

The labour content of Mexican manufactures, 2008 and 2012

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ABSTRACT

This study presents estimates of the number of jobs created by Mexican exports of manufactured goods in 2008 and 2012 based on the input-output matrices developed by the National Institute of Statistics and Geography (INEGI). Data are given for direct labour (the labour needed to produce the exports) and indirect labour (the labour involved in producing the Mexican-made inputs embedded in those exports, plus the jobs created by all the indirect repercussions of the production of the intermediate goods that are incorporated into those exports). Employment in export production is disaggregated into manufacturing export sectors and sectors in which related jobs are created. In addition, since every export sector requires intermediate goods, some of which are produced in the same sector and some of which are produced in others, the indirect labour embedded in exports is divided into its intrasectoral and intersectoral components.

KEY WORDS

Employment creation, measurement, industrial enterprises, manufactures, exports, employment statistics, Mexico

JEL CLASSIFICATION

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I

Introduction

Starting in the late 1980s, Mexico embarked on a series of major structural reforms, one of which was focused on liberalizing the country's external trade flows by rolling back the protective barriers that had been shielding Mexican economic activities. This inevitably led to the disappearance of activities that were unable to compete with imports, but the expectation was that their disappearance would be offset by a stronger export orientation in branches of production in which the country had a comparative advantage. This trade reform effort prompted the country to become a party to the General Agreement on Tariffs and Trade (GATT) in 1987 and paved the way for the entry into force of the North American Free Trade Agreement (NAFTA) in 1994, which was designed to spur exports, in particular to the United States. The ultimate objective of this policy shift was to galvanize economic growth and create more jobs. Given the country's relatively abundant labour supply and in the light of the findings of Heckscher and Ohlin, it was expected that the country's comparative advantages would be concentrated in goods whose production was intensive in fairly unskilled labour and that the upswing in exports would therefore drive up employment.

During the time that the terms of NAFTA were being negotiated, a heated debate was raging in the United States about the effects that trade liberalization would have on employment. Some argued that the opportunity to site facilities in Mexico, where labour costs were lower, to produce duty-free exports for the United States market would cause capital to shift to Mexico, which would have both negative and positive effects on employment. They also contended that, given the fact that the comparative advantages of Mexico are in products that are intensive in unskilled labour, the ratio between unskilled and skilled workers' wages would drop, thereby exacerbating the inequality of income distribution in the United States. People on the other side of the argument insisted that trade liberalization would boost both countries' exports, which would offset the negative impact of increased imports on employment (Hufbauer and Schott (1993) review the literature generated at the time of the agreement's

negotiation about the repercussions on the United States' labour market.) By contrast, most people in Mexico were optimistic about the benefits that the trade agreement with the United States would yield in terms of growth and employment (see, for example, Lustig, Bosworth and Lawrence, 1993).

As trade liberalization initiatives have been embraced by more and more countries around the world, numerous researchers have sought to assess their effects on labour. Three of the main lines of research have been the following: (i) exports and job creation; (ii) imports and job destruction, and (iii) the effects of increased external trade on wages and income distribution. This study focuses on the first of these areas of enquiry.

The specific aim of this study is to estimate the amount of employment (measured in numbers of jobs) that is represented by Mexican manufactured exports. The production of an export requires labour which—in the terminology that will be used here—is the direct labour content of the export. The production of export goods also requires the use of raw materials, inputs, parts and components whose production (if it takes place in the country) embodies those exports' indirect national labour content. The greater the linkages between direct exporters and the rest of the economy, the greater the indirect labour content of those exports will be. The raw materials needed to produce given export products may be harvested by economic activities in the same sector as the exporters or in different sectors. The labour content of the former can be referred to as the “indirect intrasectoral labour content” and that of the latter as “indirect intersectoral labour content.” In addition, since the production of manufactures for export requires the use of inputs from the manufacturing sector and from other sectors, exports of manufactures indirectly create jobs in the manufacturing sector and in non-manufacturing sectors. Three methods have been used to estimate the effect that exports have on the use of labour as a factor of production: regressions, which are the most commonly used technique; the factor content of trade (Wood, 1994); and input-output matrices. The publication in recent years of aligned input-output matrices for various countries has made it possible to arrive at comparable estimates of the labour content of exports for a number of different countries.

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This study will rely on previous research that has employed this latter method. The literature on the subject has expanded exponentially over the last three years, as is illustrated by this partial list of recent studies: Irawan and Welfens (2014), who study the possible effects for Germany, the European Union and the United States of the trade and investment agreement between the United States and the European Union that is now under discussion; Kupfer and others (2013) on the effects for Brazil; Chen and others (2012) and Los, Timmer and De Vires (2012) on the effects on the Chinese economy; Sousa and others (2012) on the impact on the European Union; Aswicahyono, Brooks and Manning (2011) on the effects on Indonesia; Brautzsch and Ludwig (2011) and Lurweg, Oelgemöller and Westermeier (2010) on the implications for the German economy; Koller and Stehrer (2010) on the repercussions for Austria; and Kiyota (2011) on the effects on Japan.

This method has been used to explore the issue of exports and employment in Mexico in three studies: Ruiz-Nápoles (2004), Cardero and Aroche (2008) and Cervantes and Fujii (2012). These three studies all cover long periods of time, from the closing decades of the last century to the early years of the 2000s, and they share the objective of determining what impact trade liberalization has had on employment. However, their more specific objectives differ somewhat. Cardero and Aroche (2008) focus on calculating the trends, disaggregated by sector, in employment multipliers and coefficients under trade liberalization and the sectoral trends in export growth, along with the change in the export product mix. Ruiz-Nápoles (2004) attempts to estimate the percentages of the jobs created in the period under study that are attributable to export activity and to the domestic sector of the economy. In that study, the labour content of exports is divided into direct and indirect employment. In addition to calculating the total amount of direct and indirect employment embedded in the country's exports in absolute terms, Cervantes and Fujii (2012) give estimates, based on highly restrictive assumptions, of the amount of employment embedded in

its imports. On this basis, they then arrive at an estimate of the net result of trade liberalization on employment.

This study differs from the three above-mentioned studies on the impact of trade liberalization in Mexico on employment in a number of ways. First, it focuses on two specific years (2008 and 2012). Second, it employs a symmetric domestic input-output matrix for 79 subsectors of economic activity developed by the National Institute of Statistics and Geography (INEGI), whereas the earlier studies used the matrices created by INEGI for 1980 and 1985, while the data for the following years were drawn from the Stata matrix built by the Consultoría Internacional Especializada, S.A. based on extrapolations of the matrices for the 1980s. A third difference is that this study focuses on the labour content of exports of manufactured goods, which account for 80% of the country's total exports. Finally, the indirect labour content of manufactured exports is divided into its intrasectoral and intersectoral components. To our knowledge, this is the first study that draws that distinction when analysing the indirect labour content of exports.

