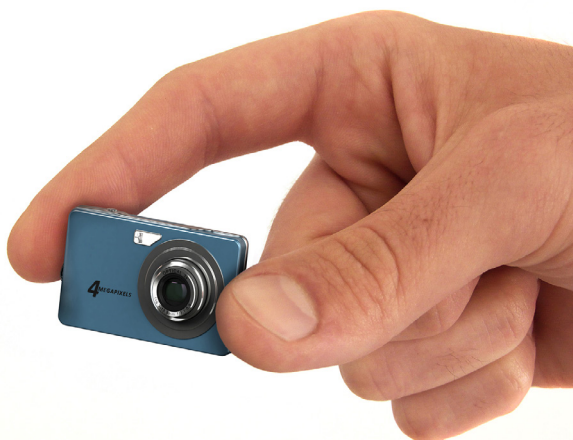




BULLETIN 395 /

FACILITATION OF TRANSPORT  
AND TRADE IN LATIN AMERICA  
AND THE CARIBBEAN

# The miniaturization of containerized commodities

## Introduction

Thanks to technological advances, nowadays things can be made smaller, lighter and thinner. Miniaturization—or shrinkage—has been key to driving such advances while enabling companies to push the boundaries of creativity and innovation.

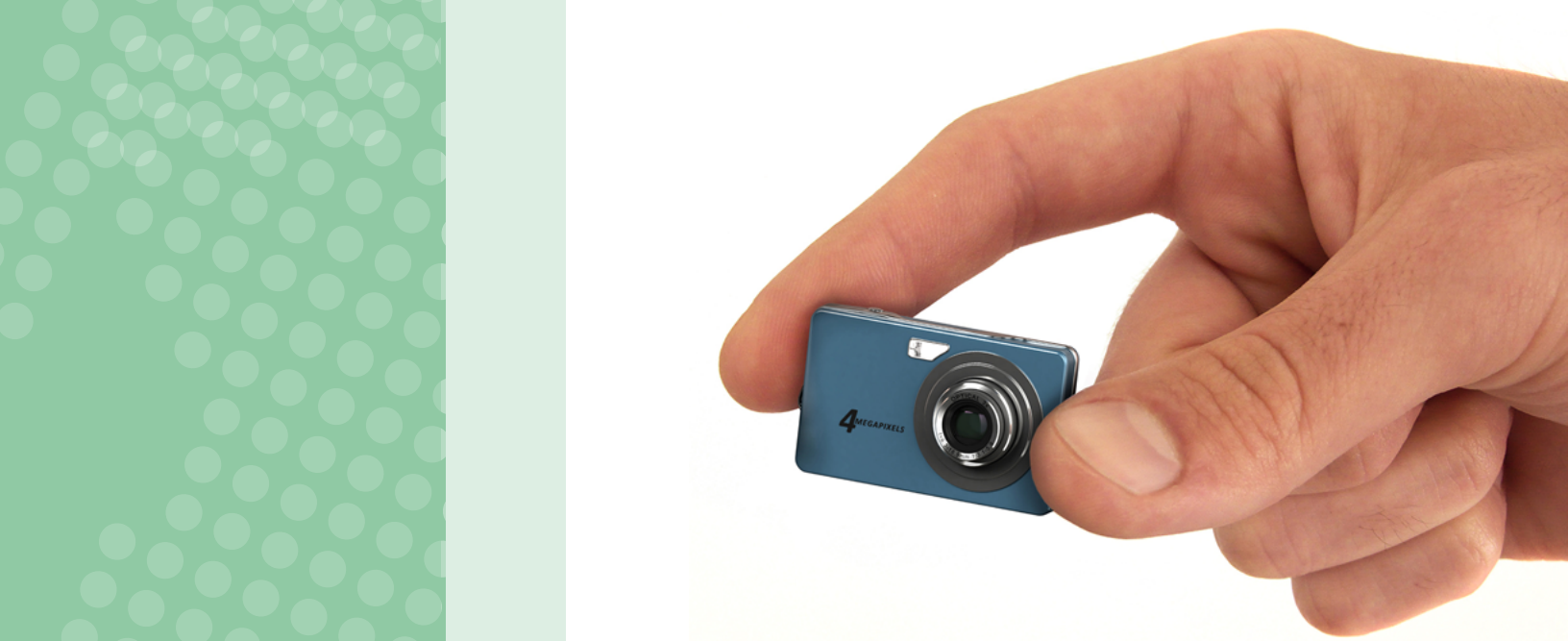


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The miniaturization of commodities can have an impact on international merchandise trade by affecting supply chains and transportation, which must adapt to their shrinking size. In the specific case of containerized goods, the number of containers transported by ships and handled by port terminals is expected to decrease, since a greater number of items will fit into each container at a given freight value. To test this hypothesis, a preliminary exercise was carried out on the containerized imports of the United States from its main trading partners for the period 2003–2021 to determine which goods may get smaller.

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In recent years, the trend in many industries has been to manufacture ever-smaller mechanical, optical, medical, electronic and other products and devices.

The precedent for this can be found in the history of information technology, where switching devices became increasingly miniaturized, faster and cheaper than their forerunners.

This phenomenon has been seen in other sectors such as lighting, with LEDs (light emitting diodes), and the aerospace industry. In the latter, as the electronic components of satellites became smaller, so did their cooling systems. In medicine surgical and medical applications have also shrunk to enable minimally invasive and non-invasive surgeries.

As a result, supply chains in these industries have had to adapt to the compact new sizes, impacting freight and transportation in turn. The number of containers transported by ships and handled by port terminals is expected to decrease, since more items will fit into each container at a given freight value.

One hypothesis that evolved from this phenomenon, as outlined in the work of Sanchez and Barleta (2018), was whether in the last 10–15 years, for a given value of international trade, miniaturization has resulted in the use of fewer containers.

In their study, the authors mention that the appropriate way to verify this hypothesis is to analyse the stowage factor.<sup>1</sup> However, since obtaining the necessary information was not feasible, they looked for evidence of goods being lighter and, possibly, less bulky. This was illustrated by the behaviour of the deflated FOB (free on board) index compared to merchandise tonnage.<sup>2</sup>

Using the Standard International Trade Classification (SITC), the authors selected a number of groups of commodities that are shipped in containers and which they assumed could have seen decreases in weight, such as electronic goods, for example. The groups studied encompassed the goods in SITC divisions 75, 76 and 77 (see figure 1).<sup>3</sup>

<sup>1</sup> The stowage factor (also termed stowage coefficient) is the ratio between the volume of a given cargo and its weight:  $SF = \text{Volume} / \text{Weight}$ .

In theoretical terms it is the inverse of the specific weight of a commodity, but this factor includes the loss of space between packages for general cargo, or between grains for bulk cargo; therefore, the stowage factor has a value greater than the figure for the inverse of the specific weight of merchandise. The stowage factor of goods varies depending on multiple variables; for example, in grains, the moisture content, the origin or the plant variety in question; in bales (cotton or wool), the characteristics of each baling machine.

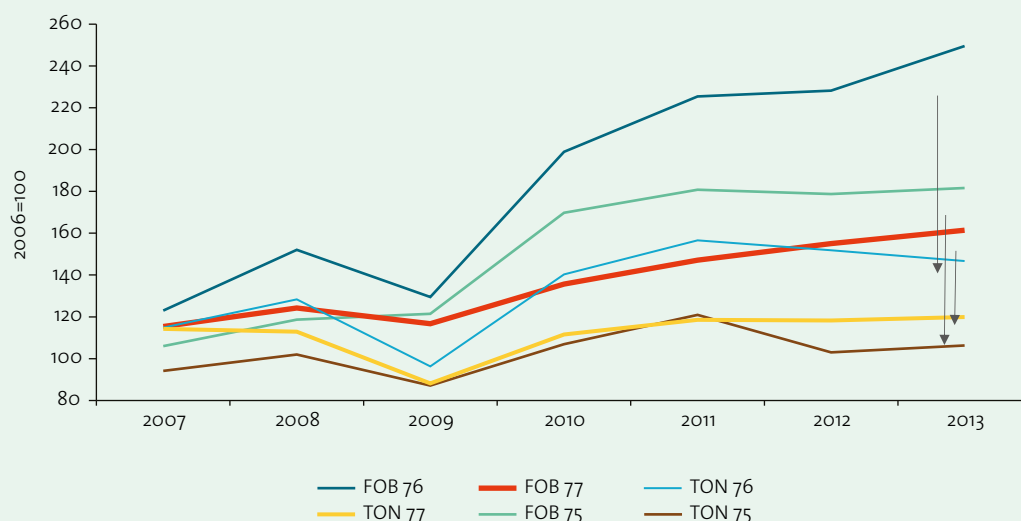
<sup>2</sup> In the absence of volume data, the authors assumed that less weight means less volume and, therefore, less use of container space. The same assumption is adopted in this paper.

<sup>3</sup> Division 75 contains "Office machines and automatic data-processing machines"; Division 76, "Telecommunications and sound-recording and reproducing apparatus and equipment"; and Division 77, "Electrical machinery, apparatus and appliances, n.e.s., and electrical parts and parts thereof (including non-electrical counterparts, n.e.s., of electrical household-type equipment)".

**Figure 1**

South America (selected countries): variations in trade (sum of exports and imports), 2007–2013

(Annual FOB values and tonnage, by selected SITC divisions)



**Source:** R. Sánchez and E. Barleta, "Reflections on the future of container ports in view of the new containerization trends", *FAL Bulletin*, No. 366, Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2018.

