to public procurements were related to the independent review of disputes, dissemination of information, and openness of the public procurement market. Legislatively all the mentioned problems where considered. However, administrative reform is required for full-fledged enforcement of the legislative amendments.

At the end of 2006 all impediments to equal treatment of foreign companies at the procurement market were eliminated with amendments to the Law of Ukraine "On Government Procurement of Goods, Works and Services". Till that time the following limits for equal competition existed:

- Domestic producers had a 10% price advantage over foreign suppliers (their bid was accounted 10% lower compared to proposal of foreigners) if the contract value was less than EUR 200 thousand for goods, EUR 300 thousand for services and EUR 4 million for works;
- If services or works were to be performed on the territory of Ukraine, non-residents could be requested to use domestic materials and labour;
- In case of procurement of agriculture products only domestic producers could participate at the tenders;
- Enterprises of the handicapped and penitentiary system enjoyed preferences compared to other tender participants

The situation with dissemination of information remained unchanged. Although the law on procurement requires dissemination of information, tenderers report about difficulties on obtaining information about procurements. Provision of information by Internet was monopolised by one company and this fact was recognised by the Antimonopoly Committee. In September 2006 the company was fined by the Committee for charging high prices for their services.

[42] Apart of Antimonopoly Committee, the state control belongs also to six other institutions: Parliament of Ukraine, Cabinet of Ministers of Ukraine, Accounting Chamber of Ukraine, Main Control and Revision Office in Ukraine, State Treasury, and authorized statistical agency.

Review of disputes was not improved; however, some changes were introduced to the law in the part of disputes resolution. Specifically, interested parties can appeal directly to the courts against the procurement results avoiding the Inter-departmental Commission (which also could resolve disputes). Despite the changes there are little chances for a fair revision of tender committee decisions since Ukraine suffers from inefficiency of the court system and widespread corruption.

The December 2006 amendments to the law also introduced several innovations to the procurements' market which are expected to improve tenders' quality and reduce their costs.

One of the major innovations was the creation of the lists of negligent participants and a list of procurement participants. Probably the idea was to construct a pool of tenderers with good reputation and discriminate against those companies who were negligent to procurement legislation. However, in the context of a corrupt society that mechanism could just increase the price of participation and subsequently the price of procurements.

Another positive point is the requirement for participation of three tenderers (the old version of the law required two participants). Again in the short run that could just increase the cost of participation in procurements.
The most effective innovation seems to be the mechanism of price reduction which aims to a decrease of procurement costs by means of auctions. The mechanism is difficult to overcome even in case of collusion with other tenderers.

In general Ukraine approximated it legislation on public procurement to the norms of the EU in terms of creating fair conditions for tender participants. However, widespread corruption and an inefficient court system are still strong impediments for equal competition. Court reform and administration reform are essential for enforcement of the amended law on procurements.

5.3.4 Competition policy

Part of economic reforms of the EU-Ukraine Action Plan (Action Plan) stipulate Ukraine's commitments to establish a *fully functioning market economy*, which implies market based price formation, effective control of state aid and a legal environment that ensures fair competition between economic agents[43]. Furthermore, in the area of competition policy Ukraine committed itself to approximating its legislation with respect to antitrust and state aid to that of the EU[44], as well as to ensuring a credible enforcing of this harmonised legislation and maintaining well-functioning independent competition authority[45].

[43] EU-Ukraine Action Plan, Article 2.2.

[44] Ibid.

[45] **The same commitments are repeated in the Partnership and Cooperation Agreement between the EU and Ukraine, 1998.**

The basic legal framework for regulating competitive business practices in Ukraine consists of the following legislative acts: Constitution of Ukraine[46]; the Law of Ukraine "On Protection of Economic Competition" No. 2210-III of 11 January 2001; the Law "On the Protection from Unfair Competition" No. 236/96 of 7 June 1996; the Law of Ukraine "On Natural Monopolies"[47] No. 1682 of 20April 2000, the Law of Ukraine "On Antimonopoly Committee of Ukraine" No. 3659-XII of 26 November 1993, the Economic Code of Ukraine, in force since January 2004, and many others. A national competition authority, the Anti-monopoly Committee of Ukraine, has been established in 1993 to carry out Ukraine's competition policy. It is responsible for enforcing and monitoring the implementation of competition legislation and deals with market concentration and merger controls, concerted practices, abuses of a dominant position, unfair competition, as well as anticompetitive actions of state and local authorities (including state aid, government procurement and administered pricing).

Antitrust policy

The Ukrainian competition legislation, namely the Law On Protection of Economic Competition, prohibits anti-competitive concerted actions[48] and abuse of a dominant position and provides for a system of merger control. The EU-Ukraine Action Plan points out the necessity of assessment of the compatibility of current Ukraine's antitrust legislation with the EU relevant legislation[49], and in particular with the principles of non-discrimination, transparency and procedural fairness. According to the comparative legal analysis implemented recently by the State Department for Legislation Approximation within the Ministry of Justice of Ukraine, the level of approximation of current Ukrainian antitrust legislation (in particular, concerning "the abuse of dominant position, anticompetitive concerted actions, merger control and restrictive agreements) to the EU law is estimated as high[50]. Nevertheless, there are some issues that still need to be harmonised to achieve full compatibility with the Acquis Communautaire (for example, concerning the list of possible conditions for granting authorisation to anti-competitive concerted actions).

In line with the implementation of the State Program for Adaptation of Ukrainian Legislation to the legislation of the European Union[51], the Antimonopoly Committee has prepared a draft law on the Procedural Competition Code developed in compliance with the EU procedural competition rules. This draft law intends to improve the procedure of granting authorisation for concerted actions, to strengthen the interactions between the Antimonopoly Committee and economic entities, and to create the efficient procedures of investigating violations of the competition legislation. So far, this draft law has not been submitted to the Parliament and is still being amending by the Antimonopoly Committee.

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46 In particular, Article 42 – about the rights for the business undertakings.

47 This Law specifies the exhaustive list of natural monopoly activities in Ukraine, namely: pipeline transportation of oil and oil products, natural gas and petroleum gases, and other substances; the distribution of natural gas and petroleum gases; the transmission and distribution of electric energy; railway services; air traffic control; centralized supply of heating, water and the drainage system; and the rendering of specialized services by transport terminals, ports and airports.

48 Under certain conditions the authorization for concerted actions may be granted.

49 Namely, Article 31, 81-85 and 86 of the EC Treaty, etc.

50 State Department for Legislation Approximation, 2007. Overview of the Status of Approximation of Ukrainian Legislation to acquis communautaire — K.: «Professional», ISBN 966-370-034-3 — 544 p. (http://sdla.gov.ua/atachs/ADAPT.pdf).

51 Adopted by the Law No 1629-IV on 18 March of 2004.

The other important issue highlighted in the Action Plan is the independence and adequate powers of the Antimonopoly Committee. To be independent and effective the Antimonopoly Committee should be free from the central government and political influence of different business structures. Also it should be empowered to participate in government decisions affecting competition and to prevent anticompetitive activities of powerful financial-industrial groups. Presently, the Antimonopoly Committee appears to be dependent on the executive bodies, first of all, due to the current system of appointment of the chairman and commissioners[52]. This issue should be resolved to ensure effective enforcement of competition legislation in Ukraine.

State aid policy

The Action Plan urges Ukraine to draft and adopt state aid legislation compatible with the EU state aid legislation, including definition of state aid and establishment of a transparent state aid system[53].

The Ukrainian legal system is still missing the framework law providing for the systematic control and monitoring of state aid in Ukraine and bringing all state aid schemes under the jurisdiction of an independent executive authority. There are no legal provisions defining state aid and its forms, neither a stipulated distinction between acceptable and unacceptable state aid with regard to its objective and its effect on competition and trade. The strict and precise procedures of state aid notification, provision, and monitoring are also lacking. The Antimonopoly Committee of Ukraine is not provided with the adequate authority required for the independent supervisory authority to exercise the control on state aid (such as, authorisation of state aid provision; monitoring and control over state aid provisions; assessment of the efficiency and effectiveness of state aid programs (ex-ante and ex-post evaluations); demanding any relevant information from granting institution as well as from recipients; demanding recovery of state aid if its provision violates legislation). There are no periodical official reports making all state aid legislation changes as well as detailed reports on state aid public.

State aid is provided in accordance with sector specific or other regulations (on special economic zones, regional aid etc.), which are frequently adopted without strong economic justifications for government interventions in the market operations. For a long time, the Ukrainian government has tolerated indirect sector specific subsidies in the form of tax privileges (main sectoral recipients usually included shipbuilding, aircraft construction, automobile industry, coal mining, space industry, and publishing of books and agriculture), as well as ad-hoc aid. These subsidies are known as rather non-transparent and detrimental to economic competition and trade. On the contrary, state aid for horizontal objectives accounted for a small share of the total amount of state aid in Ukraine (according to the estimates of the Ukrainian Centre for International Integration, horizontal state aid accounted for only about 3% of the total state aid to industrial sectors

[52] They are appointed and dismissed by the President after the Parliament's consent (chairman) or based on the proposals of the Cabinet of Ministries (commissioners).