Employment is an extremely important issue for the Mexican economy, given the challenges that it faces in this area: as of 2012, a full 60% of employed persons were working informally, with 31% employed under informal conditions in the formal sector and 29% working in the informal sector as such (INEGI, 2012). The various export subsectors exhibit different labour intensities and different ratios for the direct and indirect labour content of their exports. Consequently, more specific information about the employment content and characteristics of different exports can be used by policymakers to maximize the job-creation impact of export policies.

This study is organized as follows: section II offers an overview of the strong growth trends seen in the Mexican export sector and the sweeping changes that it has undergone in the last 25 years. Section III describes the methodology used to arrive at the estimates. Section IV presents the empirical findings. Section V presents the main conclusions.

II

Mexican export growth and trends

Between 1992 and 2012, Mexico's total exports soared from somewhat less than US\$ 50 billion to some US\$ 375 billion. Its export coefficient also jumped from 13% to over 30% during that same timespan (Banco de Mexico, 2013).

The country's export growth was coupled with changes in the composition of its exports of goods and, by 2013, manufactures made up 84% of its total exports (INEGI, 2014).

An analysis of industrial exports based on their intensiveness in different factors of production —and specifically in natural resources or in low, intermediate or high technology— shows that products that are intensive in intermediate and high technology accounted for 62% of the country industrial exports in 2012 (United Nations, 2014). These data should be taken with a grain of salt, however, because they are based on a classification of

exports by their technological level, and it may well be that a country may be specialized in a technologically unsophisticated stage of production of a high-technology product. This is important to bear in mind when looking at countries in which a significant portion of manufactured exports are linked to global value chains such as those in which Mexico is heavily involved. In 2003, 62% of the country's manufactured exports came from the maquila industry (Cervantes and Fujii, 2012, p. 152). This observation is relevant here for two reasons: first, because Mexico's position in these value chains is in labour-intensive production processes, and it is therefore to be expected that those of its manufacturing activities that form part of those chains will directly create a significant number of jobs; and, second, these activities are import-intensive, which means that their impact in terms of indirect job creation will not be especially strong.

III

Methodology

Assuming that the techniques used to produce exports and goods destined for the domestic market are generally similar, then the level of output associated with exports can be expressed as follows:

$$x_e^d = (I - A^d)^{-1} f^e \quad (1)$$

where x_e^d is the vector of the total (direct and indirect) production of exports, f^e , and $(I - A^d)^{-1}$ is the Leontief inverse matrix, with I being the identity matrix of dimension $n \times n$, in which n is the number of economic sectors and A^d is the matrix of technical coefficients.

Total direct and indirect employment generated by exports (l_e) can be obtained by multiplying the vector of the labour coefficients (λ) by the gross output value of exported goods:

$$l_e = \lambda \hat{X}_e \quad (2)$$

$$\lambda = \{l_j / x_j\} \quad (3)$$

where λ is the row vector of coefficients for employment by sector, whose typical elements are obtained by dividing the total number of jobs in sector j (l_j) by the total value of that sector's output (x_j), and is the diagonalized matrix of the gross output of exports (x_e^d).

The direct job creation attributable to exports (ld_e) is calculated by multiplying the labour coefficient vector by the diagonalized matrix of the value of exports, \hat{E} .

$$ld_e = \lambda \hat{E} \quad (4)$$

Indirect job creation attributable to exports, by sector of origin of national inputs, is equal to:

$$li_e = l_e - ld_e \quad (5)$$

Finally, in order to arrive at a breakdown of the employment indirectly generated in other sectors of the economy by exports, in equation (6) we use the matrix of indirect employment, by sector of origin and destination of the domestic inputs contained in export goods:

$$li_e = \left[\hat{\lambda}(I - A^d)^{-1} \hat{E} \right] \quad (6)$$

where $\hat{\lambda}$ and ld_e are the diagonalized matrices of the technical coefficients of employment (λ) and of direct employment (ld_e). Since the matrix of indirect employment (li_e) is a matrix of order n , the elements of its principal diagonal represent intrasectoral indirect employment, i.e., when the sector of origin of intermediate inputs is also the sector of destination ($i = j$). All the elements that

are not on the principal diagonal represent the amount of indirect employment derived from intersectoral links (i.e., when the sector of origin of the inputs differs from the sector of destination ($i \neq j$)).

The main limitations of this method have to do with the level of aggregation of the information for each branch of economic activity and the assumption of a fixed-proportion production function, which, via the Leontief inverse, could result in an overestimation of the number of jobs associated with export activity owing to the failure to take into account the possibility that some (large) firms could achieve economies of scale. On the other hand, by failing to consider the positive effect that each newly created job will have on final domestic demand, we will be underestimating the impact that exports have on job creation.

IV

The total, direct and indirect labour content of manufactured exports

Table A1.1 (see the annex) shows the labour content of Mexico's exports of manufactures in 2012. A vertical reading of that table shows the total number of direct and indirect jobs created by exports for each of the sectors given in the column headings, thereby affording a view of both intrasectoral and intersectoral job creation and the overall sectoral distribution of those jobs. A horizontal reading shows, for each of the sectors given in the headings for the rows, the total employment in each sector generated by manufactured exports, their breakdown between direct and indirect and intrasectoral and intersectoral job creation, and their distribution across the various job-creating export sectors. The last two rows and columns of table A1.1 show the sectoral distribution of the total employment attributable to exports of manufactures. The rows show the total labour content of the exports of the manufacturing sectors identified in the column headings and their share of the total labour content of these exports. The figures in the last columns correspond to the sectors in which the jobs represented by manufactured exports have been created and the distribution of those jobs among the different manufacturing export sectors.

The total direct and indirect labour content of manufactured exports amounted to 3,892,269 jobs, or 9.2% of the total number of jobs in the input-output matrix for 2012. The sum of jobs corresponding to direct plus intrasectoral indirect job creation (1,966,000) for manufactured exports represents 36.5% of the manufacturing jobs in the matrix. The data for 2008 show that the corresponding figures for that year were 3,633,000 jobs (7.7% of the total in the 2008 matrix) and 1,707,000 (30% of manufacturing jobs), respectively. The figures thus indicate that the percentage of manufacturing jobs created by manufacturing export activities is both significant and on the rise.

