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Sectoral shocks in network industries

Towards a better European economic regulation

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SECTORAL SHOCKS IN NETWORK INDUSTRIES

TOWARDS A BETTER EUROPEAN ECONOMIC REGULATION

Abstract

Network industries have been the object of several concerns for public authorities within the European economic integration process since the 80's. At that time, a liberalisation process of these industries began, showing the necessity of an implementation of a regulatory and supervisory approach in these sectors. This new approach is partially explained considering their special economic significance as links with other sectors.

This economic significance can be calibrated through the computation of the sectoral shocks' multiplier effects. Therefore, this paper inquires if, when a specific sectoral shock originates in a network industry, the total impact on the output, employment and value added of the whole economy is greater than when the shock originates in other sectors, due to the importance of industrial linkages.

Building upon the Leontief model for input-output analysis, this paper gives a quantification of the multiplier effects, derived from a sectoral shock, in all industries for all the national economies of the 28-EU Member States and some States belonging to the European Neighbourhood framework.

The multiplier effect is measured through three different kinds of Leontief multipliers (output, employment and value added), which are also duplicated depending on the direction of the propagation process of the sectoral shock: upstream (demand shock) and downstream (supply shock). The aim of this quantification is to contribute to a better design of economic regulation, in order to avoid or minimise the risks of asymmetric shocks originated by changes in regulation, especially in network industries.

The main conclusions show that the electricity, gas, and steam supply industry has larger output multiplier effects on EU-28 Member States' economies following a sectoral shock. Moreover, postal and courier activities show a high potential in creating employment. The different national economic structures of each country explain the divergences of the results. Therefore, to improve the economic regulations of the network industries and boost the economic convergence of the EU Member States, public authorities should consider these national differences.

Keywords

Network industries, demand and supply sectoral shocks, input-output tables, Leontief multipliers and economic regulation.

JEL classification: E16, F02 & L51

Contents

List of Abbreviations

EC	European Commission
ENP	European Neighbourhood Policy
ESA	European System of Accounts
EU	European Union
GDP	Gross Domestic Product
IOT	Input-Output Table
ISIC	International Standard Industrial Classification
MRIOT	Multi-Regional Input-Output Table
NIOT	National Input-Output Table
SAD	Structural Analysis Database
SEA	Socio Economic Accounts
SNA	System of National Accounts
SUT	Supply and Use Table
TFEU	Treaty on the Functioning of the European Union
USO	Universal Service Obligation
WIOD	World Input-Output Database
WIOT	World Input-Output Table

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1 Introduction

One of the main concerns within the process of the European economic integration is the existence of asymmetric shocks and the consequent issues in developing an effective global response. These asymmetric shocks can be originated in a specific industry or sector, and then transmitted to the rest of the economy. The origin of these shocks can come from different sources, for example from a change in economic regulation.

The aim of this research is to provide quantitative and qualitative information capable of improving the regulations existing in specific sectors of the economy, in order to prevent the origination of asymmetric shocks. The research will focus on the so-called network industries, which are economic sectors characterised by network externalities, natural monopoly aspects and universal service obligations status.

It is well known that network industries have "greater economic significance than other sectors because other economic activities use the output of these industries as their inputs" (Pelkmans, 2006, p.151). This economic significance was one of the justifications for their traditional State ownership. However, since the beginning of the liberalisation process in the 80's, the focus shifted towards a regulatory and supervisory approach, leading to today's highly-regulated industries.

These two features of the network industries, economic significance and a structured regulatory framework, show the importance of developing accurate regulation to avoid the origination of sectoral shocks with different impacts on national economies in the European Union (hereinafter EU). The research also provides quantitative information for the remaining productive sectors in the national economies for the EU-28 Member States and some other national economies.

Among the different questions analysed in this research, the main one is to test whether, if a specific sectoral shock is originated in a network industry, it has larger effects on the whole economy than sectoral shocks originated in other industries. The above-mentioned special economic significance leads to believe that this effect might indeed be greater This hypothesis is tested through the quantification of the so-called multiplier effects, a benchmark for economic significance.

Another matter of interest is to investigate if the different economic structures of the EU-28 Member States can lead to divergences in the propagation process of sectoral shocks. Moreover, if the answer to the previous question is affirmative, it could perhaps be possible to constate the existence of geographical gaps between the EU Member States in terms of risk exposition to sectoral shocks in certain industries.

The different economic structures of each Member State always implied a challenge in economic regulation processes. Each Member State has different industries with specific economic significances, thus a change in the regulation of a sector can create different outcomes in the national economies. This is especially important when the regulatory change happens in the network industries.

It is also important to acknowledge that European economic regulations already take into account these differences. However, one of the innovations brought by this research is the methodological approach used for their quantification. Input-output analysis will be used to provide an estimate of the production linkages between national industries, the different sectoral economic importance, and their multiplier effect. The research will be based on the Leontief model to estimate three kinds of the so-called Leontief multipliers: output, employment and value added.

A full picture of the shocks' multiplier effects will be obtained through the observation of the shocks' implications on output, employment and value added. Moreover, these multipliers will be divided in two categories depending on the direction of the sectoral shocks' propagation: upstream and downstream.

Therefore, to minimise the distortions of the internal markets when facing negative sectoral shocks, this input-output analysis provides specific information relating the interconnections of national industries. On the contrary, if the desired result is to originate a positive sectoral shock within economies through a given public policy, this analysis shows the areas in which the public intervention can achieve better outcomes.

Finally, this paper is structured as follows. Section 2 provides a synthesis of the theoretical framework upon which the research rests, including a liter-

ature review. Section 3 analyses the main features of network industries and the importance of economic regulation in obtaining optimal market outcomes. Section 4 introduces the Leontief model, which is the quantitative tool used for the quantification of the links between industries. Section 5 encloses a detailed analysis of the concept of input-output table and the database that was used. Section 6 is dedicated to the scrutiny of obtained results. Section 7 goes deeper in the research beyond the EU internal market, in order to corroborate the previous results. Section 8 exposes the main conclusions of this analysis. Lastly, section 9 incorporates a case study to illustrate the conclusions. Annexes containing all the quantitative results that have been calculated and analysed in the research are also attached.

2 Literature review

The theoretical foundations of this research rest upon three pillars: input-output analysis, the multiplier effect of supply and demand shocks, and the economic analysis of regulation, especially regarding network industries.

2.1 Input-output analysis

The aim of this subsection is to briefly show the development of the theorical framework in which the input-output analysis was conceived. For that purpose, it is necessary to go back to the physiocratic school of economics, in the context of which the French economist François Quesnay published his seminal work titled "Tableau économique" in 1758. This manuscript analyses the links between the economic sectors and shows the importance of the agriculture production as the key sector in economies at that time (Perdices de Blas, 2004).

François Quesnay was the first economist who first envisaged what it is currently understood as an input-output table. This "tableau économique" was a graphic representation of the relations between three social classes: the property class, composed by the landowners, the productive class, composed by the farmers, and the sterile class, composed by merchants and manufacturers (Quesnay, 1758).

The main goal of Quesnay was to show that the real economic mover was the agriculture. His analysis based on the "tableau économique" proved that at that time the agriculture was the main economic driving sector. For physiocrat economists trade and industry were not the economic sectors creating wealth, but the agriculture.

This analysis based on the "tableau économique" had not only theoretical purposes, but also political ones. The French physiocrats had a dominant influence in economic governance at that time. Therefore, to justify and defend their economic policies they needed to have methodological tools to quantify the results on real economy.

Once the seed of the modern input-output tables was already planted, the next step in the evolution of the input-output analysis is owed to the general equilibrium theory of Léon Walras. Per the general equilibrium theory, an equilibrium in all markets, but one, implies the equilibrium of the last one (Walras, 1874). If there is an excessive demand in one market, i.e. a disequilibrium in that market, then there is also another unbalanced market with an insufficient demand (Walras, 1874).

Walras did not base his work on the "tableau économique" but, by solving one of the main problems previously pointed out by Cournot, fostered the development of modern input-output analysis. The input-output analysis stems from the union of the methodological approach of Quesnay and the theoretical basis of Walras.

It was Wassily Leontief, thanks to his experience and knowledge of the USSR economic planification, who, in order to study the economic structure of the United States, refined the previous work related to the idea of input-output analysis. In 1936, Leontief published "Quantitative input and output relations in the economic system of the United States", the first modern base for the input-output analysis (Leontief, 1936).

Subsequently, Leontief continued with the study of input-output analysis as a quantitative tool for economics, summarising his work in "Input-Output Economics", published in 1966, where he bundled his most important papers and contributions on that topic (Leontief, 1966). For the development of the input-output analysis, Wassily Leontief received the Nobel Memorial Prize in Economic Sciences in 1973.

2.2 Multiplier effect of demand and supply shocks

The second layer upon which this analysis lies is the literature regarding the multiplier effect originated by a shock. The multiplier effect can be defined as the total impact on a set of economic variables due to a change, normally in smaller scale and so-called shock, in one specific variable (Hill et al., 2012). Although the concept of economic multiplier is usually attributed to J. Maynard Keynes, it was Richard Kahn who first introduced this idea. The work of Kahn inspired Keynes' concept of multiplier effect (Kahn, 1931).

Nevertheless, there are differences between the two concepts of multiplier. On the one hand, Kahn based his concept of multiplier on the labour market, referring to the multiplier effect on employment (Kahn, 1931). This approach to the multiplier effect on employment is considered in this analysis through the employment multipliers, as will be exposed in more detail in the following sections.

On the other hand, Keynes referred to an investment multiplier, noting that an investment in a specific activity or sector has a bigger total impact than the value of the investment itself (Keynes, 1936). Therefore, if there is a higher demand in one activity, in order to develop that activity or increase the production, it will require inputs coming from other supplier sectors, which will also need factors from others and so on (Keynes, 1936). In the present work, this specific multiplier effect approach is captured by the output and value added multipliers.

However, in order to analyse the multiplier effect, a previous economic shock is needed. Generally, the concept of shock refers to a temporary or permanent change in a macroeconomic variable (Acemoglu et al., 2012). Among the many typologies of economic shocks, the most relevant ones for the purposes of this research will be explained.

The main distinction between shocks is drawn depending on their origination in variables related to demand or supply. Hence, demand shocks are originated by a change in a variable linked with the demand function, while supply shocks stem from a change in a variable connected to the supply function.

An example of supply shock can be a change in the technological level of an industry that allows firms to produce a higher quantity with a lower cost (Hill et al., 2012). As explained in following sections, in the analysis of Leontief multipliers, this distinction marks a crucial difference in the direction of the propagation towards the whole economy.

Within these two categories of economic shocks, an ulterior discrimination can also be made depending on whether the shock has positive or negative effects. In the case of the abovementioned example of a technological improvement, it is a positive shock because it allows firms to produce more,

lowering the prices. Nevertheless, if a shock has a negative impact on supply, the outcome will normally be the opposite. For example, an increase of oil prices, which results in higher costs for industries to produce, will increase prices (Hill et al., 2012).

It is also critical to localise where the shock materialises, regardless if it is a demand or a supply shock. A shock can arise directly on an economic variable linked with demand or supply, but also indirectly, producing the so-called external shocks. For the aim of this paper, this category of shocks is fundamental. For example, if there is a change in environmental regulation for the manufacture of vehicles limiting the quantity of contamination produced, it can lead to an external shock. A priori, it is only a legal change; but, nevertheless, this change may limit the production of a firm to comply with the legal obligations, producing then a shock on the supply side.

In order to link the two main concepts explained in this subsection, namely the multiplier effect and economic shocks, it is necessary to introduce the concept of asymmetric shocks. An asymmetric shock is an economic shock originated in a specific sector or variable of the economy which propagates in different ways depending on the conditions of an economy (Hill et al., 2012). In the process of the European economic integration, asymmetric shocks have been a source of concern, especially since the creation of the euro as common currency for EU-19 Member States (Stiglitz, 2016).

Since one of the aims of this paper is to provide better quantitative information for the regulations developed on a European level, the objective of avoiding or minimising asymmetric shocks is implicit. The propagation or multiplier effect due to a sectoral shock can generate different effects depending on the economic structure of national economies. Therefore, the quantifications given by the Leontief multipliers provide the global impact of the multiplier effect for each industry in each EU Member State.

Finally, this analysis of the propagation of sectoral shocks takes into account the latest theories and assumptions made in the models of Carvalho et al. in 2019, based on Long et al. in 1983, and of Acemoglu et al. in 2016. The work on the size of industries and its impact on the linkage effect developed by Domar in 1961 and Hulten in 1978 will also be given due consideration.

2.3 Network Industries & economic regulation

The analysis of relevant literature will first focus on the definition of network industries: they are economic sectors characterised by three main features: natural monopoly, network externalities and universal service obligations (hereinafter USO) (Pelkmans, 2006). Even if the economic literature agrees on these three common features, differences emerge when considering if one industry meets these criteria.

By way of example, Shy considers that the main network industries are the hardware industry, the software industry, telecommunications, broadcasting, information market, airline industry or even some parts of the bank sector (Shy, 2004). Other Authors include more sectors, e.g. water transport or postal services (Economides, 2006).

Economides argues that railroads, roads or shipping should be comprised as well, claiming that it is important to avoid reducing the concept of network industries to the economic sectors historically associated with them. He also notices that some markets, as the digital ones, show the characteristics of network industries (Economides, 2006).

This paper rests upon input-output tables encompassing a variety of industrial sectors. Within them, a selection of network industries will be made, and the relative criteria will be explained in the next section. The aim of this research is to provide another approach to economic regulation, in order to avoid asymmetric shocks within the European internal market. Therefore, a theoretical framework regarding the literature of economic regulation will be exposed.

Regulation can be defined as the public authorities' intervention in the market to improve market outcomes regarding "production processes, production factors and products" (Pelkmans and van Die, 1985). The main objectives of economic regulation are "the internalization of external effects, prevention of destructive competition, prevention of the abuses of economic power, stimulation of the use of merit goods and the restraint of demerit goods" (Pelkmans and van Die, 1985).

Therefore, regulation theory is the economic theory that studies the public intervention mechanisms in economic activity to improve allocation efficiency

and obtain better levels of social welfare. These efficiency gains are measured in terms of Pareto efficiency, identifying an efficient allocation of resources with the situation in which is not possible to reallocate the resources in a way that one individual can improve his situation without harming the situation of others (Pareto, 1906).

In the framework of regulation theory, approaches from different schools of thought should be pointed out. Among these, the regulatory capture theory of Posner in 1974 and the regulation theory from other members of the Chicago School, such as Stigler in 1971, Downs in 1957, Olson in 1965, and Peltzman in 1976. These theories, though, have been criticised because of their lack of empirical evidences. Moreover, in the Chicago School, the work developed by Tullock, Krueger and Bhagwati related to the rent-seeking theory deserves mention.

More recently, other theories such as the contestable market theory proposed by Baumol in 1982, have surfaced as an alternative approach. However, the research could not develop further, because one of the assumptions made by the Author is the lack of existence of sunk costs, which is difficult to apply in network industries because of their special cost structure.

It is importance to notice that regulation literature grew during the 80's and the 90's, when many EU Member States initiated different privatization processes of publicly-owned companies, which usually were network industries. The economic literature held a wide range of opinions, in the heated debate between regulation and competition at the time of privatisation and liberalisation processes (Schneider, 1985).

The special characteristics of network industries, linked with the existence of market failures, justify the intervention of public administrations as regulators. Nevertheless, even if market failures constitute a necessary condition, they are not always a sufficient one. In fact, the introduction and implementation of regulation by public authorities can conceal criticalities, as shown by the new regulation theory (Laffont and Tirole, 1991 a/b).

3 Network Industries

The present research will not only focus on the interconnections between all industries in a specific national economy: through the input-output analysis, it will also inquire if a shock originated in network industries has a higher impact on the whole economy than a shock arising in other sectors. The necessary starting point, then, is an exact definition of the concept of network industries, its main features and the sectors selected for the input-output analysis.

In the process of European market integration, some industries, among which network industries, have been object of special concern due to their features. Network industries are characterised by three items: natural monopoly, universal service obligations and network externalities. Before explaining each characteristic, an evolutionary framework regarding their ownership and regulation within the European economic integration process will be provided.

Before the 80's, network industries were historically called "public utilities" and owned by the EU Member States. The then-in-force Article 222 of the Treaty of Rome (now Article 345 of the Treaty on the Functioning of the European Union, hereinafter TFEU) established the rule of neutrality on ownership regime, thereby allowing public ownership; still, their importance within the national economies was linked with the provision of "special rights" in order to achieve "legitimate national objectives" (Pelkmans, 2006). The concern, then, was to guarantee that the "special rights" given to these companies did not create distortions within the European internal market (Pelkmans, 2006).

During the 80's and the 90's, a change of paradigm regarding the status of these industries intervened. Firstly, the Member States on their own initiative began a process of liberalisation or privatisation in these sectors. Secondly, the European Commission (hereinafter EC) took a more stringent approach in assessing the "special rights" given to public companies in key sectors, considering them as a disguised form of state aids (Pelkmans, 2006).

Due to these changes, the debate focused on which regime, between competition and regulation, would be better suited to obtain efficient market outcomes. This debate was marked by the specific features of network industries.

In the first place, the network industries are characterised by their configuration as natural monopolies, due to the fact that they deliver goods and services through a network. These networks have special characteristics regarding their cost structure. Building them has large fixed costs which are followed by high maintenance costs. Furthermore, most of these costs are also sunk costs. This cost structure creates the economic conditions to understand these industries as natural monopolies (Sharkey, 1982).

There is a natural monopoly situation in industries where the cost structure is capital-intensive and mainly based on fixed costs due to the expenses necessary to build the infrastructure needed to provide large outputs, allowing the firm to take advantage of economies of scale (Sharkey, 1982). Thus, it is more efficient to provide the output in a monopolist sense due to the presence of subadditivity of costs. This justifies the need for economic regulation in order to overcome the trade-off between productive efficiency and allocative efficiency (Sharkey, 1982).

In the second place, network industries are characterised by their consideration as USO. The goods and services provided by these industries are usually essential to guarantee an acceptable standard of living to citizens, such as water, electricity or internet connection. Due to their importance for the population, public authorities establish the obligation for companies to provide these goods or services to all the population in the national territory (Pelkmans, 2006).

This obligation creates some problems regarding the cost structure previously explained because, sometimes, the delivery of the service to the whole territory requires building the network in areas where the profits generated do not compensate the high costs. For example, to deliver internet connectivity to a small village in the mountains of Spain with 500 inhabitants can require high expenditure on infrastructure for the firm, and the generated profits will hardly compensate the investment.

Historically, different solutions coming from economic theory have been proposed in order to enable firms to be profitable when they are qualified as USO. One solution for this problem is to establish a single price for the service or good, allowing the firm to turn a profit. Another solution was found in allowing cross-subsidisation in the market: letting the firm establish supracompetitive prices in some areas in order to offset an affordable price in areas where delivering the service or good would not be profitable otherwise (Pelkmans, 2006).

This problematic gave way to an intense debate between economists on the competitive aspects of these markets. If public authorities allow competition between the USO firms and third ones, the ones not subject to the obligation will focus on the profitable parts of the market, making very difficult to the firm under USO to compete. This kind of competition is called "cream skimming" (Pelkmans, 2006). In order to avoid these problems, on many occasions public authorities opted for a regulatory approach. The idea is to promote competition for the market instead of competition in the market (Pelkmans, 2006).

In the third place, network industries are characterised by the presence of strong network externalities, leading consumer choice to be strongly influenced by the expectations on quality and prices (Pelkmans, 2006). Externalities create a relationship between three different aspects of the market: quality, size of the supply and prices. Taking into account that entry costs are very high in these sectors, the supply capacity is crucial in order to get advantage from the economies of scale. This will affect the quality of provided goods or services (Pelkmans, 2006).

The concept of network industries groups different sectors in which an essential, but non-competitive component (the network) is vertically integrated with competitive activities. The main concern for competition and regulation is usually the access to the network. This can explain the development of theories related to this issue, such as the essential facility theory, which defends the competitive access to the network to firms for whom the network is an input. This results in a prohibition for the owner of the network to deny access to third parties with the goal of monopolising the final market (Laffont, 1996).

In that way, the main targets of the regulator are to keep the monopoly of the essential input and to liberalise the markets of goods and services dependant on the network industry. For that purpose, the regulator can foster competition on network ownership, regulate network access by third competitors, and separate vertical activities linked to the network. In order to achieve these goals, the regulator can count on several tools such as public tenders, public auctions, regulations on vertical disintegration or regulation on shared ownership of the essential facility.

The abovementioned features of network industries created different problems to ensure that competition policy is effective in the European internal market. Moreover, the correct implementation of competition policy depends as well on reputation effects, credibility, penetration pricing and network externalities (Pelkmans, 2006).

This last aspect of network externalities is especially relevant. Consider the telecommunication industry: the number of users in a network creates an attraction for new customers to join the same network. The higher the number of users of the service from one specific company, the higher the incentive for other costumers to sign a contract with that firm. For example, if there are different prices for calls between different telephone companies, consumers will like to join the firm that has the larger number of users, because it will generate savings for the new consumer.

For these reasons, a European approach based on regulation and supervision can be more efficient. This regulation should be focused on "enabling competition between networks, ensuring effective and undistorted access for new goods or service providers to network in Member States and ensuring that even where monopoly is retained, private ownership or franchising should be open to all EU companies" (Pelkmans, 2006, p. 156).

Nevertheless, as every policy, the regulation and supervision system has some issues. Firstly, there is always a problem of asymmetric information between the firms and the regulator. Firms have more accurate information regarding their cost structure and efficiency gains. Moreover, the regulation of access to the market is difficult due to technical reasons and the high initial investment with important sunk costs. These aspects can make for harder entrance to the market, harming economic welfare (Pelkmans, 2006).

Regarding the high level of regulation on these industries, it is important to underline that some of the latest ideas on regulation, such as the "better regulation" by the OECD or the Smart Regulation by the EC in 2010, propose the improvement of economic regulation in order to simplify the legal order, to reduce administrative burdens, to involve the private sector and to improve ex-ante and ex-post evaluations.

For the purpose of the paper, among the 54 industries included in the national input-output tables from the dataset, the following sectors will be considered as network industries: Electricity, gas, steam and air conditioning supply (ISIC code D35), water collection, treatment and supply (ISIC code E36), land transport and transport via pipelines (ISIC code H49), water transport (ISIC code H50), air transport (ISIC code H51), postal and courier activities (ISIC code H53), motion picture, video and television programme production, sound recording and music publishing activities; programming and broadcasting activities (ISIC code J59-J60) and telecommunications (ISIC code J61).

It is important to notice that the categories of industries included in national input-output tables can be very broad, thus the selection of the network industries for the purpose of the analysis can be distorted. In that sense, the selected industries are categories of sectors where there are some activities which fit the explained criteria to consider an activity as network industry. Consequently, now the study will focus on why the selected categories can be considered as network industries.

Regarding electricity, gas, steam and air conditioning supply industrial category, the main concerns for regulation are the distribution and transmission segments of the market. The distribution network shows the usual attributes of network industries, whereas the generation or commercialisation are more competitive activities.

These two segments of the market are generally considered as natural monopolies. As a matter of fact, the construction of the infrastructure needed to distribute electricity from its production to households implies high sunk costs, making the market more efficient when just one operator acts in these segments. Moreover, electricity networks show positive and negative externalities.

Electricity is considered as an essential input for both, industries and households, that it is why is usually regulated under the consideration of Public Service Obligation. However, it has been necessary to consider the entire industry, including other parts of the industry that are less likely to be considered as network industries, due to the lack of desegregated data.

For water collection, treatment and supply, the main interest falls on the supply. The network for delivering water to industries and households fulfils the criteria to be considered as a network industry. In this vein, water supply networks have similar features to the ones in the distribution and transmission segments of electricity markets. Nevertheless, other activities included in the ISIC category are not considered network industries, such as water treatment.

For the three sectors regarding transportation: land transport and via pipelines, water transport and air transport, the issues faced were similar. In the case of land transport, it is not clear if roads can still be considered as network industries; nevertheless, this sector was included because it comprises railroad transport and transport via pipeline which should be considered as network industries.

Railroad networks are usually a common example for natural monopolies. Due to the presence of economies of scale and sunk costs, a single firm, exploiting the physical network and minimizing the cost, will be more efficient than having another competing firm. Moreover, railroad networks show positive externalities, because extra consumers in the network enhance the welfare of existing users, and negative externalities, such as congestion.

In addition, railroad transport is generally a Public Service Obligation. Some kind of services will not exist in a completely free market. Some of these obligations take care of remote regions, special users groups or night services, among others.

In the case of water transport, one the main concern for regulators is usually access to ports. Ports usually constitute an essential facility, and, if access to ports is not ensured, then several economic limitations to competition could arise. In that sense, water transport regulation is not just concerned about the infrastructures themselves, which are usually consid-

ered as natural monopolies, but also about the access to them. How to distribute the limited slots at the ports between transporters is a key piece of economic regulation in this sector.

For air transport, there are also facilities that can generate need of regulation, such as airports. Air transport is a logistical sector using networks of connections, with possible congestion implications, using the common goods of air space, which is scarce and under control of countries below that space, and using airports, which has various consequences, including congestion, noise and safety, among others.

Regarding postal and courier activities there is a bottleneck in the local delivery network, whereas international or express shipping is a competitive segment. Something similar happens in the telecommunication sector, where the local loop shows network characteristics whereas, in the segment for interurban and international calls, there are competitive margins.

In that vein, these industries make use of networks that are usually characterised by their consideration as natural monopolies. Having just one firm operating in the market segments considered before as bottlenecks provide more efficient outcomes than having multiple competitors. Moreover, there are positive network externalities: the welfare of already existing users can be enhanced through the incorporation of new clients. In addition, these activities are normally considered as Pubic Service Obligations because a completely free market will not offer services for remote users where the market has not profits opportunities.

At last, the sector which probably implies more issues in the analysis is the broadcasting industry. The sector category, within the national input-output tables, groups a large number of activities, including sound recording or publishing, which cannot be considered as network industries. However, the broadcasting activities effectively shows the characteristics of a network industry as shown by Oz Shy (2004). Therefore, the whole industrial category was included even if, during the analysis, conclusions must be carefully drawn.

4 The Leontief model

In order to develop the input-output analysis, the research will rely on the so-called Leontief model, which constitutes the main model for the study of input-output tables. Moreover, from this model, the research will go further, computing the Leontief multipliers derived from the main model. This section also includes the assumptions made in this analysis and the main drawbacks and limitations of the model.

4.1 The model

The Leontief Model is built on the concept of technical input-output coefficients, that constitute "the set of parameters on which the balance equations" of the model are based (Leontief, 1966, p. 19). Nevertheless, before introducing these technical coefficients and the balance equations, it is needed to specify the employed mathematical notation:

x_{ij} represents the amount of output produced by sector i, absorbed, as its input, by sector j.

x_j represents the total output of sector j.

y_j represents the total output of sector j delivered to the final demand sector.

It is important to underline that this notation is expressed in physical units, however it is more common to work with input-output tables measured in value terms, in currencies, thus, in order to translate them in value terms, the quantities have to be multiplied by their prices. Therefore:

$p_i x_{ij}$ represents the amount of the product of sector i, absorbed, as its input, by sector j, measured in monetary terms.

$p_j x_j$ represents the total output of sector j, measured in monetary terms.

$p_j y_j$ represents the total output of sector j delivered to the final demand sector, measured in monetary terms.

It is possible to define the input-output coefficients in mathematical notation as follows for both physical and monetary units:

$$a_{ij} = \frac{x_{ij}}{x_j} \qquad pa_{ij} = \frac{p_i x_{ij}}{p_j x_j}$$

The input-output coefficients (a_{ij}) show the output, measured in physical or monetary units, required by industry j from sector i, ($p_i x_{ij}$), to obtain one physical or monetary unit of output from sector j, ($p_j y_j$) (Leontief, 1966). In order to follow the original notation used by Leontief, the following explanation will be expressed in physical units.