[53] EU-Ukraine Action Plan, Article 2.3.5.

in Ukraine in 2002[54]). The situation started improving in 2005, when the Government abolished a majority of tax privileges provided to industrial sectors in Ukraine[55]. As such, the positive tendency towards lessening the total amount of state industrial subsidies and increasing the share of state aid for horizontal objectives can currently be observed.

In its conclusions to the legal comparative analysis, the State Department for Legislation Approximation reports about the low level of approximation of the Ukrainian state aid legislation to the EU law[56]. Ukraine's state aid system proves to be inefficient and not transparent; it provides additional possibilities for corruptive actions and prevents structural restructuring of the economy. Therefore, Ukrainian state aid policy is among the first that needs significant legal and policy transformations in the framework of Ukraine's European integration process. This is indispensable for establishing a fully functioning market economy in Ukraine, and enhancing efficiency and competitiveness of Ukrainian enterprises and industries.

5.3.5 Sanitary & Phyto-Sanitary measures

An increase of food safety for consumers and reforms and modernisation of the sanitary and phytosanitary measures are the main objectives of the EU-Ukraine Action Plan (Action Plan) in this area. This is to be achieved through implementation of the WTO Agreement on the Application of Sanitary and Phytosanitary Measures, carrying out a comparative assessment of the sanitary and phytosanitary control systems in Ukraine and the EU, implementing a legislative approximation and policy convergence in this area (namely, in regard to general food safety principles and requirements, food hygiene and food traceability), the HACCP system at enterprises and controlling bodies, modernizing the national laboratory network and appropriate methods of analysis and preparing their accreditation in compliance with ISO standards[57].

Ukraine has a rather complicated institutional organisation of its SPS control and surveillance system. The main government bodies in charge of SPS regulation are: the Ministry of Health (the Sanitary Service), the Ministry of Agricultural Policy (the State Department for Veterinary Medicine; the Main State Inspection on Plant Quarantine) and the State Committee for Technical Regulation and Consumer Policy of Ukraine.

Ukraine inherited a rather complicated, non-transparent and out-of-date SPS regime, the major shortcomings of which included: GOST system of standards, which contains safety standards, quality parameters, technical prescriptions, and agricultural health standards, excessive and costly border procedures, duplication of powers of government controlling bodies, weak scientific justification for many applied SPS measures and lack of transparency in national standards setting. As such, this system constituted a big obstacle

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54 Vavryshchuk V., Kalizschuk Y., Taran S., Hoyna Y., and N.Yasko, 2004. State Aid in Ukraine: Reforming in Accordance with the WTO and EU's Requirements. Nora-Druk, ISBN 966-8321-55-3; 86 pages.

55 This was done in the framework of Ukraine's WTO accession process.

56 State Department for Legislation Approximation, 2007. Overview of the Status of Approximation of Ukrainian Legislation to acquis communautaire — K.: «Professional», ISBN 966-370-034-3 — 544 p. (http://sdla.gov.ua/atachs/ADAPT.pdf).

57 EU-Ukraine Action Plan, Article 2.3.1. (32).

to trade development between Ukraine and its trading partners, increased transaction costs of doing business in Ukraine, and diminished export potential of Ukrainian food and other exports of agricultural enterprises.

In the framework of the WTO accession, Ukraine is undertaking a legal and institutional reform of the national SPS regime to bring it into full conformity with the WTO SPS Agreement, including its substantive provisions, procedural and transparency aspects. In particular, the considerable amendments have been made into the main framework SPS laws "On Quality and Safety of Foodstuffs and Food Raw Materials", "On Veterinary Medicine", and "On Plant Quarantine", as well as other laws and various bylaws governing food safety sanitary measures, animal health and phytosanitary measures.

The upgraded Ukrainian SPS legislation explicitly incorporates provisions of the WTO SPS Agreement related to terminology; harmonization; equivalence in measures; risk assessment and appropriate level of protection; adaptation to regional conditions; transparency, inspection and control procedures, etc. in each of the SPS areas. In particular, the new amendments ensure harmonisation of national SPS measures with international standards, guidelines and recommendations developed by the relevant international organisations, namely the Codex Alimentarius Commission, the Office of International Epizootics (OIE) and the International Plant Protection Convention (IPPC), stipulate the equivalence provision of the SPS Agreement[58], provide for lessening documentation requirements for imported commodities, streamlining border control procedures[59], introducing a risk- and performance-based system of border control, envisage a science-based and transparent approach in developing national SPS measures and technical regulations.

The framework Food Law, “On Safety and Quality of Food Products” № 2809-IV, was amended by the Ukrainian Parliament in September 2005. The amendments almost entirely replace the old law of 2002 and introduce conceptual changes in the production and handling of food products in Ukraine, harmonising the general food safety principles in accordance with the WTO requirements and best international practices, including that of the EU. In particular, the new version of the Law envisages a producer primary responsibility for food safety, food-chain approach and mandatory application of HACCP systems at food producing enterprises[60]. The producer becomes responsible for the suitability (safety and acceptability) of food for human consumption, thus reducing the role of the State to that of verifying the conditions and practices necessary to produce safe food. The new Food Law concerns all food products and specifies the clear delineation of responsibilities and powers between the Sanitary Service and the State Department for Veterinary Medicine in Ukraine concerning the safety control over foodstuffs of animal origin. The new Food Law reconsiders and strengthens the role of the National Codex

[58] Pursuant to the new laws, the criteria for accepting equivalence of national SPS measures to measures of another member are to be based on the guidelines and recommendations of the Codex, the OIE and the IPPC.

[59] It is also envisaged, that all fees charged in relation to the border inspection do not exceed the actual cost of services rendered.

[60] Still, the Law allows for exceptions from this requirement for certain enterprises.

Alimentarius Commission of Ukraine[61] in the national food safety system, which is in charge for food safety standards harmonisation[62].

The new Law "On Veterinary Medicine" № 361-V adopted in December 2006 addresses animal health issues. It includes recommendations and guidelines in disease control (first of all, those of the OIE), stipulates producer responsibility for ensuring the production and circulation of disease-free animals and products, accreditation and authorisation requirements for laboratories testing domestic and imported animals and products, monitoring of animals and feed for residues of harmful substances, etc. The new Law "On Plant Quarantine" № 3369-IV passed in January 2006 is determined as the only legislation in Ukraine applicable to imported plants, plant products, and other articles capable of carrying or transmitting plant pests. The Law requires that all phytosanitary measures be based on international standards, guidelines and recommendations of the IPPC and its regional organisations. The Law specifies the criteria for the determination of regulated hazardous organisms, and the regulated articles, which could be subject to phytosanitary measures; it also enhances transparency in the process of granting quarantine permits (import permission).

With respect to other SPS regulations, the recent legal changes include amendments to the Law "On Ensuring Sanitary and Epidemic Safety of the Population"[63], "On Protection of the Population from Infectious Diseases" and "On Pesticides and Agrochemicals"[64] (to ensure that the new Food Law is the single legislative act regulating food safety control of imported food products).

Ukraine has already implemented the requirement of the WTO SPS Agreement about the participation in international standard setting organisations. As of today, Ukraine is a member of the following international organisation listed in the SPS Agreement: the OIE, the Codex Alimentarius Commission, and the IPPC. Ukraine also has acquired FAO membership and is a member of the European and Mediterranean Plant Protection Organization (EPPO).

Ukraine committed itself to accept the Codex Alimentarius, the OIE and the IPPC standards, guidelines and recommendations upon the WTO accession. This requires further development and inventory of Ukrainian SPS legislation. The process of food safety standards harmonisation has been initiated by the National Codex Alimentarius Commission of Ukraine[65]. As a first step, the Commission has already conducted a comparative review of the national food safety parameters (concerning maximum content levels of contaminants, food additives and processing aids in food products, maximum

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61 The Commission was established in 1999 but failed to show any considerable achievements in food safety standard harmonization. The adoption of the new Food Law provides grounds for reviving the functioning of this Commission.

62 Pursuant to the Law, the Commission is to coordinate activities on harmonization of international and national legislation in the sphere of safety and quality of food products; provide scientific advice and technical support in the area of development of sanitary measures and technical regulations, risk assessment and determination of mandatory safety parameters for food products, communicate with the Codex Alimentarius Commission, etc.

63 The Law "On Ensuring Sanitary and Epidemic Safety of the Population" is the key legal act that establishes health safety requirements applying to goods, products and raw materials produced and imported to Ukraine, as well it provides for surveillance system over the products that might have a negative impact on human health, including food products.

64 All approved by the Law of Ukraine No. 3078-IV "On Introduction of Changes to Some Laws of Ukraine" of 15.11.2005.

65 The new Regulation on the National Codex Alimentarius Commission of Ukraine was approved by the Resolution of the Cabinet of Ministries N 903 of 3.07.2006 p.

residue limits for pesticides, veterinary preparations, feed additives, etc.) to those of the Codex Alimentarius. On the basis of this review, the Commission is presently undertaking further compatibility analysis to draw up conclusions about further harmonisation efforts, in particular national food safety parameters i) that are the same as those of the Codex Alimentarius will be unchanged[66]; ii) that offer higher protection than the Codex will be replaced by Codex standards, or a risk assessment will be carried out to justify them; iii) that exist in Ukraine but are absent in the Codex will be eliminated, or a risk assessment will be carried out to justify them. The applied EU food safety standards are also taken into account during this harmonisation process.