While nearly all the cells in table A1.1 are filled in, in most cases relatively few jobs have been created in the manufacturing sectors that are actually exporting the goods in question. In order to provide a clearer illustration of the most important sectoral linkages in terms of job creation, table 1 shows the same matrix, but in this case it is filled in only with those figures that amount to at least 0.3% of total export labour content (11,677 jobs). As the reader will see, export-created jobs reached or exceeded this threshold in only 49 of the 1,659 cells in

the matrix. The sum of the figures shown in these cells is equivalent to 2,840,339 jobs (73% of the total labour content of manufactured exports). Table A1.2 gives the same information for 2008 using the same cut-off in percentage terms, which in this case translates into 10,899 jobs. The biggest changes seen between 2008 and 2012 are the following:

- (i) The number of cells that are filled in dropped from 54 to 49, which signals a decline in manufacturing exporters' ability to create enough jobs in other sectors of the economy to exceed the threshold figure.
- (ii) Whereas, in 2008, the exports of 20 of the 21 branches of the manufacturing industry created over 0.3% of the total labour content of manufactured exports (whether in the same sector or in others), the number of such branches had fallen to 18 by 2012. In 2008, the only branch of activity that did not reach the threshold figure was No. 23 (petroleum products and coal); in 2012, this branch of industry was joined by No. 20 (wood manufactures) and No. 22 (printing).
- (iii) On the other hand, between 2008 and 2012 the total number of jobs created by manufacturing exporters rose by 7%, which indicates that the manufacturing sector's capacity for creating jobs whose total number falls below the 0.3% threshold has become more diversified in both intrasectoral and intersectoral terms.

1. Jobs created by exports of manufactures, by sector of employment and by job-creating sector

Table 2 covers the sectors included in table 1 that account for over 5% of the total number of jobs created by exports of manufactures and those in which 4.6% or more of those jobs were located in 2012.

As can be seen from the table, just 6 of the 21 manufacturing sectors shown in the matrix create a number of jobs that exceeds the thresholds discussed in the preceding paragraph. On the other hand, of the 79 sectors in the complete matrix, only 7 surpass the threshold of 4.6% of total employment in manufacturing export sectors.

The rows in table 2 in which the figures are shown in italics provide the following data: (i) the consolidated data for total employment content in the manufacturing export sectors identified in the column headings; (ii) the percentage of the total labour content of exports represented by each sector; (iii) the share of total employment in the sector represented by the labour content of exports; (iv) the

breakdown of employment into its direct and indirect components and the breakdown of indirect employment into its intrasectoral and intersectoral components; (v) the sectoral employment coefficient (number of jobs per million pesos worth of gross output), and (vi) the percentage of manufactured exports provided by each sector. The breakdowns of job creation into its direct and indirect components and of the employment coefficient will be discussed at greater length in subsections 2 and 3 below. In the remainder of this subsection, the discussion will focus on the other information presented in table 2.

The labour content of the exports of the six sectors mentioned above account for 70% of the total, and those sectors' exports represent 77% of the country's total exports of manufactures.

Exports of transport equipment (28% of manufactured exports) account for the largest share of employment (25% of the total), followed by exports of electronics (12% of employment), although that industry's share of total manufactured exports is only a few percentage points lower (26%). Electrical equipment (8.4% of exports and 7.6% of their labour content) comes in third place. The fact that there is no significant difference between the export and employment shares of the transport equipment and electrical equipment industries, whereas there is a notable difference in the case of the shares accounted for by the electronics industry, is due to the fact that the employment coefficients (total number of jobs per million pesos worth of gross output) of the first two sectors are equal to 1, whereas the coefficient for the electronics industry is much lower (0.5).

The only sector in which the share of manufacturing exports' labour content is significantly greater than its share of exports is the food industry (2.8% of manufactured exports and 11% of the labour content of manufactured exports). This can be attributed to this sector's very high employment coefficient (4.2).

The sum of intrasectoral indirect jobs and direct jobs embedded in the exports for some of these sectors (machinery and equipment, electronics,¹ electrical equipment and transport equipment) represents over 70% of employment in those sectors.

The last two columns in table 2 show the seven sectors in which manufactured exports created the most jobs (63% of the total labour content). The largest percentage of the

¹ For the electronics sector, the 112% value shown is based on the information provided in the 2012 matrix, which indicates that the sector's final demand exceeded its exports. This could be due to the very large statistical discrepancy that appears in the matrix (17% of exports). The matrix does not provide explicit information on this subject, however.

TABLE 1

Mexico: labour content of manufactured exports, 2012
(Only figures over the threshold of 0.3% of the total (11.677 jobs) are shown)

Sector	14	15	16	17	18	19	21	24	25	26	27	28	29	30	31	32	33	34	Jobs	Percentage
1 Agriculture	234 202	36 083	29 131																299 416	10.5
2 Livestock	27 321																		27 321	1.0
3 Forestry and natural gas								13 392											13 392	0.5
7 Mining other than petroleum											20 207								20 207	0.7
14 Food	80 579																		80 579	2.8
15 Beverages and tobacco		32 465																	32 465	1.1
16 Textile inputs			20 006																20 006	0.7
17 Textiles other than clothing				23 353															23 353	0.8
18 Clothing					110 562														110 562	3.9
Products other than clothing						32 401													32 401	1.1
19 made of leather, fur or artificial leather or fur																			0	0.0
20 Wood							15 815												15 815	0.6
21 Paper																			0	0.0
22 Printing																			0	0.0
24 Chemicals								60 859											60 859	2.1
25 Plastic and rubber									63 372							23 458			86 831	3.1
26 Non-metal mineral products										60 378									60 378	2.1
27 Basic metals											46 233					12 547			58 779	2.1
28 Metal products												102 279							102 279	3.6
29 Machinery and equipment													175 094						175 094	6.2
30 Electronics														344 215					344 215	12.1
31 Electrical equipment															180 953				180 953	6.4
32 Transport equipment																435 766			435 766	15.3
33 Furniture																	40 195		40 195	1.4
34 Other manufactures																		122 951	122 951	4.3
35 Commerce																			435 467	15.3
39 Tracking																			26 619	0.9
Professional, scientific and technical services																			17 313	0.6
60 Business services																			34 437	1.2
62 Labour content of exports, by manufacturing export sector	364 232	68 548	49 137	23 353	110 562	32 401	15 815	89 717	90 610	60 378	84 074	122 186	237 292	380 827	209 330	724 856	40 195	136 826	2 840 339	100
Labour content of exports, by manufacturing export sector (%)	12.8	2.4	1.7	0.8	3.9	1.1	0.6	3.2	3.2	2.1	3.0	4.3	8.4	13.4	7.4	25.5	1.4	4.8	100	

Source: Prepared by the authors, on the basis of National Institute of Statistics and Geography (INEGI), "Matriz de insumo-producto 2012" [online] <http://www.inegi.org.mx/est/contenidos/proyectos/cn/mip12/>.