To compute the so-called direct requirement matrix or the structural matrix of an economy, the complete set of input-output coefficients for all sectors needs to be obtained. Moreover, this set of input-output coefficients needs to be arranged in the same way as it is done in the national input-output table (Leontief, 1966). This direct requirement matrix is normally denoted by A.

Once introduced the concept of input-output coefficients, it is possible to analyse the process followed in the computation of the Leontief Model regarding the static input-output system. In that sense, the process starts from the following set of n equations, where n is the number of considered sectors. These equations show the equilibrated relationship between the total output produced by each sector and the combinations of inputs required to obtain its output (Leontief, 1966).

$$\begin{pmatrix} (x_1 - x_{11}) & & -x_{12} & - & \dots & & -x_{1n} & = & y_1 \\ -x_{21} & + & (x_2 - x_{22}) & - & \dots & & -x_{2n} & = & y_2 \\ \dots & & \dots & & \dots & & \dots & = & \dots \\ -x_{n1} & & -x_{n2} & - & \dots & + & (x_n - x_{nn}) & = & y_n \end{pmatrix}$$

It is then required to substitute the input-output coefficients (a_{ij}) into the above matrix. This substitution "gives n general equilibrium relationships between the total outputs of all productive sectors and the final demand" (Leontief, 1966, p.23).

$$\begin{pmatrix} (1-a_{11})x_1 & & -a_{12}x_2 & - & ... & & -a_{1n}x_n & = & y_1 \\ -a_{21}x_1 & + & (1-a_{22})x_2 & - & ... & & -a_{2n}x_n & = & y_2 \\ ... & & ... & & ... & & ... & = & ... \\ -a_{n1}x_1 & & -a_{n2}x_2 & - & ... & + & (1-\ a_{nn})x_n & = & y_n \end{pmatrix}$$

Therefore, the next step is finding the solution for this set of n equilibrium equations. The general solution of these equilibrium equations can be represented in the following matrix structure. Notice that this general solution is expressed for the "unknown" inputs' requirements, in terms of the given total production (Leontief, 1966).

$$\begin{pmatrix} x_1 & = & A_{11}y_1 & + & A_{12}y_2 & + & ... & + & A_{1n}y_n \\ x_2 & = & A_{21}y_1 & + & A_{22}y_2 & + & ... & + & A_{2n}y_n \\ ... & = & ... & & ... & & ... & & ... \\ x_n & = & A_{n1}y_1 & + & A_{n2}y_2 & + & ... & + & A_{nn}y_n \end{pmatrix}$$

The constant A_{ij} "indicates by how much the output x_i of the ith sector would increase if y_j, that is, the quantity of good j demanded, had been increased by one unit" (Leontief, 1966, p. 24). This increase could affect directly and/or indirectly sector i. If i = j, then there will be both a direct and indirect impact. Nevertheless, if i $\neq$ j, the total output of sector i will be only affected in an indirect way (Leontief, 1966).

Therefore, the input-output coefficients placed on the left part of each equilibrium equation play a main role in quantifying the value of each term A_{ij} in the solution for the whole system of equations (Leontief, 1966). It can be presented in a matrix form as follows:

$$H = \begin{pmatrix} A_{11}, A_{12}, ..., A_{1n} \\ A_{21}, A_{22}, ..., A_{2n} \\ ..... \\ A_{n1}, A_{n2}, ..., A_{nn} \end{pmatrix}$$

However, even if the previous mathematical notation was the original one used by Leontief, it is more usual to find the following expression to sum up the computations.

$$H \equiv (I \ - \ A)^{-1} = \sum_{k=0}^{\infty} A^k$$

In that sense, the Leontief matrix it is represented by the inverse of the difference between the identity matrix (I) and the technical coefficients matrix (A). Note that the matrix A will have the same size than I, being equal to $(n \times n)$, where n is the number of industries considered in the input-output table.

4.2 The Leontief multipliers

In order to introduce the computation of the Leontief multipliers it is necessary to point out that each element of the Leontief matrix (H) will be represented as h_{ij}, instead of A_{ij}, as originally done by Leontief. Each one of these elements (h_{ij}) "measures the importance of industry j as a direct and indirect input-supplier to industry i" in the economy (Izquierdo, 2019, p. 13). On the contrary, h_{ji} "measures the importance of industry j as customer of industry i" (Izquierdo, 2019, p. 13).

It is important to underline the differences among each category of the calculated multipliers (output, employment and value added): downstream and upstream. When a downstream shock is considered, the multiplier effect propagation is from suppliers to customers, whereas for upstream shocks it is the opposite, from customers to suppliers. Therefore, it can be noticed that downstream shocks refer to supply shocks, while upstream shocks refer to demand shocks (Norlund, 2008). The notation followed to distinguish each category of shock is *DO* for the downstream shocks and *UP* for the upstream shocks.

The first category of the calculated multipliers consists in the output multipliers. They have the following mathematical form:

$$Output\ multiplier_j^{DO} = \sum_{i=1}^{n} h_{ij}$$

$$Output\ multiplier_j^{UP} = \sum_{i=1}^{n} h_{ji}$$

These output multipliers produce the estimation of the total increase in gross output, measured in US dollars, per each US dollar of additional output in industry j (Leontief, 1966). Thus, they provide information about how the production of all the sectors changes when there is a demand or supply shock in one of the sectors (Cordier, 2011).

The second category of the calculated multipliers consists in the employment multipliers:

$$Employment\ multiplier_j^{DO} = \sum_{i=1}^{n} \omega_i h_{ij}$$

$$Employment\ multiplier_j^{UP} = \sum_{i=1}^{n} \omega_i h_{ji}$$

These multipliers are based on output multipliers, with the incorporation of the term ω_i, as a parameter introducing the employment effects (Cordier, 2011). This ω_i represents the number of employees per sector (Ei), divided by the gross output per sector (Y_i), measured in US dollars. It can be represented as follows:

$$\omega_i = \frac{E_i}{Y_i}$$

Employment multipliers can be interpreted as the "number of employments created in each sector, per 1 million additional output in industry j" (Izquierdo, 2019, p. 13).

Finally, the multipliers for the value added are provided as well. These multipliers are computed as follows:

$$Value\ added\ multiplier_j^{DO} = \sum_{i=1}^{n} \delta_i h_{ij}$$

$$Value\ added\ multiplier_j^{UP} = \sum_{i=1}^{n} \delta_i h_{ji}$$

As it also happened with the employment multipliers, the value added multipliers are based on the output multipliers, with the introduction of a ponderation using the parameter δ_i. This parameter introduces the ratio of the value added by a sector (VA_i) over the gross output of that sector (Y_i) in the multipliers. Therefore, the parameter expresses the following relationship:

$$\delta_i = \frac{VA_i}{Y_i}$$

These added value multipliers represent the aggregate increase in value added (GDP), measured in US dollars per each US dollar of additional output in industry j (Leontief, 1966).

Regarding the computation of the Leontief output multipliers it is possible to bring a simple example in order to illustrate how the calculation process looks like. For that purpose, only two sectors of Germany's economy will be considered: postal activities and telecommunications. In the national input-output table of Germany, the following values in relation to these sectors can be found:

	Postal	**Telecommunications**
Postal	215	1,947
Telecommunications	1,310	17,188

Recall that the elements of this matrix can be analysed by columns or rows. The columns show the sector's demand from the other industries. The rows show the quantity produced by each sector for the other industries. Therefore, it can be constated for example the German postal services need 1,310 million US dollars production coming from the telecommunications sector. It is importance to notice that within the same industry there is also a proper demand. In that sense, the telecommunications sector need from its own industry 17,188 million US dollars production, in order to produce the total output generated by this sector.

Starting from the data included in the original input-output tables, the associated direct requirement matrix of this two-industry economy can be easily calculated. For that purpose, the already explained input-output coefficients ($a_{ij} = \frac{p_i x_{ij}}{p_j x_j}$) need to be computed. The values of the numerator are the ones established in the table above, while the denominators are picked up from the total output listed in the input-output table for Germany.

	Postal	**Telecommunications**
Postal	$\frac{215}{39,299} = 0.01$	$\frac{1,947}{39,299} = 0.05$
Telecommunications	$\frac{1,310}{83,785} = 0.02$	$\frac{17,188}{83,785} = 0.21$

These results are the technical coefficients needed to create the Leontief matrix and they form the so-called direct requirement matrix (A). If an approach based on the rows is chosen, it can be noticed that the postal service in Germany spends 0.01$ on purchases from the postal service and 0.05$ on purchases from the German telecommunication sector per US dollar of output. At the same, time, the telecommunication sector spends 0.02$ on postal services and 0.21$ on telecommunications per US dollar of output.

The process continues with the calculation of the Leontief matrix $H \equiv (I - A)^{-1}$. Thus, A must be subtracted from the identity matrix and the inverse of the resulting subtraction must be obtained. These computations give the following results:

	Postal	**Telecommunications**	**Multiplier UP**
Postal	1.01	0.03	1.07
Telecommunications	0.06	1.27	1.30
Multiplier DO	1.04	1.33	

The numbers included in the central part of the above figure refers to the matching elements of these sectors in the Leontief matrix and represents the importance of the industrial relationships between the industries. For example, h_{12} points out the role of telecommunications as direct and indirect supplier of the postal activities sector. h_{12} not only shows the direct requirements stated on the first table of this example, but also the indirect effects. If the postal services want to increase their output, it makes some purchases within itself, and at the same time it makes some purchases from telecommunications.

If the connections between the same industries are analysed, for example h_{22}, it can be noticed that one US dollar sales by telecommunication industry results in 1.27$ in output for telecommunication. This 1.27$ final output is due to the 1$ of the sales plus 0.27$ coming from the multiplier effect: to produce those sales, purchases on its own sector and on the postal services are needed (Izquierdo, 2019).

To calculate the downstream and upstream multipliers it is necessary to sum up the columns and the rows. The sum of the columns gives the upstream multipliers, while the sum of the rows gives the downstream ones (Izquierdo, 2019).

Consider for example the value of the upstream output multiplier for the telecommunications sector, which is 1.30. Imagine that a change in the regulation of the European telecommunications sector implies an increase of the demand for telecommunications of 1 million US dollars. As the telecommunications sector needs to increase its production, it will need inputs from its

own industry (1.27) and from the other sectors, in this case the postal one (0.03). Therefore, the upstream propagation would involve a total increase of 1.30 million US dollars of total output in the German economy. Notice that there is an extra output of 300,000 US dollars generated from the original increase in demand.

4.3 Assumptions & drawbacks

The above-explained Leontief model and multipliers rely on a certain number of theoretical assumptions that must be highlighted. In the first place, the model assumes proportionality, so it considers fixed coefficients of production factors, which implies that the input requirements between industries are always the same. Thus, there is not factor substitutability (Cordier, 2011).

In the second place, it assumes constant returns to scale. In that sense, it is considered as a homogeneous production function with one degree of homogeneity (Izquierdo, 2019). It is important to not confuse this degree of homogeneity with the so-called homogeneity assumption. This last one implies that each industry produce only one kind of good or service that has not substitute (Cordier, 2011).

Moreover, additivity is considered, implying that the output production growth within the different industries generates a growth of total production equal to the sum of the growth of each specific industry's production. Finally, for the analysis of the Leontief multipliers fixed Domar weights, a proxy of the size of the industries (Domar, 1961), are considered. This assumption implies that the output multipliers take into account the sector importance beyond its size (Izquierdo, 2019).

Furthermore, the input-output analysis has some drawbacks that need to be underlined. Firstly, the input-output tables have a time delay with reality. The building process of input-output tables is difficult due to the technical issues regarding its methodology. Thus, the available data is usually some years behind that the present moment of the analysis. This research is based on a database published in 2016 with data from 2014. This delay generates difficulties in making accurate estimations for the present.

Secondly, it is a static analysis. Therefore, it considers fixed production coefficients, limiting the analysis to the short-term. On the long-term, the technical progress or the economies of scale can modify the value of the coefficients. This dynamic limitation makes the estimations and the inference of results less precise (Cordier, 2011).

Thirdly, the assumption of no substitutability between industries is less realistic when there is a large range of industries, as it happens in reality. This is caused by the fact that unitary elasticity is considered (Croasdale, 2019).

Fourthly, the coefficients represent the propagations within sectors that group different activities. Even if the industry categories are composed by related activities and they form an industrial category, the nuances between each specific activity may create distortions in the conclusions.

Fifthly, this analysis also relies on the assumption of constant return to scale, which precludes the consideration of economies of scale (Croasdale, 2019). Input requirements for all industries do not depend on demanded quantity, because they are fixed. This assumption is slightly restrictive because it is known that in reality there is a great number of industries where economies of scale are present.

Sixthly, the output multipliers (not the employment or added value ones) present an issue of double counting. This is a common problem repeated in almost every input-output analysis. Knowing this limitation of output multipliers, other types of multipliers (employment and value added) were introduced in order to balance this drawback (Izquierdo, 2019).

In addition, it was assumed that the positive shocks generating more demand can be answered by the industries by increasing their output. This assumption can only be true when production capacity is available. In economies with full employment, the increase of the demand cannot be replied with more output without generating some economic frictions, as an increase of wages and other economic effects that can distort the results of the analysis (Cassar, 2015).

Finally, there is also a limitation because the technical coefficients are given in value: hence, even if technology is constant over time, a change in prices will affect the technical coefficients. Therefore, supply shocks or non-homogeneous inflation in all industries could distort the analysis.

5 Data

This section will provide an overview of both the concept of input-output tables and the database used, namely National Input-Output Tables (hereinafter NIOTs) issued by the World Input-Output Database (hereinafter WIOD) Project.

5.1 Input-output tables

Following Leontief's definition, "an input-output table describes the flow of goods and services between all the individual sectors of a national economy over a stated period of time" (Leontief, 1966, p. 19). However, input-output tables do not have to be limited to a national economy. Input-output tables can be built from the entire world economy to a small village economy (Leontief, 1966).

Therefore, input-output tables are a statistical source of information, which quantify the production interconnections between the different industries within an economy for a specific period of time. Input-output tables are normally issued by the main national statistical institutes and international economic institutions due to their use as a System of National Accounts (hereinafter SNA).

Moreover, input-output tables are usually built following a homogeneous approach, which supposes an advantage for the input-output analysis, allowing comparisons between datasets. In the EU, a common methodology is currently established by the European System of Accounts (hereinafter ESA), updated in 2010.

The units of an input-output table can be either physical or monetary. It is possible to build an input-output table showing the interconnections between industries in terms of units produced and demanded. Nevertheless, they are usually expressed in a certain currency, showing, then, the interconnections in value or monetary units.

Regarding input-output tables review, two approaches can be adopted, depending on whether they are analysed by rows or by columns. The columns represent the industrial origins of the inputs demanded by a sector, and the rows represent how the output produced by each sector is distributed among the others (Leontief, 1966). These two approaches mark an important difference for the ongoing analysis, as explained in connection to the computation process of the downstream and upstream Leontief multipliers.

In that sense, another relevant aspect of input-output tables is their structure. Input-output tables are divided in different parts, usually called quadrants. Three different quadrants can be distinguished in input-output tables. The first quadrant (Q_1), is called the intermediate consumption quadrant. Q_1 shows the demand and supply relationships between the different industrial sectors of the economy. As previously said, its interpretation depends on the approach: by rows or by columns.

For the ongoing analysis, Q_1 is extremely important, because it only considers the industrial linkages within a given economy without considering importations and exportations, which are given by other quadrants. The other two quadrants are the final demand quadrant (Q_2) and the primary inputs quadrant (Q_3). Q_2 represents the different uses for the output: consumption, investments, and exportations. Q_3 "captures employment, gross operating surplus, taxes, subsidies, value added and gross output" (Izquierdo, 2019, p. 17).

In the following figure, an example of the structure of an input-output table can be observed. The Q_1 is composed by the links between the sectors grouped under the categories of "industrial use" and "intermediate inputs". Therefore, Q_1 is the square which has as vertex $Z^L_{1,1}$, $Z^L_{1,n}$, $Z^L_{n,n}$ and $Z^L_{n,1}$. Q_2 corresponds with the quadrant just under Q_1, thus it is the cross between "industrial use", "imported industrial inputs" and "net economic inputs". Q_2 is the square which has as vertex $Z^l_{1,1}$, $Z^l_{1,n}$, w_n and w_1. Finally, Q_3 is the cross between "intermediate inputs" and "final use". It is represented by the square with vertex d^L_1, e_1, e_n and d^L_n.

		Industrial use				Final use		
						Domestic use		Foreign
		Sector 1	Sector 2	…	Sector n	Consumptive	Gross capital formation	Export
Intermediate inputs	Sector 1	$z^L_{1,1}$	$z^L_{1,2}$		$z^L_{1,n}$	d^L_1		e_1
	Sector 2	$z^L_{2,1}$	$z^L_{2,2}$		$z^L_{2,n}$	d^L_2		e_2
	…							
	Sector n	$z^L_{n,1}$	$z^L_{n,2}$		$z^L_{n,n}$	d^L_n		e_n
Imported industrial inputs	Sector 1	$z^I_{1,1}$	$z^I_{1,2}$		$z^I_{1,n}$	d^I_1		
	Sector 2	$z^I_{2,1}$	$z^I_{2,2}$		$z^I_{2,n}$	d^I_2		
	…							
	Sector n	$z^I_{n,1}$	$z^I_{n,2}$		$z^I_{n,n}$	d^I_n		
Net economic Inputs (Value added)	Wages, taxes, surplus, etc.	w_1	w_2		w_n			

Figure 1: Input-Output Table Structure
Source: Lixiao et al. (2014)

For the aim of this paper, more attention is given to the first quadrant (Q_1). Through the Q_1, the national economic structure divided in different sector can be scrutinised. Since this ongoing analysis is based in a national approach, it is logical to avoid other quadrants such as the Q_2, because it includes the imports. Moreover, the division of industrial sectors within Q_1, will be commented in the following subsection

Finally, it can be added that input-output tables are also important tools for other applications. For example, they were used in "industrial linkage" theory in order to identify which sectors were better suited for stimulating the economy. Furthermore, input-output tables are applied on economic development planning, external economic dependence analysis, international trade accounting, environmental economics or trade and industrial policy design.

5.2 The WIOD Project

As already mentioned at the beginning of this section, the database employed for the research consists in the NIOTs issued by the WIOD Project. This project was set up to provide tools that can address both the quest for indicators by public authorities and the requirements of empirical data for scholars (Dietzenbacher, 2013). It involved researchers coming from universities, such as Groningen University, from research institutions, such as the Institute for Prospective Technological Studies based in Seville, and international economic institutions, such as the OECD (Dietzenbacher, 2013).

The WIOD is based on official national statistics, developed by national statistical institutes, that are publicly available. Moreover, this public statistical information was combined with other public data coming from the well-known International Trade Statistics database, in order to improve the information related to importations (Dietzenbacher, 2013).

It is important to notice that even if the data was extracted from the WIOD, the instrument used is not the World Input-Output Table (hereinafter WIOT), but the NIOTs ones. The main difference between them, is that the WIOT contains the interconnections between the economies of a large number of countries, while the NIOTs only analyse the connections within each State.

The WIOT is one of the so-called Multi-Regional Input-Output Table (hereinafter MRIOT), which analyses the production interconnections between different geographical units, in this case in a global scale. In this occasion, the interests of this paper are not focused on the interconnections between countries, but within countries, at a national level. That also explains why an analysis of the importations as inputs used in the production process is beyond this research.

However, the WIOD was chosen because of its homogeneity regarding the methodology followed in building the input-output tables. National input-output tables can also be found in many of the national statistic institutes of the EU Member States; per contra, that information could not be exactly accurate for comparisons, due to tiny methodological differences, although in the EU all Member States should follow ESA 2010. An example of this

homogeneity can be noticed in the monetary unit used in the NIOTs for all the countries, which is millions of US dollars.

Based on ESA 2010 and the International Standard Industrial Classification (hereinafter ISIC), and with the target of homogenizing data across countries, the WIOD's NIOTs include 54 different industries categories. Each category is composed by several productive activities within a national economy. It is importance to notice that each activity has to be grouped with other similar activities, creating a broader category in order to simplify the construction of the dataset.

It is important to highlight some methodological aspects incorporated by the developers of WIOD in order to understand which are the advantages and limitations of this database. First of all, NIOTs tables are built drawing on the so-called supply and use tables (hereinafter SUT). On the one hand, supply tables indicate "how much quantity of a product is produced by each individual industry and how much quantity is imported" (Dietzenbacher, 2013, p. 74). On the other hand, use tables show the "use of each product by each industry and final use categories" (Dietzenbacher, 2013, p. 74).

As it can be noticed, these supply and use tables have a structure product-by-industry dimension. This can imply different statistical problems in the quantification process of the interconnections (Dietzenbacher, 2013). However, input-output tables have a symmetric structure, given by an industry-by-industry dimension, which therefore does not present these statistical problems.

Another problem of the supply and use tables is the difficult use of the National Accounts as a benchmark. While National Accounts are usually reviewed and updated along with the international methodological changes, supply and use tables are not. Therefore, there are several problems when trying to compare directly the included information (Dietzenbacher, 2013).

Finally, the publication of the WIOD report 2016, comprising data from 2014, was not only composed by the WIOT and the NIOTs, but also by other interesting statistical information. This is the case of the Socio Economic Accounts (SEA hereinafter) that were also used in the research. The SEA provide information about several economic aspects such as the number of

employees, gross output generated or added value, among other variables, within a national economy by each sector.

Nevertheless, the SEA have some inconveniences, such as their units. They were published in national currencies. As this analysis is not limited to the eurozone, in order to avoid problems regarding the change rates, the use of SEA was limited just to the number of employees by each industry, which was measured in number of workers. The information contained in the SEA it is also available in other public statistical sources such as Eurostat. Nevertheless, the decision to use the information from the WIOD Project is due to the objective of maintaining the same source and respecting the same methodological approaches.

6 Results

For the analysis of the quantitative results included in the annexes, the followed criterion considered only the five highest values of the Leontief multipliers (output, employment and value added), both downstream and upstream, in each national economy. This criterion implies that, in order to highlight the special economic significance of an industry, the sector's multiplier effect should be among the five highest values for each category of multipliers. This assumption could be quite constraining, considering that there are 54 industries.

In that sense, this analysis does not focus on the specific numerical value of the multipliers. Instead of studying why in some countries the values are higher than in others, the research focuses on doing a comparison between these values within national economies. Since the main research query is to verify if the shocks' multiplier effect is higher in network industries than in the rest of sectors, an approach comparing the values is justified.

Therefore, regarding the results, one of the analysed industries stands out: the electricity, gas, steam, and air conditioning supply sector. For all the EU Member States, except for Belgium, Denmark, Germany, Hungary, Slovenia and Sweden, the electricity sector shows one of the highest multiplier effects. Moreover, almost in every case, this importance is represented by its output impact, both downstream and upstream.

It is necessary to recall that output multipliers show the estimated total impact in gross output measured in US dollar per US dollar of additional output of an industry (Leontief, 1996). Therefore, the fact that the electricity sector shows economic significance in both directions of the shock's propagation process means that the electricity sector is important within the national economies as supplier to other sectors, and as customer for rest of industries.

Nevertheless, even if the economic significance of the electricity market were proved to be both downstream and upstream, it is more powerful in a downstream direction. There are certain countries in which it only has significant effects on the downstream propagation and not in the upstream, namely Finland, France, Greece, and Lithuania.

This stronger downstream multiplier effect is perfectly understandable considering the well-known role of the electricity sector as supplier for other industries. Every industrial sector depends on electricity, thus the economic significance of the electricity market as supplier is necessarily higher than its role as a consumer.

It can be strange for the reader that, between the EU Member States where the electricity industry has not significative multiplier effect, Germany is present. However, this can be explained because of the restrictive criterion employed, only considering the five highest values among all the industries. In fact, the electricity sector in Germany has the seventh highest value in terms of downstream output multiplier. This shows the resilience of the analysis done, because, the strength of an industry's multiplier effect can only be highlighted in comparison to other sectors.

Furthermore, this role of the electricity market as a supplier for other sectors is enhanced in the used input-output tables due to its consideration as the only sector which groups energy supply sectors in national economies. As already pointed out, every sector of the national economies needs energy as an input for its production.

To illustrate this, consider a positive sectoral shock in the electricity market originated for example by a technological improvement on the distribution chain. This technical change enables the industry to deliver cheaper electricity. Thus, the costs faced by the rest of industries will decrease, allowing the industries to increase their output and to offer lower prices. This production linkage explains why the electricity industry is one of the most important sectors in terms of output multiplier power.

Nevertheless, this economic significance, as explained in the literature review, can also be harmful to the production if the sectoral shock is negative. Imagine now that a new European Regulation is implemented to limit pollution. This regulation could oblige the energy sector to modify its structures and network, in order to be more eco-friendly. These changes in the network are usually costly, hence the electricity prices will increase, generating an effect opposite to the one explained above: greater costs for the rest of the industries and higher prices, reducing the output of the whole economy.

However, not all network industries have significant results in terms of multiplier effect. In particular, two network industries have poor results as multipliers: water collection, treatment, and supply, and the telecommunication sector. For example, the water collection, treatment, and supply sector, only has relevant results in Croatia and in the United Kingdom. In the case of Croatia, this significance is in terms of downstream employment multiplier, whereas in the UK it is as upstream value added multiplier.

These results for the water supply sector are not surprising because, although it was considered as a network industry, its applications for industrial processes is limited. The importance of water supply is more relevant as a universal service obligation for citizens. Even if there are some industries that are highly dependent from water, such as the agricultural sector, this economic significance is diluted when considering the whole set of national productive sectors.

Considering that the European economies are highly dependent on the tertiary sector, telecommunications industry plays an important role for the development of these activities, the scarce multiplier effect of the telecommunication sector was less expected. It only shows economic significance in Denmark as upstream output multiplier. The small economic significance of telecommunications can be explained considering its use within industrial processes. Although for some economic activities, telecommunication services are essential, its value compared to other raw materials used in industrial processes in lower.

There is another network industry that shows tepid results as a multiplier: the broadcasting industry. It only has significant results in Croatia, Germany, Lithuania, Luxembourg, Slovenia, and Sweden. For all of them this significance is shown as upstream output multiplier, except for Germany, which is as upstream value added multiplier, and Luxembourg, which is both, upstream and downstream employment multiplier. As it happened in the case of the water supply industry, the broadcasting sector does not have large interconnections in terms of input supplier or demandant from the rest of industries.

However, even if its multiplier effect is not strong, it is interesting to notice that in the countries where it shows economic significance it does so as an upstream output multiplier. These results are logical, considering that the development of broadcasting activities require large quantities of inputs coming from different industries.

For example, it is an important consumer of output produced in the telecommunications sector or the manufacture of electronic devices. On the contrary, the output generated by the broadcasting industries is not used by other industries as input.

There is one specific network industry which shows outstanding results in terms of employment: the postal and courier activities. In all the EU Member States, apart from Bulgaria, Cyprus, Greece, Portugal and the UK, this industry shows significant results as both downstream and upstream multiplier of employment. There are only two countries, namely Luxembourg and Malta, where the economic relevance of this sector is shown in terms of output.

The employment multipliers show the "aggregate impact on employment, in terms of number of works, per 1 million extra production in each industry" (Izquierdo, 2019, p. 13). The explanation of the results in a downstream propagation can be based on the important role of the manual work in delivery activities. It is an economic sector where the introduction of machinery and technology is more difficult. Thus, if the supply of postal and service activities increases, the number of demanded workers within that sector generates a labour demand pull.