As to the animal health standards, the Ministry of Agricultural Policy adopted changes to Import Requirements for animals and animal products[67] (to bring animal health measures to better compliance with the animal health standards of the OIE and SPS Agreement). Further, the Rules for Issue of Veterinary Documents have been upgraded in accordance with the international requirements[68]. The State Department of Veterinary Medicine is also undertaking harmonisation of the Rules for slaughtering with EU legislation.

The harmonisation to the IPPC standards is being conducted by the Main State Plant Quarantine Inspection. Ukraine recently adopted ISPM Standard No. 15 "Guidelines for Regulating Wood Packaging Material in International Trade". Besides, it this area the following steps were undertaken: adoption of the new Rules of Phytosanitary Border Control[69] (to streamline inspection and control procedures regarding goods subject to phytosanitary measures (regulated articles) during their importation, exportation, and transit in Ukraine); revising of the List of regulated articles subject to phytosanitary control[70] (to decrease this list), as well as adoption of new List of regulated hazardous organisms[71] (to make it scientifically justified by applying risk analysis procedures), etc.

Pursuant to the transparency provisions of the SPS Agreement, Ukraine has established a National Enquiry and Notification Point, the Centre for Processing Inquiries of the WTO Member-States and Providing Information to Them[72], operating within the structure of the Ministry of Economy. This Center provides clarifications and prompt information to the WTO Members on current status and changes in the national trade-related legislation. SPS matters constitute one of the most frequently made enquires to the Center.

5.3.6 Technical standards

Compliance with universally acknowledged quality standards is crucial for producers working in both domestic and international markets. Ukraine admits to the necessity to modernise the sphere of technical regulation in line with the WTO and the EU requirements. In particular, currently Ukraine is in the process of implementing the WTO

66 A measure is regarded as equivalent if it ensures the same level of human health protection.
67 Approved by the Order of the Ministry of Agricultural Policy of Ukraine № 36 of 25.04.2005.
68 Approved by the Order of the Ministry of Agricultural Policy of Ukraine № 32 of 19.04.2005.
69 Approved by the Order of the Ministry of Agricultural Policy of Ukraine № 414 of 23.08.2005.
70 Approved by the Resolution of the Cabinet of Ministers of Ukraine № 156 of 15.02.2006.
71 Approved by the Order of the Ministry of Agricultural Policy of Ukraine № 716 of 29.11.2006.
72 Approved by the Resolution of the Cabinet of Ministries № 408 of 31 May 2005.

TBT Agreement and intends to ensure full compliance of domestic norms with respective international regulations by the end of the transition period envisaged by the WTO accession agreement.

As a part of this process, in 2005 the Parliament adopted the Law "On Standards, Technical Regulations and Conformity Evaluation Procedures" which is the main normative act in the sphere of technical regulation in Ukraine. It states that State Committee of Ukraine for Technical Regulation and Consumer Policy is responsible for the state policy in the sphere of technical regulation. It is authorised to develop technical regulations (obligatory rules specifying commodity and production process characteristics) which are later approved by the Cabinet of Ministers. Derzhspozhyvstandard is also responsible for assessment of product characteristics' conformity with technical regulations. The assessment is implemented through the UkeSEPRO (УкрСЕПРО) certification system covering about 120 bodies throughout Ukraine.

Technical regulation is one of the spheres that are given special attention in both the EU-Ukraine PCA and EU-Ukraine Action Plan. By signing the documents Ukraine, among other points, is committing to align its technical regulatory and administrative practices with the EU and international ones and prepare for participation in the EU internal market in selected priority industrial sectors.

Despite substantial efforts of the responsible agencies to approximate the technical legislation to the EU norms, Ukraine still lacks modern technical standards and regulations in many sectors. According to the State Committee of Ukraine for Technical Regulation and Consumer Policy as of March 2006, 16765 technical standards are still coming from Soviet times.

By the end of 2006, 3687 national standards harmonised with international and European standards were adopted. 628 of them were adopted in 2006 (900 in 2005, 596 in 2004 and 517 in 2003). In addition, 16 technical regulations based on European directives were adopted (6 are still being harmonised). Ukraine and the EU held several rounds of consultations to identify priority sectors for alignment with EU and international regulatory practices and possible inclusion in an Agreement on Conformity Assessment and Acceptance of Industrial products, (ACAA). However, as of May 2007 the parties has not managed to define possible shape and timeframe for cooperation in the field.

The long term strategy of adapting technical EU standards is approved by the Decree of the Cabinet of Ministers of Ukraine 'On the State Program for Standardization for 2006-2010'. The document envisages that throughout the implementation period 8570 standards should be developed or harmonised in line with the requirements of the EU.

As the survey, completed by CASE demonstrates[73], inconsistency of Ukrainian and EU technical norms may be a substantial impediment for Ukrainian companies to expand their exports into the EU market. Although the majority of the companies do not experience difficulties connected with meeting technical standards at different stages of

[73] Jakubiak, M. et al, Non-tariff barriers in Ukrainian export to the EU, CASE reports, #66.

overseas sales, many respondents claimed that particular trade-related technical regulations are burdensome for them. Moreover, the experience of the new EU member countries from Central and Eastern Europe shows that together with the development of the country and the changing structure of production (and exports) towards more technologically-advanced products, Ukraine's exporters will be more exposed to EU technical standards. The standards will be more important in relative terms also because of the expected elimination of the traditional protection measures like tariffs. This is to say that various EU technical norms may be even more of a barrier than they are now. Thus, implementation of new standards may require substantial investments from companies upfront.

On average, producers exporting to the EU estimate costs incurred in order to ensure compliance with the EU requirements at the level of 13.9% of their total production costs. Therefore, any actions that may increase the understanding of the EU norms and transparency of the work of standardisation bodies are worth pursuing, since they reduce certification costs for entrepreneurs.

Given the possible non-tariff barrier that comes from differences in technical standards and in line with the argument that with lowering tariffs technical standards may become – relatively – an even larger impediment to EU-Ukrainian trade, we propose this horizontal issue for further study.

5.3.7 Intellectual Property Rights

The legislation on intellectual property (IP) develops simultaneously with the development of technology and science. The main objective of legal regulation in this area is to secure the protection of intellectual property rights. The development and improvement of a normative and legal basis in the sphere of intellectual property is one of the principal activities on the way to strengthen Ukraine as a democratic state.

The main efforts should not be aimed at the prohibition of the use of intellectual property objects but should be focused on the development of new principles of legal and economic regulation of relations between all participants of this market. Therefore, the main task is the creation of an intellectual property rights protection system that would allow Ukraine to become an equitable partner in the world market of IP.

One of the most significant events on improvement of the legislative basis in 2005 was the adoption of the Law of Ukraine No 2734-IV «On amendments to certain legislative acts of Ukraine (concerning the regulation of the procedures related to the production, export, import of the discs for laser-readable system, equipments and stuff for their production) » by the Verkhovna Rada of Ukraine on 6 July 2005. The main purpose of this Law is the improvement of state regulation of the process of disc production, licensing, export and import of discs, and equipment for their production. The Law is important for creating conditions to make it impossible to produce and distribute counterfeited goods, which is anyway a necessary requirement for WTO accession. Adoption of this Law contributed to the abolition of trade sanctions and removal of Ukraine from the category of «priority foreign country» of «Special 301».

In 2005 the process of registration of intellectual property rights intensified, which is one of the preconditions for a normal functioning of the IP market. Thus, in 2005 the State Department received more than 39000 applications for industrial property objects; and 3569 applications for copyright registration which is about 19% more than in the previous year. The greatest number of registrations belongs to written literary works (48%), composite (21%) and musical (18%) works and computer programs (18%). In spite of the increase in the total number of applications, the period of their examination has decreased because a centralised receipt of applications was organised, the process of handling of incoming documentation was automated and examination divisions were equipped with computers.

The biggest issue with Intellectual property rights in Ukraine is their enforcement. In the country, three ways of IP rights enforcement are commonly used: enforcement in the Appeals Chamber (122 oppositions in 2005), enforcement in court (355 cases in 2005) and enforcement in a legal division of the state enterprise «Ukrainian Agency for Copyright and Related Rights» (UACRR) which participated in the examination of 59 cases in 2005.

Still the most problematic area is software piracy. Counterfeit CDs, CD-ROMs and DVDs produced in Ukraine are available throughout the country, as well as at some outlets in Russia, Eastern Europe and even the UK. A pirated CD costs about USD 3 in Ukraine, one fifth of the average price in Western Europe. Optical media products such as CD-ROMs and DVDs are also believed to be copied illegally by fraudsters based in Ukraine.

With the purpose of improvement of legal enforcement of intellectual property rights in the field of production licensing, export (import) of disks (CD-ROM) and stampers for their production, the Law of Ukraine No 2734-IV was passed. According to this Law, export and import of stampers as well as of discs should be performed only on the condition of presence of special identification codes. Furthermore, control measures over the production, export, and import of stampers has been launched in Ukraine.

Within the year 2005 the fighting of the state inspectors with infringements of intellectual property rights has intensified: with the purpose of prevention, identification and ceasing of illegal use of rights to intellectual property 743 inspections were held, and as a result 102 criminal cases were initiated and counterfeit products were seized.