Mexico: jobs created by manufacturing exporters, by job-creating export sector and by sector of employment, 2012
(Selected sectors)

	Food	Machinery and equipment	Electronics	Electrical equipment	Transport equipment	Other manufactures	Jobs created by manufacturing exporters	Percentage of jobs created by manufacturing exporters, by sector of employment
	14	29	30	31	32	34		
1 Agriculture	234 202	1 037	887	790	7 668	11 614	349 859.5	9.0
29 Machinery and equipment	101	175 094	510	484	4 402	34	181 024.1	4.7
30 Electronics	28	294	344 215	603	990	129	346 454.2	8.9
31 Electrical equipment	14	371	695	180 953	1 289	71	183 637.6	4.7
32 Transport equipment	137	514	133	236	435 766	75	437 525.8	11.2
35 Commerce	22 130	62 199	19 298	28 377	209 342	13 875	479 458.5	12.3
62 Business services	19 979	63 128	38 078	35 940	159 267	20 111	472 065.3	12.1
							3 892 269 ^a	62.9
Total labour content of manufactured exports, by export sector	414 246	363 453	459 877	295 435	989 737	199 104	2 450 025 ^b	3 892 269 ^a
Total labour content of manufactured exports, by export sector (%)	10.6	9.3	11.8	7.6	25.4	5.1	2 721 852 ^b	69.9 ^c
Direct plus indirect employment attributable to exports in the sector (%)	6.0	79.5	111.3 ^d	84.9	71.9	55.2		
Direct employment	73 628	171 321	340 340	178 789	396 987	119 325	1 885 699 ^a	
Indirect employment	340 617	192 132	119 537	116 646	592 750	79 779	1 280 391 ^b	2 006 570 ^a
Indirect intrasectoral employment	6 951	3 773	3 875	2 164	38 779	3 625	1 441 461 ^b	83 471 ^a
Indirect intersectoral employment	333 667	188 359	115 662	114 482	553 971	76 153	59 167 ^b	1 923 099 ^a
							1 382 295 ^b	
Direct employment (%)	17.8	47.1	74.0	60.5	40.1	59.9		
Indirect employment (%)	82.2	52.9	26.0	39.5	59.9	40.1		
Indirect employment/direct employment	4.63	1.12	0.35	0.65	1.49	0.67	1.06	
Total employment coefficient	4.2	1.3	0.5	1.0	1.0	1.9		
Manufactured exports (%)	2.8	8.1	25.9	8.4	28.4	3.0		76.6 ^c

Source: Prepared by the authors, on the basis of National Institute of Statistics and Geography (INEGI), "Matriz de insumo-producto 2012" [online] <http://www.inegi.org.mx/est/contenidos/proyectos/cn/mip12/>.

^a Total for the manufacturing sector.

^b Total for the selected sectors.

^c Horizontal total.

^d See footnote 1.

employment (29.5%) created by manufactured exports is in the manufacturing sector itself: 11% in transport equipment, 9% in electronics and 4.7% in machinery and electrical equipment. But since manufactured exports incorporate inputs produced by other sectors, they also create a significant number of jobs in the commercial sector and in business services. In addition, 9% of the jobs created by manufactured exports are in agriculture, especially in the food industry.

Table A1.3 gives the same information for 2008. A comparison of the data shown in that table with those shown in table 2, which gives the corresponding information for 2012, provides a basis for the following conclusions:

- (i) Between 2008 and 2012, the number of manufacturing sectors with the largest share of employment associated with exports of manufactures fell from seven to six (the clothing and metal products sectors disappeared from the top-rated sectors but the category of “other manufactures” was added). The number of sectors in which manufactured exports create a number of jobs over the cut-off value rose from six to seven (with the addition of the machinery and equipment sector);
- (ii) These manufacturing export sectors accounted for 77.5% of total manufactured exports in 2008 and for 76.6% in 2012 and for 72% and 70% of the labour content of manufactured exports in those years, respectively;
- (iii) The labour content of the manufactured exports produced by these sectors climbed from 2.62 million to 2.72 million jobs. The most notable changes in individual manufacturing export sectors were as follows: increases in the labour content of the exports of the food industry (from 296,000 to 414,000 jobs), in the exports of the machinery and equipment industry (from 254,000 to 363,000 jobs) and in those of the transport equipment industry (from 776,000 to 990,000 jobs), which were offset to some extent by decreases in the labour content of the exports of the electrical equipment industry (from 330,000 to 295,000 jobs) and of electronics (from 582,000 to 460,000 jobs).² The disappearance of the clothing and metal products export sectors from the list of the sectors having the highest coefficients of labour content was due to the fact that the number of jobs provided by these sectors fell from 198,000 to 110,000 jobs (see table 1) and

from 192,000 to 122,000 jobs, respectively, while the labour content of the exports from the other manufacturing export sectors on the list rose from 149,500 to 199,000;

- (iv) As of 2008, there were three manufacturing industries in which the direct employment plus the intrasectoral indirect employment generated by exports amounted to over 70% of the jobs provided by those industries; in 2012, the transport equipment industry joined the list;
- (v) The jobs created by exports of manufactures from the selected sectors climbed from 2.19 million to 2.45 million thanks to strong upswings in agricultural employment and employment in the electrical equipment and transport equipment industries. Export-generated employment was down in the electronics industry and in commerce, however.

2. The direct and indirect labour content of exports

Of the 3.9 million jobs associated with exports, 1.9 million (48%) of those jobs correspond to direct employment while the other 2 million have been created indirectly. A perusal of the cells in table 1 that contain figures for the total labour content of exports of manufactures above 0.3% (11,677 jobs) reveals that direct employment plus intrasectoral indirect employment surpass that figure in all the manufacturing industries listed there, whereas very few cells that are not on that diagonal are filled in. The large number of empty cells indicates, first of all, how weak the linkages are between export sectors and the other branches of economic activity and, second, that the indirect labour content of exports of manufactures—almost all of which is intersectoral (96% of their indirect labour content)—is accounted for by just a few branches of activity (see table 2). The main ones are the food industry and the beverages and tobacco industry, whose exports created 234,000 and 36,000 jobs, respectively, in agriculture (see table A1.2), and the jobs in commerce created by exports of manufactures (479,000), of which 209,000 are accounted for by exports of transport equipment. Exports of machinery and equipment also create a considerable number of jobs (62,000) in commerce. Exports of manufactures create 472,000 jobs in business services as well, with the largest shares corresponding to exports of transport equipment (159,000 jobs) and exports of machinery and equipment (63,000 jobs).

The lower section of table 2 shows the breakdown of the labour content of exports of manufactures into its direct and indirect components. As may be seen from the

² There is a large statistical discrepancy here that is similar to the one mentioned in footnote No. 1.

table, 47% of the labour content of these sectors' exports is direct, which means that exports of manufactures indirectly create 1.06 jobs for each job that they create directly. The percentage varies widely from one sector to the next, however. The food industry's exports create 4.63 jobs indirectly for each directly created job, with that industry's impact on farm employment accounting for the bulk of that figure. Exports of transport equipment are also an important source of indirect job creation (1.49 indirectly created jobs for each directly created one). By contrast, the electronics industry, which is a huge exporter, created just 0.35 jobs indirectly for each directly created job. These data indicate that the food industry's exports and those of transport equipment producers have much stronger linkages with the domestic economy than the electronics industry does. As a result, even though the electronic industry accounts for only three percentage points fewer manufacturing exports than the transport equipment industry does, the latter's contribution in terms of export-sector employment is 2.1 times greater than the electronics industry's.