**Note:** The selected countries are Argentina, Brazil, Chile, Colombia, Ecuador, Peru and Uruguay.

This paper continues along those same lines but with a different product coding. The information explored is in accordance with the Harmonized Commodity Description and Coding System (HS 2007). However, according to the correspondence matrix, the sectors covered in this study include those mentioned in figure 1, allowing analytical continuity with what was already studied.<sup>4</sup> In addition, this paper uses only the import data, which is more detailed and disaggregated, making it useful for the analyses presented in the sections that follow.

## I. Methodology and descriptive analysis based on united states imports

The methodology and analysis used to verify the miniaturization hypothesis are presented below. For this purpose, the paper uses the United States Census Bureau's merchandise trade database, which contains information on imports of commodities up to 10 digits in the (HS), by country of origin, port and district of entry, units, weight, value of imports, tariffs and transport costs by type of transport. The variables used in this study are summarized in table 1.

<sup>4</sup> The sectors classified in divisions 75, 76 and 77 of SITC Rev2 correspond mainly to sectors 84, 85 and 90, all of which are included in this analysis.

**Table 1**  
Variables used in the study

Customs value of general imports ( <i>In dollars</i> )	The Customs value is the dollar value of imports as appraised by United States Customs and Border Protection. This value is generally defined as the price actually paid or payable for merchandise when sold for exportation to the United States, excluding United States import duties, freight, insurance, and other charges incurred in bringing the merchandise to the United States.
Customs value of general imports by sea ( <i>In dollars</i> )	The Customs value is the dollar value of goods imported by sea as appraised by United States Customs and Border Protection. This value is generally defined as the price actually paid or payable for merchandise when sold for exportation to the United States, excluding United States import duties, freight, insurance, and other charges incurred in bringing the merchandise to the United States.
Value of imports in customs containers ( <i>In dollars</i> )	The customs value of merchandise transported in any container as appraised by United States Customs and Border Protection, excluding United States freight, insurance, and other charges incurred in bringing the merchandise to the United States (containerized trade is included in vessel trade).
Weight of general imports by sea ( <i>In kilograms</i> )	Represents the total weight of merchandise imported from abroad, whether that merchandise enters consumer channels immediately or customs warehouses or Foreign Trade Zones under customs safekeeping.
Weight of general imports by sea ( <i>In kilograms</i> )	The gross weight in kilograms of shipments by seagoing vessel at customs.
Container ship carrying general imports ( <i>In kilograms</i> )	Weight of goods, in kilograms, transported in containers.

**Source:** Prepared by the authors on the basis of United States Census Bureau, U.S. Imports of Merchandise database.

The study sample was limited to imports from the top five trading partners of the United States for 2021. As table 2 shows, China was the main trading partner with a share of 18.4% (US\$ 541.53 billion), followed by Mexico with 14% (US\$ 388.36 billion), Canada with 13% (US\$ 363.90 billion), Japan with 4.9% (US\$ 139.39 billion) and Germany with 4.8% (US\$ 138.19 billion). Brazil was also added in order to include the main South American partner; its share of imports was 1.2% (US\$ 32.84 billion).

**Table 2**  
Main United States imports, by trading partner

Country	Value of imports (Billions of dollars)	Share of total imports (Percentages)
China	541	18.4
Mexico	388	13.2
Canada	363	12.4
Japan	139	4.75
Germany	138	4.71
Viet Nam	108	3.68
Republic of Korea	98	3.36

Country	Value of imports (Billions of dollars)	Share of total imports (Percentages)
Other Asian countries	80	2.75
India	77	2.62
Ireland	74	2.52
Other countries	494	31.61

**Source:** Prepared by the authors on the basis of information from TrendEconomy [online] <https://trendeconomy.com/> and UN Comtrade Database.

In broad terms, the structure of the import basket in 2021 mainly comprised the commodity groups shown in table 3. The sample in this study encompasses commodities classified to six digits in the groups mentioned in that table.

**Table 3**  
Main United States imports, by commodity group

<b>Division 84</b> <b>14.6% (US\$ 428 billion)</b>	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof
<b>Division 85</b> <b>14.1% (US\$ 415 billion)</b>	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles
<b>Division 87</b> <b>9.65% (US\$ 283 billion)</b>	Vehicles other than railway or tramway rolling-stock, and parts and accessories thereof
<b>Division 27</b> <b>7.63% (US\$ 223 billion)</b>	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes
<b>Division 30</b> <b>5.09% (US\$ 149 billion)</b>	Pharmaceutical products
<b>Division 99</b> <b>4.1% (US\$ 120 billion)</b>	Commodities not specified according to kind
<b>Division 90</b> <b>3.61% (US\$ 106 billion)</b>	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; parts and accessories thereof
<b>Division 71</b> <b>3.13% (US\$ 91 billion)</b>	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal and articles thereof; imitation jewellery; coin
<b>Division 39</b> <b>2.81% (US\$ 82 billion)</b>	Plastics and articles thereof
<b>Division 94</b> <b>2.77% (US\$ 81 billion)</b>	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, not elsewhere specified or included; illuminated signs, illuminated name-plates and the like; prefabricated buildings

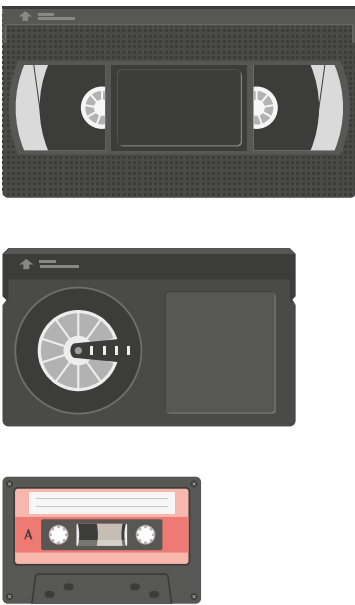
**Source:** Prepared by the authors on the basis of information from TrendEconomy [online] <https://trendeconomy.com/> and UN Comtrade Database.

Of the products included in the divisions shown in table 3, those in Division 27 were eliminated because they are transported in oil tankers and the focus of this study is on containerized products; the same applies to those contained in division 71 because they are traded mainly by air, as well as those in division 99 because the value of imports for which they account from the trading partners mentioned in table 2 is not significant.

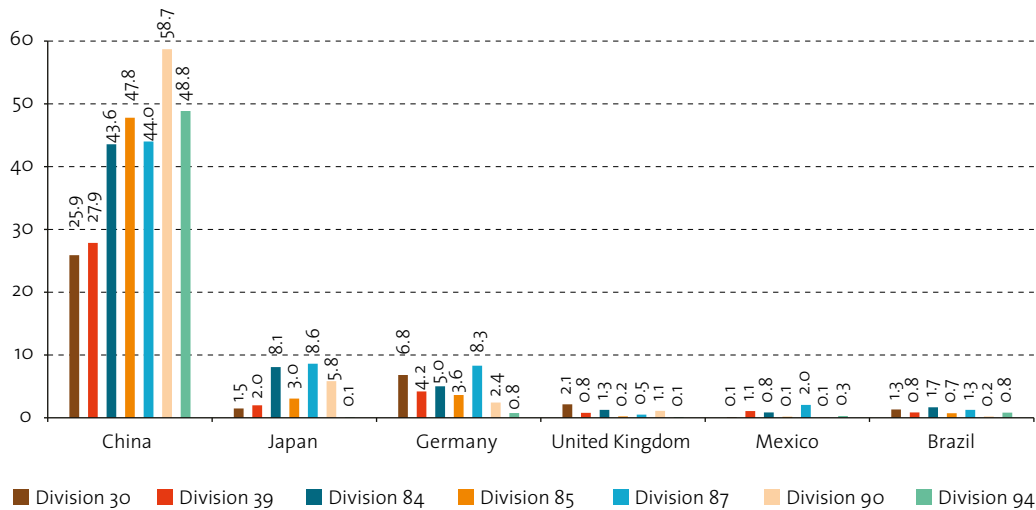
To summarize, the study examines data for goods included in the above-mentioned divisions imported from the main trading partners. Canada, which mainly supplies refined oil to the United States, a commodity that falls under division 27, was also excluded for the reasons mentioned.

For 2021, the share of total containerized imports from each major partner in the divisions selected is shown in figure 2.

As figures 2 and 3 show, the study analyses information on both the weight and dollar value of containerized goods, covering more than 10 years of data reported in the series studied.