Official representatives claim that mentioned activities have decreased the volume of the pirate market. On the other hand there is a new trend reported by resellers as the standard of living rises along with the country's economic growth, so more consumers seem willing to buy legitimate products. Thus in Ukraine in 2005 piracy of computer software dropped six percentage points from 91% to 85%.

Given the above, one may conclude that Ukraine has a rather extensive legislative base in the sphere of intellectual property rights. In practice, however, this legislation fails to effectively combat piracy and counterfeiting of goods and trade marks, which continue to be widely spread in Ukraine. There remains an urgent need for better enforcement and

implementation of existing laws, including the establishment of institutions in that area. The solutions of these problems in the present-day global digital environment should be based on agreed system of national and international legal rules.

5.3.8 Horizontal issue conclusions

Having assessed carefully the status of the horizontal issues mentioned in the Terms of Reference regarding Ukraine, we propose to analyse the following three horizontals issues:

- Technical standards
- Competition policy
- Trade in services

These three issues need further elaboration and/or enforcement in the FTA according to our analysis and address a different range of important aspects of the non-sector EU-Ukraine partnership.

6 Conclusions

The Global Analysis Report (Phase 1) of the TSIA EU-Ukraine aims to provide an overview analysis of the situation between the EU and Ukraine in terms of economic, social and environmental issues.

At first, this general overview was given, with clear attention for the macroeconomic situation and for the importance of sectors for the EU-Ukraine relationship. Especially agriculture, petrochemicals and chemicals, metallurgy and energy are sectors that define the partnership between the EU and Ukraine. Also an overview of the trade relationships and FDI links between the two countries are given.

Next to the economic analyses a clear overview of the current social and environmental situation was provided in which it has become clear that there is still a lot of room for further improvements in the fields of poverty, health, education, employment and decent work and gender equality. Also environmentally, Ukraine needs to improve its methods of production in order to reduce the burden on the ecosystem via CO2 emissions, land use for agriculture, energy resources and biodiversity.

Against this background we have carried out a Computable General Equilibrium analysis to simulate three possible FTA scenarios that all are WTO inclusive as clearly specified in the Terms of Reference and during the kick-off meeting. The first scenario, the Extended FTA, entails a far-reaching FTA with liberalisation of trade in goods and very significant reductions in border costs, standards costs (technical barriers) and reductions in barriers to FDI. The two more limited scenarios, two and three, differ in their approach towards liberalisation of the service sector. In scenario two, a more limited FTA, with partial liberalisation of trade in goods and less ambitious reductions in standard costs, border costs and limited liberalisation of trade in services. The third scenario is identical to the second, except for the fact there is no liberalisation of trade in services.

When we analyse the outputs of the CGE modelling we find that the most Extended FTA leads to the largest welfare gains for both Ukraine and the EU. The more limited the FTA, the smaller the welfare gains are expected to be. At the sector level, we note that some sectors are expected to experience large changes in output and employment, like agriculture, machinery and equipment, ferrous metals, financial services and wearing apparel. The detailed results are presented in Chapter 3. We expect large environmental sustainability effects in sectors that tend to be more polluting like chemicals, ferrous metals and machinery and electronics. Significant social sustainable impacts we expect in agriculture and some of the horizontal issues like trade in services and competition policy.

Subsequently we screened all sectors mentioned in the Terms of Reference on the bases of four criteria. First, the importance of the sectors (in output and employment size) for the EU-Ukrainian economic partnership. Second, the estimated economic impact (measured as percentage and absolute change in levels of employment and production) of each sector is reviewed. Third, we look at the effect the change in production structure will have on social and environmental sustainable development and assess possible impacts. For this we use the core indicators and specific indicators for sustainable impact. Finally, the fourth criterion, which is not yet available, are the consultations with civil society and key stakeholders to the TSIA EU Ukraine study.

Having carefully screened all the sectors, we propose to analyse the following five:
1. Agriculture (and various subcategories)
2. Petrochemicals and chemicals
3. Energy
4. Metallurgy
5. Machinery and electronics

Having carefully analysed the various horizontal issues and progress that is currently being made by Ukraine, we have selected the following issues, keeping in mind their estimated effect on trade flows, tariffficated levels of protection, social and environmental (positive) impact and the fact that some issues are already largely dealt with through Ukraine's accession to the WTO (e.g. sanitary- and phytosanitary measures):
1. Competition policy
2. Trade in services
3. Technical standards (for industrial products)

It is these sectors and horizontal issues that we have 'scoped' in more detail in Chapter 5, describing their current situation and the areas for further research during Phase 2 of the TSIA EU Ukraine. It is Chapter five that provides the basis to continue with the next stage of the study.

CASE-Ukraine
ECORYS Netherlands

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8 Annex: The Model Specifications

8.1 Model structure

This model is based on the MRT - Multiregional Trade Model - by Harrison, Rutherford and Tarr (HRT) used in their evaluation of the Single Market (HRT, 1994) [74].

8.1.1 Markets and prices

The following notational conventions are adopted:
i, j – indexes of goods
r, s – indexes of regions
f – primary factors
p – market price index, 1 in the benchmark
$\bar{x}$ - benchmark value of quantity variable X.

The following market prices are included in the model:

PC_r – price index for final consumption in region r
PG_r - price index for government provision in region r
PA_{ir} – price index for the Armington aggregate of good i in region r, inclusive of all applicable tariffs, border costs and monopolistic markups
PY_{ir} - supply price (marginal cost) of good i from region r, excluding fixed costs associated with the production of goods in industries subject to IRTS
PF_{ir} - price index for factor inputs in sector i, region r
PT - price index for transport services.

8.1.2 Summary of the equilibrium relationships

Final demand in each region arises from a representative agent, maximising a Cobb-Douglas utility function subject to a budget constraint. Income is composed of returns to primary factors and tax revenue directed to the consumer as a lump sum.

Within each region, final and intermediate demands are composed of the same Armington aggregate of domestic and imported varieties. The composite supply is a nested CES function, where consumers first allocate their expenditures among domestic

[74] Their code was obtained from Anders Hoffmann with the permission of Thomas Rutherford and our modelling exercise uses large parts of this code. This model in turn is based on the code employed in their evaluation of the Uruguay Round in HRT (1995, 1996, 1997], which is available for public access on Harrison's Web site.

and imported varieties and in the second level the consumers choose among imported varieties. In the imperfect competition case firm varieties enter at the bottom of the CES function.

There is no distinction between goods produced for domestic market and for exports. Goods are produced with the use of intermediate inputs and primary factors. Primary factors are mobile across sectors, but not across regions. We assume a CES function over primary factors and a Leontief production function for intermediate inputs and factors of production composite. Exports are not differentiated by the country of destination.

All distortions are represented as ad valorem price-wedges. They consists of factor and intermediate input taxes in production, output tax, import tariffs, export subsidies, taxes on government and private consumption.

8.2 Equations

8.2.1 Markets

- Regional output

(1) $$Y_{ir} = \sum_{s} X_{irs}$$

where Y_{ir} is output of good i in region r, X_{irs} is export of good i from region r to s and if r=s, X_{irs} represents domestic sales.

- Regional demand

(2) $$A_{ir} = C_{ir} + \sum_{j} a_{ijr} Y_{jr} + T_{ir}$$

where A_{ir} is total supply (production plus imports), C_{ir} is total final consumption, a_{ijr} is intermediate demand coefficient and T_{ir} is demand for good i in transport costs.

- Value added

(3) $$V_{ir} = a^{V}_{ir} Y_{ir} + f_{ir} N_{ir}$$

where V_{ir} is total sector i value added, a^{V}_{ir} is value added demand coefficient, f_{ir} is the fixed cost per firm and N_{ir} is the number of firms in IRTS sectors.

- Primary factor markets

(4) $$\overline{\overline{F}}_{fr} = \sum_{i} a^{F}_{fir} V_{ir}$$

where $\overline{\overline{F}}_{fr}$ is the endowment of factor f in region r and a^{F}_{fir} is the price-responsive demand coefficient for factor f in sector i.

- Armington supply

(5)
$$A_{ir} = \overline{A}_{ir}\left(\alpha^{D}_{ir}\left(\frac{X_{irs}}{\overline{X}_{irs}}\right)^{\rho_{DM}} + \left(1-\alpha^{D}_{ir}\right)\left\{\sum_{r\neq s}\theta^{M}_{irs}\left(\frac{X_{irs}}{\overline{X}_{irs}}\right)^{\rho_{M}}\right\}^{\rho_{DM}/\rho_{M}}\right)^{1/\rho_{DM}}$$

where $\overline{A}_{ir}$ is the benchmark supply, α^{D}_{ir} is the value share of domestic supply, $\overline{X}_{irs}$ is benchmark exports of good i from region r to s, θ^{M}_{irs} is the benchmark value share of region r exports in region s imports and ρ_{DM} and ρ_{M} are determined by Armington elasticities of substitution σ_{DM} and σ_{M}: $\rho = \frac{\sigma}{\sigma-1}$.