Moreover, even if the sectoral shock is propagated upstream, the creation of employment is also very significative. This shows that the supplier industries for postal and courier activities need to hire large quantity of workers, in order to respond to a demand shock in postal industry. These results in terms of employment can represent the importance of activities related to the delivery of goods in modern societies.

In relation to the transport activities, three different sectors were considered: air transport, water transport and land transport and transport via pipelines. The results on these sectors are different according to their means

of transport. The industry category which has larger economic significance is the land transport and transport via pipelines. It is also important to recall that within this last industry category, transport via railroads is included.

This industry is powerful in terms of downstream output multiplier in half of the EU Member States: Bulgaria, Croatia, Denmark, Estonia, Finland, Hungary, Italy, Latvia, Lithuania, Poland, Slovakia, Slovenia and Sweden. Moreover, it also has some importance in terms of employment and value added multiplier in countries such as Estonia, Finland, Italy, Lithuania, Poland or Sweden. Its economic significance as a downstream output multiplier is easily explained, considering that this industry is mainly a supplier. Transport activities, in fact, are normally part of industrial processes developed by other industries.

Regarding the Member States where land transport and transport via pipelines is important, there is a high number of them which joined the European Union in the latest enlargement process. This geographical distribution can partly be explained due to the transport of gas coming from Eastern third countries, normally done via pipelines. This hypothesis is even more consistent when considering that the propagation direction is downstream, thus meaning that a sectoral shock originated in this industry has larger effects for the rest of sectors, acting as its customers.

Air transport has economic significance as an upstream output multiplier in several EU Member States. These countries are Austria, Bulgaria, Croatia, Czech Republic, Estonia, Finland, Italy, Lithuania, Poland, and Romania. Moreover, in Luxembourg the multiplier effect is not in terms of output, but in employment, both downstream and upstream.

This upstream output importance can be explained again because of the high quantity of inputs needed by the air transport sector from the rest of the economy. The infrastructure for air transport requires inputs coming from different sectors, such as construction, manufacture of electrical equipment or manufacture of metals. Moreover, for the specific communication equipment, it needs inputs from more technological sectors.

In a similar vein, the water transport industry shows comparable results with the air transport industry. Its significance also lies in its effects as

an upstream output multiplier in Estonia, France, Germany, Ireland, Italy, Portugal and Slovakia. Furthermore, Croatia and Czech Republic exhibit water transport as an upstream multiplier sector on employment.

The explanation of these results is close to the ones exposed before for air transport. Nevertheless, in water transport, there is also a geographical criterion, because it can be observed that in all the mentioned countries there are ports or shipyards either for sea or rivers.

Note that both downstream and upstream value added multipliers for water transport in Luxembourg are negative. These results make no sense from an economic point of view, but they are shown in the annexes to illustrate a possible scenario in input-output analysis: negative real value added. This situation can emerge when the deflator for the output of the industry decreases faster than the deflator for its inputs (OECD, 2019).

Finally, it is important to point out that there are three specific EU Member States which have less calculated multipliers than the rest. These countries are Luxembourg, Malta and Sweden. Luxembourg data do not include the multipliers for fishing and aquaculture and for manufacture of coke and refined petroleum products. Malta lacks a multiplier for forestry and logging, whereas Sweden lacks the one for postal and courier activities. This absence is due to the fact that in their national input-output tables, there is a lack of information about these sectors. This can be regarded as a limitation of the dataset.

This production gap implies a problem in mathematical terms that make impossible to compute their respective multipliers. As shown in the formulas in section four, the total output by sectors is included in the denominators of the input-output coefficients. Thus, it is not possible to compute a fraction with a zero in the denominator.

7 Beyond the EU internal market

The obtained results showed the importance of some network industries, such as the electricity, gas or steam supply, as relevant economic sectors in relation with the propagation of specific sectoral shocks in many EU Member States. Nevertheless, the heterogeneity of obtained results tends to show a close relationship between the internal structure of EU Member States' economies and the special economic significance of network industries.

Therefore, in order to obtain consistent conclusions, it is necessary to verify if this economic significance holds in economies with different economic structures than the ones of EU Member States. In that sense, the structures of developed countries such as the US or Japan are too similar to be a valuable paragon. Thus, the analysis will focus on countries that are less developed than EU Member States.

More attention will be given to countries that are part of the so-called European Neighbourhood Policy (hereinafter ENP). One of the main objectives of this European policy is to promote economic development. Per the European institutions, then, these countries have an inferior economic development level which results in different economic structures. Hence, the research will now focus on two of these countries: Morocco and Tunisia.

The economic structures in Morocco and Tunisia diverge from EU countries, as they are mainly based on different economic activities, i.e. agriculture. Thus, less economic importance of network industries is likely. Nevertheless, this enlargement of the research will only consider the Leontief multipliers for output and value added, due to the economic significance showed by EU network industries. For that purpose, the dataset employed in the previous analysis cannot be used, because it does not include information for Morocco and Tunisia. Therefore, the study relies on the dataset on input-output tables issued by the OECD included in the so-called "Structural Analysis Database" (hereinafter SAD), updated in December 2018. The units of this OECD dataset is millions of US dollars, as it was the case in the WIOD.

The OECD dataset has information updated for some countries until the year 2015, but the information from 2014 was used to compare the results

with the previous ones, based on the WIOD Project. This data-related time delay was already explained in previous sections and is justified by the complexity of developing input-output tables.

Moreover, one of the main reasons for choosing the OECD dataset, and not the databases issued by the national institutes for statistics of Morocco and Tunisia, is the homogeneity in the methodological approach. As with the WIOD Project, it is important to follow the same input-output table construction process in order to compare results.

Even though the methodology followed by the OECD has solid bases, it has some issues that make it worse than the WIOD. The main difference between them is the number of considered sector categories when building the input-output tables. Whereas the WIOD Project considered 54 industries, the OECD considered only 35. As explained in section three, the number of considered industries marks an important distinction for this research.

In the process of isolating network industries within NIOTs, a high number of industry categories increases accuracy. In fact, the higher the number of categories in NIOTs, the higher the chance that an industry sector is already isolated. If some limitations were met when using WIOD input-output tables, that include 54 industries, these limitations are bound to be aggravated when relying on the OECD input-output tables, that only have 35 industries.

In that sense, the industries selected for the ongoing analysis are the following: electricity, gas and water supply, sewerage and waste (OECD code D35T39), transportation and storage (OECD code D49T53), publishing, audio-visual and broadcasting activities (OECD code D58T60) and telecommunications (OECD code D61). The reasons for selecting these sectors are the same as the ones explained in section three.

Nevertheless, the OECD database has also some advantages. For example, it includes the computations of the Leontief matrix for some countries and some years, which can facilitate the computation process of the multipliers. Furthermore, the assumptions and the model used for the analysis of Morocco and Tunisia are the same that the already explained in this research.

Regarding the results obtained for Morocco and Tunisia, different outcomes were obtained for each of the countries. While, in Morocco the network industries do not show economic significance regarding sectoral shocks in terms of output and value added multipliers, in Tunisia some of them do. This leads to verify the hypothesis that the economic significance of certain network industries is highly connected with the specific economic structure of each country.

In Morocco, the industries showing the highest importance as downstream output and value added multipliers are activities related with the primary sector, namely agriculture, forestry, fishing, and mining. Moreover, there are other sectors, such as construction, real estate activities or the financial sector that have greater multipliers effects regarding output and value added.

On the contrary, Tunisia's results show that transportation and storage sector has high multiplier effect in a downstream shock propagation in both output and value added. Moreover, the broadcasting activities show relevant results as upstream value added multiplier. Nevertheless, as in Morocco, agriculture, forestry, or fishing activities show greater multipliers effects than the considered network industries, and sectors such as financial activities or real estate also show economic significance as upstream value added multipliers.

However, since the same criterion for attribution of economic significance followed in the EU analysis was applied to these countries, the results must be analysed carefully. In that sense, it can be observed that the electricity market keeps showing high multiplier effects, even if the results are less powerful than for the EU Member States.

This enlargement of the research leads to think that the economic structure of each economy has a large influence in determining the multiplier effect of each industry. Thus, the economic significance of network industries should be assessed according to the national economic organisation.

8 Conclusions

The analysis shows that network industries have a special economic significance in EU Member States. This economic relevance is usually expressed as downstream output multipliers, which is logical considering that their inputs are usually used by the rest of productive sectors (Pelkmans, 2006). Nevertheless, each network industry, due to the diversity of produced goods and services, has different multiplier effects depending on the considered economic variables (output, value added and employment).

These results hold even when the criterion used for assessing economic significance was very restrictive. Even in some countries where network industries did not have their multiplier values among the five highest ones, they had it among the ten highest ones, which also is an indicator of economic significance.

Among the analysed network industries, one of them has the most relevant results in terms of multiplier effect: electricity, gas, steam, and air conditioning supply. Moreover, this effect is extremely important as a downstream output multiplier. This outstanding result is logical considering that this was the main industry included in input-output tables in terms of energy supply. Every productive sector in EU national economies needs energy to develop its activity, thus it is logical that for the energy supply sector to have this importance as an industrial link.

Moreover, there is another network industry that has outstanding results, but in this case in terms of employment: postal and courier activities. In several EU Member States, the employment-making power of this industry is very important. As commented in section six, this fact can be explained because of its labour intensity: in the non-competitive segment of the market, workers' intervention is essential.

Even though network industries' economic significance in terms of multiplier effect was verified, the results also pointed out a strong correlation between these effects and the economic structure of each national economy. In the attached annexes, an heterogenous set of results which depend on different national features can be observed.

It could be argued that the economic differences between EU Member States are not marked enough to draw that conclusion. Thus, the correlation between economic significance as a multiplier and the national economic structures was verified with the analysis of Morocco and Tunisia. In these cases, the input-output analysis was tested on economies which have different economic structures from the EU ones.

As expected, the results showed that the network industries' economic significance in these countries was lower than in EU Member States, due to the lesser importance of industrial activities in ENP countries. These results also confirm the relationship between the level of economic development of a country and the configuration of its economic structure. Whereas the EU Member States have economies based mainly on industrial and services sector, ENP countries have economies based on activities pertaining to the primary sector.

By extension, the economic significance of the network industries as multipliers, is also linked to the level of economic development of a country. If an economy is highly developed, the economic significance of network industries as multipliers will be greater than in less developed countries.

The differences between the economic structures among EU Member States can be explained considering the theories of economic integration. When different geographical areas initiate a process of economic integration through a common market, each area specialises in the economic activities where it has a competitive advantage or favourable production conditions (Tinbergen, 1965).

Furthermore, these favourable production conditions can be based on geographical criteria. There are some similarities regarding the multiplier power of certain sectors, between groups of countries, depending on geographical criteria. For example, Italy, Portugal, and Spain have similar results in output multipliers, whereas France and Germany show more similarities between them than with the southern EU Member States.

These results should be taken into account in the regulatory processes both, at a European level and at a national one. This is necessary not only for network industries, but also for other sectors of economic significance in each

national economy. Network industries should be regulated not only because of their main features, but also in order to protect the rest of the economic sectors from negative sectoral shocks originating in network industries or, on the contrary, to encourage positive shocks.

If a specific sectoral shock is originated in a network industry, the propagation process of the shock is more intense than if the shock is originated in other sectors. Therefore, as a preventive policy, the regulatory approach towards network industries must be considered by the public authorities. In order to shield the economy from sectoral shocks, regulators need to be aware of the network industries' multiplier effect.

Moreover, if this regulation is issued at a European level and it applies to all EU Member States, public authorities should consider the differences between the economic structures of each national economy. Since the national economic structures determine the multiplier effect of each industry, a more flexible regulatory approach should be considered in order to contribute to the economic convergence within the European economic area.

The European economic integration process promotes the development of productive specialisation among the EU Member States economies. Therefore, as it implies a differentiation between national economies, it should not be a problem to develop adjustable economic regulations, which take into account the features of each country. This proposed flexibility can be achieved through European economic regulation that helps balance the trade-off between economic specialisation and protection against asymmetric shocks.

It is important to recall, as exposed in the literature review, that, in the new theory of regulation, market failures are considered a necessary condition for a public intervention via economic regulation, but not a sufficient one. Public authorities, when acting as regulators, should be careful not to elicit more negative effects than the ones created by the market failures they intend to correct (Laffont, 1991a/b).

This flexible approach is a policy recommendation for developing European regulation that leaves a wider margin of discretion for competent authorities and firms. It should take into account the differences between EU Member States and, in order to produce the best possible market out-

comes on each economy, allow manageable fringes in its enforcement and application.

For example, regarding the purpose of achieving a real European single market for network industries, the economic regulation should start bridging national differences. The regulation must assure that the transformations required at a national level do not create asymmetric shocks. This can be achieved allowing different time requirements for each Member State to ensure that national industries, that use the input of network industries in their production process, interiorise the new regulatory framework.

The idea behind this flexible economic regulation can be summarised by the well-known expression "one size does not fit all". One of the problems brought by the standardisation of economic regulation is that it is based on simplifications regarding aspects of economic reality. Therefore, the debate nowadays can be expressed as "one regulation might not fit all EU national economies".

However, this regulatory approach can be as well a source of several concerns. One of the main ones consist in the differences between the Member States in terms of political influence on the decision-making process. It is known that, when it comes to political negotiations, some Member States have more power than others. Moreover, the role of national industrial lobbies can sometimes imply distortions of the regulatory process.

The details of this regulatory approach are beyond the purpose of this paper. Nevertheless, the results suggest that the differences between national EU economies need to play a main role in European regulatory processes. In the end, it could be ironic that the best ex-ante protection for asymmetric shocks could be an asymmetric-approach towards regulation.

9 EU case study: EU electric grids

To illustrate the results and conclusions of this paper, a case study regarding one of the ongoing EU regulation process updates is brought up. There is a heated debate around the reviewing of several EU regulations in order to make them comply with the requirements of the sustainable economy goals of the EC.

In this vein, we focus on the updating processes within the electricity sector. This industry is currently facing important challenges for the future, especially regarding new infrastructure requirements. The complete legal revision of the industry is beyond the purpose of this paper; however, we will focus on one of the network aspects of the industry's regulation.

Among the main network issues that EU regulators want to address in the electricity grid regulation, the enhancement of efficiency should be highlighted. EU regulation wants to implement the strategic smart grids, allowing for a better match between demand and supply. These smart grids will imply several structural changes in the distribution networks, creating interconnections between national grids and renewing some parts of the electric distribution infrastructure.

Each EU Member State shows differences in the employment multipliers within the electricity industry (ISIC D35). Some countries such as France, Germany, Netherlands, and Sweden have low intense multipliers, while other such as Bulgaria, Slovakia, Estonia, and Czech Republic have very significant ones. However, it is important to highlight that, overall, the downstream employment multipliers are higher than the upstream ones. This is explained by the role of the energy sectors as suppliers to the rest of industries.

Therefore, a supply shock within the electricity industry will have higher effects on employment than a demand shock. This is especially interesting for our example because the regulatory changes we referred to, will impact the supply side of the sector. In this case, regulatory changes forcing electricity suppliers to update their networks will suppose a cost increment. Thus, this kind of legal updates will be regarded as a negative supply shock.

As stated, this negative supply shock will affect differently each of the EU Member States in terms of employment. The countries having significant downstream multipliers will suffer a reduction in employment within the electricity industry, while countries with lower downstream multipliers will not see their labour market so affected.

These structural differences across EU Member States should be taken into account by EU regulators when making legal changes implying changes in the costs' structures of the operating firms. Consequently, this paper does not argue that regulation is harmful to the industry. Nonetheless, considering that some industries require a certain level of regulation, these structural differences across them should be considered.

The obtained multipliers suggest that enforcing the same regulation across EU national electricity industries could produce wide employment disparities. Thus, this paper argues that EU regulators could develop disaggregated national targets and schedules to allow national economies to internalise regulatory changes in a smooth way.

Furthermore, this conclusion support the idea that the EC should care about these disparities because national influences in the regulation processes could harm less influential countries. In this case, some of the countries with lower downstream employment multiplier are countries with high political bargaining power such as France, Germany, Netherlands or Sweden.

On the other hand, countries having higher downstream multipliers are States traditionally less strong regarding political negotiations such as Romania, Bulgaria, Cyprus or Poland. These differences in political influence could affect the incentives to institutions such as the European Council to put attention in structural differences.

It is the role of the EC to ensure the cohesion of the Union throughout the incorporation of fair policies for all countries. Therefore, the EC should consider structural differences between EU Member States when designing and implementing legal changes, otherwise they can generate asymmetric shocks.

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ANNEXES

ANNEX I

Table 1.- Multipliers for Austria

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.64	1.73	4.06	4.44	0.64	0.70
Forestry and logging	A02	1.77	1.61	4.08	3.80	0.81	0.79
Fishing and aquaculture	A03	1.05	1.87	2.00	4.98	0.34	0.68
Mining and quarrying	B	1.22	1.44	2.28	3.47	0.60	0.74
Manufacture of food products, beverages…	C10-C12	1.87	1.96	6.10	6.05	0.61	0.66
Manufacture of textiles, wearing, leather…	C13-C15	1.02	1.37	4.55	5.87	0.34	0.50
Manufacture of wood, cork products…	C16	1.45	1.87	4.48	5.86	0.41	0.62
Manufacture of paper and paper products	C17	1.44	1.74	3.54	4.40	0.43	0.58
Printing and reproduction of recorded…	C18	1.60	1.68	5.64	5.85	0.61	0.67
Manufacture of coke and refined…	C19	1.22	1.22	0.86	0.89	0.10	0.13
Manufacture of chemicals and chemical…	C20	1.25	1.45	1.70	2.34	0.23	0.32
Manufacture of basis pharmaceuticals…	C21	1.07	1.37	2.72	3.88	0.51	0.64
Manufacture of rubber and plastic…	C22	1.21	1.43	4.47	5.21	0.47	0.57
Manufacture of other non-metallic mineral	C23	1.40	1.59	5.02	5.74	0.55	0.64
Manufacture of basis metals	C24	1.59	1.60	3.69	3.52	0.46	0.47
Manufacture of fabricated metal products…	C25	1.72	1.56	6.32	5.85	0.67	0.63
Manufacture of computer, electronic…	C26	1.06	1.32	3.05	4.13	0.54	0.66
Manufacture of electrical equipment	C27	1.23	1.40	3.87	4.59	0.52	0.61
Manufacture of machinery and equipment	C28	1.39	1.50	4.05	4.71	0.51	0.58
Manufacture of motor vehicles, trailers…	C29	1.08	1.36	1.85	3.00	0.29	0.42
Manufacture of other transport equipment	C30	1.05	1.44	2.02	3.59	0.35	0.53
Manufacture of furniture; other manufact…	C31-C32	1.10	1.49	5.28	6.68	0.42	0.59
Repair and installation of machinery…	C33	1.55	1.53	5.21	5.61	0.61	0.64
Electricity, gas, steam and air cond…	D35	3.11	2.00	6.88	3.09	1.01	0.58
Water collection, treatment and supply	E36	1.11	1.53	2.64	4.33	0.65	0.83
Sewerage, waste collection, treatment…	E37-E39	1.93	1.79	4.93	4.87	0.74	0.72
Construction	F	3.06	1.74	12.08	7.40	1.32	0.72
Wholesale and retail trade and reparation	G45	1.37	1.48	7.87	8.37	0.67	0.74
Wholesale trade, except motor vehicles…	G46	2.77	1.52	11.06	6.86	1.27	0.82
Retail trade, except of motor vehicles…	G47	1.32	1.51	12.66	13.21	0.76	0.88
Land transport and transport via pipelines	H49	1.78	1.52	7.99	7.33	0.83	0.77
Water transport	H50	1.00	1.75	3.38	6.31	0.35	0.74
Air transport	H51	1.32	1.94	2.48	5.04	0.23	0.56
Warehousing and support for transport…	H52	2.10	1.54	7.14	5.86	0.98	0.86
Postal and courier activities	H53	1.63	1.69	10.94	11.10	0.83	0.87
Accommodation and food service…	I	1.44	1.52	9.31	9.38	0.82	0.86
Publishing activities	J58	1.35	1.92	4.81	7.27	0.50	0.79
Motion picture, video and television…	J59-J60	1.76	1.92	5.34	6.37	0.69	0.82
Telecommunications	J61	1.64	1.76	4.06	4.60	0.68	0.76
Computer programming, consultancy…	J62-J63	1.53	1.53	5.97	6.21	0.74	0.77
Financial service activities, except insur…	K64	2.87	1.59	10.59	5.78	1.39	0.85
Insurance, reinsurance and pension…	K65	1.25	1.82	4.11	6.24	0.54	0.80
Activities auxiliary to financial services…	K66	2.02	2.14	6.07	6.78	0.75	0.85
Real estate activities	L68	2.88	1.47	9.40	2.43	1.56	0.90
Legal and accounting activities…	M69-M70	2.87	1.66	12.04	7.17	1.36	0.86
Architectural and engineering activities	M71	1.57	1.55	6.59	6.66	0.83	0.84
Scientific research and development	M72	1.04	1.56	5.57	7.92	0.54	0.80
Advertising and market research	M73	1.73	2.03	6.14	7.37	0.57	0.73
Other professional, scientific, technical…	M74-M75	1.28	1.69	5.50	7.19	0.60	0.80
Administrative and support service	N	3.15	1.47	16.74	10.41	1.58	0.87
Public administration and defence…	O84	1.16	1.42	8.95	9.87	0.73	0.87
Education	P85	1.14	1.22	9.94	10.17	0.88	0.92
Human health and social work activities	Q	1.05	1.32	10.28	11.32	0.69	0.83
Other service activities	R-S	1.34	1.45	10.18	10.53	0.79	0.86

ANNEX II

Table 2.- Multipliers for Belgium

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.32	1.73	2.50	3.74	0.36	0.54
Forestry and logging	A02	1.06	1.52	1.70	3.01	0.22	0.42
Fishing and aquaculture	A03	1.00	1.36	3.30	4.36	0.43	0.57
Mining and quarrying	B	1.01	1.53	3.01	4.75	0.37	0.60
Manufacture of food products, beverages…	C10-C12	1.99	1.82	4.67	3.97	0.51	0.48
Manufacture of textiles, wearing, leather…	C13-C15	1.01	1.37	3.43	4.63	0.28	0.44
Manufacture of wood, cork products…	C16	1.18	1.57	3.28	4.55	0.29	0.45
Manufacture of paper and paper products	C17	1.29	1.45	2.69	3.30	0.32	0.40
Printing and reproduction of recorded…	C18	1.45	1.56	4.51	5.00	0.50	0.57
Manufacture of coke and refined…	C19	1.31	1.21	0.74	0.59	0.11	0.10
Manufacture of chemicals and chemical…	C20	1.17	1.31	1.46	1.93	0.29	0.36
Manufacture of basis pharmaceuticals…	C21	1.18	1.40	1.76	2.81	0.50	0.62
Manufacture of rubber and plastic…	C22	1.04	1.27	3.19	4.05	0.37	0.48
Manufacture of other non-metallic mineral	C23	1.25	1.53	3.45	4.53	0.39	0.53
Manufacture of basis metals	C24	1.31	1.41	1.85	2.25	0.22	0.28
Manufacture of fabricated metal products…	C25	1.45	1.48	4.82	5.05	0.47	0.51
Manufacture of computer, electronic…	C26	1.05	1.34	2.53	3.54	0.40	0.53
Manufacture of electrical equipment	C27	1.02	1.37	3.34	4.54	0.37	0.52
Manufacture of machinery and equipment	C28	1.10	1.31	2.85	3.63	0.40	0.50
Manufacture of motor vehicles, trailers…	C29	1.04	1.24	1.71	2.43	0.18	0.27
Manufacture of other transport equipment	C30	1.02	1.38	2.31	3.43	0.39	0.54
Manufacture of furniture; other manufact…	C31-C32	1.02	1.37	4.01	5.15	0.36	0.51
Repair and installation of machinery…	C33	1.45	1.48	4.77	5.14	0.54	0.60
Electricity, gas, steam and air cond…	D35	1.40	1.49	2.04	2.40	0.57	0.64
Water collection, treatment and supply	E36	1.10	1.39	2.61	3.44	0.43	0.54
Sewerage, waste collection, treatment…	E37-E39	1.50	1.46	3.17	3.40	0.45	0.47
Construction	F	2.60	1.77	6.49	4.49	0.90	0.59
Wholesale and retail trade and reparation	G45	1.30	1.44	4.97	5.40	0.63	0.72
Wholesale trade, except motor vehicles…	G46	2.49	1.54	6.97	4.55	0.96	0.70
Retail trade, except of motor vehicles…	G47	1.80	1.44	9.10	8.14	0.87	0.82
Land transport and transport via pipelines	H49	2.20	1.59	8.35	6.55	0.83	0.66
Water transport	H50	1.01	1.64	0.91	2.99	0.21	0.48
Air transport	H51	1.06	1.62	1.42	3.35	0.16	0.39
Warehousing and support for transport…	H52	2.41	1.63	6.66	4.86	0.86	0.68
Postal and courier activities	H53	1.42	1.43	8.05	8.21	0.74	0.76
Accommodation and food service…	I	1.45	1.69	6.82	7.21	0.61	0.69
Publishing activities	J58	1.17	1.76	3.00	5.19	0.43	0.70
Motion picture, video and television…	J59-J60	1.52	1.68	3.35	4.35	0.67	0.78
Telecommunications	J61	1.72	1.69	3.22	3.25	0.73	0.74
Computer programming, consultancy…	J62-J63	1.65	1.58	4.54	4.58	0.76	0.76
Financial service activities, except insur…	K64	2.48	1.51	5.83	3.36	1.19	0.83
Insurance, reinsurance and pension…	K65	1.36	1.67	2.93	3.61	0.57	0.76
Activities auxiliary to financial services…	K66	1.67	1.64	4.07	4.24	0.70	0.74
Real estate activities	L68	2.16	1.37	4.28	1.30	1.19	0.86
Legal and accounting activities…	M69-M70	4.23	1.51	10.48	2.63	1.82	0.79
Architectural and engineering activities	M71	1.83	1.71	4.73	4.76	0.70	0.70
Scientific research and development	M72	1.05	1.54	2.68	4.69	0.51	0.75
Advertising and market research	M73	1.21	1.79	2.32	3.83	0.34	0.62
Other professional, scientific, technical…	M74-M75	1.44	1.77	2.71	4.11	0.54	0.71
Administrative and support service	N	3.19	1.51	15.67	11.00	1.36	0.74
Public administration and defence…	O84	1.19	1.25	8.82	9.03	0.81	0.85
Education	P85	1.23	1.15	10.34	10.18	0.96	0.93
Human health and social work activities	Q	1.14	1.38	9.17	10.06	0.66	0.78
Other service activities	R-S	1.54	1.63	6.37	6.74	0.66	0.73