A comparison of the figures given in table 2 and table A1.3 shows how the ratio of the indirect to direct labour content of exports of manufactures has changed. That ratio in the selected sectors has fallen (from 1.21 to 1.06), and, in three of the five biggest export industries, the drop between 2008 and 2012 was significant: from 0.62 to 0.35 in the electronics industry; from 1.01 to 0.65 in the electrical equipment industry; and from 2.14 to 1.49 in the transport equipment industry. In the two other industries in question, the ratio rose: from 3.82 to 4.63, for the exports of the food industry, and from 1.02 to 1.12 for those of the machinery and equipment sector. This means that the indirect job-creation capacity of the sectors that, taken together, account for 63% of the country's exports of manufactures, which is clearly related to their linkages with other sectors of the economy, had weakened considerably by 2012.

3. Exports and employment, by the labour intensity of manufacturing sectors

Labour intensity is gauged on the basis of the total employment coefficient of a given industry (jobs per millions of pesos worth of gross output) and varies widely across the various manufacturing sectors. In table 3, the employment coefficients for 2008 and 2012 for each sector are grouped into the following categories: high (over 4), fairly high (between 3 and 4), intermediate (from 2 to 3), fairly low (from 1 to 2) and low (less than 1). It becomes clear that the country's export structure differs a great deal from the Heckscher-Ohlin model. The manufacturing sectors with high and fairly high employment coefficients (i.e., the labour-intensive sectors) accounted for just 4% of exports of manufactures as of 2012, which, in turn, accounted for 15.4% of their total labour content. At the other extreme, over half of exports of manufactures came from branches of activity with fairly low employment coefficients that account for 56% of the employment generated by manufactured exports. If the sectors with low employment coefficients are added to this latter group, then together they account for 91% of total exports of manufactures and 75% of manufactured exports' labour content. What is more, during the period under study, the country's export structure has diverged even further from the Heckscher-Ohlin model as both the share of manufactured exports and the share of total labour content of labour-intensive sectors have shrunk.

In two of the five categories defined in table 3—those with high and fairly high employment coefficients—the ratio of indirect to direct employment is greater than one (1). The latter of these categories is, as noted earlier, highly influential because of the share of total manufactured exports that it represents, with much of that share corresponding to the transport equipment sector, whose employment coefficient is equal to one (1).

TABLE 3

Mexico: exports of manufactures and employment, by employment coefficient, 2008 and 2012

Coefficients	Exports of manufactures (percentages)	2008					
		Jobs (thousands)			Percentages		
		Total	Direct	Indirect	Total	Direct	Indirect
High (greater than 4)	3.21	392.0	108.6	283.5	10.8	27.7	72.3
Fairly high (3-4)	6.00	497.8	296.1	201.8	13.7	59.5	40.5
Intermediate (2-3)	9.32	492.6	283.6	208.9	13.6	57.6	42.4
Fairly low (1-2)	49.26	1 647.8	594.1	1 053.7	45.4	36.1	63.9
Low (less than 1)	32.21	602.8	362.4	240.3	16.6	60.1	39.9
Total	100	3 633.01	1 644.82	1 988.20	100.0	45.3	54.7

Table 3 (concluded)

Coefficients	Exports of manufactures (percentages)	2012					
		Jobs (thousands)			Percentages		
		Total	Direct	Indirect	Total	Direct	Indirect
High (greater than 4)	3.20	474.1	92.7	381.5	12.2	19.5	80.5
Fairly high (3-4)	1.09	125.9	78.9	47.0	3.2	62.6	37.4
Intermediate (2-3)	4.40	391.4	229.5	161.9	10.1	58.6	41.4
Fairly low (1-2)	53.67	2 171.7	1 042.5	1 129.2	55.8	48.0	52.0
Low (less than 1)	37.64	729.1	442.1	287.0	18.7	60.6	39.4
Total	100	3 892.3	1 885.7	2 006.6	100.0	48.4	51.6

Source: Prepared by the authors, on the basis of National Institute of Statistics and Geography (INEGI), “Matriz de insumo-producto 2008” [online] <http://www.inegi.org.mx/est/contenidos/proyectos/cn/mip/>; and “Matriz de insumo-producto 2012” [online] <http://www.inegi.org.mx/est/contenidos/proyectos/cn/mip12>.

V

Conclusions and policy recommendations

Between 2008 and 2012, the labour content of exports of manufactures climbed from 3.6 million to 3.9 million jobs, thereby increasing their share of total employment in the economy from 7.7% to 9.2%, while the sum of direct employment plus intrasectoral indirect job creation corresponding to exports of manufactures rose from 30% to 36.5% of manufacturing jobs reported in the matrix.

The structure of the country’s manufacturing exports is far from what it would be expected to be according to the Heckscher-Ohlin model. While low-skilled and intermediate-skilled labour is relatively abundant in Mexico, exports of manufactures are concentrated in sectors that have fairly low and low coefficients of labour intensity. The biggest export sectors—transport equipment and electronics—have fairly low and low employment coefficients, respectively, whereas the labour-intensive export sectors—such as the food industry—do not account for a large share of exports of manufactures.

These results serve as the basis for a number of policy proposals that could leverage the employment effect of exports. The discussion here will not centre on horizontal policies that have been examined in other studies (OECD, 2014), but rather on lines of policy that could serve as a framework for horizontal policies designed to strengthen the connection between exports and employment:

- (i) This study has shown that employment coefficients vary a great deal across the various sectors of the economy; consequently, placing greater emphasis on labour-intensive export sectors will generate a
- (ii) It is well known that medium-sized and small firms generally have higher employment coefficients than

closer link between these variables. The sectors whose exports create a larger number of jobs (using 50,000 jobs as the cut-off) include: the food industry, beverages and tobacco, textile inputs, clothing, leather products, non-metal mineral products and furniture (employment coefficients greater than two (2)). They are followed by the plastic and rubber, metal products and machinery and equipment sectors (employment coefficients of between one (1) and two (2)).

In addition to the direct job-creation effect of these activities, they also have a substantial impact in terms of indirect job creation in Mexico, since most of them process natural resources that are in abundant supply in the country. Consequently, their exports can have a strong impact on employment in the sectors that extract those resources. The manufacturing activities that create at least one job indirectly for every job that they create directly are the food industry, beverages and tobacco, textile inputs, plastic and rubber, and basic metals sectors. Therefore, a policy that focuses on the exports of these products will indirectly have a noticeable impact on farm and mining employment. In order to leverage the linkages between these sectors, policymakers need to focus on boosting the efficiency of raw material producers so that they will be able to meet exporting sectors’ quality standards.

big businesses do. Thus, in order to heighten the employment effect of exports, policies have been directed towards helping these smaller companies to become direct exporters. The findings of this study suggest that these policies need to be redirected towards helping these firms to export indirectly, as well as directly, by supplying production inputs for direct exporters. Since agriculture is a sector in which there are a very large number of small-scale producers, a policy that strengthens their linkages with businesses that process and market their export products will have a strong indirect effect on agricultural employment. This also entails overhauling small-scale agriculture so that small agricultural enterprises will be in a position to become part of these value chains.