- Value added supply

(6)
$$V_{ir} = \overline{V}_{ir}\left\{\sum_{f}\alpha^{F}_{fir}\left(\frac{a^{F}_{fir}}{\overline{a}^{F}_{fir}}\right)^{\rho^{F}_{ir}}\right\}^{1/\rho^{F}_{ir}}$$

where $\overline{V}_{ir}$ is benchmark value-added, α^{F}_{fir} is the benchmark value share of factor f, $\overline{a}^{F}_{fir}$ is the benchmark input coefficient and ρ^{F}_{ir} is determined by the elasticity of substitution.

- Border/transport costs

(7)
$$T_{ir} = \begin{cases}\sum_{js}\beta_{jrs}X_{jrs} & i = i_{\tau} \\ 0 & i \neq i_{\tau}\end{cases}$$

where τ is the index of single commodity used for transport services and β_{jrs} is the transportation cost coefficient.

- Welfare index

(8)
$$W_{r} = \prod_{i}\left(\frac{C_{ir}}{\overline{C}_{ir}}\right)^{\alpha_{ir}}$$

where $\overline{C}_{ir}$ is benchmark final demand for good i in region r.

8.2.2 Profit conditions

- Value added

(9) $$PV_{ir} = \frac{1+t^F_{ir}}{\overline{PV}_{ir}} \left(\sum_f \alpha^F_{fir} PF_{fr}^{1-\sigma^F_{ir}} \right)^{\frac{1}{1-\sigma^F_{ir}}}$$

where f^F_{ir} is the ad valorem factor tax rate, $\overline{PV}_{ir}$ is the benchmark (tax-inclusive) price.

- Marginal cost.

(10) $$PY_{ir} = a^V_{ir} PV_{ir} + \sum_j a_{jir} PA_{jr}$$

- Armington composite supply price

(11) $$PA_{ir} = \left\{ \alpha^D_{ir} \left(\frac{PD_{ir}}{\overline{PD}_{ir}} \right)^{1-\sigma_{DM}} + (1-\alpha^D_{ir}) \left(\frac{PM_{ir}}{\overline{PM}_{ir}} \right)^{1-\sigma_{DM}} \right\}^{\frac{1}{1-\sigma_{DM}}}$$

where $\overline{PA}_{ir} = 1$

(12) $$PD_{ir} = (1+\mu_{irs}) PY_{ir}$$

and

(13) $$PM_{ir} = \left\{ \sum_{r \neq s} \theta^M_{irs} \left[(1+\mu_{irs})(1+\hat{t}_{irs})(PY_{is} + \beta_{irs} PT_s) \right]^{1-\sigma_M} \right\}^{\frac{1}{1-\sigma_M}}$$

and

(14) $$PT_{ir} = PA_{i_\tau r}$$

where μ_{irs} is the mark-up on marginal cost on sales of good i from a firm in region r in region s,
$\hat{t}_{irs}$ is the ad valorem tax rate which incorporates import tariffs and export subsidies, $\overline{PD}_{ir}$ is the benchmark supply price for goods from domestic producers, $\overline{PM}_{ir}$ is the benchmark supply price for imports.

- Regional income

Regional income is a sum of factor income, indirect taxes, taxes on intermediate demand, factor tax revenue, public tax revenue, consumption tax revenue, export tax revenue and tariff revenue net of investment demand, public sector demand and net capital outflows:

(15)

$$M_r = \sum_f PF_{fr} F_{fr} + \sum_i t_{ir}^Y PY_{ir} Y_{ir} + \sum_{ij} t_{ijr}^{ID} PY_{ir} Y_{jr} a_{ijr} + \sum_{fi} t_{fir}^F PF_{fr} V_{fir} + \sum_i t_{ir}^G PG_{ir} G_{ir} +$$

$$+ \sum_i t_{ir}^C PC_{if} C_{ir} + \sum_{is} t_{irs}^X PY_{ir} X_{irs} + \sum_{is} t_{irs}^M (PY_{is} X_{isr} (1 + t_{isr}^X) + p^T T_{isr}) - \sum_i p_{ir}^D I_{ir} -$$

$$\sum_i PG_{ir} (1 + t_{ir}^G) G_{ir} - p_n^C CAPFLOW_r$$

- Final demand

Public sector output consists of Cobb-Douglas aggregation of market commodities:

$$G_r = \Gamma_r \prod_i G_{ir}^{\theta_{ir}^G} \quad (16)$$

A representative agent determines demand in each region. He is endowed with primary factors, tax revenue and exogenous capital flows from other regions. He allocates his income to investment (exogenous), public demand (held constant in real terms) and private demand. Private demand is determined by the maximisation of Cobb-Douglas utility function:

$$U_r = \sum_i \theta_{ir}^C \log(C_{ir}) \quad (17)$$

Aggregate final demand is then determined by regional expenditures and the unit price of aggregate commodities gross of tax:

$$C_{ir} = \frac{\alpha_{ir}^C E_r}{p_{ir}^C (1 + t_{ir}^C)} \quad (18)$$

where E_r is regional expenditure, which equals income (M_r) net of investment and public expenditures.

- Bilateral trade flows.

There are two tax margins (import and export tax) and transport costs in the model. Transport costs are proportional to trade. Transport costs are defined by a Cobb-Douglas aggregate of international transport inputs supplied by different countries:

$$\sum_{irs} T_{irs} = \psi_T \prod_{i,r} TD_{ir}^{\theta_{ir}^T} \quad (19)$$

Bilateral trade flows are determined by cost-minimising choice given the *fob* export price of commodity from region r (PY_{ir}), the export tax rate (t_{ir}^X), and the import tariff rate (t_{ir}^M), where the export tax applies on the *fob* price net of transport margins, while the import tariff applies on a *cif* price.

- Free entry zero-profit condition for monopolistic firms

$$N_{ir} = \frac{\sum_{s} \left[\mu_{irs} (1 + \hat{t}_{irs}) (PY_{ir} + \beta_{irs} PT_{r}) X_{ir} \right]}{PV_{ir} f_{ir}} \quad (20)$$

8.3 Monopolistic competition

- Goods are distinguished by firm, by region and area of origin (domestic or imported).

- Demands arise from a nested CES function with a supply from firms in a single region at the lowest level of the CES aggregate. At the next level, the firms compete with supplies from other regions from the same area and at the top level consumers choose between goods from different areas. Demand for final composite arises from a Cobb-Douglas utility function.

- Producers compete in quantities based on a Cournot model with fixed conjectural variations. Markups over marginal costs are based on the profit maximisation. There is free entry, so profits in equilibrium are zero. Markup covers the fixed costs, which are fixed at the firm level and as the markup revenue in a region changes, so does the number of firms.

- The model does not incorporate gains from variety, only the rationalisation gains. A reduction in tariffs leads to loss of the market share by domestic firms. Domestic producers reduce the markup on marginal costs, some domestic firms exit, the remaining firms slide down their average cost curves and output per firm increases.

8.3.1 Algebraic relations

The equilibrium conditions for each market where there are IRTS are estimated separately. The following notation is adopted:

X – Aggregate demand

Y_k – Supply from are k

S_r – Supply from region r

q_{fr} – Supply from firm f in region r

P – Price index for aggregate demand

P_k- Price index for supply from area k

w_r – Price index for supply from region r

π_{fr} – Sales price for supply from firm f in region r.

CES aggregators are used to create the composite goods:

$$X = \left[\sum_k \alpha_k^{1/\sigma} Y_k^{\frac{\sigma-1}{\sigma}} \right]^{\frac{\sigma}{\sigma-1}} \tag{21}$$

$$Y_k = \left[\sum_{r \in \eta_k = k} \beta_{rk}^{1/\eta} S_r^{\frac{\eta-1}{\eta}} \right]^{\frac{\eta}{\eta-1}} \tag{22}$$

$$S_r = \left[\sum_f q_{fr}^{\frac{\varepsilon-1}{\varepsilon}} \right] \tag{23}$$

The associated price indices:

$$P = \left(\sum_k \alpha_k p_k^{1-\sigma} \right)^{\frac{1}{1-\sigma}} \tag{24}$$

$$p_k = \left(\sum_{r \in \eta_k = k} \beta_{rk} w_r^{1-\eta} \right)^{\frac{1}{1-\eta}} \tag{25}$$

$$w_k = \left(\sum_f \pi_{fr}^{1-\varepsilon} \right)^{\frac{1}{1-\varepsilon}} \tag{26}$$

and associated demand functions:

$$Y_k = \alpha_k \left(\frac{P}{p_k} \right)^{\sigma} X \tag{27}$$

$$S_r = \beta_{rk} \left(\frac{p_k}{w_r} \right)^{\eta} Y_k \quad \text{for } k = k_r \tag{28}$$

$$q_{fr} = \left(\frac{w_r}{\pi_{fr}} \right)^{\varepsilon} S_r \tag{29}$$

8.3.2 Behaviour of firms

The profit of firm f in region r selling into a given market is as follows:

$$\Pi_{fr}(q) = \pi_{fr} q - C_{fr}(q) \tag{30}$$

where C is total cost. First order conditions for profit maximisation may be written as follows:

(31) $$c_{fr} = \pi_{fr}(1 - m_{fr})$$

in which c_{fr} is the marginal cost of supply and m_{fr} is a markup over marginal cost (on gross basis):

(32) $$m_{fr} = -\frac{1}{e_{fr}} = -\frac{\partial \pi_{fr} q_{fr}}{\partial q_{fr} \pi_{fr}}$$

where e_{fr} is the perceived elasticity of demand. The expression for the elasticity of demand arises from the nested CES structure of demand and depends on the assumed reaction of other producers.