ANNEX III

Table 3.- Multipliers for Bulgaria

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.68	1.73	28.08	26.61	0.66	0.70
Forestry and logging	A02	1.30	1.52	40.09	42.43	0.62	0.71
Fishing and aquaculture	A03	1.02	1.38	22.08	29.13	0.50	0.66
Mining and quarrying	B	1.43	1.45	19.87	20.22	0.75	0.80
Manufacture of food products, beverages…	C10-C12	1.48	1.94	28.18	33.84	0.45	0.64
Manufacture of textiles, wearing, leather…	C13-C15	1.55	1.63	78.67	76.47	0.59	0.64
Manufacture of wood, cork products…	C16	1.21	1.77	41.23	50.01	0.30	0.52
Manufacture of paper and paper products	C17	1.45	1.53	23.00	21.48	0.41	0.44
Printing and reproduction of recorded…	C18	1.75	1.75	35.24	32.09	0.59	0.58
Manufacture of coke and refined…	C19	2.15	1.35	23.59	5.88	0.34	0.10
Manufacture of chemicals and chemical…	C20	1.27	1.54	17.59	20.47	0.35	0.49
Manufacture of basis pharmaceuticals…	C21	1.05	1.45	15.14	22.41	0.36	0.53
Manufacture of rubber and plastic…	C22	1.48	1.47	31.63	29.36	0.39	0.41
Manufacture of other non-metallic mineral	C23	1.38	1.55	22.34	23.80	0.42	0.50
Manufacture of basis metals	C24	1.77	1.65	16.62	11.89	0.30	0.29
Manufacture of fabricated metal products…	C25	1.53	1.50	41.45	37.99	0.51	0.51
Manufacture of computer, electronic…	C26	1.04	1.39	29.01	35.82	0.42	0.56
Manufacture of electrical equipment	C27	1.10	1.59	14.07	22.52	0.24	0.43
Manufacture of machinery and equipment	C28	1.07	1.65	21.46	31.16	0.33	0.53
Manufacture of motor vehicles, trailers…	C29	1.09	1.72	17.99	31.17	0.26	0.53
Manufacture of other transport equipment	C30	1.02	1.64	15.35	26.91	0.22	0.45
Manufacture of furniture; other manufact…	C31-C32	1.07	1.62	40.73	54.80	0.35	0.56
Repair and installation of machinery…	C33	1.25	1.52	32.92	36.45	0.52	0.62
Electricity, gas, steam and air cond…	D35	3.29	1.41	64.08	12.21	1.32	0.56
Water collection, treatment and supply	E36	1.08	1.49	47.08	51.54	0.64	0.81
Sewerage, waste collection, treatment…	E37-E39	1.02	1.81	35.26	50.60	0.39	0.69
Construction	F	3.66	1.92	77.84	30.84	1.30	0.56
Wholesale and retail trade and reparation	G45	1.22	1.66	39.38	44.68	0.57	0.77
Wholesale trade, except motor vehicles…	G46	3.53	1.69	77.54	31.37	1.37	0.75
Retail trade, except of motor vehicles…	G47	2.47	1.60	89.02	65.53	1.06	0.79
Land transport and transport via pipelines	H49	2.79	1.72	55.07	27.02	0.94	0.56
Water transport	H50	1.32	1.39	31.30	30.96	0.71	0.73
Air transport	H51	1.03	1.88	4.30	25.61	0.18	0.52
Warehousing and support for transport…	H52	1.98	1.82	36.25	28.25	0.72	0.69
Postal and courier activities	H53	1.20	1.77	47.54	55.97	0.50	0.75
Accommodation and food service…	I	1.05	1.70	53.44	66.89	0.50	0.78
Publishing activities	J58	1.06	1.56	27.44	37.08	0.46	0.66
Motion picture, video and television…	J59-J60	1.25	1.61	26.61	35.96	0.59	0.77
Telecommunications	J61	1.75	1.56	26.74	18.33	0.87	0.83
Computer programming, consultancy…	J62-J63	1.73	1.55	33.71	25.14	0.89	0.86
Financial service activities, except insur…	K64	3.29	1.39	64.22	20.53	1.69	0.93
Insurance, reinsurance and pension…	K65	1.74	1.73	19.55	17.62	0.84	0.90
Activities auxiliary to financial services…	K66	1.36	1.60	30.30	36.22	0.75	0.88
Real estate activities	L68	2.74	1.38	46.45	9.77	1.53	0.91
Legal and accounting activities…	M69-M70	1.85	1.78	38.27	35.25	0.80	0.80
Architectural and engineering activities	M71	1.45	1.75	27.32	32.83	0.60	0.75
Scientific research and development	M72	1.02	1.35	22.34	26.65	0.73	0.88
Advertising and market research	M73	1.82	2.27	28.18	36.33	0.53	0.76
Other professional, scientific, technical…	M74-M75	1.38	1.79	26.29	35.10	0.58	0.79
Administrative and support service	N	2.10	1.79	90.97	81.09	0.84	0.75
Public administration and defence…	O84	1.07	1.33	54.56	61.12	0.77	0.89
Education	P85	1.26	1.35	87.91	88.31	0.85	0.89
Human health and social work activities	Q	1.57	1.57	55.30	56.84	0.79	0.81
Other service activities	R-S	2.09	1.76	50.79	37.75	0.83	0.69

ANNEX IV

Table 4.- Multipliers for Croatia

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.56	1.65	12.23	18.32	0.70	0.81
Forestry and logging	A02	1.27	1.45	20.75	23.41	0.78	0.90
Fishing and aquaculture	A03	1.04	1.45	6.44	14.61	0.56	0.77
Mining and quarrying	B	2.38	1.34	31.53	4.64	0.82	0.44
Manufacture of food products, beverages…	C10-C12	1.38	1.79	14.96	17.09	0.48	0.71
Manufacture of textiles, wearing, leather…	C13-C15	1.08	1.52	31.43	35.02	0.43	0.66
Manufacture of wood, cork products…	C16	1.04	1.58	22.25	27.68	0.31	0.60
Manufacture of paper and paper products	C17	1.20	1.66	14.33	18.47	0.35	0.59
Printing and reproduction of recorded…	C18	1.25	1.64	10.51	15.24	0.46	0.66
Manufacture of coke and refined…	C19	1.01	1.41	77.73	80.23	0.25	0.42
Manufacture of chemicals and chemical…	C20	1.10	1.48	6.35	9.01	0.27	0.46
Manufacture of basis pharmaceuticals…	C21	1.05	1.48	5.71	9.34	0.54	0.76
Manufacture of rubber and plastic…	C22	1.12	1.39	14.40	16.75	0.36	0.51
Manufacture of other non-metallic mineral	C23	1.23	1.56	15.40	16.76	0.46	0.64
Manufacture of basis metals	C24	1.05	1.55	11.61	15.77	0.22	0.47
Manufacture of fabricated metal products…	C25	1.25	1.49	17.56	18.07	0.51	0.66
Manufacture of computer, electronic…	C26	1.09	1.49	6.81	9.75	0.49	0.70
Manufacture of electrical equipment	C27	1.06	1.62	10.74	15.40	0.30	0.59
Manufacture of machinery and equipment	C28	1.23	1.61	15.42	18.24	0.46	0.68
Manufacture of motor vehicles, trailers…	C29	1.01	1.29	27.31	30.16	0.27	0.42
Manufacture of other transport equipment	C30	1.05	1.58	34.51	39.88	0.40	0.68
Manufacture of furniture; other manufact…	C31-C32	1.03	1.43	28.31	31.73	0.38	0.60
Repair and installation of machinery…	C33	1.27	1.66	15.06	17.10	0.53	0.73
Electricity, gas, steam and air cond…	D35	3.16	1.51	35.62	6.62	1.23	0.48
Water collection, treatment and supply	E36	1.16	1.35	38.48	39.44	0.75	0.85
Sewerage, waste collection, treatment…	E37-E39	1.29	1.32	20.19	19.74	0.60	0.64
Construction	F	1.78	1.60	24.60	18.83	0.70	0.69
Wholesale and retail trade and reparation	G45	1.52	1.48	27.89	24.78	0.79	0.81
Wholesale trade, except motor vehicles…	G46	5.74	1.57	81.37	12.45	2.33	0.83
Retail trade, except of motor vehicles…	G47	2.74	1.59	55.09	38.64	1.35	0.87
Land transport and transport via pipelines	H49	1.29	1.68	20.04	24.10	0.55	0.76
Water transport	H50	1.09	1.37	40.04	41.42	0.47	0.57
Air transport	H51	1.05	1.96	10.55	19.45	0.23	0.66
Warehousing and support for transport…	H52	1.49	1.55	22.60	22.19	0.68	0.77
Postal and courier activities	H53	1.29	1.33	36.09	35.79	0.83	0.86
Accommodation and food service…	I	1.26	1.41	23.57	23.70	0.69	0.76
Publishing activities	J58	1.17	1.58	15.04	18.89	0.47	0.69
Motion picture, video and television…	J59-J60	1.55	1.84	19.08	21.85	0.67	0.82
Telecommunications	J61	1.91	1.55	15.05	7.98	1.00	0.84
Computer programming, consultancy…	J62-J63	1.48	1.46	20.60	19.01	0.83	0.85
Financial service activities, except insur…	K64	1.62	1.27	18.28	11.95	0.99	0.88
Insurance, reinsurance and pension…	K65	1.33	1.56	15.43	17.24	0.60	0.75
Activities auxiliary to financial services…	K66	1.29	1.29	8.22	7.22	0.72	0.74
Real estate activities	L68	2.73	1.09	27.25	1.19	1.72	0.96
Legal and accounting activities…	M69-M70	2.08	1.35	25.63	12.82	1.13	0.83
Architectural and engineering activities	M71	2.34	1.54	23.02	13.04	1.09	0.83
Scientific research and development	M72	1.14	1.26	14.89	15.32	0.76	0.83
Advertising and market research	M73	1.42	1.75	12.23	12.70	0.50	0.72
Other professional, scientific, technical…	M74-M75	1.17	1.34	29.22	29.91	0.67	0.77
Administrative and support service	N	2.24	1.62	32.11	20.57	1.07	0.81
Public administration and defence…	O84	1.07	1.51	19.93	24.84	0.56	0.80
Education	P85	1.27	1.22	42.64	41.27	0.95	0.92
Human health and social work activities	Q	1.11	1.27	29.78	32.36	0.70	0.79
Other service activities	R-S	1.37	1.54	23.97	25.61	0.72	0.82

ANNEX V

Table 5.- Multipliers for Cyprus

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.55	1.58	8.91	7.81	0.68	0.69
Forestry and logging	A02	1.03	1.15	23.74	24.73	0.84	0.89
Fishing and aquaculture	A03	1.03	1.21	11.22	12.27	0.76	0.83
Mining and quarrying	B	1.16	1.68	5.66	9.37	0.29	0.56
Manufacture of food products, beverages…	C10-C12	1.53	1.84	11.61	12.72	0.50	0.68
Manufacture of textiles, wearing, leather…	C13-C15	1.14	1.37	23.32	25.08	0.36	0.49
Manufacture of wood, cork products…	C16	1.33	1.71	15.52	16.89	0.48	0.65
Manufacture of paper and paper products	C17	1.11	1.24	9.03	9.96	0.40	0.47
Printing and reproduction of recorded…	C18	1.26	1.30	13.02	13.31	0.49	0.53
Manufacture of coke and refined…	C19	2.00	1.78	19.96	16.65	0.58	0.53
Manufacture of chemicals and chemical…	C20	1.04	1.40	8.86	11.10	0.40	0.57
Manufacture of basis pharmaceuticals…	C21	1.03	1.32	5.39	7.34	0.40	0.54
Manufacture of rubber and plastic…	C22	1.20	1.29	11.52	11.50	0.42	0.47
Manufacture of other non-metallic mineral	C23	1.44	1.54	9.95	9.24	0.48	0.52
Manufacture of basis metals	C24	1.15	1.24	4.43	4.53	0.41	0.49
Manufacture of fabricated metal products…	C25	1.24	1.23	14.37	12.90	0.49	0.51
Manufacture of computer, electronic…	C26	1.01	1.09	43.11	43.81	0.67	0.71
Manufacture of electrical equipment	C27	1.05	1.26	9.87	11.43	0.37	0.48
Manufacture of machinery and equipment	C28	1.01	1.21	8.02	9.39	0.46	0.56
Manufacture of motor vehicles, trailers…	C29	1.01	1.34	16.11	18.65	0.40	0.56
Manufacture of other transport equipment	C30	1.00	1.36	30.09	33.36	0.33	0.55
Manufacture of furniture; other manufact…	C31-C32	1.09	1.34	15.15	16.61	0.45	0.58
Repair and installation of machinery…	C33	1.20	1.23	11.97	11.71	0.64	0.67
Electricity, gas, steam and air cond…	D35	3.24	1.28	20.22	3.91	1.27	0.47
Water collection, treatment and supply	E36	1.27	1.63	3.39	4.05	0.65	0.76
Sewerage, waste collection, treatment…	E37-E39	1.76	1.45	14.60	11.73	0.88	0.84
Construction	F	1.97	1.81	18.54	14.81	0.73	0.60
Wholesale and retail trade and reparation	G45	1.47	1.35	18.10	16.64	0.61	0.63
Wholesale trade, except motor vehicles…	G46	1.59	1.44	15.94	13.62	0.81	0.83
Retail trade, except of motor vehicles…	G47	1.97	1.34	21.44	13.35	1.07	0.90
Land transport and transport via pipelines	H49	1.39	1.42	15.00	14.33	0.70	0.73
Water transport	H50	1.61	1.75	6.41	5.37	0.52	0.60
Air transport	H51	1.02	1.70	4.54	9.67	0.04	0.37
Warehousing and support for transport…	H52	1.65	1.69	6.27	8.65	0.43	0.57
Postal and courier activities	H53	1.10	1.20	10.49	11.00	0.82	0.87
Accommodation and food service…	I	1.53	1.50	18.36	16.65	0.78	0.76
Publishing activities	J58	1.37	1.49	5.18	5.39	0.41	0.47
Motion picture, video and television…	J59-J60	1.20	1.32	16.17	15.97	0.78	0.84
Telecommunications	J61	1.50	1.43	8.08	6.21	0.87	0.83
Computer programming, consultancy…	J62-J63	1.04	1.13	7.01	7.55	0.61	0.66
Financial service activities, except insur…	K64	2.28	1.21	16.55	8.05	1.28	0.93
Insurance, reinsurance and pension…	K65	1.41	1.63	8.89	9.25	0.49	0.66
Activities auxiliary to financial services…	K66	2.34	1.82	13.72	7.99	0.74	0.72
Real estate activities	L68	2.11	1.22	10.71	1.79	1.30	0.91
Legal and accounting activities…	M69-M70	2.97	1.14	23.50	10.01	1.63	0.93
Architectural and engineering activities	M71	1.19	1.18	17.64	17.27	0.89	0.90
Scientific research and development	M72	1.00	1.22	29.80	31.31	0.79	0.89
Advertising and market research	M73	1.35	1.87	9.24	12.71	0.44	0.75
Other professional, scientific, technical…	M74-M75	1.08	1.31	14.50	15.56	0.64	0.75
Administrative and support service	N	1.11	1.37	18.62	19.89	0.65	0.78
Public administration and defence…	O84	1.20	1.23	15.79	14.72	0.88	0.90
Education	P85	1.15	1.14	14.93	14.81	0.94	0.94
Human health and social work activities	Q	1.03	1.33	11.20	13.09	0.68	0.84
Other service activities	R-S	1.15	1.36	10.02	11.01	0.71	0.81

ANNEX VI

Table 6.- Multipliers for Czech Republic

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.84	1.83	19.51	18.02	0.66	0.67
Forestry and logging	A02	1.62	1.64	10.19	10.24	0.72	0.77
Fishing and aquaculture	A03	1.00	1.32	16.46	19.16	0.35	0.47
Mining and quarrying	B	1.39	1.64	11.10	13.99	0.52	0.66
Manufacture of food products, beverages…	C10-C12	1.81	2.15	15.86	17.61	0.54	0.67
Manufacture of textiles, wearing, leather…	C13-C15	1.03	1.45	14.49	18.17	0.34	0.51
Manufacture of wood, cork products…	C16	1.50	1.92	13.63	16.21	0.43	0.63
Manufacture of paper and paper products	C17	1.33	1.74	8.87	12.19	0.35	0.53
Printing and reproduction of recorded…	C18	1.85	1.77	18.50	18.20	0.66	0.62
Manufacture of coke and refined…	C19	1.77	1.41	6.90	3.66	0.29	0.20
Manufacture of chemicals and chemical…	C20	1.14	1.54	4.78	7.95	0.26	0.41
Manufacture of basis pharmaceuticals…	C21	1.02	1.58	5.31	10.33	0.41	0.63
Manufacture of rubber and plastic…	C22	1.46	1.41	10.67	10.58	0.45	0.45
Manufacture of other non-metallic mineral	C23	1.42	1.64	12.42	14.22	0.51	0.61
Manufacture of basis metals	C24	1.36	1.55	8.27	9.74	0.31	0.39
Manufacture of fabricated metal products…	C25	1.77	1.58	17.07	15.40	0.59	0.54
Manufacture of computer, electronic…	C26	1.05	1.25	3.59	5.48	0.22	0.30
Manufacture of electrical equipment	C27	1.18	1.37	9.43	10.84	0.37	0.44
Manufacture of machinery and equipment	C28	1.19	1.56	10.10	13.24	0.37	0.52
Manufacture of motor vehicles, trailers…	C29	1.79	1.58	10.33	7.89	0.46	0.38
Manufacture of other transport equipment	C30	1.08	1.35	9.05	11.34	0.37	0.47
Manufacture of furniture; other manufact…	C31-C32	1.09	1.52	13.82	17.48	0.39	0.56
Repair and installation of machinery…	C33	1.58	1.64	14.69	14.75	0.62	0.67
Electricity, gas, steam and air cond…	D35	2.87	1.58	17.63	5.15	1.06	0.59
Water collection, treatment and supply	E36	1.20	1.76	11.78	15.79	0.52	0.75
Sewerage, waste collection, treatment…	E37-E39	1.39	1.76	13.61	16.88	0.45	0.61
Construction	F	3.35	2.09	29.18	16.51	1.19	0.70
Wholesale and retail trade and reparation	G45	1.62	1.55	18.81	17.05	0.67	0.63
Wholesale trade, except motor vehicles…	G46	3.71	1.80	35.95	17.82	1.41	0.74
Retail trade, except of motor vehicles…	G47	2.36	1.70	32.08	25.21	0.99	0.79
Land transport and transport via pipelines	H49	2.55	1.80	25.89	17.95	0.92	0.70
Water transport	H50	1.00	2.05	16.82	25.04	0.31	0.71
Air transport	H51	1.16	2.17	3.14	10.49	0.16	0.56
Warehousing and support for transport…	H52	3.14	1.98	27.93	14.00	1.07	0.75
Postal and courier activities	H53	1.52	1.66	33.79	35.37	0.71	0.78
Accommodation and food service…	I	1.26	1.77	22.29	26.20	0.58	0.77
Publishing activities	J58	1.06	1.66	8.22	14.38	0.51	0.75
Motion picture, video and television…	J59-J60	1.50	1.78	6.10	8.28	0.67	0.80
Telecommunications	J61	1.70	1.57	8.94	7.38	0.83	0.78
Computer programming, consultancy…	J62-J63	1.90	1.57	17.10	14.12	0.98	0.85
Financial service activities, except insur…	K64	2.77	1.51	19.51	9.24	1.33	0.88
Insurance, reinsurance and pension…	K65	1.39	2.06	6.71	12.40	0.48	0.77
Activities auxiliary to financial services…	K66	1.94	2.13	10.35	13.35	0.68	0.84
Real estate activities	L68	3.13	1.70	23.69	7.65	1.39	0.82
Legal and accounting activities…	M69-M70	1.95	1.58	19.23	15.33	0.89	0.78
Architectural and engineering activities	M71	1.87	1.94	16.27	16.26	0.70	0.74
Scientific research and development	M72	1.08	1.39	14.29	17.25	0.65	0.78
Advertising and market research	M73	2.11	2.24	13.73	15.20	0.64	0.70
Other professional, scientific, technical…	M74-M75	1.78	2.02	13.48	15.00	0.62	0.71
Administrative and support service	N	2.31	1.95	28.25	23.63	0.88	0.74
Public administration and defence…	O84	1.34	1.46	20.28	21.18	0.80	0.86
Education	P85	1.21	1.27	30.89	30.87	0.87	0.90
Human health and social work activities	Q	1.08	1.34	23.32	25.62	0.63	0.74
Other service activities	R-S	1.49	1.69	18.59	20.04	0.67	0.77

ANNEX VII

Table 7.- Multipliers for Denmark

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.63	1.77	4.39	4.82	4.82	0.63
Forestry and logging	A02	1.53	1.95	5.97	7.74	7.74	0.74
Fishing and aquaculture	A03	1.00	1.54	1.29	2.93	2.93	0.62
Mining and quarrying	B	2.02	1.13	1.65	0.83	0.83	0.94
Manufacture of food products, beverages…	C10-C12	1.73	1.86	4.61	4.37	4.37	0.51
Manufacture of textiles, wearing, leather…	C13-C15	1.01	1.42	2.63	3.96	3.96	0.44
Manufacture of wood, cork products…	C16	1.19	1.66	4.58	6.33	6.33	0.65
Manufacture of paper and paper products	C17	1.20	1.64	3.68	4.96	4.96	0.58
Printing and reproduction of recorded…	C18	1.37	1.60	6.18	6.90	6.90	0.65
Manufacture of coke and refined…	C19	1.16	1.79	0.51	1.01	1.01	0.57
Manufacture of chemicals and chemical…	C20	1.06	1.34	1.79	2.73	2.73	0.57
Manufacture of basis pharmaceuticals…	C21	1.08	1.33	1.74	2.96	2.96	0.78
Manufacture of rubber and plastic…	C22	1.15	1.40	3.80	4.58	4.58	0.50
Manufacture of other non-metallic mineral	C23	1.27	1.58	3.92	4.89	4.89	0.66
Manufacture of basis metals	C24	1.04	1.38	3.05	4.15	4.15	0.48
Manufacture of fabricated metal products…	C25	1.68	1.50	6.54	5.93	5.93	0.59
Manufacture of computer, electronic…	C26	1.03	1.33	2.83	3.94	3.94	0.65
Manufacture of electrical equipment	C27	1.03	1.37	3.18	4.42	4.42	0.54
Manufacture of machinery and equipment	C28	1.59	1.49	4.27	4.08	4.08	0.55
Manufacture of motor vehicles, trailers…	C29	1.01	1.38	2.71	4.11	4.11	0.48
Manufacture of other transport equipment	C30	1.01	1.38	4.25	5.57	5.57	0.58
Manufacture of furniture; other manufact…	C31-C32	1.07	1.47	3.22	4.73	4.73	0.66
Repair and installation of machinery…	C33	1.34	1.45	4.13	4.74	4.74	0.60
Electricity, gas, steam and air cond…	D35	1.70	1.57	2.96	2.32	2.32	0.77
Water collection, treatment and supply	E36	1.08	1.62	1.27	3.46	3.46	0.83
Sewerage, waste collection, treatment…	E37-E39	1.82	1.84	4.23	4.61	4.61	0.70
Construction	F	2.13	1.61	7.57	6.40	6.40	0.65
Wholesale and retail trade and reparation	G45	1.48	1.42	7.31	7.20	7.20	0.72
Wholesale trade, except motor vehicles…	G46	3.72	1.51	13.21	5.67	5.67	0.76
Retail trade, except of motor vehicles…	G47	1.26	1.52	14.37	14.94	14.94	0.86
Land transport and transport via pipelines	H49	2.20	1.48	8.46	5.72	5.72	0.63
Water transport	H50	1.26	1.33	1.54	1.57	1.57	0.31
Air transport	H51	1.13	1.45	1.75	3.00	3.00	0.41
Warehousing and support for transport…	H52	1.40	1.50	3.98	5.16	5.16	0.74
Postal and courier activities	H53	1.48	1.55	9.37	9.47	9.47	0.74
Accommodation and food service…	I	1.46	1.65	11.80	12.26	12.26	0.70
Publishing activities	J58	1.71	1.63	7.66	7.60	7.60	0.85
Motion picture, video and television…	J59-J60	1.65	1.75	5.45	6.07	6.07	0.82
Telecommunications	J61	1.81	1.77	5.02	4.90	4.90	0.77
Computer programming, consultancy…	J62-J63	2.06	1.64	7.63	6.14	6.14	0.80
Financial service activities, except insur…	K64	2.68	1.44	7.93	3.68	3.68	0.88
Insurance, reinsurance and pension…	K65	1.33	1.57	5.25	5.78	5.78	0.92
Activities auxiliary to financial services…	K66	1.59	1.55	4.54	4.43	4.43	0.84
Real estate activities	L68	2.58	1.42	8.58	2.27	2.27	0.88
Legal and accounting activities…	M69-M70	2.33	1.43	10.28	6.73	6.73	0.89
Architectural and engineering activities	M71	1.83	1.66	6.90	6.72	6.72	0.80
Scientific research and development	M72	1.09	1.64	3.88	6.21	6.21	0.68
Advertising and market research	M73	1.38	2.00	5.33	7.92	7.92	0.79
Other professional, scientific, technical…	M74-M75	1.48	1.68	6.23	7.29	7.29	0.78
Administrative and support service	N	2.87	1.56	12.96	8.18	8.18	0.75
Public administration and defence…	O84	1.33	1.35	7.24	7.23	7.23	0.82
Education	P85	1.26	1.26	9.22	9.25	9.25	0.87
Human health and social work activities	Q	1.10	1.25	10.31	10.98	10.98	0.83
Other service activities	R-S	1.41	1.41	8.67	8.62	8.62	0.83

ANNEX VIII

Table 8.- Multipliers for Estonia

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.57	1.58	14.81	15.18	0.56	0.62
Forestry and logging	A02	1.50	1.64	12.17	13.16	0.59	0.70
Fishing and aquaculture	A03	1.05	1.42	4.29	7.54	0.51	0.68
Mining and quarrying	B	1.62	1.39	10.79	9.43	0.81	0.72
Manufacture of food products, beverages…	C10-C12	1.48	1.83	12.92	14.18	0.38	0.55
Manufacture of textiles, wearing, leather…	C13-C15	1.02	1.25	18.53	20.40	0.35	0.46
Manufacture of wood, cork products…	C16	1.50	1.89	10.73	13.24	0.41	0.61
Manufacture of paper and paper products	C17	1.03	1.65	8.99	13.37	0.28	0.55
Printing and reproduction of recorded…	C18	1.21	1.37	11.60	12.51	0.42	0.50
Manufacture of coke and refined…	C19	1.18	1.49	6.59	9.20	0.52	0.68
Manufacture of chemicals and chemical…	C20	1.09	1.25	5.21	6.42	0.21	0.28
Manufacture of basis pharmaceuticals…	C21	1.01	1.41	3.74	7.27	0.27	0.44
Manufacture of rubber and plastic…	C22	1.05	1.33	6.68	8.88	0.30	0.43
Manufacture of other non-metallic mineral	C23	1.27	1.57	9.71	12.07	0.42	0.56
Manufacture of basis metals	C24	1.00	1.16	3.26	4.40	0.23	0.30
Manufacture of fabricated metal products…	C25	1.45	1.29	14.85	13.64	0.44	0.41
Manufacture of computer, electronic…	C26	1.03	1.12	2.70	3.57	0.12	0.17
Manufacture of electrical equipment	C27	1.03	1.19	6.61	8.09	0.31	0.39
Manufacture of machinery and equipment	C28	1.03	1.30	5.26	7.75	0.32	0.45
Manufacture of motor vehicles, trailers…	C29	1.01	1.21	9.48	11.18	0.30	0.40
Manufacture of other transport equipment	C30	1.01	1.57	10.11	15.14	0.30	0.54
Manufacture of furniture; other manufact…	C31-C32	1.08	1.52	14.58	17.69	0.34	0.52
Repair and installation of machinery…	C33	1.73	1.46	15.30	13.19	0.65	0.59
Electricity, gas, steam and air cond…	D35	2.53	1.56	20.19	8.15	1.07	0.69
Water collection, treatment and supply	E36	1.07	1.30	6.18	7.68	0.72	0.83
Sewerage, waste collection, treatment…	E37-E39	1.12	1.63	7.08	11.41	0.24	0.49
Construction	F	1.72	1.57	17.65	15.63	0.71	0.62
Wholesale and retail trade and reparation	G45	1.80	1.36	20.28	15.32	0.82	0.69
Wholesale trade, except motor vehicles…	G46	2.23	1.56	17.52	11.22	0.92	0.77
Retail trade, except of motor vehicles…	G47	1.83	1.54	29.96	25.69	0.87	0.83
Land transport and transport via pipelines	H49	3.08	1.59	27.97	14.44	1.08	0.58
Water transport	H50	1.30	1.86	8.39	13.17	0.21	0.50
Air transport	H51	1.13	1.85	2.91	7.52	0.16	0.46
Warehousing and support for transport…	H52	3.25	1.83	19.64	9.74	1.06	0.69
Postal and courier activities	H53	1.36	1.55	34.66	35.75	0.69	0.78
Accommodation and food service…	I	1.28	1.69	24.62	27.59	0.50	0.71
Publishing activities	J58	1.23	1.59	15.48	19.44	0.56	0.74
Motion picture, video and television…	J59-J60	1.47	1.73	14.51	16.89	0.63	0.78
Telecommunications	J61	1.83	1.61	14.47	12.79	0.80	0.73
Computer programming, consultancy…	J62-J63	1.72	1.38	15.54	12.31	0.99	0.85
Financial service activities, except insur…	K64	2.07	1.36	15.36	8.87	1.18	0.90
Insurance, reinsurance and pension…	K65	1.20	1.78	7.79	11.22	0.52	0.83
Activities auxiliary to financial services…	K66	1.66	1.76	5.17	6.66	0.70	0.80
Real estate activities	L68	2.96	1.31	24.88	5.80	1.59	0.89
Legal and accounting activities…	M69-M70	2.16	1.45	24.53	18.00	1.09	0.84
Architectural and engineering activities	M71	1.41	1.50	13.77	14.45	0.71	0.78
Scientific research and development	M72	1.02	1.26	6.53	9.10	0.75	0.87
Advertising and market research	M73	1.77	1.71	15.04	15.12	0.64	0.69
Other professional, scientific, technical…	M74-M75	1.26	1.55	8.60	11.04	0.55	0.72
Administrative and support service	N	2.74	1.46	25.91	14.17	1.19	0.77
Public administration and defence…	O84	1.16	1.37	22.02	24.35	0.74	0.85
Education	P85	1.12	1.30	38.63	40.35	0.78	0.87
Human health and social work activities	Q	1.08	1.30	29.71	31.45	0.65	0.75
Other service activities	R-S	1.34	1.58	22.54	24.19	0.64	0.78