- (iii) Because the in-bond assembly industry plays such an important part in the production of Mexican exports—exports that make use of large amounts of imported inputs— industrial policies have focused on developing the production of parts and components as a means of boosting these exports' indirect job-creation capacity. The best example of this is the electronics industry, which accounted for 28.9% of the country's exports of manufactures in 2003 (Fujii and Cervantes, 2013) and which has the lowest coefficients for employment per unit of production and for indirect employment as a ratio of direct employment. Efforts to boost the domestic production of electronic parts and components run up against a number of formidable challenges because the electronics industry is part of an internationally fragmented global value chain; decisions regarding each country's place in the production process are taken by the firms that head up these value chains based on the advantages enjoyed by each country in the production of parts and the operation of each of the various phases of production. This line of effort is therefore subject not only to decisions taken at the national level but also to the criteria used by large companies when deciding how to distribute or apportion their production processes around the globe.

Another approach to strengthening the employment effect of production activities that form part of global value chains is founded on the fact that, in order for a product to reach consumers, it has to go through a number of different production

phases which, in many cases, include research and development (R&D), product design, the production and procurement logistics for components, parts and materials, assembly, product distribution logistics, marketing and after-sale service. These phases may be involved in the production of both technologically unsophisticated products, such as clothing, for example, and technology-intensive goods, such as electronics and transport equipment. For some other products, such as iron and steel, the chain may be shorter.

Highly specialized firms deal with some of these activities and may outsource related tasks to dense clusters of firms surrounding portions of these chains. In the context of the issues of concern to us here, then, another course of action will be to explore the possibility of Mexican firms' entry into specific areas of activity associated with global value chains in the broader sense of the term and, if that proves to be a viable course of action, to design targeted industrial policies to help turn that possibility into a reality.

Value chains also include service activities, and service companies may also be able to expand their operations within that framework. One of those activities is transport, in which medium-sized and small companies tend to predominate. Hence the need for policies aimed at helping transport and logistics firms to modernize their operations.

- (iv) As pointed out by ECLAC (2013, p. 167), employment effects are quantitatively different from one destination market to another. In the case of Latin America, the most labour-intensive exports are primarily sold on other Latin American markets and in the United States. As is well known, most of Mexico's exports go to the United States, with the Canadian market coming in as a distant second. Therefore, it would be beneficial in terms of employment for Mexico to diversify its export markets by expanding into South America.
- (v) If microeconomic and mesoeconomic policies designed to leverage the employment effect of exports are successful, they will have a positive multiplier effect at the macroeconomic level. An increase in the labour content of exports will translate into an increase in the domestic value added embedded in exports, which will in turn spur aggregate demand and, hence, aggregate output and employment.

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Mexico: labour content in manufactured exports and jobs created by exports of manufactures, 2012
(Jobs)

Sector	Jobs														Jobs, by sector, created by exports of manufactures								
	14	15	16	17	18	19	20	21	22	23	24	25	26	27		28	29	30	31	32	33	34	
Food	234 202	36 083	29 131	3 129	11 504	3 836	1 579	730	95	27	4 767	1 404	293	263	495	1 037	887	790	7 668	325	11 614	349 860	9.0
1 Agriculture	27 321	404	839	65	469	4 899	4	34	5	8	1 425	96	29	66	85	237	212	192	3 186	62	164	39 803	1.0
2 Livestock	958	115	562	9	92	888	454	87	16	8	927	13 392	56	59	700	762	162	195	2 406	820	742	23 409	0.6
3 Forestry	11 267	1	0	0	54	2	0	4	2	0	38	3	1	4	3	11	4	4	18	1	93	11 510	0.3
4 Fishing and hunting	444	73	861	63	481	33	147	91	3	2	40	28	18	12	31	86	57	46	804	332	196	3 849	0.1
5 Agricultural and forestry services	84	33	12	6	20	7	4	19	5	1 155	579	51	63	85	48	120	85	74	260	15	76	2 800	0.1
6 Petroleum and natural gas	430	178	41	11	33	18	5	90	15	77	3 336	141	3 902	20 207	804	1 388	682	3 276	2 588	52	623	37 896	1.0
7 Mining other than petroleum and natural gas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8 Mining services	299	156	113	43	122	47	12	134	28	24	370	339	216	776	373	696	293	521	2 087	62	279	6 991	0.2
9 Electricity	1 448	1 711	165	49	212	138	12	172	37	27	740	357	182	737	570	973	583	527	2 097	72	754	11 562	0.3
10 Piped water and natural gas for final consumption	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11 Building	1	0	0	0	0	0	0	0	0	0	0	0	0	1	3	1	1	1	3	0	0	13	0.0
12 Civil engineering works	254	56	26	44	277	34	13	50	20	11	153	297	47	357	285	611	2 980	2 213	1 251	45	1 007	10 029	0.3
13 Specialized construction works	80 579	3 883	16	9	62	1 404	2	54	8	6	244	56	43	49	62	185	190	157	1 321	24	80	88 434	2.3
14 Food	74	32 465	3	4	6	2	0	3	1	2	49	8	4	10	10	28	16	20	86	2	10	32 801	0.8
15 Beverages and tobacco	61	22	20 006	1 033	7 036	298	16	655	9	3	84	194	42	22	52	159	123	98	5 492	329	876	36 610	0.9
16 Textile inputs	217	28	62	23 353	449	38	2	6	2	2	25	348	7	15	33	69	25	30	229	66	218	25 224	0.6
17 Textiles other than clothing	41	11	5	180	110 562	6	1	17	6	13	50	22	27	28	86	294	189	172	828	12	176	112 725	2.9
18 Clothing	128	42	3	3	262	32 401	8	5	1	33	66	75	20	106	131	152	92	114	4 880	103	110	38 736	1.0
19 Products other than clothing made of leather, fur or artificial leather	497	416	41	37	89	50	9 784	260	35	56	452	298	388	231	885	1 974	1 536	1 102	3 817	5 679	3 118	30 746	0.8
20 Wood	732	260	70	34	182	67	6	15 815	454	17	1 242	364	434	91	375	1 186	1 309	665	2 601	62	990	26 958	0.7
21 Paper	207	81	27	20	104	45	8	53	9 746	22	477	184	88	152	213	481	385	294	1 302	35	225	14 151	0.4
22 Printing	135	50	17	7	32	11	6	28	7	2 164	128	54	94	136	76	201	148	121	409	25	75	3 926	0.1
23 Petroleum and coal																							

Table A.I.1 (continued)