8.3.3 The perceived elasticity of demand

Derivation of the perceived elasticity of demand begins with the inverse demand function:

(33) $$\pi_{fr} = \left(\frac{S_r}{q_{fr}}\right)^{\frac{1}{\varepsilon}} w_r$$

Then compute the derivative:

(34) $$\frac{\partial \pi_{fr}}{\partial q_{fr}} = -\frac{1}{\varepsilon}\frac{\pi_{fr}}{q_{fr}} + \frac{1}{\varepsilon}\frac{\pi_{fr}}{S_r}\frac{\partial S_r}{\partial q_{fr}} + \frac{\pi_{fr}}{w_r}\frac{\partial w_r}{\partial q_{fr}}$$

Here, HRT develop further derivations with the simplifying assumption of unitary conjectural variations (Cournot conjectures). The non-unitary conjectures are introduced to reconcile the estimates of the economies of scale in production with the estimates of elasticities of substitution in demand. Under Cournot conjectures:

(35) $$\frac{\partial S_r}{\partial q_{fr}} = \left(\frac{S_r}{q_{fr}}\right)^{\frac{1}{\varepsilon}}$$

and the term $\frac{\partial w_r}{\partial q_{fr}}$ is computed using the chain rule the second time:

(36) $$\frac{\partial w_r}{\partial q_{fr}} = \frac{\partial w_r}{\partial S_r}\frac{\partial S_r}{\partial q_{fr}}$$

Substituting (34) and (35) into (33) we get:

(37) $$\frac{\partial \pi_{fr} q_{fr}}{\partial q_{fr} \pi_{fr}} = -\frac{1}{\varepsilon} + \frac{1}{\varepsilon}\frac{q_{fr}}{S_r}\left(\frac{S_r}{q_{fr}}\right)^{\frac{1}{\varepsilon}} + \frac{q_{fr}}{w_r}\left(\frac{S_r}{q_{fr}}\right)^{\frac{1}{\varepsilon}}\frac{\partial w_r}{\partial S_r}$$

Then using (32):

(37) $$\left(\frac{S_r}{q_{fr}}\right)^{\frac{1}{\varepsilon}} = \frac{\pi_{fr}}{w_r}$$

make the substitution to obtain:

(38) $$\frac{1}{e_{fr}} = -\frac{1}{\varepsilon} + \frac{1}{\varepsilon}\frac{\pi_{fr} q_{fr}}{w_r S_r} + \frac{\partial w_r}{\partial S_r}\frac{S_r}{w_r}\frac{\pi_{fr} q_{fr}}{w_r S_r}$$

Applying the same steps at the next level we get an analogous expression:

(39) $$\frac{\partial w_r S_r}{\partial S_r w_r} = -\frac{1}{\eta} + \frac{1}{\eta}\frac{w_r S_r}{p_k Y_k} + \frac{\partial p_k}{\partial Y_k}\frac{Y_k}{p_k}\frac{w_r S_r}{p_k Y_k}$$

Applying the same operations again at the highest level of the CES, given that the demand elasticity for the aggregate X is unity, we get:

(40) $$\frac{\partial p_k Y_k}{\partial Y_k p_k} = -\frac{1}{\sigma} + \frac{1}{\sigma}\frac{p_k Y_k}{PX} + \frac{p_k Y_k}{PX}$$

When equations (38)-(40) are assembled, we obtain an expression for the optimal Cournot markup as follows:

(41) $$m_{fr} = \frac{1}{\varepsilon} + \left(\frac{1}{\eta} - \frac{1}{\varepsilon}\right)\frac{1}{N_{fr}} + \left(\frac{1}{\sigma} - \frac{1}{\eta}\right)\frac{\theta^Y_{fk}}{N_{fr}} + \left(1 - \frac{1}{\sigma}\right)\frac{\theta^X_k \theta^Y_{rk}}{N_{fr}}$$

where the share of supply from region *r* in the supply from area *k* is denoted as:

(42) $$\theta^Y_{rk} = \frac{w_r S_r}{p_k Y_k} \qquad \text{for } k = k_r$$

and the supply from area *k* in total supply of a given good is denoted as:

(43) $$\theta^X_k = \frac{p_k Y_k}{PX}$$

In our model we assumed that products of different firms are imperfect substitutes in demand. The elasticity of demand depends on the country of origin. There are three

elasticities of substitution associated with the nested CES structure of demand discussed earlier:

σ_{DD} – elasticity of substitution between varieties supplied by domestic firms
σ_{MM} – elasticity of substitution between products of any two foreign suppliers
σ_{DM} – elasticity of substitution between domestic and imported varieties.

We assume that domestically produced goods are more easily substitutable among themselves than products from different countries and that σ_{DD} is 15. In addition imported goods are assumed to be better substitutes to each other than domestic and foreign goods. The elasticity of substitution between imported goods is assumed to be equal 10, while domestic and foreign goods enter the demand function with the elasticity of substitution of 5. These are priors used by HRT (1994).
Further let θ_{rs} denote the market share of region r firms in region s. Then we can apply equation (C41) to represent the optimal markup applied in the domestic market and in the foreign markets:

$$\tilde{m}_{rs} = \begin{cases} \frac{1}{\sigma_{DD}} + \left(\frac{1}{\sigma_{DM}} - \frac{1}{\sigma_{DD}}\right)\frac{1}{N_r} + \left(1 - \frac{1}{\sigma_{DM}}\right)\frac{\theta_{rr}}{N_r} & r = s \\ \frac{1}{\sigma_{MM}} + \left(\frac{1}{\sigma_{DM}} - \frac{1}{\sigma_{MM}}\right)\frac{\theta_{rs}}{N_r\theta_s^M} + \left(1 - \frac{1}{\sigma_{DM}}\right)\frac{\theta_{rs}}{N_r} & r \neq s \end{cases} \quad (44)$$

These are the optimal markups expressed as a function of elasticities of substitution, market shares, θ^M_r the market share of imports in region r and N_r the number of firms producing in the region r.

8.3.4 Estimation of the equilibrium conditions in ITRS sectors

This paper adopts a simplification by estimating the equilibrium conditions in IRTS industries for each commodity in separate models. Demands and supplies for all regions are included into these calculations, but factor markets, intersectoral linkages and income effects are ignored. In each iteration of the IRTS models, regional demand functions are calibrated to the most recently estimated equilibrium conditions of the general model including all GE interactions. Given constant marginal cost, sales prices are determined by the markup equations.

The single commodity models are estimated as follows. The markup pricing equation (44) is specified given the benchmark elasticities of substitution, the number of firms and an adjustment parameter, the conjectural variation. First, the values of elasticities of substitution at all nests of the CES function, as well as the number of firms and therefore their market shares are specified. Further, the value of production at consumer prices at the benchmark combined with the estimates of the cost disadvantage ratio taken from the literature (see next section), determine the value of fixed costs, i.e. $FC_{ir} = CDR_{ir}YC_{ir}$. Given the assumption of zero profits, the markup over marginal cost generates the revenue equal exactly to the fixed costs. This condition appears as a constraint in a non-linear least squares calculation.

The objective in the estimation is to calibrate the conjectural variations, which are as close as possible to one. This value is consistent with pure Cournot-Nash behaviour of players. Therefore a sequence of least-squares problems is solved for each commodity subject to IRTS. These problems look for implicit numbers of firms (N_r) which results in calibrated conjectural variations (CV_{rs}) which are as close as possible to 1. This looks as follows:

$$\min_{CV^i_{rs},N_{ir}} \sum_{rs}(CV^i_{rs}-1)^2 \tag{46}$$

subject to:

$$FC_{ir} = \sum_{rs} X^i_{rs} M^G(CV^i_{rs}, N_{ir}, \sigma, \theta)$$

$$0 \le N_{ir} \le 100 \tag{47}$$

$$CV^i_{rs} \ge 0$$

where M^G is a markup equation, i.e. equation (44), and X^i_{rs} represents sales of i from region r in region s.

Therefore, the conjectural variations act as parameters, which allow reconciliation of the benchmark data with the estimates of the elasticities of substitution and CDR taken from the literature. In the majority of sectors calibrated conjectural variations are less than 1 indicating a more competitive behaviour than predicted by the Cournot model.