ANNEX IX

Table 9.- Multipliers for Finland

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.75	1.91	6.71	7.27	0.57	0.66
Forestry and logging	A02	1.92	1.34	5.24	3.81	1.05	0.91
Fishing and aquaculture	A03	1.15	1.25	2.90	3.24	0.72	0.76
Mining and quarrying	B	1.27	1.73	2.81	4.92	0.40	0.64
Manufacture of food products, beverages…	C10-C12	2.38	2.24	8.14	6.80	0.74	0.68
Manufacture of textiles, wearing, leather…	C13-C15	1.08	1.47	4.87	6.30	0.35	0.51
Manufacture of wood, cork products…	C16	1.48	2.12	4.26	6.28	0.38	0.77
Manufacture of paper and paper products	C17	1.76	2.09	4.03	4.52	0.51	0.67
Printing and reproduction of recorded…	C18	1.37	1.85	6.55	7.79	0.55	0.73
Manufacture of coke and refined…	C19	1.71	1.46	2.28	1.38	0.27	0.19
Manufacture of chemicals and chemical…	C20	1.98	1.76	4.31	3.54	0.59	0.53
Manufacture of basis pharmaceuticals…	C21	1.07	1.32	2.19	3.16	0.74	0.84
Manufacture of rubber and plastic…	C22	1.28	1.65	4.56	5.63	0.44	0.58
Manufacture of other non-metallic mineral	C23	1.40	1.75	5.01	6.34	0.50	0.66
Manufacture of basis metals	C24	1.98	1.89	4.36	3.75	0.45	0.47
Manufacture of fabricated metal products…	C25	1.95	1.75	7.94	7.12	0.72	0.65
Manufacture of computer, electronic…	C26	1.69	1.53	4.44	3.99	0.69	0.64
Manufacture of electrical equipment	C27	1.10	1.53	3.13	4.73	0.41	0.59
Manufacture of machinery and equipment	C28	1.78	1.63	5.13	4.77	0.60	0.55
Manufacture of motor vehicles, trailers…	C29	1.02	1.51	3.50	5.20	0.29	0.48
Manufacture of other transport equipment	C30	1.08	1.66	3.61	5.73	0.33	0.56
Manufacture of furniture; other manufact…	C31-C32	1.10	1.70	5.62	7.74	0.41	0.65
Repair and installation of machinery…	C33	1.55	1.51	6.38	6.59	0.68	0.69
Electricity, gas, steam and air cond…	D35	2.38	1.51	5.87	2.95	1.00	0.68
Water collection, treatment and supply	E36	1.06	1.42	3.19	4.19	0.60	0.75
Sewerage, waste collection, treatment…	E37-E39	1.53	1.66	4.27	4.93	0.67	0.77
Construction	F	2.19	1.80	8.50	7.11	0.89	0.72
Wholesale and retail trade and reparation	G45	1.74	1.57	8.86	7.85	0.85	0.79
Wholesale trade, except motor vehicles…	G46	3.18	1.64	12.34	6.53	1.37	0.82
Retail trade, except of motor vehicles…	G47	1.41	1.58	11.14	11.47	0.73	0.84
Land transport and transport via pipelines	H49	2.78	1.62	12.86	7.78	1.20	0.76
Water transport	H50	1.19	1.75	3.68	5.90	0.36	0.61
Air transport	H51	1.35	2.05	2.94	4.90	0.36	0.63
Warehousing and support for transport…	H52	3.07	2.06	9.60	7.01	1.03	0.75
Postal and courier activities	H53	1.38	1.67	11.16	12.30	0.69	0.83
Accommodation and food service…	I	1.40	1.89	9.07	10.34	0.57	0.77
Publishing activities	J58	1.56	1.77	6.35	7.26	0.69	0.79
Motion picture, video and television…	J59-J60	1.32	1.72	5.11	6.58	0.63	0.82
Telecommunications	J61	1.70	1.66	4.85	4.57	0.85	0.84
Computer programming, consultancy…	J62-J63	2.00	1.57	7.98	6.36	0.99	0.81
Financial service activities, except insur…	K64	1.66	1.61	5.93	5.73	0.78	0.76
Insurance, reinsurance and pension…	K65	1.16	1.49	2.99	4.31	0.65	0.81
Activities auxiliary to financial services…	K66	1.48	1.71	4.25	5.21	0.55	0.67
Real estate activities	L68	2.87	1.43	9.26	2.09	1.51	0.86
Legal and accounting activities…	M69-M70	1.89	1.56	8.38	7.07	0.94	0.82
Architectural and engineering activities	M71	1.95	1.51	9.31	7.82	0.97	0.80
Scientific research and development	M72	1.06	1.32	5.62	6.70	0.76	0.89
Advertising and market research	M73	1.30	1.61	6.95	8.05	0.61	0.76
Other professional, scientific, technical…	M74-M75	1.38	1.76	6.58	8.20	0.62	0.80
Administrative and support service	N	2.52	1.54	15.34	11.19	1.22	0.81
Public administration and defence…	O84	1.97	1.54	10.06	8.37	0.97	0.81
Education	P85	1.18	1.35	9.45	10.14	0.81	0.90
Human health and social work activities	Q	1.19	1.45	11.01	12.04	0.72	0.85
Other service activities	R-S	1.36	1.64	8.53	9.46	0.66	0.80

ANNEX X

Table 10.- Multipliers for France

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.88	1.92	6.07	5.95	0.69	0.72
Forestry and logging	A02	1.52	1.85	5.34	6.80	0.68	0.86
Fishing and aquaculture	A03	1.04	1.77	5.45	8.17	0.33	0.64
Mining and quarrying	B	1.07	1.70	2.63	5.25	0.44	0.74
Manufacture of food products, beverages…	C10-C12	2.10	2.18	7.74	7.02	0.73	0.75
Manufacture of textiles, wearing, leather…	C13-C15	1.00	1.54	4.67	6.87	0.32	0.56
Manufacture of wood, cork products…	C16	1.36	2.02	5.77	8.48	0.41	0.73
Manufacture of paper and paper products	C17	1.44	1.87	4.41	5.95	0.43	0.63
Printing and reproduction of recorded…	C18	1.33	1.71	6.48	7.95	0.57	0.73
Manufacture of coke and refined…	C19	1.59	1.49	2.00	1.90	0.22	0.23
Manufacture of chemicals and chemical…	C20	1.77	1.76	3.88	3.88	0.50	0.53
Manufacture of basis pharmaceuticals…	C21	1.07	1.54	1.64	3.53	0.54	0.75
Manufacture of rubber and plastic…	C22	1.51	1.63	5.75	6.31	0.56	0.63
Manufacture of other non-metallic mineral	C23	1.41	1.89	4.55	6.62	0.47	0.71
Manufacture of basis metals	C24	1.53	1.98	3.59	5.60	0.31	0.55
Manufacture of fabricated metal products…	C25	1.98	1.71	7.99	7.56	0.74	0.69
Manufacture of computer, electronic…	C26	1.00	1.51	2.57	4.72	0.46	0.69
Manufacture of electrical equipment	C27	1.10	1.65	3.23	5.60	0.35	0.59
Manufacture of machinery and equipment	C28	1.11	1.69	3.78	6.36	0.37	0.64
Manufacture of motor vehicles, trailers…	C29	1.08	1.76	2.02	5.04	0.21	0.51
Manufacture of other transport equipment	C30	1.17	1.72	1.26	3.61	0.27	0.52
Manufacture of furniture; other manufact…	C31-C32	1.05	1.63	4.91	7.41	0.44	0.70
Repair and installation of machinery…	C33	1.61	1.60	5.85	6.37	0.68	0.72
Electricity, gas, steam and air cond…	D35	3.33	1.96	7.62	3.05	1.11	0.65
Water collection, treatment and supply	E36	1.24	1.96	2.13	5.35	0.42	0.77
Sewerage, waste collection, treatment…	E37-E39	1.74	1.81	5.96	7.32	0.64	0.76
Construction	F	1.77	1.84	7.01	7.59	0.71	0.76
Wholesale and retail trade and reparation	G45	1.20	1.53	7.82	9.37	0.63	0.81
Wholesale trade, except motor vehicles…	G46	3.88	1.80	14.50	7.26	1.53	0.84
Retail trade, except of motor vehicles…	G47	1.21	1.57	10.60	12.27	0.67	0.87
Land transport and transport via pipelines	H49	2.07	1.65	11.55	9.71	0.93	0.79
Water transport	H50	1.01	2.12	0.75	5.32	0.12	0.65
Air transport	H51	1.07	1.57	2.81	4.75	0.42	0.63
Warehousing and support for transport…	H52	2.69	1.64	9.06	5.90	1.17	0.88
Postal and courier activities	H53	1.31	1.39	16.40	16.75	0.83	0.88
Accommodation and food service…	I	1.66	1.76	10.51	10.53	0.82	0.86
Publishing activities	J58	1.14	1.70	4.15	6.35	0.57	0.83
Motion picture, video and television…	J59-J60	1.57	1.80	4.76	5.64	0.69	0.79
Telecommunications	J61	1.97	1.86	5.53	4.95	0.83	0.81
Computer programming, consultancy…	J62-J63	1.71	1.53	7.30	6.79	0.94	0.90
Financial service activities, except insur…	K64	3.26	1.73	11.12	5.49	1.45	0.85
Insurance, reinsurance and pension…	K65	1.54	2.19	4.23	6.80	0.43	0.79
Activities auxiliary to financial services…	K66	2.11	1.81	6.58	6.37	0.82	0.82
Real estate activities	L68	2.54	1.28	7.23	1.75	1.48	0.95
Legal and accounting activities…	M69-M70	4.51	1.88	16.55	6.59	1.86	0.86
Architectural and engineering activities	M71	1.86	1.76	7.40	7.27	0.79	0.80
Scientific research and development	M72	1.06	1.62	5.82	8.36	0.57	0.85
Advertising and market research	M73	1.43	1.72	8.15	9.89	0.66	0.84
Other professional, scientific, technical…	M74-M75	1.25	1.68	4.30	6.16	0.60	0.83
Administrative and support service	N	4.89	1.59	23.91	11.02	2.16	0.88
Public administration and defence…	O84	1.47	1.33	10.10	9.95	0.92	0.89
Education	P85	1.41	1.26	12.21	11.62	0.99	0.94
Human health and social work activities	Q	1.11	1.26	11.69	12.38	0.83	0.90
Other service activities	R-S	1.43	1.49	11.32	11.71	0.78	0.84

ANNEX XI

Table 11.- Multipliers for Germany

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.34	1.85	6.49	9.64	0.43	0.73
Forestry and logging	A02	1.28	1.69	5.90	8.36	0.55	0.76
Fishing and aquaculture	A03	1.01	1.46	6.22	8.68	0.52	0.74
Mining and quarrying	B	1.04	1.60	4.16	7.01	0.43	0.71
Manufacture of food products, beverages…	C10-C12	1.53	2.07	7.13	9.14	0.43	0.69
Manufacture of textiles, wearing, leather…	C13-C15	1.01	1.55	4.98	7.98	0.34	0.61
Manufacture of wood, cork products…	C16	1.36	1.93	5.44	8.50	0.40	0.69
Manufacture of paper and paper products	C17	1.55	1.79	5.25	6.26	0.48	0.62
Printing and reproduction of recorded…	C18	1.46	1.71	8.34	9.39	0.61	0.73
Manufacture of coke and refined…	C19	1.51	1.32	1.83	1.54	0.23	0.20
Manufacture of chemicals and chemical…	C20	1.41	1.59	3.47	4.58	0.46	0.57
Manufacture of basis pharmaceuticals…	C21	1.13	1.52	2.64	4.64	0.58	0.77
Manufacture of rubber and plastic…	C22	1.38	1.57	5.86	6.89	0.52	0.63
Manufacture of other non-metallic mineral	C23	1.38	1.75	5.54	7.58	0.52	0.73
Manufacture of basis metals	C24	1.67	1.73	4.30	4.84	0.45	0.51
Manufacture of fabricated metal products…	C25	1.90	1.68	8.93	8.31	0.80	0.73
Manufacture of computer, electronic…	C26	1.08	1.49	3.73	6.10	0.50	0.71
Manufacture of electrical equipment	C27	1.36	1.56	5.22	6.55	0.57	0.69
Manufacture of machinery and equipment	C28	1.51	1.63	5.56	6.54	0.59	0.68
Manufacture of motor vehicles, trailers…	C29	1.48	1.73	3.97	5.19	0.51	0.64
Manufacture of other transport equipment	C30	1.15	1.65	2.93	5.72	0.39	0.64
Manufacture of furniture; other manufact…	C31-C32	1.06	1.59	5.89	8.74	0.48	0.74
Repair and installation of machinery…	C33	1.45	1.61	6.16	7.73	0.57	0.70
Electricity, gas, steam and air cond…	D35	2.38	1.72	7.64	4.73	0.97	0.73
Water collection, treatment and supply	E36	1.07	1.50	3.55	5.63	0.63	0.84
Sewerage, waste collection, treatment…	E37-E39	1.54	1.70	5.69	7.03	0.67	0.81
Construction	F	2.26	1.70	11.34	8.75	1.04	0.78
Wholesale and retail trade and reparation	G45	1.42	1.41	11.32	10.76	0.86	0.89
Wholesale trade, except motor vehicles…	G46	2.50	1.61	13.44	9.38	1.19	0.88
Retail trade, except of motor vehicles…	G47	1.72	1.67	17.25	16.73	0.84	0.89
Land transport and transport via pipelines	H49	2.37	1.74	12.56	9.94	1.06	0.84
Water transport	H50	1.12	2.02	1.03	5.28	0.34	0.74
Air transport	H51	1.11	1.86	2.43	6.16	0.30	0.62
Warehousing and support for transport…	H52	3.70	1.94	16.16	8.46	1.45	0.82
Postal and courier activities	H53	1.43	1.80	14.02	15.31	0.67	0.84
Accommodation and food service…	I	1.09	1.77	14.13	17.55	0.51	0.84
Publishing activities	J58	1.34	1.77	7.08	9.43	0.64	0.87
Motion picture, video and television…	J59-J60	1.48	1.63	5.00	5.68	0.82	0.91
Telecommunications	J61	1.87	1.84	5.32	4.79	0.81	0.84
Computer programming, consultancy…	J62-J63	2.26	1.50	10.21	6.67	1.23	0.89
Financial service activities, except insur…	K64	2.41	1.74	9.88	6.89	1.10	0.85
Insurance, reinsurance and pension…	K65	1.65	2.03	4.79	6.52	0.63	0.86
Activities auxiliary to financial services…	K66	1.74	1.83	6.70	8.11	0.75	0.87
Real estate activities	L68	3.15	1.34	12.70	2.33	1.78	0.94
Legal and accounting activities…	M69-M70	3.03	1.55	15.39	8.55	1.55	0.90
Architectural and engineering activities	M71	1.62	1.52	8.74	8.81	0.87	0.90
Scientific research and development	M72	1.04	1.45	4.78	7.06	0.67	0.89
Advertising and market research	M73	1.32	1.62	8.42	9.56	0.71	0.90
Other professional, scientific, technical…	M74-M75	1.30	1.63	5.12	7.07	0.68	0.88
Administrative and support service	N	4.35	1.55	26.45	13.48	2.08	0.92
Public administration and defence…	O84	1.78	1.41	11.37	9.96	1.01	0.87
Education	P85	1.19	1.30	11.99	12.65	0.88	0.93
Human health and social work activities	Q	1.06	1.38	13.21	14.96	0.73	0.89
Other service activities	R-S	1.65	1.42	12.35	11.33	1.01	0.91

ANNEX XII

Table 12.- Multipliers for Greece

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.63	1.59	9.52	9.67	0.74	0.78
Forestry and logging	A02	1.01	1.11	36.66	37.37	0.76	0.82
Fishing and aquaculture	A03	1.05	1.35	5.84	8.04	0.68	0.84
Mining and quarrying	B	1.10	1.60	6.04	10.30	0.52	0.83
Manufacture of food products, beverages…	C10-C12	1.47	1.93	7.34	10.13	0.49	0.80
Manufacture of textiles, wearing, leather…	C13-C15	1.15	1.78	10.08	14.08	0.42	0.79
Manufacture of wood, cork products…	C16	1.15	2.18	15.73	22.59	0.14	0.72
Manufacture of paper and paper products	C17	1.17	1.79	5.82	9.75	0.34	0.70
Printing and reproduction of recorded…	C18	1.15	1.53	10.65	12.73	0.58	0.81
Manufacture of coke and refined…	C19	1.28	1.45	1.91	3.17	0.20	0.33
Manufacture of chemicals and chemical…	C20	1.29	1.73	5.51	8.41	0.42	0.72
Manufacture of basis pharmaceuticals…	C21	1.06	1.77	7.16	12.34	0.37	0.79
Manufacture of rubber and plastic…	C22	1.34	1.96	7.77	11.60	0.25	0.63
Manufacture of other non-metallic mineral	C23	1.22	1.63	7.32	9.80	0.53	0.78
Manufacture of basis metals	C24	2.03	1.73	8.98	6.51	0.73	0.69
Manufacture of fabricated metal products…	C25	1.48	1.71	10.44	10.75	0.55	0.71
Manufacture of computer, electronic…	C26	1.13	1.58	4.50	7.28	0.49	0.77
Manufacture of electrical equipment	C27	1.15	1.84	5.46	9.42	0.31	0.67
Manufacture of machinery and equipment	C28	1.10	1.57	9.58	12.36	0.54	0.80
Manufacture of motor vehicles, trailers…	C29	1.03	1.74	8.20	12.81	0.40	0.78
Manufacture of other transport equipment	C30	1.04	1.35	14.30	16.14	0.66	0.84
Manufacture of furniture; other manufact…	C31-C32	1.08	1.74	9.73	13.95	0.43	0.80
Repair and installation of machinery…	C33	1.25	1.31	5.85	5.76	0.83	0.89
Electricity, gas, steam and air cond…	D35	2.33	1.60	10.02	5.09	1.02	0.79
Water collection, treatment and supply	E36	1.09	1.68	7.41	11.72	0.50	0.84
Sewerage, waste collection, treatment…	E37-E39	1.22	1.35	7.06	7.88	0.81	0.90
Construction	F	1.60	1.71	10.27	10.71	0.71	0.75
Wholesale and retail trade and reparation	G45	1.18	1.36	9.71	9.76	0.70	0.88
Wholesale trade, except motor vehicles…	G46	5.85	1.47	42.15	10.99	2.21	0.84
Retail trade, except of motor vehicles…	G47	2.05	1.46	25.33	19.31	1.03	0.86
Land transport and transport via pipelines	H49	1.72	1.60	10.38	8.82	0.77	0.81
Water transport	H50	1.13	1.48	2.44	4.15	0.50	0.72
Air transport	H51	1.17	1.64	3.02	5.31	0.38	0.70
Warehousing and support for transport…	H52	1.93	1.53	12.46	8.26	0.92	0.91
Postal and courier activities	H53	1.25	1.42	15.79	16.20	0.67	0.81
Accommodation and food service…	I	1.42	1.58	10.54	11.17	0.74	0.83
Publishing activities	J58	1.08	1.64	7.74	10.57	0.49	0.91
Motion picture, video and television…	J59-J60	1.19	1.68	12.31	16.50	0.55	0.85
Telecommunications	J61	1.76	1.49	9.31	5.84	0.89	0.92
Computer programming, consultancy…	J62-J63	1.19	1.43	11.30	11.53	0.67	0.88
Financial service activities, except insur…	K64	2.86	1.32	19.88	7.97	1.57	0.94
Insurance, reinsurance and pension…	K65	1.17	1.62	3.96	4.69	0.53	0.95
Activities auxiliary to financial services…	K66	1.60	1.45	16.35	14.80	0.96	0.95
Real estate activities	L68	5.98	1.07	35.64	0.54	3.21	0.98
Legal and accounting activities…	M69-M70	3.02	1.32	21.06	7.68	1.60	0.93
Architectural and engineering activities	M71	1.32	1.78	8.50	10.36	0.41	0.79
Scientific research and development	M72	1.06	1.39	4.31	6.41	0.66	0.87
Advertising and market research	M73	1.32	1.67	10.75	11.08	0.48	0.84
Other professional, scientific, technical…	M74-M75	1.34	1.63	11.38	10.84	0.58	0.90
Administrative and support service	N	2.14	1.59	21.47	17.45	1.07	0.86
Public administration and defence…	O84	1.02	1.27	13.94	16.01	0.79	0.95
Education	P85	1.11	1.07	19.99	19.81	1.00	0.98
Human health and social work activities	Q	1.06	1.36	13.76	16.24	0.71	0.88
Other service activities	R-S	1.67	1.56	18.47	17.09	0.90	0.89

ANNEX XIII

Table 13.- Multipliers for Hungary

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	2.40	1.68	27.28	14.85	0.89	0.67
Forestry and logging	A02	1.41	1.68	41.30	44.29	0.60	0.74
Fishing and aquaculture	A03	1.15	1.69	26.16	32.34	0.50	0.73
Mining and quarrying	B	1.07	1.41	11.22	16.15	0.47	0.64
Manufacture of food products, beverages…	C10-C12	1.88	1.98	23.95	18.67	0.53	0.59
Manufacture of textiles, wearing, leather…	C13-C15	1.01	1.21	30.11	32.81	0.34	0.43
Manufacture of wood, cork products…	C16	1.13	1.53	21.51	27.91	0.33	0.50
Manufacture of paper and paper products	C17	1.42	1.47	13.24	12.54	0.40	0.43
Printing and reproduction of recorded…	C18	1.51	1.60	28.44	27.82	0.56	0.57
Manufacture of coke and refined…	C19	2.09	1.24	13.73	3.06	0.49	0.23
Manufacture of chemicals and chemical…	C20	1.37	1.47	6.51	6.31	0.31	0.34
Manufacture of basis pharmaceuticals…	C21	1.04	1.28	5.88	9.06	0.49	0.60
Manufacture of rubber and plastic…	C22	1.25	1.35	11.17	11.48	0.38	0.43
Manufacture of other non-metallic mineral	C23	1.22	1.43	11.91	13.98	0.41	0.50
Manufacture of basis metals	C24	1.29	1.38	8.02	8.80	0.28	0.33
Manufacture of fabricated metal products…	C25	1.39	1.34	18.57	17.83	0.49	0.49
Manufacture of computer, electronic…	C26	1.10	1.11	7.30	7.43	0.21	0.22
Manufacture of electrical equipment	C27	1.04	1.25	11.71	14.14	0.28	0.36
Manufacture of machinery and equipment	C28	1.28	1.25	9.67	9.12	0.47	0.47
Manufacture of motor vehicles, trailers…	C29	1.18	1.17	6.16	5.99	0.24	0.25
Manufacture of other transport equipment	C30	1.02	1.28	7.85	11.32	0.32	0.44
Manufacture of furniture; other manufact…	C31-C32	1.05	1.32	20.21	23.51	0.38	0.49
Repair and installation of machinery…	C33	1.21	1.22	20.10	20.57	0.56	0.58
Electricity, gas, steam and air cond…	D35	1.86	1.40	18.01	10.62	0.74	0.58
Water collection, treatment and supply	E36	1.12	1.49	27.05	32.18	0.51	0.70
Sewerage, waste collection, treatment…	E37-E39	1.22	1.50	15.36	19.44	0.50	0.65
Construction	F	1.47	1.46	24.92	23.91	0.60	0.58
Wholesale and retail trade and reparation	G45	1.34	1.42	31.37	31.39	0.60	0.66
Wholesale trade, except motor vehicles…	G46	2.27	1.49	29.72	17.87	0.95	0.69
Retail trade, except of motor vehicles…	G47	1.39	1.51	42.02	42.74	0.66	0.76
Land transport and transport via pipelines	H49	2.06	1.49	31.19	20.66	0.83	0.63
Water transport	H50	1.01	1.54	21.60	27.98	0.17	0.39
Air transport	H51	1.06	1.57	4.28	8.51	0.27	0.46
Warehousing and support for transport…	H52	1.81	1.47	21.94	17.15	0.80	0.71
Postal and courier activities	H53	1.23	1.28	47.96	48.99	0.79	0.82
Accommodation and food service…	I	1.19	1.77	30.50	35.96	0.46	0.67
Publishing activities	J58	1.11	1.56	17.95	25.26	0.55	0.74
Motion picture, video and television…	J59-J60	1.46	1.48	12.73	13.01	0.68	0.72
Telecommunications	J61	1.30	1.39	11.34	12.91	0.72	0.79
Computer programming, consultancy…	J62-J63	1.65	1.29	23.67	18.39	0.96	0.81
Financial service activities, except insur…	K64	2.17	1.49	26.04	16.09	1.07	0.80
Insurance, reinsurance and pension…	K65	1.26	1.93	11.11	22.02	0.35	0.79
Activities auxiliary to financial services…	K66	1.73	1.36	22.16	20.37	0.94	0.89
Real estate activities	L68	2.35	1.32	28.03	9.20	1.35	0.86
Legal and accounting activities…	M69-M70	1.90	1.31	31.30	22.53	1.05	0.80
Architectural and engineering activities	M71	1.48	1.36	22.08	20.15	0.82	0.77
Scientific research and development	M72	1.11	1.27	10.83	12.95	0.65	0.73
Advertising and market research	M73	1.18	1.47	11.70	15.74	0.60	0.78
Other professional, scientific, technical…	M74-M75	1.15	1.33	18.24	20.61	0.69	0.79
Administrative and support service	N	2.38	1.38	49.88	33.92	1.18	0.75
Public administration and defence…	O84	1.48	1.28	35.78	32.18	0.90	0.83
Education	P85	1.19	1.20	40.58	40.57	0.87	0.88
Human health and social work activities	Q	1.11	1.24	35.98	37.47	0.68	0.74
Other service activities	R-S	1.31	1.42	25.55	26.62	0.68	0.76