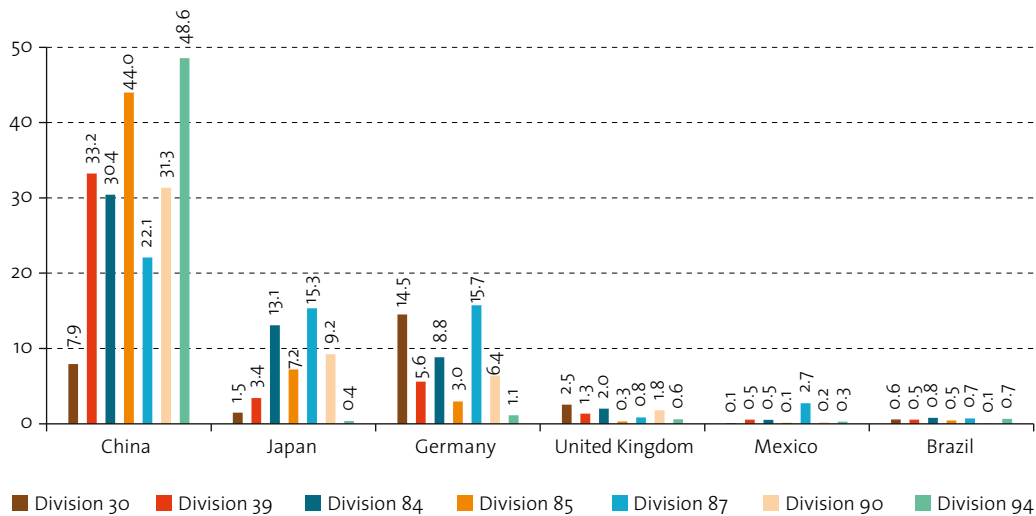


**Figure 2**  
United States: share of selected divisions in total weight of containerized imports from major trading partners, 2021  
(Percentages)



Source: Prepared by the authors on the basis of United States Census Bureau, U.S. Merchandise Trade database.

**Figure 3**  
United States: selected divisions as share of total value of containerized imports from major trading partners, 2021  
(Percentages)



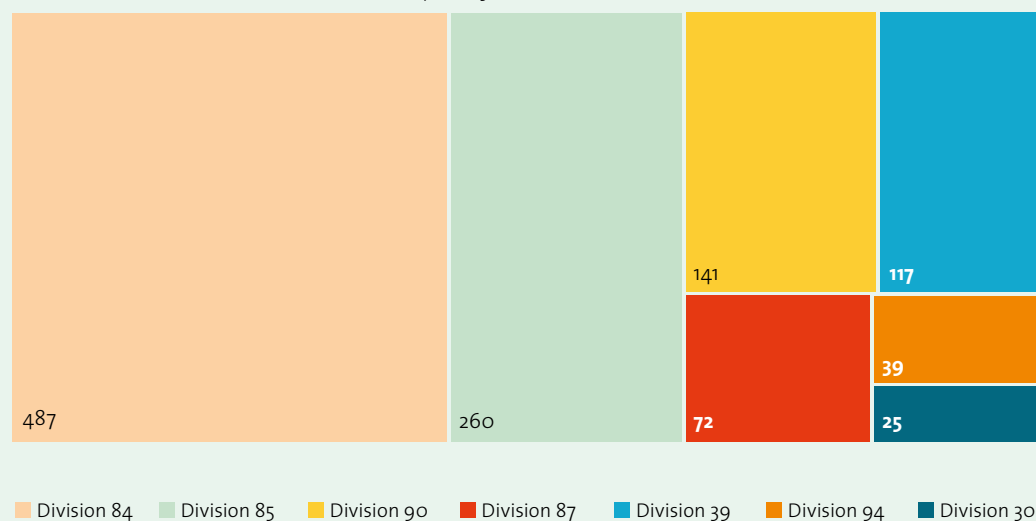
Source: Prepared by the authors on the basis of United States Census Bureau, U.S. Merchandise Trade database.



The resulting overall sample of commodities (totalling 1,141 products analysed) comprises 25 products from division 30; 117 from division 39; 487 from division 84; 260 from division 85; 72 from division 87; 141 from division 93 and 39 products from division 94. These goods were the main commodities transported by container and accounted for approximately 97% by weight and value in 2021. The annex provides a detailed breakdown of these commodities.

**Figure 4**

Number of commodities in the sample, by division



**Source:** Prepared by the authors on the basis of United States Census Bureau, U.S. Merchandise Trade database.

## II. Exploration of data and results

One way to test for the presence of miniaturization is to see if the weight of certain containerized commodities with a relatively constant import value (in dollars) has decreased over time.



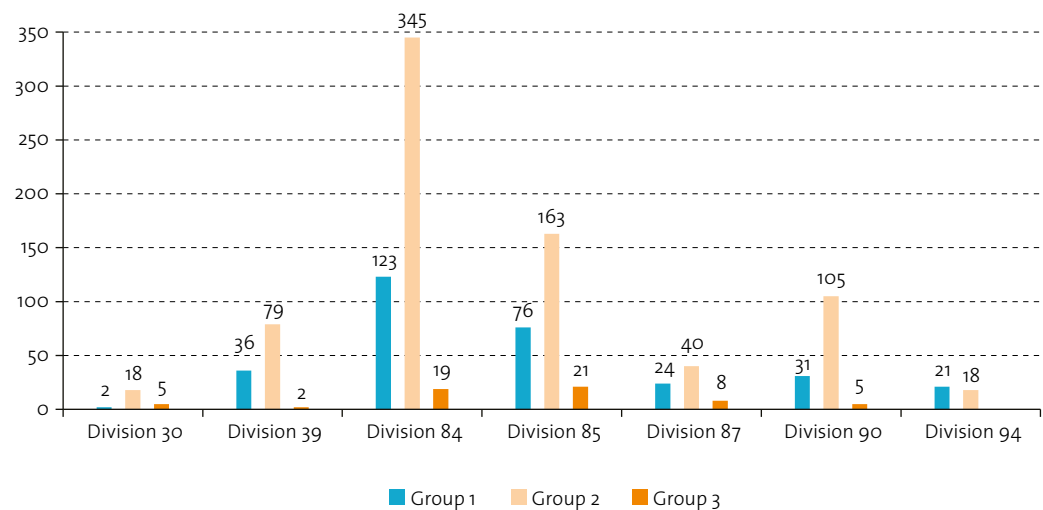
This is done by calculating the ratio of that value (in dollars) to the weight (in kilograms). Looking for changes in that ratio is a good place to start.<sup>5</sup> Another measure calculated is the rate of growth in both the value and weight of merchandise imports.

In other words, the exploration work includes calculating the value per kilogram for each product for the period from 2003–2021 and the growth rates of both value and weight, in order, in turn, to identify for each year the moment when the rate of growth in value is greater than the rate of growth in weight (which would be evidence of miniaturization). With this marker, the number of years (in the period analysed) in which this behaviour occurs is then determined.

With this information, an indicator was created that shows an approximation of the probability of miniaturization (PM) occurring. This considers the number of times during the period reviewed that the rate of growth in the value of a product was above the rate of growth in weight. It assigns a value of 1 when the probability is in the interval 60–100, a value of 2 when it is in the interval 59–30, and 3 for cases in which the probability is less than 30.<sup>6</sup> Figure 5 provides a breakdown of the number of products per sector classified according to these categories.

**Figure 5**

Number of products by division and miniaturization segment



**Source:** Prepared by the authors on the basis of United States Census Bureau, U.S. Merchandise Trade database.

Division 84, which contains the largest number of products, was found to have 123 products susceptible to miniaturization with an indicator in 60–100% range; it was followed by division 85, with 76 such products. The commodities contained in these divisions and their categorization according to this indicator are detailed in the annex.

At the same time, a cluster analysis was carried out as another way of grouping the products in the sample reviewed. It should be noted that cluster analysis is an atheoretical and non-inferential descriptive technique. Such an analysis has no statistical basis from which to deduce statistical inferences for a population from a sample since it is a method based on geometric criteria and used primarily as a descriptive but not explanatory exploratory technique. Taking these limitations into account, this technique can provide additional information on how the goods are grouped according to the proxy variable for

<sup>5</sup> Focusing on value, however, can have its limitations. Value is influenced by multiple factors, including price, exchange rate and freight, among others, that have nothing to do with miniaturisation. This limitation is taken into account when analysing the results.

<sup>6</sup> The categorization does not follow any pre-established rule.

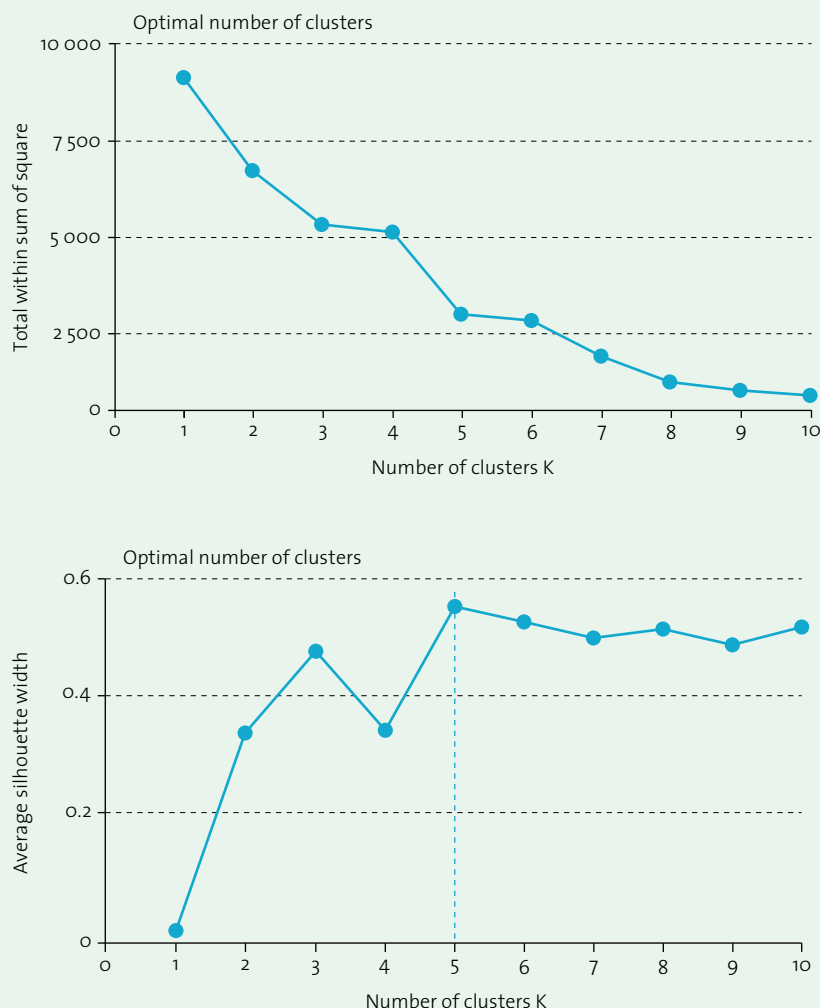


miniaturization (PM) and other variables, such as the average rate of growth in the value and weight of each good, among others.<sup>7</sup>

To carry out this analysis, the first step was to choose the number of clusters to work with. After analysing different methods, three clusters were selected (see figure 6). The alternative of working with five clusters was also considered but discarded because that level of disaggregation did not yield any additional information.