For sectors, where the assumption of free entry and zero profits in the benchmark, given values of the elasticity of substitution, is consistent with pure Cournot-Nash type behaviour, a second calculation is performed. It looks for the number of firms as small as possible subject to the consistency of conjectures with the Cournot behaviour.

$$\min_{r} N_{ir} \tag{48}$$

subject to:

$$FC_{ir} = \sum_{rs} X^i_{rs} M^G(CV^i_{rs}, N_{ir}, \sigma, \theta)$$

$$0 \le N_{ir} \le 100 \tag{49}$$

$$CV^i_{rs} = 1$$

8.3.5 Calibrating the Cost Disadvantage Ratio

The calibration of the cost disadvantage ratio (CDR) in IRTS sectors is based on the assumption of constant marginal cost. The total cost function is specified as follows:

$$c = f + mq \tag{50}$$

where f is fixed cost, m is constant marginal cost and q denotes the output level. Average cost function looks as follows:

$$(51) \qquad ac = \frac{f}{q} + m$$

Assuming zero profits, the benchmark data provides the information on the industry total costs (C) and output (Q). If there are n representative firms in the initial equilibrium (1), then $nc_1=N$ and $nq_1=Q$. Since

$$(52) \qquad \frac{c_1}{q_1} = \frac{nc_1}{nq_1} = \frac{C_1}{Q_1}$$

given the initial data we know already one point on the firm's average cost curve i.e.:

$$(53) \qquad \frac{c}{q_1} = \frac{f}{q_1} + m$$

Given the assumption about a specific form of the average cost curve, we only need a second point in order to calibrate it. This is done with the use of information from the engineering estimates on changes in average cost accompanying changes in output. If output declines to αq_1 then average costs increase to $\beta\left(\frac{c_1}{q_1}\right)$ where $0<\alpha<1$, $\beta>1$ is required for the marginal cost to be nonnegative. Given the values of α and β we know the second point on the industry average cost curve:

$$(54) \qquad \beta\frac{c}{q_1} = \frac{f}{\alpha q_1} + m$$

By multiplying the nominators and denominators of the last two equations we obtain equations on the total output and costs of industry, on which the data is available. The equations look as follows:

$$(55) \qquad \frac{C}{Q_1} = \frac{F}{Q_1} + m \text{ and}$$

$$(56) \qquad \beta\frac{C}{Q_1} = \frac{F}{\alpha Q_1} + m\,.$$

where F is the fixed cost. Further, we solve the above equations for the fixed and marginal costs:

$$(57) \qquad F = C_1(\beta - 1)\frac{\alpha}{\alpha - 1} \text{ and}$$

$$(58) \qquad m = \left(\frac{C_1}{Q_1}\right)\left(\frac{\beta\alpha - 1}{\alpha - 1}\right).$$

Since the cost disadvantage ratio is defined as f/c, which by symmetry equals F/C, we know that at the initial equilibrium:

$$(59) \qquad \mathrm{CDR} = \frac{(\beta - 1)\alpha}{1 - \alpha}.$$

We obtain the values of α and β from Pratten (1988). Since there are no estimates of the economies of scale for all 3-digit sectors according to NACE classification or the available estimates are not representative, we used a rage of estimated parameters for each GTAP sector. Based on those parameters we constructed three values of the CDRs i.e. low and high using the lowest and highest values of the estimated parameters and middle one. The only exception was the food sector, where the economies of scale differ a lot by products, so we used the average production values to aggregate the CDRs for more finely defined sectors. The allocation of Pratten's NACE sectors to GTAP sectors, as well as the final CDRs are presented in Table 1 below.

Following others such as Gasiorek, Smith and Venables (1992) or HRT (1994), I am assuming that in the benchmark equilibrium firms operate at the minimum efficient scale (MES). Firms should have difficulties competing, if they were operating at less than MES. Given the function form used in this study, at the MES further expansion of output reduces average cost of production. If initially output is lower than the MES, then the CDRs will be underestimated since the slope of the average cost curve increases in absolute value for decreases in output.

In all scenarios we assume low values for the economies of scale. We intend to use high and medium CDRs in the sensitivity analysis.

Table 8.1 Data on CDR values

	Share of MES (α)	Percentage Cost Increase at Output Level (β)	Implied CDR			Source of Data
			Low	Medium	High	
Column	1	2	3	4	5	6
Agriculture	0	0	0	0	0	
Raw materials	0	0	0	0	0	
Food, Beverages, Tobacco			7.7	11.1	14.5	
Meat	0.67	5				412
Dairy	0.67	2				413
Other food	0.67	4 to 9				414, 416, 420, 422
Tobacco	0.33	2.2 to 5				429
Textiles	0.5	2 to 10	2	6	10	43
Clothing	0	0	0	0	0	
Leather	0.33	1.5	0.7	0.7	0.7	451
Wood	0	0	0.0	0.0	0.0	

	Share of MES (α)	Percentage Cost Increase at Output Level (β)	Implied CDR			Source of Data
			Low	Medium	High	
Column	1	2	3	4	5	6
Paper	0.5	8 to 13	8.0	10.5	13.0	471, 472
Petroleum	0.33	4	2.0	2.0	2.0	14
Chemicals	0.33	4 to 19	2.0	5.7	9.4	25
Non-metallic Minerals	0.33	10 to 26	4.9	8.9	12.8	241-247
Iron, steel	0.33	10 to 11	4.9	5.2	5.4	22
Other metals	0.33	11 to 11	4.9	5.2	5.4	224
Metal prod.	0.33	10	4.9	4.9	4.9	221
Motor vehicles	0.5	11	11.0	11.0	11.0	35
Other transport	0.5	8 to 20	8.0	14.0	20.0	361
Electronics	0.33	5 to 15	2.5	4.9	7.4	23, 344, 345
Machinery n.e.c.	0.5	3 to 10	3.0	6.5	10.0	321, 322, 326
Manufacturing n.e.c.	0.5	3 to 5	3	4	5	HRT
Utilities	0	0	0	0	0	
Trade	0	0	0	0	0	
Transport	0.5	2	2	2	2	HRT
Financial services	0.5	5	5	5	5	HRT

Notes:

Column 1: Parameter α in the CDR calibration equation.

Column 2: Data corresponds to (β-1)*100 where β is from the CDR calibration equation.

Column 3-5: CDR estimated according to equation 58.

Column 6: Numbers indicated in this column correspond to NACE sectors from Table 5.1 in Pratten (1988). The assumptions on CDRs in services follow assumptions of HRT (1994).

9 Annex: WTO trade data calculations

Here we shortly present the data mining that preceeded the CGE analysis.

- Calculated 2004 (benchmark) weighted average tariffs. Calculations were based on 10-digit nominal tariffs from the Law on Customs Tariffs and 10-digit HS trade statistics disaggregated by trading partners. Later 10-digit statistics was aggregated to a 6-digit level and transformed into GTAP 2-digit breakdown (concordance table was used).

- Based on information from the Ministry of Economy adjusted the EU-27 and RoW import tariff rates to obtain post-WTO values. ME prepared a table of 2002 weighted average and the post-WTO binded tariffs for 2-digit HS lines (unfortunately, the table is not publicly available). The first step was to find the reduction coefficient for each 2-digit HS group, i.e to estimate by how much the binded average weighted tariff is smaller than the actual 2002 weighted average tariff. Thus, we obtained 97 coefficients for all the 2-digit HS groups (some of them were set to be equal to 1 if post-WTO binded tariff is bigger than the current value). The 2004 weighted average tariffs calculated by CASE Ukraine were multiplied by these coefficients respectively. The new HS tariffs were later again transformed into GTAP lines.

- Since the ME data are for 2002 and the trade structure changed somewhat in 2004, we recognized that such coefficient were not absolutely correct. So we made a step by step analysis of GTAP tariffs to make sure that the obtained values are to our best knowledge consistent with the Ukraine's schedule of commitments. Based on fragmentary information on Ukraine 's schedule from different sources we corrected some obtained GTAP tariffs to get reasonable post-WTO values.

- The last thing was to rescale the obtained coefficients. The actual level of tariff protection in Ukraine is somewhat lower than it should be given the structure of the tariffs. According to our estimates in 2004 the budget got only 59% of the import duty revenues that should have been paid. We assumed that the tariff protection level will be increasing gradually (the situation that is currently observed: import duty revenues are growing faster than the nominal imports). We assumed that the post-WTO tariffs protection level will be 75%. The GTAP tariffs were multiplied by the scale coefficient of 0.75.

10 Annex: FDI gravity model explanations

A widely accepted conceptual framework for analyzing the motives for foreign direct investment (FDI) is an OLI or eclectic paradigm due to John Dunning. According to this approach, FDI takes place when three sets of determining factors exist simultaneously (Dunning, 1993): the presence of ownership-specific advantages of property rights and intangible assets in multinational enterprise (MNE); the presence of internalization incentive advantages, and the presence of locational advantages in a host country.

While the first and second are firm-specific determinants of FDI, the third is location-specific and has a crucial influence on a host country's inflows of FDI. If only the first condition is met, firms will rely on exports, licensing or the sale of patents to service a foreign market. In the presence of internalization incentives, e.g. protection from supply disruptions and price hikes, lack of suitable licensee, and economies of common governance FDI becomes the preferred mode of servicing foreign markets, but only if location-specific advantages are present. Within the trinity of conditions for FDI to occur, locational determinants are the only ones that host governments can influence directly (UNCTAD, 1998).

The locational determinants of foreign direct investment (FDI) is an extensively researched area of international business. While scholars have yet to reach a consensus on the significant FDI determinants, a few key variables have been identified. Large market size, strong market growth, abundant natural resources along with cultural and distance proximity are attractive for FDI inflows (Aharoni 1966, Bass, McGregor and Walters 1977, Grosse, Trevino 1996, Basu, Srinivasan 2002, Benassy-Quere, Fontagne, Lahreche-Revil 2003, Blumentritt and Nigh 2002). Another widely cited FDI determinant - labour cost – have not universally been found to be significant. While Markusen, Zhang (1997), using general equilibrium simulation, showed that wage level is important for small, scarce-labour country, Loree and Guisinger (1995), who studied US investment in 48 countries, found wage rates to be insignificant.