ANNEX XIV

Table 14.- Multipliers for Ireland

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.23	1.38	2.51	2.36	0.35	0.43
Forestry and logging	A02	1.01	1.16	14.09	14.41	0.69	0.76
Fishing and aquaculture	A03	1.00	1.29	9.62	10.30	0.42	0.56
Mining and quarrying	B	1.22	1.38	3.45	3.88	0.38	0.48
Manufacture of food products, beverages…	C10-C12	1.05	1.25	1.58	1.96	0.32	0.41
Manufacture of textiles, wearing, leather…	C13-C15	1.02	1.15	10.80	11.18	0.47	0.53
Manufacture of wood, cork products…	C16	1.16	1.50	3.85	4.73	0.29	0.45
Manufacture of paper and paper products	C17	1.06	1.29	8.00	8.71	0.37	0.48
Printing and reproduction of recorded…	C18	1.11	1.15	5.70	5.64	0.45	0.47
Manufacture of coke and refined…	C19	1.01	1.20	0.45	0.89	0.61	0.70
Manufacture of chemicals and chemical…	C20	1.01	1.07	0.45	0.62	0.61	0.64
Manufacture of basis pharmaceuticals…	C21	1.04	1.07	1.03	1.03	0.43	0.44
Manufacture of rubber and plastic…	C22	1.12	1.31	2.44	2.90	0.37	0.47
Manufacture of other non-metallic mineral	C23	1.19	1.42	2.85	3.46	0.34	0.45
Manufacture of basis metals	C24	1.00	1.36	2.56	3.60	0.23	0.40
Manufacture of fabricated metal products…	C25	1.17	1.22	5.41	5.21	0.48	0.52
Manufacture of computer, electronic…	C26	1.06	1.12	2.28	2.35	0.34	0.37
Manufacture of electrical equipment	C27	1.03	1.24	1.69	2.38	0.30	0.40
Manufacture of machinery and equipment	C28	1.06	1.24	8.16	8.61	0.39	0.47
Manufacture of motor vehicles, trailers…	C29	1.10	1.23	3.91	4.23	0.36	0.42
Manufacture of other transport equipment	C30	1.00	1.29	13.28	14.20	0.24	0.36
Manufacture of furniture; other manufact…	C31-C32	1.50	1.29	2.85	1.28	0.64	0.56
Repair and installation of machinery…	C33	1.19	1.26	5.20	5.19	0.56	0.61
Electricity, gas, steam and air cond…	D35	2.15	1.33	5.55	1.62	1.08	0.72
Water collection, treatment and supply	E36	1.03	1.39	4.66	5.75	0.52	0.70
Sewerage, waste collection, treatment…	E37-E39	1.34	1.46	5.35	5.66	0.63	0.72
Construction	F	1.79	1.57	6.54	4.43	0.55	0.49
Wholesale and retail trade and reparation	G45	1.23	1.19	12.17	11.59	0.83	0.82
Wholesale trade, except motor vehicles…	G46	1.63	1.25	4.67	2.81	0.65	0.55
Retail trade, except of motor vehicles…	G47	1.05	1.30	9.66	10.15	0.60	0.74
Land transport and transport via pipelines	H49	1.40	1.44	6.47	6.44	0.61	0.70
Water transport	H50	1.04	1.52	2.78	4.27	0.34	0.60
Air transport	H51	1.09	1.31	1.41	1.99	0.37	0.50
Warehousing and support for transport…	H52	1.60	1.34	6.44	5.21	0.95	0.85
Postal and courier activities	H53	1.03	1.21	11.22	11.76	0.73	0.82
Accommodation and food service…	I	1.12	1.28	14.50	14.55	0.68	0.78
Publishing activities	J58	1.94	1.22	4.48	0.73	0.97	0.67
Motion picture, video and television…	J59-J60	1.02	1.22	10.58	11.01	0.57	0.67
Telecommunications	J61	1.21	1.13	4.25	3.78	0.83	0.80
Computer programming, consultancy…	J62-J63	1.80	1.15	4.24	1.22	0.59	0.27
Financial service activities, except insur…	K64	1.75	1.35	5.36	3.41	0.95	0.74
Insurance, reinsurance and pension…	K65	2.71	1.85	6.36	1.53	0.76	0.34
Activities auxiliary to financial services…	K66	1.37	1.38	1.99	1.95	0.62	0.64
Real estate activities	L68	1.67	1.24	4.81	0.95	1.07	0.81
Legal and accounting activities…	M69-M70	1.84	1.25	7.33	3.64	1.13	0.82
Architectural and engineering activities	M71	1.28	1.19	8.35	7.57	0.96	0.92
Scientific research and development	M72	1.01	1.09	7.72	7.99	0.80	0.84
Advertising and market research	M73	1.01	1.07	8.33	8.55	0.83	0.86
Other professional, scientific, technical…	M74-M75	1.15	1.31	7.36	7.61	0.71	0.80
Administrative and support service	N	1.39	1.21	5.74	4.68	0.95	0.87
Public administration and defence…	O84	1.23	1.38	7.16	7.22	0.66	0.72
Education	P85	1.21	1.21	10.00	9.61	0.90	0.89
Human health and social work activities	Q	1.26	1.18	12.67	12.12	0.90	0.88
Other service activities	R-S	1.48	1.32	11.25	10.10	0.87	0.81

ANNEX XV

Table 15.- Multipliers for Italy

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.79	1.70	8.27	7.69	0.82	0.83
Forestry and logging	A02	1.03	1.29	17.81	18.74	0.81	0.93
Fishing and aquaculture	A03	1.04	1.67	8.80	10.61	0.55	0.77
Mining and quarrying	B	1.11	1.55	1.94	3.50	0.63	0.83
Manufacture of food products, beverages…	C10-C12	2.20	2.37	6.98	7.03	0.62	0.75
Manufacture of textiles, wearing, leather…	C13-C15	1.79	2.15	7.35	8.34	0.55	0.75
Manufacture of wood, cork products…	C16	1.52	2.03	6.73	8.46	0.50	0.75
Manufacture of paper and paper products	C17	1.84	2.21	5.35	6.15	0.51	0.68
Printing and reproduction of recorded…	C18	1.59	1.93	6.91	7.82	0.61	0.77
Manufacture of coke and refined…	C19	2.45	1.67	4.75	2.12	0.43	0.26
Manufacture of chemicals and chemical…	C20	1.95	1.91	4.66	4.01	0.49	0.49
Manufacture of basis pharmaceuticals…	C21	1.11	1.66	2.28	4.24	0.39	0.64
Manufacture of rubber and plastic…	C22	1.82	1.99	6.21	6.40	0.56	0.66
Manufacture of other non-metallic mineral	C23	1.56	1.97	5.98	7.25	0.50	0.70
Manufacture of basis metals	C24	2.10	2.20	5.32	5.36	0.45	0.54
Manufacture of fabricated metal products…	C25	2.45	1.98	9.58	7.69	0.84	0.73
Manufacture of computer, electronic…	C26	1.24	1.71	4.31	5.93	0.46	0.67
Manufacture of electrical equipment	C27	1.40	1.90	4.81	6.41	0.43	0.64
Manufacture of machinery and equipment	C28	1.77	2.02	5.73	6.57	0.57	0.71
Manufacture of motor vehicles, trailers…	C29	1.33	2.10	3.75	6.34	0.34	0.67
Manufacture of other transport equipment	C30	1.23	2.03	3.56	6.46	0.33	0.69
Manufacture of furniture; other manufact…	C31-C32	1.43	2.06	5.93	8.13	0.47	0.75
Repair and installation of machinery…	C33	1.30	1.78	6.06	7.60	0.56	0.77
Electricity, gas, steam and air cond…	D35	3.64	2.25	9.52	3.74	1.23	0.76
Water collection, treatment and supply	E36	1.16	1.84	3.36	5.61	0.49	0.76
Sewerage, waste collection, treatment…	E37-E39	2.34	2.21	7.28	7.50	0.70	0.78
Construction	F	2.37	2.12	8.48	7.52	0.89	0.81
Wholesale and retail trade and reparation	G45	1.36	1.77	6.31	7.71	0.58	0.80
Wholesale trade, except motor vehicles…	G46	4.14	1.83	13.94	6.36	1.51	0.85
Retail trade, except of motor vehicles…	G47	1.59	1.61	9.24	9.08	0.81	0.92
Land transport and transport via pipelines	H49	3.25	1.72	12.25	5.99	1.31	0.79
Water transport	H50	1.15	2.20	2.54	5.85	0.27	0.67
Air transport	H51	1.23	2.35	2.55	6.26	0.15	0.55
Warehousing and support for transport…	H52	2.68	1.93	10.21	7.51	1.05	0.85
Postal and courier activities	H53	1.20	1.59	11.93	12.98	0.67	0.83
Accommodation and food service…	I	1.57	1.82	9.12	9.57	0.74	0.87
Publishing activities	J58	1.15	2.10	3.41	6.87	0.39	0.82
Motion picture, video and television…	J59-J60	1.55	2.03	3.69	5.96	0.60	0.86
Telecommunications	J61	1.69	1.84	4.23	4.73	0.76	0.87
Computer programming, consultancy…	J62-J63	2.10	1.71	8.97	7.52	0.99	0.89
Financial service activities, except insur…	K64	3.25	1.50	11.35	4.78	1.58	0.92
Insurance, reinsurance and pension…	K65	1.25	1.82	2.52	4.01	0.50	0.87
Activities auxiliary to financial services…	K66	2.21	1.56	7.42	5.46	1.08	0.89
Real estate activities	L68	2.70	1.17	7.23	0.81	1.61	0.98
Legal and accounting activities…	M69-M70	3.23	1.52	11.92	4.82	1.60	0.92
Architectural and engineering activities	M71	2.01	1.52	5.93	3.95	1.06	0.90
Scientific research and development	M72	1.13	1.46	6.38	7.59	0.69	0.87
Advertising and market research	M73	1.49	2.27	4.05	6.73	0.41	0.83
Other professional, scientific, technical…	M74-M75	1.62	1.58	4.84	4.69	0.88	0.90
Administrative and support service	N	3.62	1.86	18.28	11.85	1.45	0.86
Public administration and defence…	O84	1.12	1.33	7.86	8.65	0.82	0.93
Education	P85	1.14	1.22	15.17	15.29	0.91	0.96
Human health and social work activities	Q	1.18	1.52	8.76	9.95	0.70	0.86
Other service activities	R-S	1.77	1.84	8.54	8.82	0.77	0.85

ANNEX XVI

Table 16.- Multipliers for Latvia

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.71	1.69	18.71	18.28	0.45	0.49
Forestry and logging	A02	1.86	1.98	17.65	19.65	0.61	0.72
Fishing and aquaculture	A03	1.03	1.59	11.35	17.17	0.41	0.64
Mining and quarrying	B	1.35	1.60	10.24	13.07	0.51	0.63
Manufacture of food products, beverages…	C10-C12	1.31	1.76	14.33	18.04	0.38	0.54
Manufacture of textiles, wearing, leather…	C13-C15	1.13	1.50	27.54	30.62	0.42	0.58
Manufacture of wood, cork products…	C16	1.85	2.17	17.00	18.66	0.54	0.68
Manufacture of paper and paper products	C17	1.19	1.39	10.07	11.75	0.36	0.44
Printing and reproduction of recorded…	C18	1.67	1.57	20.90	15.35	0.56	0.50
Manufacture of coke and refined…	C19	1.03	2.20	2.95	12.84	0.27	0.70
Manufacture of chemicals and chemical…	C20	1.07	1.66	8.77	14.89	0.32	0.52
Manufacture of basis pharmaceuticals…	C21	1.01	1.48	9.28	14.43	0.62	0.83
Manufacture of rubber and plastic…	C22	1.03	1.38	9.25	12.55	0.29	0.44
Manufacture of other non-metallic mineral	C23	1.28	1.69	9.76	12.82	0.47	0.63
Manufacture of basis metals	C24	1.02	1.59	6.39	12.33	0.10	0.33
Manufacture of fabricated metal products…	C25	1.40	1.34	17.11	15.59	0.51	0.49
Manufacture of computer, electronic…	C26	1.00	1.33	6.00	9.19	0.43	0.57
Manufacture of electrical equipment	C27	1.00	1.38	10.82	14.34	0.38	0.53
Manufacture of machinery and equipment	C28	1.02	1.42	13.58	17.27	0.40	0.56
Manufacture of motor vehicles, trailers…	C29	1.04	1.44	10.12	14.25	0.39	0.54
Manufacture of other transport equipment	C30	1.04	1.51	18.22	23.53	0.29	0.48
Manufacture of furniture; other manufact…	C31-C32	1.05	1.68	18.57	24.61	0.39	0.63
Repair and installation of machinery…	C33	1.76	1.61	22.42	19.65	0.72	0.68
Electricity, gas, steam and air cond…	D35	4.35	2.10	43.62	11.30	1.57	0.58
Water collection, treatment and supply	E36	1.04	1.52	17.12	21.15	0.65	0.82
Sewerage, waste collection, treatment…	E37-E39	1.19	1.53	14.45	18.66	0.50	0.68
Construction	F	3.42	2.10	38.03	18.30	1.31	0.64
Wholesale and retail trade and reparation	G45	1.47	1.59	25.39	25.54	0.71	0.79
Wholesale trade, except motor vehicles…	G46	3.92	1.83	41.62	17.46	1.57	0.82
Retail trade, except of motor vehicles…	G47	2.10	1.53	45.73	36.67	1.08	0.88
Land transport and transport via pipelines	H49	3.25	1.86	31.52	18.54	1.14	0.67
Water transport	H50	1.08	1.55	5.81	10.90	0.67	0.87
Air transport	H51	1.20	2.05	4.50	12.70	0.23	0.57
Warehousing and support for transport…	H52	5.18	2.24	41.14	16.16	1.76	0.76
Postal and courier activities	H53	1.30	1.53	30.27	31.93	0.73	0.82
Accommodation and food service…	I	1.29	1.66	27.53	30.28	0.59	0.74
Publishing activities	J58	1.05	1.81	18.80	26.64	0.45	0.74
Motion picture, video and television…	J59-J60	1.22	1.79	8.21	15.43	0.53	0.81
Telecommunications	J61	1.85	1.80	13.57	12.44	0.82	0.79
Computer programming, consultancy…	J62-J63	1.93	1.46	22.81	18.11	1.05	0.87
Financial service activities, except insur…	K64	2.30	1.60	20.42	11.67	1.18	0.91
Insurance, reinsurance and pension…	K65	1.18	1.96	9.11	15.96	0.42	0.83
Activities auxiliary to financial services…	K66	1.51	1.58	11.42	12.70	0.79	0.86
Real estate activities	L68	3.22	1.47	34.96	7.79	1.71	0.90
Legal and accounting activities…	M69-M70	2.05	1.49	29.75	22.99	1.10	0.86
Architectural and engineering activities	M71	1.31	1.73	20.51	24.00	0.68	0.83
Scientific research and development	M72	1.00	1.15	2.91	4.23	0.88	0.93
Advertising and market research	M73	1.84	2.02	16.99	17.89	0.66	0.75
Other professional, scientific, technical…	M74-M75	1.32	1.64	20.59	26.27	0.60	0.77
Administrative and support service	N	2.75	1.68	39.05	24.97	1.23	0.77
Public administration and defence…	O84	1.19	1.44	20.52	22.79	0.77	0.88
Education	P85	1.12	1.31	46.77	48.42	0.82	0.89
Human health and social work activities	Q	1.04	1.30	32.26	35.33	0.65	0.76
Other service activities	R-S	1.34	1.58	36.35	38.20	0.71	0.82

ANNEX XVII

Table 17.- Multipliers for Lithuania

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.32	1.45	13.80	15.58	0.49	0.60
Forestry and logging	A02	1.37	1.51	35.95	36.13	0.61	0.65
Fishing and aquaculture	A03	1.01	1.59	19.20	24.43	0.47	0.79
Mining and quarrying	B	1.05	1.26	13.27	15.88	0.56	0.68
Manufacture of food products, beverages…	C10-C12	1.16	1.58	10.15	14.24	0.42	0.63
Manufacture of textiles, wearing, leather…	C13-C15	1.11	1.27	26.19	27.55	0.64	0.73
Manufacture of wood, cork products…	C16	1.23	1.34	18.42	20.05	0.54	0.58
Manufacture of paper and paper products	C17	1.05	1.30	7.78	10.17	0.45	0.57
Printing and reproduction of recorded…	C18	1.41	1.15	20.28	15.76	0.80	0.66
Manufacture of coke and refined…	C19	1.81	1.19	10.91	2.46	0.42	0.16
Manufacture of chemicals and chemical…	C20	1.22	1.24	3.95	3.88	0.34	0.35
Manufacture of basis pharmaceuticals…	C21	1.07	1.24	4.50	6.12	0.81	0.91
Manufacture of rubber and plastic…	C22	1.13	1.18	8.71	8.95	0.51	0.53
Manufacture of other non-metallic mineral	C23	1.11	1.42	9.58	12.52	0.50	0.67
Manufacture of basis metals	C24	1.02	1.32	5.11	8.87	0.38	0.54
Manufacture of fabricated metal products…	C25	1.32	1.33	17.70	18.55	0.60	0.64
Manufacture of computer, electronic…	C26	1.16	1.17	10.91	10.59	0.65	0.66
Manufacture of electrical equipment	C27	1.21	1.25	11.52	11.56	0.48	0.50
Manufacture of machinery and equipment	C28	1.10	1.24	15.29	16.72	0.55	0.63
Manufacture of motor vehicles, trailers…	C29	1.28	1.45	9.97	10.55	0.53	0.64
Manufacture of other transport equipment	C30	1.27	1.29	6.63	7.53	0.72	0.75
Manufacture of furniture; other manufact…	C31-C32	1.23	1.41	18.32	17.92	0.60	0.70
Repair and installation of machinery…	C33	1.67	1.49	19.50	16.67	0.80	0.77
Electricity, gas, steam and air cond…	D35	2.33	1.44	23.20	7.60	1.08	0.59
Water collection, treatment and supply	E36	1.05	1.23	18.12	19.45	0.67	0.75
Sewerage, waste collection, treatment…	E37-E39	1.17	1.37	17.57	18.03	0.58	0.67
Construction	F	1.92	1.45	30.42	20.82	1.06	0.80
Wholesale and retail trade and reparation	G45	1.44	1.27	30.76	27.73	0.97	0.88
Wholesale trade, except motor vehicles…	G46	2.10	1.39	26.94	14.79	1.24	0.91
Retail trade, except of motor vehicles…	G47	1.66	1.24	33.63	28.79	1.10	0.93
Land transport and transport via pipelines	H49	2.14	1.45	25.93	16.56	1.13	0.80
Water transport	H50	1.08	1.33	7.37	9.49	0.60	0.71
Air transport	H51	1.07	1.66	2.45	7.71	0.21	0.48
Warehousing and support for transport…	H52	2.12	1.41	19.27	11.03	1.07	0.78
Postal and courier activities	H53	1.24	1.35	61.83	63.76	0.82	0.89
Accommodation and food service…	I	1.13	1.30	37.86	38.75	0.74	0.84
Publishing activities	J58	1.08	1.46	15.27	20.94	0.60	0.84
Motion picture, video and television…	J59-J60	1.34	1.66	16.88	21.19	0.65	0.86
Telecommunications	J61	1.37	1.28	11.33	9.31	0.92	0.88
Computer programming, consultancy…	J62-J63	1.22	1.29	16.59	17.45	0.75	0.80
Financial service activities, except insur…	K64	1.72	1.45	20.73	17.15	1.01	0.89
Insurance, reinsurance and pension…	K65	1.30	1.59	16.31	24.87	0.62	0.82
Activities auxiliary to financial services…	K66	1.09	1.63	18.97	29.12	0.52	0.84
Real estate activities	L68	2.19	1.20	22.92	6.16	1.39	0.84
Legal and accounting activities…	M69-M70	1.91	1.36	29.82	21.14	1.17	0.88
Architectural and engineering activities	M71	1.35	1.41	21.80	22.15	0.85	0.91
Scientific research and development	M72	1.00	1.20	42.26	45.36	0.73	0.84
Advertising and market research	M73	1.54	1.54	17.79	18.80	0.90	0.91
Other professional, scientific, technical…	M74-M75	1.08	1.26	29.27	31.51	0.70	0.80
Administrative and support service	N	1.90	1.39	42.40	30.45	1.13	0.84
Public administration and defence…	O84	1.04	1.31	21.63	25.44	0.73	0.87
Education	P85	1.11	1.14	55.85	55.57	0.87	0.88
Human health and social work activities	Q	1.23	1.34	39.86	41.85	0.79	0.89
Other service activities	R-S	1.37	1.56	33.58	34.27	0.70	0.81

ANNEX XVIII

Table 18.- Multipliers for Luxembourg

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.44	1.36	5,21	4,37	0.41	0.37
Forestry and logging	A02	1.03	1.13	10,47	10,78	0.57	0.60
Mining and quarrying	B	1.11	1.26	3,02	3,35	0.47	0.52
Manufacture of food products, beverages…	C10-C12	1.22	1.37	6,06	5,84	0.44	0.47
Manufacture of textiles, wearing, leather…	C13-C15	1.15	1.24	2,07	2,17	0.26	0.28
Manufacture of wood, cork products…	C16	1.08	1.16	2,62	2,83	0.28	0.31
Manufacture of paper and paper products	C17	1.00	1.15	4,28	4,60	0.39	0.43
Printing and reproduction of recorded…	C18	1.00	1.16	5,95	6,26	0.54	0.59
Manufacture of chemicals and chemical…	C20	1.06	1.12	2,23	2,32	0.27	0.29
Manufacture of basis pharmaceuticals…	C21	1.09	1.24	3,42	3,72	0.35	0.40
Manufacture of rubber and plastic…	C22	1.03	1.12	3,01	3,20	0.29	0.32
Manufacture of non-metallic mineral	C23	1.49	1.34	3,92	3,35	0.41	0.35
Manufacture of basis metals	C24	1.06	1.15	1,29	1,49	0.10	0.13
Manufacture of fabricated metal products	C25	1.16	1.18	3,93	3,91	0.28	0.29
Manufacture of computer, electronic…	C26	1.01	1.08	3,67	3,82	0.39	0.41
Manufacture of electrical equipment	C27	1.01	1.12	3,32	3,58	0.35	0.38
Manufacture of machinery and equipment	C28	1.02	1.08	3,52	3,65	0.37	0.39
Manufacture of motor vehicles, trailers…	C29	1.00	1.10	2,15	2,39	0.30	0.33
Manufacture of other transport equip…	C30	1.00	1.01	4,29	4,30	0.59	0.59
Manufacture of furniture; other manufact	C31-C32	1.01	1.19	4,15	4,54	0.36	0.41
Repair and installation of machinery…	C33	1.02	1.01	4,65	4,62	0.41	0.41
Electricity, gas, steam and air cond…	D35	1.64	1.55	2,63	2,09	0.39	0.34
Water collection, treatment and supply	E36	1.05	1.16	3,30	3,62	0.74	0.77
Sewerage, waste collection, treatment…	E37-E39	1.06	1.17	4,50	4,82	0.59	0.63
Construction	F	1.73	1.29	7,29	5,50	0.68	0.53
Wholesale and retail trade and reparation	G45	1.10	1.28	7,58	7,78	0.65	0.72
Wholesale trade, except motor vehicles…	G46	1.69	1.23	4,14	2,39	0.70	0.56
Retail trade, except of motor vehicles…	G47	1.51	1.38	4,28	3,37	0.37	0.32
Land transport, transport via pipelines	H49	1.20	1.18	6,54	6,42	0.60	0.61
Water transport	H50	1.02	1.39	5,74	6,79	-0.37	-0.25
Air transport	H51	1.00	1.16	0,51	0,94	0.08	0.13
Warehousing and support for transport…	H52	1.39	1.38	4,89	4,27	0.40	0.43
Postal and courier activities	H53	1.18	1.44	3,90	4,36	0.35	0.43
Accommodation and food service…	I	1.15	1.35	8,62	8,84	0.59	0.65
Publishing activities	J58	1.03	1.20	2,77	3,14	0.52	0.58
Motion picture, video and television…	J59-J60	1.02	1.20	3,82	4,19	0.54	0.60
Telecommunications	J61	1.44	1.32	1,70	1,34	0.55	0.51
Computer programming, consultancy…	J62-J63	1.53	1.39	2,69	1,82	0.29	0.24
Financial service activities, except insur…	K64	1.87	1.60	3,28	0,91	0.44	0.25
Insurance, reinsurance and pension…	K65	1.13	1.37	1,21	1,08	0.33	0.36
Activities auxiliary to financial services…	K66	2.54	1.63	2,10	0,75	0.50	0.28
Real estate activities	L68	1.91	1.22	3,90	0,81	1.10	0.80
Legal and accounting activities…	M69-M70	1.39	1.23	4,47	3,80	0.74	0.70
Architectural and engineering activities	M71	1.16	1.19	5,73	5,63	0.68	0.68
Scientific research and development	M72	1.04	1.20	5,03	5,42	0.63	0.69
Advertising and market research	M73	1.10	1.18	2,12	2,26	0.20	0.24
Other professional, scientific, technical…	M74-M75	1.05	1.28	2,96	3,52	0.46	0.54
Administrative and support service	N	2.20	1.36	6,24	3,35	0.58	0.35
Public administration and defence…	O84	1.02	1.16	4,95	5,27	0.75	0.80
Education	P85	1.07	1.05	6,50	6,39	0.90	0.89
Human health and social work activities	Q	1.04	1.13	8,16	8,54	0.75	0.79
Other service activities	R-S	1.17	1.20	6,38	6,24	0.66	0.68