Sector	Jobs													Percentage									
	14	15	16	17	18	19	20	21	22	23	24	25	26		27	28	29	30	31	32	33	34	
24 Chemicals	621	270	361	224	259	147	78	270	235	193	60 859	3 427	687	693	738	872	802	981	4 543	215	1 336	77 811	2.0
25 Plastic and rubber	1 410	1 494	57	27	109	322	61	139	102	29	1 487	63 372	115	109	940	1 783	2 908	3 653	23 458	659	1 107	103 342	2.7
26 Non-metallic mineral products	799	2 216	6	3	13	5	3	7	5	16	172	47	60 378	77	371	649	2 064	1 403	3 517	167	993	72 910	1.9
27 Basic metals	47	40	3	3	11	7	1	7	2	30	42	48	33	46 233	4 092	11 497	1 330	6 398	12 547	155	1 509	84 033	2.2
28 Metal products	583	674	19	21	59	49	15	38	11	1 030	540	486	118	410	102 279	4 874	1 577	2 753	10 467	219	460	126 681	3.3
29 Machinery and equipment	101	16	4	2	9	7	2	10	2	4	38	18	54	111	113	175 094	510	484	4 402	8	34	181 024	4.7
30 Electronics	28	26	3	2	11	3	3	5	4	4	25	17	8	25	50	294 344 215	603	990	9	129	346 454	8.9	
31 Electrical equipment	14	5	2	2	6	2	0	3	1	3	18	10	7	113	58	371	695	180 953	1 289	16	71	183 638	4.7
32 Transport equipment	137	111	10	9	27	13	3	25	7	9	122	55	58	96	107	514	133	236 435 766	14	75	437 526	11.2	
33 Furniture	16	5	2	1	6	3	1	4	1	2	21	10	5	13	18	45	17	21	149	40	195	12 40 546	1.0
34 Other manufactures	67	21	10	10	307	40	3	17	16	8	80	51	48	50	124	510	954	730	926	46	122 951	126 968	3.3
35 Commerce	22 130	7 349	2 787	1 604	8 721	3 567	678	5 720	1 438	2 227	28 858	13 846	6 091	17 635	19 907	62 199	19 298	28 377	209 342	3 808	13 875	479 459	12.3
36 Air cargo	42	21	8	17	63	13	3	10	4	5	59	41	26	112	166	794	1 830	830	1 340	34	354	5 773	0.1
37 Railway cargo	34	12	5	2	9	4	1	8	2	7	60	27	9	27	31	108	31	51	395	5	24	851	0.0
38 Waterway cargo	17	6	2	1	4	2	1	4	1	3	30	14	5	14	16	54	15	26	197	3	12	425	0.0
39 Trucking	2 369	824	315	154	593	278	84	529	126	455	4 079	1 844	650	1 891	2 180	7 321	2 049	3 508	26 619	376	1 631	57 876	1.5
Overland passenger transport other than by rail	129	51	21	10	384	15	2	27	9	8	194	134	156	174	235	361	193	313	1 101	19	207	3 741	0.1
41 Pipeline transport	13	4	2	1	3	2	0	3	1	2	22	10	4	10	12	40	11	19	146	2	9	317	0.0
42 Tourism transportation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3	0.0
43 Transport-related services	186	55	21	21	482	22	6	47	12	27	260	131	62	303	236	1 141	808	569	2 800	37	483	7 709	0.2
44 Postal services	6	3	1	0	2	1	0	2	1	2	8	6	3	7	7	15	15	10	44	1	45	180	0.0
45 Messenger and packaging services	68	22	13	10	72	10	2	15	20	5	98	63	38	37	123	308	2 122	495	451	15	203	4 190	0.1
46 Storage	294	175	64	30	129	30	11	87	18	35	505	535	109	242	429	908	293	303	2 404	62	993	7 656	0.2
Editing of publications and software other than by Internet	100	87	9	8	36	10	2	28	7	4	190	65	33	58	78	169	82	98	644	28	108	1 844	0.0
48 Film, video and sound editing	12	11	1	1	3	1	0	1	0	1	14	2	2	6	6	14	25	16	42	1	7	165	0.0
49 Radio and television	1	0	0	0	0	0	0	0	0	0	1	1	0	0	1	2	2	2	5	0	1	18	0.0
50 Other telecommunications	191	56	18	13	59	19	5	27	15	65	201	96	57	91	136	384	504	307	1 044	29	193	3 512	0.1
Electronic data processing, hosting and other related services	126	45	14	13	53	12	2	19	12	9	119	89	42	65	106	273	140	162	674	25	126	2 127	0.1

Table A.1.1 (continued)

Sector	Jobs														Percentage								
	Food	Beverages and tobacco	Textile inputs	Textiles other than clothing	Clothing	Products other than clothing made of leather, fur or artificial	Wood	Paper	Printing	Petroleum and coal products	Chemicals	Plastic and rubber	Non-metallic mineral products	Basic metals		Metal products	Machinery and equipment	Electronics	Electrical equipment	Transport equipment	Furniture	Other manufactures	Jobs, by sector, created by exports of manufactures
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34		
Other information	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	1	0	0	8	0.0
52 services	2	1	0	0	1	0	0	1	0	1	3	2	1	3	3	6	4	4	18	0	2	53	0.0
53 Central bank	258	114	40	16	84	40	7	41	11	96	295	190	161	313	322	590	342	373	1 803	43	208	5 346	0.1
Credit and financial institutions not listed on the stock market	80	30	3	3	22	1	1	15	1	4	156	53	73	154	28	129	37	45	530	3	16	1 384	0.0
55 currency exchange and financial investments	113	35	11	14	51	11	5	36	6	18	194	121	84	159	144	473	1 899	709	1 060	24	293	5 460	0.1
56 Finance, insurance and pensions	206	58	19	18	129	32	7	46	16	12	190	125	87	96	195	423	447	305	1 203	54	288	3 955	0.1
57 Real estate services	213	62	19	15	96	19	6	54	30	6	227	180	105	367	258	945	1 301	747	1 914	41	348	6 954	0.2
58 Furniture rentals	5	9	2	1	9	1	0	10	1	6	29	4	3	163	55	90	34	67	716	10	33	1 247	0.0
59 Trademark, patent and franchise leases	2 676	1 536	278	278	1 333	227	60	475	271	430	3 176	1 144	731	2 123	2 456	10 855	17 313	7 595	17 125	475	5 875	76 432	2.0
60 Professional, scientific and technical services	177	86	16	12	65	17	2	24	14	201	361	84	63	83	115	443	187	208	672	27	114	2 971	0.1
61 Corporate	19 979	8 861	3 524	2 034	8 770	4 168	433	3 885	1 642	1 173	25 750	19 079	11 062	15 559	26 175	63 128	38 078	35 940	159 267	3 447	20 111	472 065	12.1
62 Business services	2	1	1	1	3	1	0	1	0	11	21	6	2	8	19	43	52	10	61	1	53	297	0.0
63 Waste management and remediation	23	9	3	2	10	2	1	6	3	4	32	19	16	27	55	140	56	57	314	4	66	848	0.0
64 Education services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0
65 Out-patient medical services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0
66 Hospitals	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0
67 Social housing and special health-care residences	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0
68 Other social welfare services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0
Artistic, cultural, sports and other services	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3	0	0	5	0.0
69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0
Museums, historical sites, zoos and similar attractions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0
70	119	56	16	8	43	17	3	41	25	59	268	88	60	185	153	454	215	268	1 201	33	175	3 486	0.1
71 Services provided in recreational and similar sites	72	Short-stay lodgings																					