**Figure 6**

Determination of number of clusters by the elbow and silhouette methods



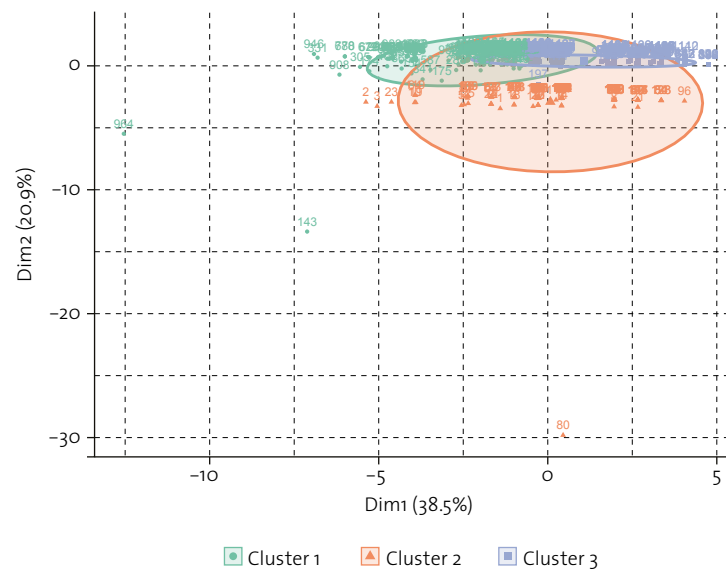
**Source:** Prepared by the authors on the basis of United States Census Bureau, U.S. Merchandise Trade database.

<sup>7</sup> The following variables were used for the cluster analysis: TCKgmean = mean rate of growth in weight (in kg) of each product in the period under review; TCUSDmean = mean rate of growth in value (in dollars) of each product in the period under review; F = number of times for each product that the rate of growth in weight was not greater than the rate of growth in value; V = number of times for each product that the weight growth rate was greater than the value growth rate; PM = indicator showing an approximation of the probability that miniaturisation occurred based on the number of times in the period that the value growth rate of a commodity exceeded the weight growth rate.

The resulting grouping of the three clusters obtained is shown in figure 7.

**Figure 7**

Groupings resulting from the number of clusters



**Source:** Prepared by the authors on the basis of United States Census Bureau, U.S. Merchandise Trade database.

An analysis of the mean values for each variable used to make the groupings reveals a significant correlation between the groupings obtained by this method and the categories identified using the PM indicator (illustrated in figure 5).

The agglomerations resulting from the cluster analysis tend to group those products with a PM value of 1 (considered to have a higher probability of miniaturization) and those with a PM value of 3 (considered to have a lower probability of miniaturization).

The following observations can be drawn from the foregoing. The PM variable appears to be useful for differentiating between groups. Second, products with a PM value of 3 can be eliminated from the sample, given the unlikelihood of miniaturization in such commodities.

Finally, the likelihood of miniaturization of products in category 1 is very high, so it is recommended that future studies give priority to examining them in greater depth. The products included in category 2 do not yield conclusive findings as to whether or not miniaturization can be observed, so it is recommended to leave them in the sample.

With this small sample of goods, a possible extension to this study would be to assess the extent of the difference in the rate of growth in the dollar value versus the rate of growth in weight by kilograms, which would provide a refinement as to whether products have indeed shrunk in size over a period of time.

### III. Final considerations

Since their invention in World War II, containers have been an emblematic example of technological change in transportation. Gradually, most goods have transitioned to the container for multiple reasons that make their use convenient. Among others, those reasons include the standardization of product transportation, flexibility of use, computerized tracking, reduced transport costs, storage and security. All this has led containerization (the extent to which goods tend to be mainly transported by this means) and the number of trade containers transported annually to grow at a higher rate than trade itself —and continuously so from 1956 onwards.

However, the way in which technological change in the manufacture of trade goods may be a determinant in the containerization of maritime trade has been little studied. Delving further into this phenomenon, this paper has sought to explore whether goods have become miniaturized, based on changes in their weight versus their dollar value over time. The initial identification of this phenomenon in specific categories of commodities allows us to continue to explore specifically how changes in the morphology of goods can directly impact the number of containers needed to transport them. The implication of this is less container movement at a given level of trade. That is, the transport demand of trade could change for reasons endogenous to the production and transport process but unrelated to any changes in trade itself.

This study used the United States database of containerized imports from its main trading partners for the period 2003–2021 and, by means of a descriptive analysis, carried out an in-depth exploration of different categories of products susceptible to miniaturization.

The study identified patterns that point to a decrease in the size of goods. An indicator was devised that considers the rate of change in the weight of imports and the rate of change in their value. This indicator provides a starting point for focusing on those products that are most likely to have shrunk in size, with a view to a subsequent, more exhaustive analysis by product and sector. It is recommended to move forward with divisions 84 and 85, which contain goods that are classified in groups 1 and 2 (according to the variable (PM) created) and are more susceptible to miniaturization. This will make it possible to further study these markets, developments within them and how this phenomenon is influencing container demand.

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## V. Annex

**Table A1**

Value and classification of goods according to probability of miniaturization (PM).  
Division 30

Division	Product	Description	Percentage of PM	Group
30	300190	Heparin and its salts; other human or animal substances	47.4	2
30	300210	Antisera and other blood fractions and modified immunological products	21.1	3
30	300230	Vaccines for veterinary medicine	26.3	3
30	300290	Human blood; prepared animal blood, toxins, cultures, etc.	47.4	2
30	300310	Medicaments containing penicillins or derivatives thereof, etc.	36.8	2
30	300320	Medicaments containing antibiotics NESOI, etc.	57.9	2
30	300390	Medicaments NESOI, not put up in measured doses, etc.	57.9	2
30	300410	Medicaments containing penicillins or streptomycins or their derivatives	63.2	1
30	300420	Antibiotics NESOI, put up in measured doses, etc.	42.1	2
30	300431	Medicaments containing insulin but not containing antibiotics, put up in measured doses	31.6	3
30	300432	Medicaments containing corticosteroid hormones, etc., put up in measured doses	36.8	2
30	300439	Hormones, etc. (not containing antibiotics) put up in measured doses	42.1	2
30	300440	Alkaloids (not containing hormones or antibiotics), put up in measured doses, etc.	52.6	2
30	300450	Vitamins, natural or reproduced by synthesis, put up in measured doses, etc.	57.9	2
30	300490	Medicaments NESOI, put up in measured doses or in forms or packings for retail sale	42.1	2
30	300510	Adhesive dressings and other articles having an adhesive layer	52.6	2
30	300590	Wadding, gauze, bandages and similar articles, etc. NESOI	52.6	2
30	300610	Sterile surgical catgut, similar sterile material, etc.	47.4	2
30	300620	Blood-grouping reagents	31.6	3
30	300630	Opacifying preparations for X-ray examinations, etc.	52.6	2
30	300640	Dental cements and other dental fillings, etc.	68.4	1
30	300650	First-aid boxes and kits	52.6	2
30	300660	Chemical contraceptive preparations based on hormones, etc.	26.3	3
30	300670	Gel preparations designed to be used in medicine as a lubricant for surgical operations or physical examinations	42.1	2
30	300691	Appliances identifiable for ostomy use	36.8	2

**Source:** Prepared by the authors on the basis of United States Census Bureau, U.S. Imports of Merchandise database; World Customs Organization (WCO), "English Harmonized System (HS) Code & Tariff Index" [online] [http://www.transcustoms.com/World\\_HS\\_Tariff/HS\\_Heading.asp?language=English&Country=&Chapter=90&Heading=9025&Subheading=902500&HS\\_code=902500000080](http://www.transcustoms.com/World_HS_Tariff/HS_Heading.asp?language=English&Country=&Chapter=90&Heading=9025&Subheading=902500&HS_code=902500000080).