ANNEX XIX

Table 19.- Multipliers for Malta

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.24	1.47	7.25	8.60	0.61	0.68
Fishing and aquaculture	A03	1.47	2.06	3.75	7.61	0.35	0.55
Mining and quarrying	B	1.20	1.48	2.29	3.61	0.03	0.11
Manufacture of food products, beverages…	C10-C12	1.79	1.76	10.35	11.19	0.57	0.59
Manufacture of textiles, wearing, leather…	C13-C15	1.07	1.55	11.15	13.49	0.36	0.47
Manufacture of wood, cork products…	C16	1.05	1.45	28.93	32.82	0.35	0.54
Manufacture of paper and paper products	C17	1.07	1.44	9.57	11.92	0.32	0.44
Printing and reproduction of recorded…	C18	1.15	1.43	9.02	11.13	0.40	0.51
Manufacture of coke and refined…	C19	1.17	1.21	2.66	2.80	0.09	0.11
Manufacture of chemicals and chemical…	C20	1.05	1.18	12.55	13.41	0.29	0.33
Manufacture of basis pharmaceuticals…	C21	1.48	1.63	5.69	6.59	0.40	0.45
Manufacture of rubber and plastic…	C22	1.19	1.31	12.21	12.52	0.43	0.46
Manufacture of other non-metallic mineral	C23	1.44	1.64	13.78	14.21	0.53	0.54
Manufacture of basis metals	C24	1.00	1.24	11.66	13.79	0.77	0.86
Manufacture of fabricated metal products…	C25	1.23	1.44	10.49	12.81	0.36	0.47
Manufacture of computer, electronic…	C26	1.09	1.15	10.32	10.97	0.35	0.38
Manufacture of electrical equipment	C27	1.03	1.19	3.58	4.89	0.24	0.30
Manufacture of machinery and equipment	C28	1.38	1.28	11.11	10.60	0.35	0.33
Manufacture of motor vehicles, trailers…	C29	1.06	1.27	5.43	6.94	0.31	0.39
Manufacture of other transport equipment	C30	1.13	1.35	6.96	8.67	0.40	0.49
Manufacture of furniture; other manufact…	C31-C32	1.17	1.21	13.69	13.21	0.62	0.64
Repair and installation of machinery…	C33	1.29	1.38	8.32	8.71	0.41	0.42
Electricity, gas, steam and air cond…	D35	3.37	1.91	18.62	4.98	0.81	0.23
Water collection, treatment and supply	E36	1.05	1.14	11.86	12.24	0.60	0.62
Sewerage, waste collection, treatment…	E37-E39	1.31	1.39	9.38	9.36	0.47	0.48
Construction	F	2.25	1.58	16.41	10.39	0.81	0.52
Wholesale and retail trade and reparation	G45	1.12	1.34	12.95	13.89	0.62	0.68
Wholesale trade, except motor vehicles…	G46	1.98	1.35	20.12	14.46	0.95	0.74
Retail trade, except of motor vehicles…	G47	1.96	1.35	24.63	16.78	0.96	0.76
Land transport and transport via pipelines	H49	1.42	1.36	12.33	11.17	0.37	0.34
Water transport	H50	1.22	1.45	10.10	11.04	0.57	0.64
Air transport	H51	1.06	1.40	5.70	7.65	0.24	0.35
Warehousing and support for transport…	H52	2.45	1.66	13.30	6.70	0.83	0.55
Postal and courier activities	H53	2.06	1.35	15.90	10.32	0.73	0.46
Accommodation and food service…	I	1.27	1.73	10.47	12.70	0.49	0.65
Publishing activities	J58	1.07	1.34	7.45	9.14	0.45	0.55
Motion picture, video and television…	J59-J60	1.10	1.24	11.89	12.73	0.51	0.56
Telecommunications	J61	1.53	1.35	6.90	5.08	0.58	0.50
Computer programming, consultancy…	J62-J63	1.61	1.21	9.57	6.64	0.64	0.49
Financial service activities, except insur…	K64	2.72	1.25	12.96	1.92	0.69	0.11
Insurance, reinsurance and pension…	K65	1.26	1.31	4.54	4.13	0.49	0.48
Activities auxiliary to financial services…	K66	1.22	1.42	6.57	7.56	0.53	0.58
Real estate activities	L68	1.57	1.29	5.87	4.60	0.99	0.88
Legal and accounting activities…	M69-M70	1.21	1.38	7.98	8.65	0.64	0.69
Architectural and engineering activities	M71	1.11	1.34	7.06	8.40	0.47	0.54
Scientific research and development	M72	1.01	1.16	7.61	8.57	0.50	0.55
Advertising and market research	M73	1.67	1.46	6.39	4.62	0.44	0.35
Other professional, scientific, technical…	M74-M75	1.18	1.37	5.12	6.26	0.39	0.45
Administrative and support service	N	1.50	1.36	15.33	13.70	0.71	0.63
Public administration and defence…	O84	1.11	1.36	18.43	19.63	0.69	0.76
Education	P85	1.48	1.16	28.39	25.81	1.09	0.88
Human health and social work activities	Q	1.05	1.36	16.01	18.73	0.69	0.82
Other service activities	R-S	1.25	1.41	3.88	4.58	0.41	0.14

ANNEX XX

Table 20.- Multipliers for The Netherlands

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.65	1.64	4.44	4.18	0.59	0.60
Forestry and logging	A02	1.00	1.50	5.86	7.51	0.44	0.66
Fishing and aquaculture	A03	1.01	1.33	1.61	2.67	0.55	0.69
Mining and quarrying	B	1.00	1.22	0.36	1.12	0.81	0.91
Manufacture of food products, beverages…	C10-C12	2.33	1.82	6.55	3.64	0.71	0.51
Manufacture of textiles, wearing, leather…	C13-C15	1.02	1.30	3.17	4.23	0.33	0.47
Manufacture of wood, cork products…	C16	1.16	1.46	4.12	5.30	0.42	0.57
Manufacture of paper and paper products	C17	1.39	1.49	3.43	3.76	0.40	0.46
Printing and reproduction of recorded…	C18	1.39	1.50	5.36	5.65	0.55	0.60
Manufacture of coke and refined…	C19	1.35	1.69	0.82	2.20	0.13	0.32
Manufacture of chemicals and chemical…	C20	1.04	1.31	0.85	1.75	0.21	0.33
Manufacture of basis pharmaceuticals…	C21	1.03	1.35	1.60	2.72	0.52	0.66
Manufacture of rubber and plastic…	C22	1.11	1.28	3.11	3.76	0.38	0.47
Manufacture of other non-metallic mineral	C23	1.23	1.57	3.79	5.14	0.42	0.59
Manufacture of basis metals	C24	1.03	1.43	1.94	3.36	0.29	0.47
Manufacture of fabricated metal products…	C25	1.91	1.36	6.27	4.73	0.71	0.54
Manufacture of computer, electronic…	C26	1.36	1.24	1.99	1.70	0.27	0.24
Manufacture of electrical equipment	C27	1.10	1.27	3.01	3.77	0.48	0.57
Manufacture of machinery and equipment	C28	1.27	1.29	3.24	3.53	0.45	0.49
Manufacture of motor vehicles, trailers…	C29	1.06	1.32	2.32	3.49	0.30	0.43
Manufacture of other transport equipment	C30	1.13	1.51	2.18	3.83	0.28	0.47
Manufacture of furniture; other manufact…	C31-C32	1.06	1.30	11.07	12.30	0.62	0.74
Repair and installation of machinery…	C33	1.71	1.52	5.44	5.78	0.65	0.64
Electricity, gas, steam and air cond…	D35	1.77	1.70	3.17	3.31	0.75	0.74
Water collection, treatment and supply	E36	1.04	1.39	2.46	4.02	0.66	0.84
Sewerage, waste collection, treatment…	E37-E39	1.03	1.56	2.93	5.04	0.34	0.59
Construction	F	2.30	1.71	7.36	5.23	0.92	0.63
Wholesale and retail trade and reparation	G45	1.58	1.47	7.75	7.03	0.73	0.71
Wholesale trade, except motor vehicles…	G46	3.07	1.44	11.09	5.65	1.39	0.79
Retail trade, except of motor vehicles…	G47	1.15	1.46	15.04	15.70	0.71	0.87
Land transport and transport via pipelines	H49	1.80	1.59	6.99	6.75	0.74	0.71
Water transport	H50	1.03	1.48	1.57	3.39	0.29	0.50
Air transport	H51	1.13	1.61	2.36	3.98	0.29	0.49
Warehousing and support for transport…	H52	1.68	1.61	4.93	5.48	0.75	0.81
Postal and courier activities	H53	1.40	1.55	11.63	12.18	0.66	0.74
Accommodation and food service…	I	1.28	1.63	12.29	12.88	0.62	0.75
Publishing activities	J58	1.28	1.57	4.72	5.87	0.62	0.76
Motion picture, video and television…	J59-J60	1.44	1.59	4.97	5.76	0.66	0.76
Telecommunications	J61	1.52	1.37	3.36	2.68	0.76	0.69
Computer programming, consultancy…	J62-J63	1.74	1.46	7.11	6.14	0.93	0.81
Financial service activities, except insur…	K64	3.09	1.35	9.19	3.29	1.63	0.87
Insurance, reinsurance and pension…	K65	1.30	1.70	3.77	5.64	0.58	0.85
Activities auxiliary to financial services…	K66	1.39	1.38	7.63	7.93	0.83	0.85
Real estate activities	L68	2.48	1.70	8.16	2.55	1.16	0.84
Legal and accounting activities…	M69-M70	2.07	1.50	7.54	5.39	0.99	0.75
Architectural and engineering activities	M71	1.38	1.51	6.39	7.13	0.75	0.82
Scientific research and development	M72	1.08	1.46	5.39	7.23	0.58	0.78
Advertising and market research	M73	1.47	1.78	5.85	6.90	0.63	0.79
Other professional, scientific, technical…	M74-M75	1.42	1.42	5.12	5.23	0.66	0.68
Administrative and support service	N	2.91	1.41	18.72	13.15	1.52	0.85
Public administration and defence…	O84	1.32	1.42	6.14	7.05	0.74	0.81
Education	P85	1.23	1.22	10.20	10.27	0.91	0.90
Human health and social work activities	Q	1.15	1.27	11.63	12.07	0.77	0.83
Other service activities	R-S	1.60	1.50	8.60	7.94	0.84	0.79

ANNEX XXI

Table 21.- Multipliers for Poland

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.84	1.85	11.93	10.18	0.68	0.72
Forestry and logging	A02	1.50	1.67	24.17	25.43	0.68	0.78
Fishing and aquaculture	A03	1.02	1.64	24.86	29.83	0.40	0.64
Mining and quarrying	B	1.85	1.49	22.11	19.41	0.86	0.79
Manufacture of food products, beverages…	C10-C12	2.30	2.24	23.26	16.54	0.73	0.71
Manufacture of textiles, wearing, leather…	C13-C15	1.09	1.50	29.84	33.42	0.41	0.60
Manufacture of wood, cork products…	C16	1.46	1.94	19.15	23.49	0.48	0.70
Manufacture of paper and paper products	C17	1.73	1.81	13.41	13.00	0.57	0.61
Printing and reproduction of recorded…	C18	1.41	1.70	19.07	21.46	0.57	0.69
Manufacture of coke and refined…	C19	2.79	1.57	21.03	6.62	0.80	0.38
Manufacture of chemicals and chemical…	C20	1.71	1.71	11.76	10.63	0.48	0.52
Manufacture of basis pharmaceuticals…	C21	1.17	1.75	12.45	17.22	0.48	0.75
Manufacture of rubber and plastic…	C22	1.78	1.72	15.11	13.11	0.57	0.57
Manufacture of other non-metallic mineral	C23	1.61	1.84	16.67	18.03	0.56	0.68
Manufacture of basis metals	C24	1.55	1.80	12.22	13.73	0.36	0.49
Manufacture of fabricated metal products…	C25	2.00	1.67	19.51	15.79	0.72	0.63
Manufacture of computer, electronic…	C26	1.04	1.40	7.70	11.05	0.20	0.36
Manufacture of electrical equipment	C27	1.18	1.66	10.36	14.66	0.32	0.53
Manufacture of machinery and equipment	C28	1.17	1.61	10.91	14.84	0.41	0.60
Manufacture of motor vehicles, trailers…	C29	1.35	1.69	9.51	12.09	0.33	0.49
Manufacture of other transport equipment	C30	1.29	1.76	12.54	16.68	0.41	0.63
Manufacture of furniture; other manufact…	C31-C32	1.23	1.78	20.89	25.78	0.45	0.67
Repair and installation of machinery…	C33	1.64	1.50	14.23	11.78	0.71	0.67
Electricity, gas, steam and air cond…	D35	2.75	1.60	24.84	10.20	1.19	0.71
Water collection, treatment and supply	E36	1.14	1.48	24.54	27.29	0.71	0.86
Sewerage, waste collection, treatment…	E37-E39	1.43	1.65	16.04	17.27	0.65	0.74
Construction	F	3.13	1.92	31.45	17.04	1.31	0.71
Wholesale and retail trade and reparation	G45	1.65	1.33	14.60	10.57	1.00	0.90
Wholesale trade, except motor vehicles…	G46	3.38	1.63	33.08	12.15	1.49	0.83
Retail trade, except of motor vehicles…	G47	2.17	1.51	34.37	25.79	1.11	0.87
Land transport and transport via pipelines	H49	3.23	1.74	37.61	18.12	1.27	0.66
Water transport	H50	1.14	1.73	11.88	17.09	0.47	0.72
Air transport	H51	1.03	2.25	10.79	20.71	0.18	0.70
Warehousing and support for transport…	H52	2.22	1.80	17.56	11.95	0.87	0.79
Postal and courier activities	H53	1.34	1.54	40.11	41.83	0.74	0.82
Accommodation and food service…	I	1.31	1.81	24.90	28.17	0.59	0.78
Publishing activities	J58	1.25	1.59	10.66	14.17	0.66	0.82
Motion picture, video and television…	J59-J60	1.51	1.81	10.50	13.53	0.69	0.85
Telecommunications	J61	1.66	1.66	13.11	13.04	0.73	0.76
Computer programming, consultancy…	J62-J63	1.71	1.52	16.68	15.06	0.89	0.83
Financial service activities, except insur…	K64	2.45	1.51	26.02	15.43	1.26	0.87
Insurance, reinsurance and pension…	K65	1.22	1.87	8.39	14.12	0.37	0.66
Activities auxiliary to financial services…	K66	1.34	1.78	9.28	13.74	0.58	0.83
Real estate activities	L68	1.76	1.58	12.18	7.99	0.93	0.83
Legal and accounting activities…	M69-M70	2.24	1.58	21.73	15.00	1.14	0.89
Architectural and engineering activities	M71	1.37	1.69	11.86	14.65	0.70	0.83
Scientific research and development	M72	1.03	1.34	10.06	13.58	0.68	0.82
Advertising and market research	M73	2.25	1.82	15.14	10.78	1.06	0.89
Other professional, scientific, technical…	M74-M75	1.18	1.51	12.09	15.25	0.71	0.87
Administrative and support service	N	2.33	1.66	35.85	27.75	1.10	0.82
Public administration and defence…	O84	1.21	1.28	31.90	32.16	0.86	0.89
Education	P85	1.15	1.29	41.39	42.64	0.85	0.91
Human health and social work activities	Q	1.20	1.50	28.54	31.23	0.69	0.83
Other service activities	R-S	1.45	1.60	22.87	23.98	0.74	0.82

ANNEX XXII

Table 22.- Multipliers for Portugal

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.57	1.76	13.24	14.59	0.58	0.66
Forestry and logging	A02	1.44	1.35	8.43	8.59	0.87	0.88
Fishing and aquaculture	A03	1.07	1.59	15.44	19.25	0.55	0.75
Mining and quarrying	B	1.18	1.48	7.76	10.60	0.54	0.68
Manufacture of food products, beverages…	C10-C12	1.85	2.00	12.05	12.32	0.56	0.62
Manufacture of textiles, wearing, leather…	C13-C15	1.31	1.64	18.07	20.25	0.49	0.67
Manufacture of wood, cork products…	C16	1.54	1.85	12.47	13.75	0.51	0.70
Manufacture of paper and paper products	C17	1.60	1.92	6.31	7.19	0.43	0.60
Printing and reproduction of recorded…	C18	1.49	1.67	15.95	16.31	0.63	0.71
Manufacture of coke and refined…	C19	1.99	1.32	7.41	2.24	0.39	0.15
Manufacture of chemicals and chemical…	C20	1.66	1.77	6.21	6.57	0.37	0.44
Manufacture of basis pharmaceuticals…	C21	1.08	1.66	4.89	9.29	0.47	0.76
Manufacture of rubber and plastic…	C22	1.32	1.59	7.75	9.00	0.43	0.54
Manufacture of other non-metallic mineral	C23	1.38	1.67	11.31	13.15	0.49	0.64
Manufacture of basis metals	C24	1.40	1.73	4.81	7.41	0.24	0.41
Manufacture of fabricated metal products…	C25	1.82	1.61	17.30	15.41	0.65	0.60
Manufacture of computer, electronic…	C26	1.06	1.47	4.95	9.75	0.28	0.49
Manufacture of electrical equipment	C27	1.12	1.54	6.10	9.28	0.28	0.46
Manufacture of machinery and equipment	C28	1.15	1.45	7.71	9.99	0.38	0.51
Manufacture of motor vehicles, trailers…	C29	1.18	1.42	4.80	6.90	0.23	0.34
Manufacture of other transport equipment	C30	1.07	1.50	7.41	10.94	0.31	0.51
Manufacture of furniture; other manufact…	C31-C32	1.12	1.64	14.59	18.66	0.45	0.68
Repair and installation of machinery…	C33	1.37	1.61	12.83	14.95	0.56	0.70
Electricity, gas, steam and air cond…	D35	4.27	2.32	19.24	3.98	1.37	0.63
Water collection, treatment and supply	E36	1.32	1.62	9.11	11.28	0.69	0.84
Sewerage, waste collection, treatment…	E37-E39	1.73	1.83	12.69	14.76	0.62	0.74
Construction	F	2.20	1.82	20.70	17.63	0.87	0.71
Wholesale and retail trade and reparation	G45	1.29	1.50	16.87	18.57	0.60	0.72
Wholesale trade, except motor vehicles…	G46	3.78	1.51	30.06	12.28	1.72	0.90
Retail trade, except of motor vehicles…	G47	1.94	1.47	27.48	23.41	1.05	0.90
Land transport and transport via pipelines	H49	2.18	1.68	19.29	15.21	0.87	0.67
Water transport	H50	1.04	2.07	3.69	11.79	0.26	0.76
Air transport	H51	1.09	1.78	2.92	8.28	0.31	0.61
Warehousing and support for transport…	H52	2.18	1.71	11.83	10.16	0.95	0.87
Postal and courier activities	H53	1.49	1.77	17.18	19.73	0.74	0.89
Accommodation and food service…	I	1.33	1.60	16.09	17.70	0.73	0.81
Publishing activities	J58	1.09	1.83	7.35	14.47	0.42	0.78
Motion picture, video and television…	J59-J60	1.72	1.85	8.95	11.50	0.66	0.81
Telecommunications	J61	1.83	1.75	7.89	8.03	0.80	0.80
Computer programming, consultancy…	J62-J63	1.63	1.61	14.03	14.89	0.81	0.84
Financial service activities, except insur…	K64	3.25	1.63	21.91	9.49	1.57	0.88
Insurance, reinsurance and pension…	K65	1.37	1.67	4.33	6.36	0.69	0.88
Activities auxiliary to financial services…	K66	1.42	1.56	8.72	10.77	0.78	0.87
Real estate activities	L68	2.09	1.08	10.15	1.29	1.44	0.98
Legal and accounting activities…	M69-M70	2.70	1.70	24.26	16.11	1.26	0.86
Architectural and engineering activities	M71	1.69	1.72	15.68	17.04	0.78	0.82
Scientific research and development	M72	1.02	1.32	7.52	10.59	0.73	0.88
Advertising and market research	M73	1.50	2.00	9.63	13.77	0.51	0.77
Other professional, scientific, technical…	M74-M75	1.11	1.69	14.17	20.17	0.53	0.84
Administrative and support service	N	3.31	1.51	43.06	28.74	1.63	0.88
Public administration and defence…	O84	1.48	1.39	16.87	16.43	0.92	0.91
Education	P85	1.12	1.20	21.60	22.38	0.91	0.95
Human health and social work activities	Q	1.22	1.50	18.12	20.57	0.69	0.83
Other service activities	R-S	1.39	1.61	16.30	18.82	0.72	0.84

ANNEX XXIII

Table 23.- Multipliers for Romania

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.97	1.78	26.66	25.91	0.89	0.79
Forestry and logging	A02	1.55	1.96	36.10	41.47	0.60	0.82
Fishing and aquaculture	A03	1.03	1.49	11.85	19.13	0.70	0.91
Mining and quarrying	B	1.94	1.71	29.59	27.51	0.81	0.75
Manufacture of food products, beverages…	C10-C12	1.83	1.98	21.36	22.26	0.72	0.76
Manufacture of textiles, wearing, leather…	C13-C15	1.41	1.54	52.21	53.47	0.67	0.73
Manufacture of wood, cork products…	C16	1.61	1.99	27.24	31.36	0.55	0.73
Manufacture of paper and paper products	C17	1.23	1.91	14.30	23.77	0.34	0.62
Printing and reproduction of recorded…	C18	1.25	1.59	12.76	16.02	0.64	0.78
Manufacture of coke and refined…	C19	1.62	1.49	10.93	8.73	0.51	0.47
Manufacture of chemicals and chemical…	C20	1.26	1.72	12.89	19.23	0.40	0.58
Manufacture of basis pharmaceuticals…	C21	1.01	1.74	12.97	23.64	0.44	0.76
Manufacture of rubber and plastic…	C22	1.47	1.70	15.63	19.34	0.46	0.56
Manufacture of other non-metallic mineral	C23	1.38	1.74	21.00	25.97	0.56	0.70
Manufacture of basis metals	C24	1.76	1.83	20.07	21.80	0.56	0.59
Manufacture of fabricated metal products…	C25	1.76	1.69	32.73	30.87	0.69	0.66
Manufacture of computer, electronic…	C26	1.14	1.58	17.07	23.94	0.46	0.65
Manufacture of electrical equipment	C27	1.04	1.65	14.05	22.93	0.39	0.65
Manufacture of machinery and equipment	C28	1.06	1.61	18.48	26.39	0.45	0.67
Manufacture of motor vehicles, trailers…	C29	1.23	1.80	12.88	21.02	0.28	0.50
Manufacture of other transport equipment	C30	1.18	1.67	23.48	30.64	0.49	0.70
Manufacture of furniture; other manufact…	C31-C32	1.19	1.75	33.59	43.03	0.46	0.69
Repair and installation of machinery…	C33	1.44	1.43	29.15	29.42	0.78	0.78
Electricity, gas, steam and air cond…	D35	5.04	1.55	75.10	13.53	2.03	0.57
Water collection, treatment and supply	E36	1.04	1.64	38.26	45.10	0.55	0.80
Sewerage, waste collection, treatment…	E37-E39	1.18	1.98	14.16	24.52	0.38	0.75
Construction	F	3.57	1.79	57.57	24.04	1.51	0.69
Wholesale and retail trade and reparation	G45	1.47	1.63	76.15	76.85	0.71	0.81
Wholesale trade, except motor vehicles…	G46	3.69	1.90	53.65	23.41	1.44	0.75
Retail trade, except of motor vehicles…	G47	2.88	1.87	80.24	62.23	1.11	0.74
Land transport and transport via pipelines	H49	1.98	1.71	30.06	23.69	0.78	0.67
Water transport	H50	1.22	1.73	9.69	16.03	0.58	0.78
Air transport	H51	1.06	2.00	6.08	18.96	0.28	0.73
Warehousing and support for transport…	H52	1.74	1.85	17.56	17.32	0.70	0.77
Postal and courier activities	H53	1.19	1.65	49.55	54.77	0.63	0.85
Accommodation and food service…	I	1.70	1.78	34.73	33.47	0.77	0.79
Publishing activities	J58	1.14	1.64	20.93	27.26	0.53	0.74
Motion picture, video and television…	J59-J60	1.50	1.80	22.06	26.15	0.63	0.77
Telecommunications	J61	1.53	1.55	16.17	15.46	0.77	0.78
Computer programming, consultancy…	J62-J63	1.91	1.51	20.59	12.36	0.98	0.81
Financial service activities, except insur…	K64	2.35	1.41	36.85	17.18	1.31	0.90
Insurance, reinsurance and pension…	K65	1.14	1.71	34.50	40.89	0.54	0.85
Activities auxiliary to financial services…	K66	1.29	1.07	8.96	4.10	1.08	0.98
Real estate activities	L68	1.72	1.26	15.69	5.37	1.10	0.95
Legal and accounting activities…	M69-M70	3.18	1.73	41.35	16.59	1.46	0.84
Architectural and engineering activities	M71	2.08	1.68	25.09	17.86	0.95	0.79
Scientific research and development	M72	1.01	1.29	13.23	17.34	0.72	0.84
Advertising and market research	M73	1.59	1.91	18.30	20.63	0.64	0.80
Other professional, scientific, technical…	M74-M75	1.60	1.80	17.38	19.07	0.71	0.82
Administrative and support service	N	2.72	1.71	53.71	35.52	1.27	0.84
Public administration and defence…	O84	1.00	1.28	42.79	46.87	0.80	0.92
Education	P85	1.63	1.26	40.92	34.21	1.12	0.93
Human health and social work activities	Q	1.17	1.58	41.37	48.72	0.65	0.83
Other service activities	R-S	1.50	1.59	18.65	19.25	1.28	1.33

ANNEX XXIV

Table 24.- Multipliers for Slovakia

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.72	1.40	13.70	10.39	0.81	0.72
Forestry and logging	A02	2.11	1.53	19.68	14.65	1.11	0.89
Fishing and aquaculture	A03	1.01	1.14	2.97	3.99	0.88	0.94
Mining and quarrying	B	1.02	1.32	10.05	12.16	0.61	0.73
Manufacture of food products, beverages…	C10-C12	1.18	1.81	10.18	14.71	0.34	0.64
Manufacture of textiles, wearing, leather…	C13-C15	1.11	1.39	18.39	20.61	0.44	0.56
Manufacture of wood, cork products…	C16	1.64	1.67	15.00	15.07	0.71	0.80
Manufacture of paper and paper products	C17	1.14	1.72	5.32	9.76	0.30	0.57
Printing and reproduction of recorded…	C18	1.22	1.51	13.34	15.60	0.49	0.60
Manufacture of coke and refined…	C19	1.84	1.20	7.03	1.54	0.36	0.11
Manufacture of chemicals and chemical…	C20	1.05	1.49	3.96	6.25	0.22	0.36
Manufacture of basis pharmaceuticals…	C21	1.01	1.57	7.78	12.65	0.38	0.63
Manufacture of rubber and plastic…	C22	1.51	1.42	10.00	8.74	0.48	0.48
Manufacture of other non-metallic mineral	C23	1.23	1.61	10.08	12.55	0.44	0.59
Manufacture of basis metals	C24	1.18	1.41	5.70	7.12	0.25	0.35
Manufacture of fabricated metal products…	C25	1.94	1.50	14.43	10.59	0.69	0.57
Manufacture of computer, electronic…	C26	1.05	1.11	2.28	2.74	0.13	0.15
Manufacture of electrical equipment	C27	1.19	1.33	8.42	9.36	0.28	0.34
Manufacture of machinery and equipment	C28	1.13	1.46	9.01	11.26	0.34	0.47
Manufacture of motor vehicles, trailers…	C29	1.62	1.55	6.46	5.07	0.31	0.27
Manufacture of other transport equipment	C30	1.04	1.33	8.52	10.54	0.29	0.41
Manufacture of furniture; other manufact…	C31-C32	1.25	1.64	13.34	16.31	0.42	0.60
Repair and installation of machinery…	C33	1.91	1.57	15.81	11.79	0.73	0.60
Electricity, gas, steam and air cond…	D35	3.61	1.87	23.18	4.37	1.19	0.47
Water collection, treatment and supply	E36	1.08	1.59	15.83	18.91	0.58	0.79
Sewerage, waste collection, treatment…	E37-E39	1.07	1.69	15.55	20.06	0.41	0.67
Construction	F	3.26	1.64	26.29	9.94	1.49	0.76
Wholesale and retail trade and reparation	G45	1.47	1.48	15.08	13.90	0.77	0.76
Wholesale trade, except motor vehicles…	G46	3.02	1.69	29.60	16.11	1.28	0.78
Retail trade, except of motor vehicles…	G47	2.13	1.53	27.19	20.46	1.07	0.84
Land transport and transport via pipelines	H49	2.50	1.68	23.61	15.11	1.08	0.73
Water transport	H50	1.02	1.86	6.69	12.33	0.38	0.74
Air transport	H51	1.05	1.84	3.38	8.93	0.29	0.62
Warehousing and support for transport…	H52	2.88	1.76	21.01	12.26	1.24	0.83
Postal and courier activities	H53	1.78	1.88	33.30	33.52	0.82	0.87
Accommodation and food service…	I	1.25	1.52	36.92	38.24	0.67	0.79
Publishing activities	J58	1.12	1.54	10.96	14.61	0.63	0.81
Motion picture, video and television…	J59-J60	1.14	1.75	6.38	11.93	0.48	0.77
Telecommunications	J61	1.37	1.57	7.14	9.14	0.73	0.83
Computer programming, consultancy…	J62-J63	1.90	1.55	15.99	13.18	0.98	0.83
Financial service activities, except insur…	K64	1.94	1.47	13.84	9.40	1.12	0.93
Insurance, reinsurance and pension…	K65	1.19	2.15	6.35	12.15	0.36	0.86
Activities auxiliary to financial services…	K66	1.72	1.65	6.72	7.73	0.80	0.87
Real estate activities	L68	1.94	1.51	12.37	6.10	1.06	0.88
Legal and accounting activities…	M69-M70	2.32	1.59	22.50	15.54	1.17	0.86
Architectural and engineering activities	M71	1.63	1.65	12.77	12.04	0.76	0.79
Scientific research and development	M72	1.02	1.44	25.01	29.07	0.60	0.78
Advertising and market research	M73	1.62	1.95	16.19	19.26	0.65	0.82
Other professional, scientific, technical…	M74-M75	1.43	1.81	7.99	10.04	0.43	0.61
Administrative and support service	N	2.15	1.66	30.27	24.70	1.02	0.81
Public administration and defence…	O84	1.15	1.36	21.04	23.20	0.78	0.87
Education	P85	1.14	1.31	38.68	39.22	0.82	0.87
Human health and social work activities	Q	1.08	1.55	24.57	28.87	0.66	0.88
Other service activities	R-S	1.55	1.43	14.86	13.38	0.97	0.89