Table A1.1 (concluded)

Sector	Jobs, by sector, created by exports of manufactures														Percentage								
	Food	Beverages and tobacco	Textile inputs	Textiles other than clothing	Clothing	Products other than clothing made of leather, fur or artificial	Wood	Paper	Printing	Petroleum and coal products	Chemicals	Plastic and rubber	Non-metallic mineral products	Basic metals		Metal products	Machinery and equipment	Electronics	Electrical equipment	Transport equipment	Furniture	Other manufactures	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	Jobs	
73 Food and beverage preparation services	525	155	61	53	296	67	10	142	35	105	826	389	219	619	615	2 147	4 517	3 299	7 179	109	1 432	22 802	0.6
74 Repair and maintenance services	849	300	122	204	264	124	33	296	59	47	1 020	375	600	1 254	869	2 113	2 676	1 728	7 063	197	1 607	21 800	0.6
75 Personal services	11	5	1	1	4	1	0	3	2	3	18	7	5	13	11	31	22	23	92	2	12	268	0.0
76 Associations and organizations	85	23	13	8	22	13	2	34	5	8	94	47	56	127	82	189	111	143	858	15	90	2 023	0.1
77 Homes with domestic servants	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0
78 Government activities	2	1	0	0	1	0	0	1	0	0	3	1	1	2	2	6	2	3	22	0	1	50	0.0
79 International and extraterritorial organizations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0
Labour content of exports, by manufacturing export sector	414 246	101 011	59 885	32 957	154 679	53 549	13 604	30 471	14 671	10 025	145 958	124 070	88 082	113 263	169 436	363 453	459 877	295 435	989 737	58 755	199 104	3 892 269	100.0
Labour content of exports, by manufacturing export sector (%)	10.6	2.6	1.5	0.8	4.0	1.4	0.3	0.8	0.4	0.3	3.7	3.2	2.3	2.9	4.4	9.3	11.8	7.6	25.4	1.5	5.1	100	
Direct employment	73 628	32 382	19 051	23 161	106 023	30 613	8 172	13 869	9 485	2 126	56 150	62 322	58 474	43 484	99 922	171 321	340 340	178 789	396 987	40 075	119 325	1 885 699	
Indirect employment	340 617	68 629	40 835	9 796	48 656	22 937	5 432	16 602	5 186	7 899	89 808	61 748	29 608	69 779	69 514	192 132	119 537	116 646	592 750	18 680	79 779	2 006 570	
Intrasectoral indirect employment	6 951	83	955	191	4 539	1 789	1 612	1 947	261	38	4 709	1 050	1 904	2 749	2 357	3 773	3 875	2 164	38 779	120	3 625	83 471	
Intersectoral indirect employment	333 667	68 546	39 879	9 605	44 117	21 148	3 820	14 655	4 925	7 861	85 098	60 697	27 704	67 030	67 158	188 359	115 662	114 482	553 971	18 560	76 153	1 923 099	
Total employment coefficient	4.2	2.4	4.3	2.4	2.8	3.6	3.5	1.6	2.6	0.2	0.9	1.7	2.3	0.6	1.5	1.3	0.5	1.0	1.0	3.0	1.9	1	
Indirect/direct employment	4.6	2.1	2.1	0.4	0.5	0.7	0.7	1.2	0.5	3.7	1.6	1.0	0.5	1.6	0.7	1.1	0.4	0.7	1.5	0.5	0.7	1	

Source: Prepared by the authors, on the basis of National Institute of Statistics and Geography (INEGI), "Matriz de insumo-producto 2012" [online] <http://www.inegi.org.mx/est/contenidos/proyectos/cn/mip12/>.

TABLE A.1.3

Mexico: jobs in exports of manufactures, by exporting sectors and by branches of activity in which jobs are created, 2008
(Selected sectors)

	Food		Clothing		Metal products		Machinery and equipment		Electronics		Electrical equipment		Transport equipment		Jobs created by export of manufactures	Percentage of jobs created by exports of manufactures, by branch of activity
	14	18	28	29	30	31	32	30	31	32	31	32	31	32		
1 Agriculture	152 019	6 993	638	519	1 319	772	3 446	228 121	6.3						228 121	6.3
30 Electronics	7	5	18	46	362 418	338	188	363 104	10.0						363 104	10.0
31 Electrical equipment	6	4	25	106	896	166 189	472	167 832	4.6						167 832	4.6
32 Transport equipment	57	21	66	126	174	139	279 288	280 336	7.7						280 336	7.7
35 Commerce	22 731	14 871	32 369	50 360	50 072	52 221	243 399	659 593	18.2						659 593	18.2
62 Business services	17 431	12 042	28 230	41 614	77 089	55 156	128 692	496 519	13.7						496 519	13.7
								3 633 015 ^a							3 633 015 ^a	60.4
Total labour content of manufactured exports, by export sector	296 344	198 299	191 990	253 928	581 595	330 252	775 985	2 628 393 ^b							2 628 393 ^b	
Total labour content of exports, by export sector (%)	8.2	5.5	5.3	7.0	16.0	9.1	21.4									72.3 ^c
Direct plus indirect labour content of exports, by sector of employment (%)	4.0	45.5	30.9	97.3	102.7 ^d	86.1	58.4									
Direct employment	61 518	143 209	107 552	125 417	359 732	164 351	247 471	1 644 818 ^a							1 644 818 ^a	
Indirect employment	234 825	55 090	84 438	128 510	221 863	165 900	528 514	2 209 252 ^b							2 209 252 ^b	
Indirect, intrasectoral	4 902	3 829	2 105	1 509	2 685	1 837	31 817	1 419 141 ^b							1 419 141 ^b	
Indirect, intersectoral	229 923	51 261	82 333	127 001	219 178	164 063	496 697	48 684 ^b							48 684 ^b	
Direct employment (%)	20.8	72.2	56.0	49.4	61.9	49.8	31.9									
Indirect employment (%)	79.2	27.8	44.0	50.6	38.1	50.2	68.1									
Indirect employment/direct employment	3.82	0.38	0.79	1.02	0.62	1.01	2.14	1.21								
Total employment coefficient	5.3	3.8	2.3	1.5	0.8	1.4	1.4									
Exports of manufactures (%)	2.3	2.2	3.5	7.1	29.5	9.7	23.1									77.5 ^c

Source: Prepared by the authors, on the basis of National Institute of Statistics and Geography (INEGI), "Matriz de insumo-producto 2008" [online] <http://www.inegi.org.mx/est/contenidos/proyectos/cn/mip/>.

^a Total for the manufacturing sector.

^b Total for selected sectors.

^c Horizontal sum.

^d See footnote No. 1.