**Note:** NESOI is used for items that are not elsewhere specified or indicated in classification systems.

**Table A2**

Value and classification of goods according to probability of miniaturization (PM).  
Division 39

Division	Product	Description	Percentage of PM	Group
39	390110	Polyethylene having a specific gravity of less than 0.94	57.9	2
39	390120	Polyethylene having a specific gravity of 0.94 or more	47.4	2
39	390130	Ethylene-vinyl acetate copolymers, in primary forms	52.6	2
39	390190	Polymers of ethylene NESOI, in primary forms	57.9	2
39	390220	Polyisobutylene, in primary forms	73.7	1
39	390230	Propylene copolymers, in primary forms	57.9	2
39	390290	Polymers of propylene or of other olefins NESOI, in primary forms	63.2	1
39	390319	Other polymers of styrene NESOI, in primary forms	68.4	1
39	390320	Styrene-acrylonitrile (SAN) copolymers, in primary forms	63.2	1
39	390330	Acrylonitrile-butadiene-styrene (abs) copolymers	57.9	2
39	390390	Polymers of styrene NESOI, in primary forms	57.9	2
39	390410	Poly(vinyl chloride), not mixed with any other substance	52.6	2
39	390421	Polymers of vinyl chloride NESOI, non-plasticised	52.6	2
39	390422	Polymers of vinyl chloride NESOI, plasticised	52.6	2
39	390430	Vinyl chloride-vinyl acetate copolymers, in primary forms	68.4	1
39	390440	Vinyl chloride copolymers NESOI, in primary forms	57.9	2
39	390450	Vinylidene chloride polymers, in primary forms	57.9	2
39	390461	Polytetrafluoroethylene, in primary forms	47.4	2
39	390469	Fluoro-polymers NESOI, in primary forms	63.2	1
39	390490	Polymers of other halogenated olefins, primary form, NESOI	63.2	1
39	390529	Vinyl acetate copolymers, NESOI	47.4	2
39	390530	Poly(vinyl alcohol), not containing unhydrolysed acetate groups	52.6	2
39	390591	Copolymers of vinyl esters, in primary forms, NESOI	57.9	2
39	390599	Vinyl polymers in primary forms, NESOI	52.6	2
39	390690	Acrylic polymers NESOI, in primary forms	63.2	1
39	390710	Polyacetals, in primary forms	73.7	1
39	390720	Polyethers NESOI, in primary forms	52.6	2
39	390730	Epoxide Resins, in primary forms	52.6	2
39	390740	Polycarbonates, in primary forms	52.6	2
39	390750	Alkyd resins, in primary forms	63.2	1
39	390760	Poly(ethylene terephthalate), in primary forms	36.8	2
39	390770	Poly(lactic acid), in primary forms	36.8	2
39	390791	Polyesters NESOI, unsaturated, in primary forms	47.4	2
39	390799	Polyesters NESOI, unsaturated, in primary forms	63.2	1
39	390810	Polyamide-6,-11,-12,-6,6,-6,9,-6,10 or -6,12	68.4	1
39	390890	Polyamides NESOI, in primary forms	42.1	2
39	390910	Urea resins, in primary forms; thiourea resins, in primary forms	68.4	1
39	390920	Melamine resins, in primary forms	57.9	2
39	390930	Amino-resins NESOI, in primary forms	31.6	3
39	390940	Phenolic resins, in primary forms	52.6	2
39	390950	Polyurethanes, in primary forms	47.4	2

Division	Product	Description	Percentage of PM	Group
39	391000	Silicones, in primary forms	57.9	2
39	391110	Petroleum resins, coumarone, etc. resins and polyterpenes	42.1	2
39	391190	Polysulphides, polysulphones and other products NESOI, in primary forms	68.4	1
39	391211	Cellulose acetates, non-plasticised, in primary forms	63.2	1
39	391212	Cellulose acetates, plasticised, in primary forms	63.2	1
39	391220	Cellulose nitrates (including collodions), in primary forms	47.4	2
39	391231	Carboxymethylcellulose and its salts, in primary forms	52.6	2
39	391239	Cellulose ethers NESOI, in primary forms	57.9	2
39	391290	Cellulose and its chemical derivatives, NESOI, in primary forms	57.9	2
39	391310	Alginic acid, its salts and esters, in primary forms	57.9	2
39	391390	Natural polymers and natural modified polymers NESOI, in primary forms	63.2	1
39	391400	Ion-exchangers based on plastics, in primary forms	57.9	2
39	391510	Waste, parings and scrap of polymers of ethylene	52.6	2
39	391520	Waste, parings and scrap of polymers of styrene	63.2	1
39	391530	Waste, parings and scrap of polymers of vinyl chloride	36.8	2
39	391590	Waste, parings and scrap of plastics, NESOI	52.6	2
39	391610	Monofilament of which any cross-sectional dimension exceeds 1 mm, rods, etc., of polymers of ethylene	57.9	2
39	391620	Monofilament of which any cross-sectional dimension exceeds 1 mm, rods, etc., of polymers of vinyl chloride	73.7	1
39	391690	Monofilament of which any cross-sectional dimension exceeds 1 mm, rods, etc., of plastics NESOI	36.8	2
39	391710	Artificial guts (sausage casings) of hardened protein or of cellulosic materials	63.2	1
39	391721	Tubes, pipes and hoses, rigid, of polymers of ethylene	42.1	2
39	391722	Tubes, pipes and hoses, rigid, of polymers of propylene	47.4	2
39	391723	Tubes, pipes and hoses, rigid, of polymers of vinyl chloride	47.4	2
39	391729	Tubes, pipes and hoses, rigid, of plastics NESOI	47.4	2
39	391731	Flexible tubes, pipes and hoses, having a minimum burst pressure of 27.6 Mpa	52.6	2
39	391732	Tubes, etc., not reinforced or otherwise combined with other materials, without fittings	52.6	2
39	391733	Tubes, pipes and hoses, not reinforced or otherwise combined with other materials, with fittings	47.4	2
39	391739	Tubes, pipes and hoses of plastics NESOI	63.2	1
39	391740	Fittings for tubes, pipes and hoses of plastics	47.4	2
39	391810	Floor, wall, etc., coverings, of polymers of vinyl chloride	78.9	1
39	391890	Floor, wall or ceiling coverings of plastics NESOI	57.9	2
39	391910	Self-adhesive plates, sheets, etc. of plastics in rolls of a width not exceeding 20 cm	57.9	2
39	391990	Self-adhesive plates, sheets, film, etc. of plastics NESOI	52.6	2
39	392010	Plates, sheets, etc., non-cellular, etc. of polymers of ethylene	52.6	2
39	392020	Plates, sheets, etc., non-cellular, etc. of polymers of propylene	47.4	2
39	392030	Plates, sheets, etc., non-cellular, etc. of polymers of styrene	57.9	2
39	392043	Plates, sheets, etc., non-cellular, etc. of polymers of vinyl chloride containing by weight not less than 6% of plasticizers	63.2	1
39	392049	Plates, sheets, etc., non-cellular, etc. of polymers of vinyl chloride, NESOI	68.4	1

Division	Product	Description	Percentage of PM	Group
39	392051	Plates, sheets, etc., non-cellular, etc. of poly (methyl methacrylate)	52.6	2
39	392059	Plates, sheets, etc., non-cellular, etc. of acrylic polymers NESOI	52.6	2
39	392061	Plates, sheets, etc., non-cellular, etc. of polycarbonates	52.6	2
39	392062	Plates, etc., non-cellular, etc. of poly (ethylene terephthalate)	47.4	2
39	392063	Plates, etc., non-cellular, etc. of unsaturated polyesters	36.8	2
39	392069	Plates, sheets, etc., non-cellular, etc. of polyesters NESOI	57.9	2
39	392071	Plates, etc., non-cellular, etc. of regenerated cellulose	57.9	2
39	392073	Plates, etc., non-cellular, etc. of cellulose acetate	57.9	2
39	392079	Plates, sheets, etc., non-cellular, etc. of cellulose derivatives NESOI	63.2	1
39	392091	Plates, etc., non-cellular, etc. of poly (vinyl butyral)	57.9	2
39	392092	Plates, sheets, etc., non-cellular, etc. of polyamides	57.9	2
39	392094	Plates, sheets, etc., non-cellular, etc. of phenolic resins	57.9	2
39	392099	Plates, sheets, etc., non-cellular, etc. of plastics NESOI	68.4	1
39	392111	Plates, sheets, etc. NESOI, cellular, of polymers of styrene	63.2	1
39	392112	Plates, sheets, etc. NESOI, cellular, of polymers of vinyl chloride	31.6	3
39	392113	Plates, sheets, etc. NESOI, cellular, of polyurethanes	52.6	2
39	392114	Plates, sheets, etc. NESOI, cellular, of regenerated cellulose	57.9	2
39	392119	Plates, sheets, etc. NESOI, cellular, of plastics NESOI	57.9	2
39	392190	Plates, sheets, films, etc., cellular, of plastics, NESOI	42.1	2
39	392210	Baths, shower-baths, sinks, washbasins, of plastics	57.9	2
39	392220	Lavatory seats and covers, of plastics	68.4	1
39	392290	Bidets, lavatory pans, similar sanitary ware, of plastics	57.9	2
39	392310	Boxes, cases, crates, and similar articles of plastics	57.9	2
39	392321	Sacks and bags (including cones) of polymers of ethylene	73.7	1
39	392329	Sacks and bags (including cones) of plastics NESOI	63.2	1
39	392330	Carboys, bottles, flasks, and similar articles, of plastics	57.9	2
39	392340	Spools, cops, bobbins, and similar supports, of plastics	57.9	2
39	392350	Stoppers, lids, caps and other closures, of plastics	52.6	2
39	392390	Articles for the conveyance or packing of goods, of plastics, NESOI	73.7	1
39	392510	Reservoirs, tanks, etc., of plastics, of a capacity exceeding 300 l	52.6	2
39	392520	Doors, windows and their frames, etc., of plastics	36.8	2
39	392530	Shutters, blinds, etc. and parts thereof, of plastics	68.4	1
39	392590	Builders' ware of plastics, NESOI	42.1	2
39	392610	Office or school supplies of plastics	47.4	2
39	392620	Articles of apparel and clothing accessories NESOI, of plastics	63.2	1
39	392630	Fittings for furniture, coachwork or the like, of plastics	63.2	1
39	392640	Statuettes and other ornamental articles, of plastics	68.4	1
39	392690	Articles of plastics NESOI	63.2	1

**Source:** Prepared by the authors on the basis of United States Census Bureau, U.S. Imports of Merchandise database; World Customs Organization (WCO), "English Harmonized System (HS) Code & Tariff Index" [online] [http://www.transcustoms.com/World\\_HS\\_Tariff/HS\\_Heading.asp?language=English&Country=&Chapter=90&Heading=9025&Subheading=902500&HS\\_code=902500000080](http://www.transcustoms.com/World_HS_Tariff/HS_Heading.asp?language=English&Country=&Chapter=90&Heading=9025&Subheading=902500&HS_code=902500000080).