ANNEX XXV

Table 25.- Multipliers for Slovenia

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.45	1.47	4.98	5.16	0.58	0.62
Forestry and logging	A02	1.19	1.33	4.30	5.43	0.71	0.78
Fishing and aquaculture	A03	1.12	1.64	8.43	12.43	0.40	0.64
Mining and quarrying	B	1.25	1.53	8.40	10.97	0.56	0.70
Manufacture of food products, beverages…	C10-C12	1.41	1.83	9.23	11.76	0.44	0.64
Manufacture of textiles, wearing, leather…	C13-C15	1.12	1.44	11.10	13.64	0.39	0.55
Manufacture of wood, cork products…	C16	1.30	1.56	9.76	11.60	0.45	0.58
Manufacture of paper and paper products	C17	1.26	1.48	5.99	7.75	0.35	0.46
Printing and reproduction of recorded…	C18	2.10	1.84	14.07	12.77	0.76	0.67
Manufacture of coke and refined…	C19	1.08	1.67	7.54	12.83	0.28	0.57
Manufacture of chemicals and chemical…	C20	1.11	1.36	4.14	6.15	0.32	0.44
Manufacture of basis pharmaceuticals…	C21	1.50	1.69	6.68	7.47	0.72	0.79
Manufacture of rubber and plastic…	C22	1.30	1.40	8.67	9.57	0.46	0.52
Manufacture of other non-metallic mineral	C23	1.34	1.57	8.73	10.63	0.49	0.60
Manufacture of basis metals	C24	1.39	1.48	6.21	7.05	0.36	0.42
Manufacture of fabricated metal products…	C25	2.03	1.58	14.07	11.24	0.72	0.57
Manufacture of computer, electronic…	C26	1.14	1.33	9.05	10.75	0.46	0.55
Manufacture of electrical equipment	C27	1.25	1.43	7.79	9.25	0.41	0.50
Manufacture of machinery and equipment	C28	1.15	1.43	7.97	10.07	0.41	0.53
Manufacture of motor vehicles, trailers…	C29	1.16	1.28	5.05	5.99	0.28	0.34
Manufacture of other transport equipment	C30	1.21	1.60	6.80	9.58	0.39	0.56
Manufacture of furniture; other manufact…	C31-C32	1.16	1.49	10.24	12.73	0.47	0.62
Repair and installation of machinery…	C33	1.47	1.41	12.43	12.44	0.66	0.65
Electricity, gas, steam and air cond…	D35	2.07	1.51	10.79	7.06	0.90	0.70
Water collection, treatment and supply	E36	1.17	1.67	9.13	12.75	0.44	0.65
Sewerage, waste collection, treatment…	E37-E39	1.35	1.55	8.58	10.68	0.39	0.51
Construction	F	3.01	1.79	21.40	12.49	1.16	0.65
Wholesale and retail trade and reparation	G45	1.47	1.48	13.28	13.60	0.72	0.75
Wholesale trade, except motor vehicles…	G46	3.17	1.61	23.73	13.24	1.34	0.79
Retail trade, except of motor vehicles…	G47	1.57	1.57	17.02	17.24	0.79	0.85
Land transport and transport via pipelines	H49	2.62	1.68	17.87	12.11	0.99	0.66
Water transport	H50	1.24	1.57	3.31	5.63	0.34	0.50
Air transport	H51	1.07	1.80	2.49	8.20	0.19	0.54
Warehousing and support for transport…	H52	1.96	1.72	8.85	9.17	0.78	0.79
Postal and courier activities	H53	1.45	1.45	20.93	21.34	0.85	0.87
Accommodation and food service…	I	1.47	1.58	16.79	17.32	0.67	0.73
Publishing activities	J58	1.14	1.75	9.03	14.54	0.47	0.77
Motion picture, video and television…	J59-J60	1.43	1.87	10.62	14.56	0.53	0.77
Telecommunications	J61	1.73	1.67	7.49	7.44	0.73	0.74
Computer programming, consultancy…	J62-J63	1.84	1.46	14.61	12.19	0.98	0.83
Financial service activities, except insur…	K64	2.26	1.61	15.84	11.63	1.10	0.85
Insurance, reinsurance and pension…	K65	1.28	1.69	8.32	12.64	0.62	0.86
Activities auxiliary to financial services…	K66	1.26	1.56	12.70	15.74	0.70	0.87
Real estate activities	L68	1.92	1.18	8.86	2.78	1.26	0.93
Legal and accounting activities…	M69-M70	2.40	1.48	20.45	14.25	1.21	0.85
Architectural and engineering activities	M71	2.13	1.72	14.13	11.61	0.83	0.69
Scientific research and development	M72	1.29	1.32	10.33	11.01	0.82	0.86
Advertising and market research	M73	1.38	1.98	6.92	12.17	0.44	0.73
Other professional, scientific, technical…	M74-M75	1.42	1.30	12.99	12.07	0.93	0.89
Administrative and support service	N	2.71	1.41	33.36	23.65	1.32	0.79
Public administration and defence…	O84	1.29	1.42	14.69	15.89	0.80	0.87
Education	P85	1.23	1.24	22.75	23.06	0.87	0.88
Human health and social work activities	Q	1.14	1.43	16.98	18.88	0.70	0.84
Other service activities	R-S	1.58	1.59	13.35	14.15	0.75	0.80

ANNEX XXVI

Table 26.- Multipliers for Spain

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.65	1.88	9.93	10.62	0.77	0.85
Forestry and logging	A02	1.12	1.30	13.67	14.78	0.84	0.95
Fishing and aquaculture	A03	1.05	1.87	7.88	12.04	0.47	0.82
Mining and quarrying	B	1.02	1.81	3.88	7.62	0.44	0.76
Manufacture of food products, beverages…	C10-C12	3.06	2.45	13.43	9.05	1.05	0.77
Manufacture of textiles, wearing, leather…	C13-C15	1.20	1.72	6.68	9.56	0.38	0.62
Manufacture of wood, cork products…	C16	1.36	2.03	8.41	12.36	0.44	0.76
Manufacture of paper and paper products	C17	1.70	2.05	5.97	7.12	0.51	0.66
Printing and reproduction of recorded…	C18	1.68	1.90	9.54	10.96	0.70	0.81
Manufacture of coke and refined…	C19	1.93	1.28	3.50	1.12	0.34	0.12
Manufacture of chemicals and chemical…	C20	2.41	1.99	7.09	5.10	0.71	0.56
Manufacture of basis pharmaceuticals…	C21	1.15	1.73	2.95	5.53	0.43	0.67
Manufacture of rubber and plastic…	C22	1.58	1.86	6.23	7.42	0.52	0.64
Manufacture of other non-metallic mineral	C23	1.42	2.02	6.36	8.88	0.47	0.71
Manufacture of basis metals	C24	2.60	2.10	7.75	5.52	0.67	0.52
Manufacture of fabricated metal products…	C25	1.92	1.96	9.64	9.50	0.69	0.69
Manufacture of computer, electronic…	C26	1.13	1.58	5.09	7.52	0.51	0.70
Manufacture of electrical equipment	C27	1.37	1.93	4.42	6.54	0.42	0.62
Manufacture of machinery and equipment	C28	1.47	1.88	5.96	7.43	0.54	0.68
Manufacture of motor vehicles, trailers…	C29	1.22	1.70	3.11	5.21	0.25	0.43
Manufacture of other transport equipment	C30	1.22	1.70	3.41	5.62	0.47	0.66
Manufacture of furniture; other manufact…	C31-C32	1.26	1.84	7.76	11.00	0.52	0.79
Repair and installation of machinery…	C33	1.48	1.67	8.66	9.63	0.72	0.81
Electricity, gas, steam and air cond…	D35	5.04	2.18	17.80	3.75	1.74	0.64
Water collection, treatment and supply	E36	1.35	1.66	5.91	7.59	0.66	0.79
Sewerage, waste collection, treatment…	E37-E39	1.62	1.86	6.92	8.61	0.58	0.73
Construction	F	1.92	1.92	9.64	9.57	0.83	0.83
Wholesale and retail trade and reparation	G45	1.34	1.61	8.87	10.13	0.69	0.84
Wholesale trade, except motor vehicles…	G46	3.38	1.73	19.68	10.83	1.52	0.90
Retail trade, except of motor vehicles…	G47	1.61	1.51	17.50	16.28	0.92	0.94
Land transport and transport via pipelines	H49	2.66	1.76	13.80	9.42	1.13	0.83
Water transport	H50	1.06	1.96	3.15	7.63	0.33	0.75
Air transport	H51	1.23	1.97	3.75	7.28	0.38	0.68
Warehousing and support for transport…	H52	3.11	1.93	13.25	8.43	1.27	0.88
Postal and courier activities	H53	1.48	1.73	18.20	19.56	0.78	0.91
Accommodation and food service…	I	1.56	1.73	11.76	10.74	0.86	0.89
Publishing activities	J58	1.35	1.97	7.51	10.49	0.53	0.81
Motion picture, video and television…	J59-J60	1.49	1.95	7.23	9.09	0.60	0.85
Telecommunications	J61	1.98	1.70	6.17	5.04	0.96	0.87
Computer programming, consultancy…	J62-J63	1.51	1.64	9.25	10.13	0.81	0.90
Financial service activities, except insur…	K64	2.59	1.45	12.17	6.68	1.41	0.90
Insurance, reinsurance and pension…	K65	1.35	1.80	4.03	5.89	0.61	0.89
Activities auxiliary to financial services…	K66	1.48	1.65	5.74	7.19	0.76	0.89
Real estate activities	L68	2.83	1.17	12.30	1.69	1.74	0.98
Legal and accounting activities…	M69-M70	2.27	1.51	14.26	10.70	1.22	0.93
Architectural and engineering activities	M71	1.60	1.73	9.44	10.34	0.78	0.87
Scientific research and development	M72	1.01	1.36	6.88	9.02	0.67	0.85
Advertising and market research	M73	1.49	1.90	10.35	12.53	0.66	0.88
Other professional, scientific, technical…	M74-M75	1.34	1.61	10.41	11.66	0.76	0.90
Administrative and support service	N	3.01	1.64	27.90	20.75	1.45	0.89
Public administration and defence…	O84	1.58	1.36	15.37	14.45	0.98	0.91
Education	P85	1.28	1.19	15.51	14.95	0.99	0.95
Human health and social work activities	Q	1.25	1.43	11.87	12.93	0.77	0.85
Other service activities	R-S	1.64	1.55	14.21	13.32	0.92	0.90

ANNEX XXVII

Table 27.- Multipliers for Sweden

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.63	2.00	6.71	8.02	0.43	0.64
Forestry and logging	A02	1.56	1.18	4.77	3.88	1.00	0.92
Fishing and aquaculture	A03	1.00	1.47	3.77	5.39	0.46	0.67
Mining and quarrying	B	1.27	1.58	1.98	3.79	0.52	0.73
Manufacture of food products, beverages…	C10-C12	1.88	2.07	6.17	6.23	0.58	0.68
Manufacture of textiles, wearing, leather…	C13-C15	1.00	1.45	4.44	6.12	0.38	0.59
Manufacture of wood, cork products…	C16	1.50	1.88	4.24	5.72	0.43	0.72
Manufacture of paper and paper products	C17	1.60	1.84	3.69	4.35	0.48	0.67
Printing and reproduction of recorded…	C18	1.45	1.93	6.38	7.77	0.52	0.73
Manufacture of coke and refined…	C19	1.47	1.39	1.67	1.37	0.25	0.26
Manufacture of chemicals and chemical…	C20	1.48	1.35	3.32	3.02	0.83	0.81
Manufacture of basis pharmaceuticals…	C21	1.12	1.63	1.47	3.30	0.42	0.65
Manufacture of rubber and plastic…	C22	1.15	1.65	4.01	5.87	0.41	0.67
Manufacture of other non-metallic mineral	C23	1.32	1.73	3.92	5.61	0.43	0.64
Manufacture of basis metals	C24	1.55	1.71	3.29	4.18	0.40	0.52
Manufacture of fabricated metal products…	C25	1.80	1.63	6.66	6.38	0.72	0.69
Manufacture of computer, electronic…	C26	1.23	1.25	2.86	3.06	0.67	0.69
Manufacture of electrical equipment	C27	1.08	1.58	3.06	5.08	0.34	0.58
Manufacture of machinery and equipment	C28	1.28	1.58	3.88	5.23	0.49	0.65
Manufacture of motor vehicles, trailers…	C29	1.51	1.72	3.41	4.39	0.44	0.56
Manufacture of other transport equipment	C30	1.22	1.52	3.21	4.62	0.58	0.74
Manufacture of furniture; other manufact…	C31-C32	1.20	1.62	4.35	6.12	0.48	0.69
Repair and installation of machinery…	C33	1.37	1.59	5.95	7.08	0.56	0.70
Electricity, gas, steam and air cond…	D35	1.89	1.41	4.43	2.96	0.99	0.83
Water collection, treatment and supply	E36	1.16	1.62	2.65	4.52	0.53	0.76
Sewerage, waste collection, treatment…	E37-E39	1.49	1.82	4.99	6.96	0.52	0.73
Construction	F	2.23	1.62	9.05	7.10	1.03	0.76
Wholesale and retail trade and reparation	G45	1.34	1.45	6.63	7.06	0.75	0.83
Wholesale trade, except motor vehicles…	G46	2.34	1.50	9.63	6.78	1.15	0.86
Retail trade, except of motor vehicles…	G47	1.86	1.48	11.57	10.10	0.98	0.87
Land transport and transport via pipelines	H49	2.89	1.64	10.70	6.99	1.19	0.73
Water transport	H50	1.03	1.75	3.30	5.94	0.21	0.53
Air transport	H51	1.14	1.72	2.89	5.29	0.37	0.63
Warehousing and support for transport…	H52	2.31	1.65	6.53	4.84	0.87	0.64
Accommodation and food service…	I	1.78	1.76	11.40	10.88	0.80	0.79
Publishing activities	J58	1.57	1.72	5.37	6.10	0.73	0.80
Motion picture, video and television…	J59-J60	1.84	1.94	5.75	6.76	0.69	0.81
Telecommunications	J61	1.83	1.91	4.09	4.51	0.73	0.79
Computer programming, consultancy…	J62-J63	1.76	1.55	6.43	5.89	0.93	0.87
Financial service activities, except insur…	K64	2.10	1.35	6.54	3.84	1.23	0.90
Insurance, reinsurance and pension…	K65	1.27	1.43	4.07	4.89	0.80	0.91
Activities auxiliary to financial services…	K66	1.20	1.50	7.76	8.97	0.71	0.86
Real estate activities	L68	3.48	1.60	12.71	3.21	1.73	0.83
Legal and accounting activities…	M69-M70	2.51	1.55	10.33	6.89	1.26	0.87
Architectural and engineering activities	M71	1.89	1.57	7.94	6.95	0.96	0.85
Scientific research and development	M72	1.10	1.50	3.80	5.54	0.66	0.87
Advertising and market research	M73	1.73	2.01	6.07	7.33	0.64	0.80
Other professional, scientific, technical…	M74-M75	1.51	1.74	5.33	6.45	0.66	0.81
Administrative and support service	N	2.95	1.56	14.55	9.71	1.40	0.82
Public administration and defence…	O84	1.56	1.49	8.42	7.81	0.84	0.82
Education	P85	1.22	1.41	12.35	12.95	0.79	0.89
Human health and social work activities	Q	1.15	1.34	10.59	11.24	0.79	0.89
Other service activities	R-S	1.73	1.57	9.82	9.29	0.87	0.83

ANNEX XXVIII

Table 28.- Multipliers for United Kingdom

		Output		Employment		Value added	
Industry	**ISIC code**	**Down**	**Up**	**Down**	**Up**	**Down**	**Up**
Crop, animal production, hunting…	A01	1.55	1.87	7.50	8.20	0.59	0.75
Forestry and logging	A02	1.44	2.38	6.79	10.72	0.25	0.68
Fishing and aquaculture	A03	1.07	1.83	2.39	4.94	0.35	0.66
Mining and quarrying	B	2.12	1.47	3.11	2.70	0.91	0.83
Manufacture of food products, beverages…	C10-C12	2.34	2.11	9.91	6.91	0.86	0.76
Manufacture of textiles, wearing, leather…	C13-C15	1.27	1.62	5.61	7.02	0.63	0.79
Manufacture of wood, cork products…	C16	1.40	1.91	7.07	9.09	0.47	0.69
Manufacture of paper and paper products	C17	1.56	1.90	4.77	5.53	0.58	0.71
Printing and reproduction of recorded…	C18	1.32	1.77	6.72	8.52	0.59	0.78
Manufacture of coke and refined…	C19	1.32	1.66	1.36	1.74	0.20	0.42
Manufacture of chemicals and chemical…	C20	1.72	1.81	4.11	4.56	0.52	0.60
Manufacture of basis pharmaceuticals…	C21	1.13	1.45	1.68	3.06	0.65	0.81
Manufacture of rubber and plastic…	C22	1.60	1.68	6.14	6.42	0.66	0.70
Manufacture of other non-metallic mineral	C23	1.40	1.99	3.91	5.82	0.44	0.69
Manufacture of basis metals	C24	1.03	1.75	2.24	4.83	0.21	0.52
Manufacture of fabricated metal products…	C25	2.02	1.61	8.34	7.30	0.88	0.75
Manufacture of computer, electronic…	C26	1.21	1.45	3.90	5.16	0.57	0.68
Manufacture of electrical equipment	C27	1.16	1.61	4.04	6.00	0.45	0.65
Manufacture of machinery and equipment	C28	1.39	1.70	4.70	6.28	0.53	0.69
Manufacture of motor vehicles, trailers…	C29	1.36	1.79	3.02	4.95	0.37	0.58
Manufacture of other transport equipment	C30	1.09	1.66	2.79	5.32	0.36	0.62
Manufacture of furniture; other manufact…	C31-C32	1.34	1.55	6.04	6.92	0.67	0.77
Repair and installation of machinery…	C33	1.68	1.74	6.54	8.03	0.69	0.78
Electricity, gas, steam and air cond…	D35	3.89	2.10	9.55	2.79	1.29	0.64
Water collection, treatment and supply	E36	1.08	1.43	3.47	4.65	0.74	0.90
Sewerage, waste collection, treatment…	E37-E39	1.36	1.73	3.96	5.98	0.58	0.78
Construction	F	2.95	1.91	10.39	6.43	1.29	0.81
Wholesale and retail trade and reparation	G45	2.10	1.58	9.81	8.01	1.02	0.85
Wholesale trade, except motor vehicles…	G46	2.48	1.80	11.59	9.61	1.05	0.85
Retail trade, except of motor vehicles…	G47	1.11	1.61	11.39	13.48	0.64	0.89
Land transport and transport via pipelines	H49	2.28	1.71	9.97	8.17	1.00	0.82
Water transport	H50	1.28	1.91	0.96	4.39	0.49	0.80
Air transport	H51	1.18	1.69	3.01	5.66	0.47	0.73
Warehousing and support for transport…	H52	2.52	1.94	10.70	9.31	1.07	0.87
Postal and courier activities	H53	1.57	1.69	9.12	9.97	0.72	0.79
Accommodation and food service…	I	1.25	1.74	13.11	14.92	0.62	0.82
Publishing activities	J58	1.32	1.68	5.42	7.45	0.69	0.87
Motion picture, video and television…	J59-J60	1.20	1.70	3.62	6.29	0.60	0.87
Telecommunications	J61	1.82	1.58	5.85	4.87	0.93	0.82
Computer programming, consultancy…	J62-J63	2.32	1.50	10.51	7.65	1.26	0.90
Financial service activities, except insur…	K64	2.79	1.64	8.90	5.48	1.33	0.86
Insurance, reinsurance and pension…	K65	1.69	1.88	2.81	4.22	0.69	0.83
Activities auxiliary to financial services…	K66	1.32	1.56	7.91	9.43	0.74	0.88
Real estate activities	L68	1.45	1.44	3.12	2.62	0.93	0.93
Legal and accounting activities…	M69-M70	3.07	1.50	15.79	9.36	1.66	0.92
Architectural and engineering activities	M71	2.09	1.68	9.73	8.62	1.05	0.90
Scientific research and development	M72	1.15	1.59	4.81	7.33	0.65	0.88
Advertising and market research	M73	1.47	1.63	7.66	8.92	0.77	0.90
Other professional, scientific, technical…	M74-M75	1.28	1.53	6.37	8.14	0.73	0.87
Administrative and support service	N	4.12	1.61	23.23	12.94	2.00	0.87
Public administration and defence…	O84	1.45	1.50	7.50	7.97	0.76	0.80
Education	P85	1.48	1.30	13.35	12.67	1.00	0.91
Human health and social work activities	Q	1.28	1.57	11.85	13.35	0.62	0.77
Other service activities	R-S	1.66	1.49	9.73	9.37	0.95	0.89

ANNEX XXIX

Table 29.- Multipliers for Morocco

		Output		Value added	
Industry	**OECD code**	**Down**	**Up**	**Down**	**Up**
Agriculture, forestry and fishing	D01T03	2,80	1,40	1,40	0,82
Mining and extraction of energy factors	D05T06	2,04	1,36	0,95	0,80
Mining and quarrying of non-energy factors	D07T08	2,28	1,34	1,09	0,73
Mining support service activities	D09	1,52	1,37	0,84	0,78
Food products, beverages and tobacco	D10T12	1,54	1,80	0,60	0,77
Textiles wearing apparel, leather and others	D13T15	1,23	1,25	0,51	0,53
Wood and products of wood and cork	D16	1,16	1,69	0,49	0,81
Paper products and printing	D17T18	1,27	1,55	0,51	0,68
Coke and refined petroleum products	D19	1,47	1,55	0,30	0,39
Chemicals and pharmaceutical products	D20T21	1,27	1,41	0,51	0,60
Rubber and plastic products	D22	1,19	1,45	0,28	0,42
Other non-metallic mineral products	D23	1,60	1,49	0,70	0,69
Basic metals	D24	2,02	1,66	0,76	0,68
Fabricated metal products	D25	1,14	1,57	0,46	0,67
Computer, electronic and optical products	D26	1,15	1,44	0,36	0,52
Electrical equipment	D27	1,06	1,38	0,39	0,56
Machinery and equipment n.e.c	D28	1,00	1,44	0,41	0,61
Motor vehicles, trailers and semi-trailers	D29	1,01	1,44	0,31	0,51
Other transport equipment	D30	1,02	1,42	0,48	0,67
Repair and installation of machinery and equipm.	D31T33	1,07	1,38	0,51	0,67
Electricity, gas, water supply, sewerage and waste	D35T39	1,89	1,38	0,93	0,70
Construction	D41T43	1,03	1,57	0,46	0,72
Wholesale and retail trade, repair of motor vehicles	D45T47	2,69	1,35	1,44	0,84
Transportation and storage	D49T53	1,57	1,30	0,78	0,65
Accommodation and food services	D55T56	1,34	1,59	0,73	0,83
Publishing, audiovisual and broadcasting activ.	D58T60	1,06	1,53	0,54	0,81
Telecommunications	D61	1,06	1,45	0,59	0,81
IT and other information services	D62T63	1,05	1,39	0,67	0,87
Financial and insurance activities	D64T66	2,28	1,46	1,36	0,93
Real estate activities	D68	1,23	1,24	0,93	0,94
Other business sector services	D69T82	1,92	1,35	1,14	0,86
Public administration, defence and social security	D84	1,08	1,29	0,71	0,82
Education	D85	1,04	1,25	0,79	0,90
Human health and social work	D86T88	1,20	1,37	0,77	0,86
Arts, entertainment and recreation activities	D90T96	1,10	1,47	0,61	0,82

ANNEX XXX

Table 30.- Multipliers for Tunisia

		Output		Value added	
Industry	**OECD code**	**Down**	**Up**	**Down**	**Up**
Agriculture, forestry and fishing	D01T03	2,76	1,49	1,37	0,85
Mining and extraction of energy factors	D05T06	2,00	1,34	1,02	0,79
Mining and quarrying of non-energy factors	D07T08	1,58	1,39	0,83	0,78
Mining support service activities	D09	1,37	1,35	0,78	0,77
Food products, beverages and tobacco	D10T12	2,22	1,95	0,88	0,77
Textiles wearing apparel, leather and others	D13T15	1,52	1,49	0,64	0,64
Wood and products of wood and cork	D16	1,31	1,69	0,55	0,79
Paper products and printing	D17T18	1,00	1,61	0,39	0,71
Coke and refined petroleum products	D19	1,48	1,49	0,50	0,55
Chemicals and pharmaceutical products	D20T21	1,28	1,57	0,41	0,58
Rubber and plastic products	D22	1,10	1,42	0,41	0,58
Other non-metallic mineral products	D23	1,48	1,57	0,66	0,74
Basic metals	D24	1,56	1,49	0,57	0,58
Fabricated metal products	D25	1,12	1,38	0,50	0,63
Computer, electronic and optical products	D26	1,18	1,41	0,50	0,62
Electrical equipment	D27	1,21	1,40	0,38	0,48
Machinery and equipment n.e.c	D28	1,13	1,36	0,50	0,61
Motor vehicles, trailers and semi-trailers	D29	1,15	1,40	0,45	0,58
Other transport equipment	D30	1,02	1,36	0,47	0,64
Repair and installation of machinery and equipm.	D31T33	1,05	1,49	0,46	0,68
Electricity, gas, water supply, sewerage and waste	D35T39	1,43	1,42	0,74	0,75
Construction	D41T43	1,02	1,56	0,42	0,68
Wholesale and retail trade, repair of motor vehicles	D45T47	2,63	1,42	1,43	0,87
Transportation and storage	D49T53	2,61	1,44	1,27	0,72
Accommodation and food services	D55T56	1,49	1,67	0,81	0,84
Publishing, audiovisual and broadcasting activ.	D58T60	1,27	1,68	0,65	0,89
Telecommunications	D61	1,12	1,53	0,62	0,86
IT and other information services	D62T63	1,04	1,46	0,66	0,91
Financial and insurance activities	D64T66	1,29	1,48	0,81	0,93
Real estate activities	D68	1,01	1,24	0,81	0,93
Other business sector services	D69T82	1,23	1,42	0,78	0,90
Public administration, defence and social security	D84	1,16	1,36	0,76	0,86
Education	D85	1,02	1,28	0,78	0,91
Human health and social work	D86T88	3,32	1,42	1,86	0,86
Arts, entertainment and recreation activities	D90T96	1,44	1,58	0,80	0,88