Obviously, market size and labour costs are not the only important FDI determinants; country political and economic risk and/or friendliness of overall business environment are of great concern to foreign investors as well (Basu, Srinivasan, 2002). A number of surveys, conducted among investors (Aharoni (1966), Foster, Alkan (2003), Bass, McGregor and Walters, (1977)), have indicated that sound and stable macroeconomic policy, a positive attitude to foreign investors and supportive institutional environment are important for investment location decisions. In particular, Blumentritt and Nigh (2002),

revealed that favourable regulatory practices would facilitate an integration of a subsidiary company into the host country environment.

Another important factor for FDI flows is the level of regional economic cooperation in a particular location. In general it is found to have a positive impact on FDI for several reasons. First, it expands the size of the local market, and therefore makes the region more attractive to FDI. Second, regionalism can promote political stability and permit countries to coordinate their policies Asiedu (2006). Giovanni (2004) also finds the significance of RTAs for cross-border M&A flows. Jaumotte (2004) concluded that market size of regional trade agreement (RTA) has positive impact on the FDI inflow, but countries within the same RTA do not benefit to the same extent as those ones from different RTAs. Countries with relatively higher education and financial stability tend to attract a larger share of the FDI at the expense of other RTA members. This conclusion supports the above mentioned findings on the importance of the institutional environment and macroeconomic stability for foreign direct investment.

A related issue is the impact of a country's engagement in international trade on FDI. The OLI framework suggests that, as trade becomes concentrated in goods produced by firms using knowledge-intensive assets, FDI will gradually substitute trade. On the other hand, if a country is a recipient of largely efficiency-seeking FDI, then it would stimulate flows of imports of intermediate products and exports of final (or more completed products). Therefore, a country's engagement in international trade may have either substitutary or complementary impact on FDI. As a result, exports/imports variables are rarely employed in FDI models. In those cases when they were included, they have been reported to not have a significant impact on FDI (Bevan and Estrin, 2000). Consequently, we decided not to include trade variables in our analysis.

Yet, instead we do employ an indicator of the openness of the economy in our model. It has traditionally been measured as a ratio of exports plus imports to GDP. Kravis and Lipsey (1982) and Culem (1988) report it to have a significant positive effect on FDI. The degree of a country's openness can affect FDI in multiple ways (some of them are similar to the trade effects). Lower import barriers discourage tariff-jumping FDI but may stimulate vertical FDI by facilitating the imports of inputs and machinery. Lower export barriers tend to stimulate vertical FDI by facilitating the re-export of processed goods, and other (non-tariff-jumping) horizontal FDI by expanding the effective market size and leading to an improved business climate and expectations of better long-term economic growth. So, although it is based on trade data, it is less influenced by imports vs. exports (substitution vs. complementarity) logic and on top to the trade activity in a country, it also reflects the country's general business climate. Although the endogeneity problem – whether openness of the economy causes more FDI or more FDI result in higher engagement in international trade – is in place in this case; we cannot think of a good instrument which could have helped us to resolve this issue, hence we assume that causality runs the former way.

The scholars employed various methods - ranging from straightforward surveying of foreign investors to robust econometric modelling - to explore FDI

determinants. Following recent developments in the field, we are employing a gravity model in this analysis (Brainard 1997, Brenton 1998, Benassy-Quere, Fontagne, Lahreche-Revil, 2003 Benassy-Quere, Coupet, Mayer 2005).

The gravity model, which was developed by Linnemann (1966), is widely used in the analysis of bilateral trade. It was applied to the field of FDI analysis by Brainard (1997). He succeeded in matching the company based logic of OLI with general equilibrium trade models. According to OLI, multinational enterprises' choices in serving foreign markets are determined by the trade-off between incremental fixed costs of investing and the costs of exporting. While many of these costs are determined by the traditional factors which were discussed above - economies of scale, relative input costs, intangible assets - the success of the gravity model in explaining bilateral trade flows points strongly to the inclusion of distance variables in FDI equations.

Distance acts as a proxy for transportation costs, or economic barriers to trade. Another aspect of the distance is cultural proximity, which implies cultural and language community. The closer the countries, the more common cultural aspects are available, the easier to conduct business. The proximity is usually measured as a distance between the capital city of the host country and investing country, or a distance between a host country capital and Brussels. Most studies found positive negative correlation between distance and FDI (Bevan and Estrin (2000), Smarzhynska and Wei (2000, 2002), Resmini (2000), Johnson (2006)). However, Campos and Kinoshita found positive relation for distance from Brussels for CIS countries, which may indicate that the geographical proximity to the Western markets also play an important role in attracting FDI. Interestingly, Tondel (2001) revealed a positive correlation between geographical position and progress in transition. He noted that the most advanced countries in terms of transition are most often geographically closer to Western Europe.

In our study we estimate the following model (it is specified in logarithms):

$$lnFDI_{ij} = \beta_0 + \beta_1 ln\_dist + \beta_2 ln\_gdp_i + \beta_3 ln\_gdp_j + \beta_4 ln\_debt_j + \beta_5 ln\_TO_j + \beta_6 ln\ BEI_j + \beta_7 ln\ gdp\_capita_j + \beta_8 WTO_j$$

where:
$lnFDI_{ij}$ - a natural logarithm of FDI flows from country i to country j,
ln_dist - a natural logarithm of the distance between the capitals of country i and country j,
ln_gdp_i - a natural logarithm of the GDP of countries i and j respectively,
ln_debt_j - a natural logarithm of the external debt of country j as a percentage of GNI of country j,
ln_TO_j - a natural logarithm of the ratio of sum of exports and imports of country j to GNI of country j,
ln_BEI_j - a natural logarithm of the EIU business environment index of country j,
$ln\ gdp\_capita_j$ - a natural logarithm of GDP per capita in country j,

WTO_j - dummy, equals 1 if a country j (a recipient country) is a member of WTO.

As a measure of market size, and consequently economic attractiveness of the location, we use GDP of home and recipient countries. We also employ GDP per capita as another measure of market attractiveness, i.e. purchasing power in the host country.

The EIU business environment index is employed to assess the level of the friendliness of business environment in the host countries. The Economist Intelligence Unit (EIU) business environment rating is one of the 'perceptual' indices that aims to reflect risk perception of investors. In particular, the rating is constructed on the basis of a business rankings model that assesses the quality or attractiveness of the business environment in 60 countries using an analytical framework. The model includes both quantitative and qualitative indicators. The quantitative data are drawn from national and international statistical sources for the period, while qualitative scores are based on business surveys and other data sources adjusted by the EIU. The model is designed to reflect main criteria used by companies to formulate their global business strategies, and is based not only on historical conditions but also on expectations about prevailing conditions in the next five years. EIU business environment rating is a weighted average of the EIU assessment of market opportunities in a country, macroeconomic environment, political environment, infrastructure, policy towards private enterprise, labour market, tax regime, financing, foreign trade and exchange regime, and policy environment for foreign investment. The data are available for the years 1995-2008 (determining a starting year for our sample). The index is measured on 0 to 10 scale with 1 being assigned to the most stable countries; accordingly, a positive sign for the coefficient is expected.

We also control for the level of indebtedness of the host economy, measured as a ratio of the country's external debt to GNI, which is another explanatory/control variable employed in this study. Furthermore, we are analysing an impact of WTO accession on FDI inflows through the inclusion of a dummy variable. We were not able to gather data on unit labour costs for a number of countries in the sample, so unfortunately, we did not include a labour cost measure in our model.

The sample under consideration includes 31 OECD countries as source countries and 12 developing/transition countries as FDI destinations (Brazil, Russia, India, China, Turkey, Kazakhstan, Bulgaria, Ukraine, Czech Republic, Slovakia, Hungary, and Poland). The sample covers years 1995-2003 that yields 1294 observations in a panel under examination.

We use random effects model to estimate our model. The Haussman specification test does not reject random effects speciation at the 5% significance level. Furthermore, the use of fixed effects is problematic, since one of the most important variables in the gravity model (distance between countries) does not change across time, so its impact can't be estimated using the fixed effects methods (because of collinearity problem).

Table A1 reports the model's estimates. In line with the previous research we report significant effects of distance, GDP, GDP per capita, business environment, trade openness and indebtedness of the host economy. The distance has a significantly negative effect on FDI flows and, hence, supports the basic logic of the gravity model. Other traditional gravity model factors – GDP and GDP per capita – have significant positive effects on FDI inflows that confirms a hypothesis of the importance of host country's market size for FDI.

In the earlier versions of the model, we have also considered the common language and common border variables, however they have appeared to be highly insignificant. Hence, we decided to exclude them as this model is also to be used for forecasting purposes (in this case it is better to have a model which consists of statistically significant variables mostly).

The EIU business environment index has also been found to have a significantly positive effect in our sample. It indicates that countries with more stable business environment are significantly more attractive for foreign investors than less stable countries. The WTO dummy came out insignificant in our analysis – probably WTO membership itself does not affect FDI flows strongly.

The impact of the trade openness and level of indebtedness is significant and is in line with the conventional economic logic. The more open an economy is to foreign trade, the higher perception of the level of market freedom investors have, and, hence, the investment is more likely to happen. On the other hand, the level of the external debt has a negative impact on FDI flows.