**Note:** NESOI is used for items that are not elsewhere specified or indicated in classification systems.



**Table A3**

Value and classification of goods according to probability of miniaturization (PM).  
Division 84

Division	Product	Description	Percentage of PM	Group
84	840211	Steam generating watertube boilers with a steam production exceeding 45 t per hour	26.3	3
84	840212	Watertube boilers with a steam production not exceeding 45 t per hour	42.1	2
84	840219	Vapour generating boilers NESOI, including hybrid boilers	47.4	2
84	840220	Super-heated water boilers	52.6	2
84	840290	Superheated water boilers and vapour generating boilers	42.1	2
84	840310	Central heating boilers	68.4	1
84	840390	Parts for central heating boilers	63.2	1
84	840410	Auxiliary plant for use with steam or other vapour generating boilers, water boilers and central heating boilers	63.2	1
84	840420	Condensers for steam or other vapour power units	52.6	2
84	840510	Producer gas or water gas generators, acetylene gas generators and similar water process gas generators	52.6	2
84	840590	Parts for producer gas or water gas generators, acetylene gas generators and similar water process gas generators	63.2	1
84	840681	Steam turbines and other vapour turbines of an output exceeding 40 MW NESOI	31.6	3
84	840682	Steam turbines and other vapour turbines of an output not exceeding 40 MW NESOI	47.4	2
84	840690	Parts for steam turbines and other vapour turbines	47.4	2
84	840710	Aircraft engines (spark-ignition reciprocating or rotary internal combustion piston)	63.2	1
84	840721	Marine propulsion outboard motors	63.2	1
84	840729	Marine propulsion inboard engines	57.9	2
84	840731	Spark-ignition reciprocating or rotary internal combustion piston engines of a cylinder capacity not exceeding 50 cc	52.6	2
84	840732	Spark-ignition reciprocating or rotary internal combustion piston engines of a cylinder capacity exceeding 50 cc but not exceeding 250 cc	63.2	1
84	840733	Spark-ignition reciprocating or rotary internal combustion piston engines of a cylinder capacity exceeding 250 cc but not exceeding 1,000 cc	63.2	1
84	840734	Spark-ignition reciprocating or rotary internal combustion piston engines of a cylinder capacity exceeding 1,000 cc	57.9	2
84	840790	Spark-ignition reciprocating or rotary internal combustion piston engines NESOI	47.4	2
84	840810	Marine propulsion compression-ignition internal combustion piston engines	63.2	1
84	840820	Compression-ignition internal combustion piston engines	52.6	2
84	840890	Compression-ignition internal combustion piston engines NESOI	78.9	1
84	840910	Parts for aircraft engines (spark-ignition, etc. or compression-ignition, etc.)	52.6	2
84	840991	Parts for aircraft engines (spark-ignition internal combustion piston) NESOI	47.4	2
84	840999	Parts for spark-ignition internal combustion piston engines, other	57.9	2
84	841011	Hydraulic turbines, waterwheels of a power not exceeding 1,000 kW	31.6	3
84	841012	Hydraulic turbines, waterwheels of a power exceeding 1,000 kW but not exceeding 10,000 kW	36.8	2

Division	Product	Description	Percentage of PM	Group
84	841090	Parts, including regulators, for hydraulic turbines and waterwheels	68.4	1
84	841111	Turbojets of a thrust not exceeding 25 kN	31.6	3
84	841112	Turbojets of a thrust exceeding 25 kN	47.4	2
84	841121	Turbopropellers of a power not exceeding 1,100 kW	47.4	2
84	841181	Gas turbines of a power not exceeding 5,000 kW	57.9	2
84	841182	Gas turbines of a power exceeding 5,000 kW	47.4	2
84	841191	Parts of turbo-jets and turbo-propellers	52.6	2
84	841199	Parts of gas turbines NESOI	42.1	2
84	841210	Reaction engines other than turbo-jets	36.8	2
84	841221	Hydraulic power engines and motors, linear acting	52.6	2
84	841229	Hydraulic power engines and motors other than linear acting	63.2	1
84	841231	Pneumatic power engines and motors, linear acting	47.4	2
84	841239	Pneumatic power engines and motors, other than linear acting	47.4	2
84	841280	Engines and motors NESOI	52.6	2
84	841290	Parts of engines and motors, NESOI	47.4	2
84	841311	Pumps for dispensing fuel or lubricants, of the type used in filling-stations or in garages	63.2	1
84	841319	Pumps fitted with a measuring device, NESOI	47.4	2
84	841320	Hand pumps not fitted with a measuring device	52.6	2
84	841330	Fuel, lubricating or cooling medium pumps for internal combustion piston engines	57.9	2
84	841340	Concrete pumps	68.4	1
84	841350	Reciprocating positive displacement pumps, NESOI	63.2	1
84	841360	Rotary positive displacement pumps, NESOI	63.2	1
84	841370	Centrifugal pumps, NESOI	52.6	2
84	841381	Pumps for liquids, NESOI	57.9	2
84	841382	Liquid elevators	63.2	1
84	841391	Parts of pumps for liquids	84.2	1
84	841392	Parts of liquid elevators	52.6	2
84	841410	Vacuum pumps	52.6	2
84	841420	Hand or foot-operated air pumps	73.7	1
84	841430	Compressors of a kind used in refrigerating equipment	57.9	2
84	841440	Air compressors mounted on a wheeled chassis for towing	68.4	1
84	841451	Table, floor, etc. fans with an electric motor of an output not exceeding 125 W	84.2	1
84	841459	Fans, NESOI	68.4	1
84	841460	Hoods having a maximum horizontal side not exceeding 120 cm	57.9	2
84	841480	Air or vacuum pumps, air or other gas compressors and fans, etc. NESOI	68.4	1
84	841490	Parts of air or vacuum pumps, air or other gas compressors and fans, etc. NESOI	42.1	2
84	841510	Air conditioning machines, window/wall type, self-contained	63.2	1
84	841520	Air conditioners used in motor vehicles	52.6	2
84	841581	Air conditioning machines, etc., incorporating a refrigerating unit, etc.	36.8	2
84	841582	Air conditioning machines, etc., incorporating a refrigerating unit, NESOI	63.2	1

Division	Product	Description	Percentage of PM	Group
84	841583	Air conditioning machines, etc., not incorporating a refrigerating unit	52.6	2
84	841590	Parts of air conditioning machines NESOI	47.4	2
84	841610	Furnace burners for liquid fuel	36.8	2
84	841620	Furnace burners for pulverised solid fuel or for gas, etc.	57.9	2
84	841630	Mechanical stokers, including their mechanical grates, mechanical ash dischargers and similar appliances	52.6	2
84	841690	Parts of furnace burners	47.4	2
84	841710	Industrial or laboratory furnaces and ovens, non-electric, for the roasting, melting or other heat-treatment of ores pyrites or metals	68.4	1
84	841720	Bakery ovens, including biscuit ovens, non-electric	57.9	2
84	841780	Industrial or laboratory furnaces and ovens, including Incinerators, non-electric NESOI	57.9	2
84	841790	Parts of industrial or laboratory furnaces and ovens, including incinerators, non-electric	63.2	1
84	841810	Combined refrigerator-freezers, fitted with separate external doors	68.4	1
84	841821	Refrigerators, household-type, compression-type	63.2	1
84	841829	Refrigerators, household-type NESOI	47.4	2
84	841830	Freezers of the chest type, not exceeding 800 l capacity	57.9	2
84	841840	Freezers of the upright type, not exceeding 900 l capacity	63.2	1
84	841850	Display counters, etc., incorporating refrigerating or freezing equipment	68.4	1
84	841861	Heat pumps other than air conditioning machines, NESOI	63.2	1
84	841869	Refrigeration or freezing equipment NESOI	73.7	1
84	841891	Furniture designed to receive refrigerating or freezing equipment	52.6	2
84	841899	Parts of refrigerating or freezing equipment and heat pumps, NESOI	68.4	1
84	841911	Instantaneous gas water heaters	52.6	2
84	841919	Other instantaneous or storage water heaters, non-electric	36.8	2
84	841920	Medical, surgical or laboratory sterilisers	42.1	2
84	841931	Dryers for agricultural products	57.9	2
84	841932	Dryers for wood, pulp, paper, paper or paperboard	57.9	2
84	841939	Dryers NESOI	57.9	2
84	841940	Distilling or rectifying plant	52.6	2
84	841950	Heat exchange units, industrial type	42.1	2
84	841960	Machinery for liquefying air or other gases	52.6	2
84	841981	Machinery, etc., for making hot drinks or for cooking or eating food	63.2	1
84	841989	Machinery, etc., for the treatment of materials by a process involving a change of temperature NESOI	63.2	1
84	841990	Parts for machinery plant or laboratory equipment, etc.	52.6	2
84	842010	Calendering or other rolling machines	42.1	2
84	842091	Cylinders for rolling, other than for metals or glass	52.6	2
84	842099	Parts for rolling machines other than for metals or glass, NESOI	63.2	1
84	842111	Cream separators, centrifugal	57.9	2
84	842112	Close-dryers, centrifugal	52.6	2
84	842119	Centrifuges NESOI	52.6	2

Division	Product	Description	Percentage of PM	Group
84	842121	Machinery and apparatus for filtering or purifying water	47.4	2
84	842122	Machinery and apparatus for filtering or purifying beverages other than water	47.4	2
84	842123	Oil or petrol-filters for internal combustion engines	57.9	2
84	842129	Filtering or purifying machinery and apparatus for liquids NESOI	42.1	2
84	842131	Intake air filters for internal combustion engines	47.4	2
84	842139	Filtering or purifying machinery and apparatus for gases NESOI	52.6	2
84	842191	Parts of centrifuges, including centrifugal dryers	52.6	2
84	842199	Parts of filtering or purifying machinery and apparatus	57.9	2
84	842211	Dish washing machines of the household type	47.4	2
84	842219	Dish washing machines other than of the household type	57.9	2
84	842220	Machinery for cleaning or drying bottles or other containers	42.1	2
84	842230	Machinery for filling, closing, etc. bottles, etc.	57.9	2
84	842240	Packing or wrapping machinery NESOI	52.6	2
84	842290	Parts for dish washing machines, gaskets, etc.	52.6	2
84	842310	Personal weighing machines; household scales	31.6	3
84	842320	Scales for continuous weighing of goods on conveyors	47.4	2
84	842330	Constant weight scales and scales for discharging a predetermined weight of material into a bag or container	52.6	2
84	842381	Weighing machinery having a maximum weighing capacity not exceeding 30 kg	63.2	1
84	842382	Weighing machinery having a maximum weighing capacity exceeding 30 kg but not exceeding 5,000 kg	63.2	1
84	842389	Weighing machinery having a weighing capacity exceeding 5,000 kg, NESOI	52.6	2
84	842390	Weighing machine weights; parts of weighing machinery	52.6	2
84	842410	Fire extinguishers, whether or not charged	52.6	2
84	842420	Spray guns and similar appliances	47.4	2
84	842430	Steam or sand blasting machines and similar jets projecting machines	36.8	2
84	842481	Mechanical appliances for spraying, agricultural or horticultural	42.1	2
84	842489	Mechanical appliances for projecting liquids NESOI	73.7	1
84	842490	Parts for mechanical appliances for projecting liquids, etc.	57.9	2
84	842511	Pulley tackle and hoists other than skip hoists or hoists of a kind use for raising vehicles, powered by electric motor	68.4	1
84	842519	Pulley tackle and hoists other than skip hoists or hoists of a kind use for raising vehicles, other than powered by electric motor	57.9	2
84	842531	Winches and capstans powered by electric motor	63.2	1
84	842539	Winches and capstans other than powered by electric motor	52.6	2
84	842541	Built-in jacking systems of a type used in garages	57.9	2
84	842542	Jacks and hoists, hydraulic, other than built-in jacking systems	73.7	1
84	842549	Jacks, NESOI; hoists for raising vehicles, NESOI	63.2	1
84	842612	Mobile lifting frames on tyres and straddle carriers	47.4	2
84	842619	Overhead traveling cranes, transporter cranes, gantry cranes, bridge cranes, mobile lifting frames and straddle carriers NESOI	52.6	2
84	842620	Tower cranes	47.4	2

Division	Product	Description	Percentage of PM	Group
84	842630	Portal or pedestal jib cranes	42.1	2
84	842641	Ship's derricks, etc., self-propelled on tyres, NESOI	42.1	2
84	842649	Ship's derricks, etc., self-propelled other than on tyres, NESOI	52.6	2
84	842691	Lifting or handling machinery designed for mounting on road vehicles	52.6	2
84	842699	Lifting or handling machinery NESOI	73.7	1
84	842810	Elevators and conveyors for goods or materials, other than continuous-action; skip hoists	52.6	2
84	842820	Pneumatic elevators and conveyors	47.4	2
84	842831	Continuous-action elevators and conveyors, for goods or materials, specially designed for underground use	57.9	2
84	842832	Continuous-action elevators and conveyors, for goods or materials, bucket type	52.6	2
84	842833	Continuous-action elevators and conveyors, for goods or materials, belt type	57.9	2
84	842839	Continuous-action elevators and conveyors, for goods or materials, NESOI	57.9	2
84	842840	Escalators and moving walkways	47.4	2
84	842860	Teleferics, chair-lifts, ski drag lines; traction mechanisms for funiculars	63.2	1
84	842890	Lifting, handling, loading and unloading machinery NESOI	52.6	2
84	842911	Self-propelled bulldozers, angledozers, track laying	47.4	2
84	842919	Self-propelled bulldozers and angledozers NESOI	73.7	1
84	842920	Self-propelled graders and levellers	63.2	1
84	842930	Self-propelled scrapers	26.3	3
84	842940	Self-propelled tamping machines and road rollers	63.2	1
84	842951	Self-propelled mechanical front-end shovel loaders	68.4	1
84	842952	Excavators with a 360° revolving superstructure	68.4	1
84	842959	Mechanical shovels, excavators and shovel loaders NESOI	68.4	1
84	843010	Pile-drivers and pile-extractors	57.9	2
84	843020	Snow-ploughs and snow-blowers	52.6	2
84	843031	Coal or rock cutters and tunneling machinery, self-propelled	47.4	2
84	843039	Coal or rock cutters and tunneling machinery NESOI	52.6	2
84	843041	Boring or sinking machinery, NESOI, self-propelled	57.9	2
84	843049	Boring or sinking machinery, NESOI, not self-propelled	47.4	2
84	843050	Moving, grading, etc. machinery, etc., NESOI, self-propelled	52.6	2
84	843061	Tamping all compacting machinery, not self-propelled	57.9	2
84	843069	Moving, grading, etc. machinery, etc., NESOI, not self-propelled	47.4	2
84	843110	Parts for pulley tackle and hoists other than skip hoists; winches, etc.	63.2	1
84	843120	Parts for fork-lift trucks; other work trucks fitted with lifting or handling equipment	47.4	2
84	843131	Parts of lifts, skip hoists or escalators	47.4	2
84	843139	Parts for lifting, handling, loading or unloading machinery NESOI	31.6	3
84	843141	Buckets, shovels, grabs and grips for derricks, etc.	47.4	2
84	843142	Bulldozer or angledozer blades	57.9	2
84	843143	Parts for boring or sinking machinery, NESOI	63.2	1
84	843149	Parts and accessories for cranes, etc. NESOI	47.4	2

Division	Product	Description	Percentage of PM	Group
84	843210	Ploughs for soil preparation or cultivation	68.4	1
84	843221	Disc harrows	57.9	2
84	843229	Harrows, other than disc harrows; scarifiers, cultivators, weeders and hoes, etc.	42.1	2
84	843230	Seeders, planters and transplanters	36.8	2
84	843239	Seeders, planters and transplanters NESOI	10.5	3
84	843240	Manure spreaders and fertiliser distributors	42.1	2
84	843280	Agricultural, horticultural or forestry machinery for soil preparation or cultivation	63.2	1
84	843290	Parts for agricultural, horticultural or forestry machinery; for rollers for lawns or sports-grounds	84.2	1
84	843319	Mowers for lawns other than powered with the cutting device rotating in a horizontal plane	57.9	2
84	843320	Other mowers, including cutter bars for tractor mounting	52.6	2
84	843330	Hay making machinery other than mowers	68.4	1
84	843340	Straw or fodder balers, including pick-up balers	57.9	2
84	843351	Combine harvester-threshers	52.6	2
84	843352	Threshing machinery, other than combine harvester-threshers	52.6	2
84	843353	Root or tuber harvesting machines	42.1	2
84	843359	Harvesting machinery NESOI	84.2	1
84	843360	Machines for cleaning, sorting or grading eggs, fruit or other agricultural produce	57.9	2
84	843390	Parts for harvesting or threshing machinery; grass or hay mowers; machines for sorting or grading eggs, etc.	57.9	2
84	843410	Milking machines	42.1	2
84	843420	Dairy machinery	52.6	2
84	843490	Parts of milking machines and dairy machinery	57.9	2
84	843510	Presses, crushers and similar machinery used in the manufacture of fruit juices	42.1	2
84	843590	Parts of presses, crushers and similar machinery used in the manufacture of fruit juices	52.6	2
84	843629	Poultry-keeping machinery (other than incubators and brooders)	63.2	1
84	843680	Agricultural, horticultural, forestry, beekeeping machinery NESOI	42.1	2
84	843691	Parts of poultry-keeping machinery or poultry incubators and brooders	57.9	2
84	843699	Parts of agricultural, horticultural, forestry, beekeeping machinery NESOI	57.9	2
84	843710	Machines for cleaning, sorting or grading seed, grain or dried leguminous vegetables	52.6	2
84	843780	Machinery used in the milling industry or for the working of cereals or dried leguminous vegetables, other than farm-type machinery	36.8	2
84	843790	Parts of machines for cleaning, sorting; of machinery used for milling or working cereals, other than farm-type machinery	68.4	1
84	843810	Bakery machinery and machinery for the manufacture of macaroni, spaghetti, etc.	57.9	2
84	843820	Machinery for the manufacture of confectionery, cocoa or chocolate	52.6	2
84	843830	Machinery for sugar manufacture	57.9	2
84	843840	Brewery machinery	52.6	2

Division	Product	Description	Percentage of PM	Group
84	843850	Machinery for the preparation of meat or poultry	63.2	1
84	843860	Machinery for the preparation of fruits, nuts or vegetables	52.6	2
84	843880	Machinery for the industrial manufacture of food or drink, other than machinery for the extraction or preparation of animal or fixed vegetable fats or oils	52.6	2
84	843890	Parts of machinery NESOI in Ch 84, for the industrial preparation of food or drink	57.9	2
84	843910	Machinery for making pulp of fibrous cellulosic material	47.4	2
84	843920	Machinery for making paper or paperboard	36.8	2
84	843930	Machinery for finishing paper or paperboard	63.2	1
84	843991	Parts for machinery for making pulp of fibrous cellulosic material	52.6	2
84	843999	Parts for machinery for making or finishing paper or paperboard	52.6	2
84	844010	Bookbinding machinery, including book-sewing machines	42.1	2
84	844090	Parts for book-binding machinery, including book-sewing machines	57.9	2
84	844110	Cutting machines for paper	47.4	2
84	844120	Machines for making paper bags, sacks or envelopes	47.4	2
84	844130	Machines for making cartons, boxes, cases, tubes, drums or similar containers other than by moulding	57.9	2
84	844140	Machines for moulding articles in paper pulp, paper or paperboard	57.9	2
84	844180	Machines for making up paper pulp, paper or paperboard	47.4	2
84	844190	Parts of machines for making up paper pulp, paper or paperboard, including cutting machines	52.6	2
84	844230	Machinery and equipment NESOI for preparing or making blocks, plates, for printing	57.9	2
84	844240	Parts for machinery and equipment for making printing blocks, etc.	57.9	2
84	844250	Plates, cylinders, etc. for printing purposes	52.6	2
84	844311	Offset printing machinery, reel-fed	47.4	2
84	844312	Offset printing machinery, sheet-fed, office type	42.1	2
84	844313	Offset printing machinery NESOI	47.4	2
84	844314	Letterpress printing machinery, reel-fed, excluding flexographic printing	31.6	3
84	844315	Letterpress printing machinery, other than reel-fed, excluding flexographic printing	42.1	2
84	844316	Flexographic printing machinery	31.6	3
84	844317	Gravure printing machinery	36.8	2
84	844319	Offset printing machinery NESOI	52.6	2
84	844331	Machines which perform two or more of the functions of printing, copying or facsimile transmission, etc.	42.1	2
84	844332	Other printers, copying machines and facsimile machines, whether or not combined, capable of connecting to an automatic data processing machine or to a network	47.4	2
84	844339	Other printers, copying machines and facsimile machines, not combined, NESOI	31.6	3
84	844391	Parts and accessories of printing machinery use for printing by means of plates, cylinders, etc.	47.4	2
84	844399	Parts and accessories of printers, copying machines and facsimile machines, NESOI	52.6	2
84	844511	Carding machines for preparing textile fibres	36.8	2



Division	Product	Description	Percentage of PM	Group
84	844513	Drawing or roving machines for preparing textile fibres	47.4	2
84	844519	Machines for preparing textile fibres, NESOI	63.2	1
84	844520	Textile spinning machines	63.2	1
84	844530	Textile doubling or twisting machines	42.1	2
84	844540	Textile winding (including weft winding) or reeling machines	42.1	2
84	844590	Machines for preparing textile yarns for use on the machines of heading 84.46 or 84.47	68.4	1
84	844610	Looms for weaving fabrics of a width not exceeding 30 cm	52.6	2
84	844621	Power looms for weaving fabrics of a width exceeding 30 cm, shuttle type	31.6	3
84	844629	Looms for weaving fabrics of a width exceeding 30 cm, shuttle type, NESOI	42.1	2
84	844630	Looms for weaving fabrics of a width exceeding 30 cm, shuttleless type	47.4	2
84	844711	Circular knitting machines with cylinder diameter not exceeding 165 mm	47.4	2
84	844712	Circular knitting machines with cylinder diameter exceeding 165 mm	47.4	2
84	844720	Flat knitting machines; stitch-bonding machines	52.6	2
84	844790	Knitting machines, stitch-bonding machines and machines for making lace, net, etc.	52.6	2
84	844811	Dobbies and Jacquards; card reducing, copying, punching or assembling machines for use therewith	36.8	2
84	844819	Auxiliary machines for use with machines of headings 84.44–84.47	52.6	2
84	844820	Parts and accessories of machines for extruding, drawing texturing or cutting man-made textile materials	52.6	2
84	844831	Card clothing	52.6	2
84	844832	Parts of machines for preparing textile fibres, other than card clothing	63.2	1
84	844833	Spindles, spindle flyers, spinning rings and ring travellers	47.4	2
84	844839	Parts and accessories of spinning, textile reeling or winding machines, etc. NESOI	57.9	2
84	844842	Reeds for looms, heald and heald-frames	31.6	3
84	844849	Parts and accessories of weaving machines or of their auxiliary machinery, NESOI	52.6	2
84	844851	Sinkers, needles and other articles used in forming stitches	57.9	2
84	844859	Parts and accessories NESOI of knitting machines, stitch-bonding machines, etc.	42.1	2
84	844900	Machinery for the manufacture or finishing of felt or nonwovens; blocks for making hats; parts thereof	47.4	2
84	845011	Fully-automatic washing machines of a dry linen capacity not exceeding 10 kg	63.2	1
84	845012	Washing machines with built-in centrifugal dryer, of a dry linen capacity not exceeding 10 kg	52.6	2
84	845019	Household washing machines with a dry linen capacity not exceeding 10 kg, NESOI	47.4	2
84	845020	Washing Machines of a dry linen capacity exceeding 10 kg	52.6	2
84	845090	Parts of household or laundry-type washing machines, including machines which both wash and dry	52.6	2
84	845110	Dry-cleaning machines for yarns, fabrics or made up textile articles	63.2	1
84	845121	Drying machines of a dry linen capacity not exceeding 10 kg	42.1	2
84	845129	Drying machines of a dry linen capacity exceeding 10 kg	57.9	2

Division	Product	Description	Percentage of PM	Group
84	845130	Ironing machines and presses (including fusing presses)	42.1	2
84	845140	Washing, bleaching or dyeing machines	57.9	2
84	845150	Machines for reeling, unreeling, folding, cutting or pinking textile fabrics	47.4	2
84	845180	Machinery for finishing, etc. textiles and gluing fabrics	52.6	2
84	845190	Parts of machinery for washing, cleaning, coating or impregnating textiles, etc.	47.4	2
84	845210	Sewing machines of the household type	47.4	2
84	845221	Sewing machines other than of the household type, automatic units	52.6	2
84	845229	Sewing machines, other than of the household and automatic units	63.2	1
84	845230	Sewing machine needles	42.1	2
84	845290	Parts of sewing machines NESOI	31.6	3
84	845310	Machinery for preparing, tanning or working hides, skins or leather	57.9	2
84	845320	Machinery for making or repairing footwear	57.9	2
84	845380	Machinery for making or repairing footwear or other articles of hides, skins or leather NESOI	47.4	2
84	845390	Parts of machinery for making or repairing footwear or other articles of hides, skins or leather	52.6	2
84	845410	Converters used in metallurgy or in metal foundries	36.8	2
84	845420	Ingot moulds and ladles used in metal foundries	63.2	1
84	845430	Casting machines used in metallurgy or metal foundries	52.6	2
84	845490	Parts for converters, ladles, etc. used in metallurgy or metal foundries	52.6	2
84	845510	Tube mills for metal rolling	52.6	2
84	845521	Hot or combination hot and cold rolling mills, other than tube mills	52.6	2
84	845522	Cold-rolling mills, other than tube mills	42.1	2
84	845530	Rolls for metal-rolling mills	57.9	2
84	845590	Parts for metal-rolling mills, other than rolls therefor	42.1	2
84	845610	Machine-tools operated by laser or other light or photon beam processes	42.1	2
84	845620	Machine-tools operated by ultrasonic processes	42.1	2
84	845630	Machine-tools operated by electro-discharge processes	52.6	2
84	845690	Machine tools for working any material by removal of material, NESOI	42.1	2
84	845710	Machining centres for working metal	52.6	2
84	845720	Unit construction machines for working metal	52.6	2
84	845730	Multi-station transfer machines for working metal	52.6	2
84	845811	Horizontal lathes for removing metal, numerically controlled	31.6	3
84	845819	Horizontal lathes for removing metal, other than numerically controlled	52.6	2
84	845891	Lathes for removing metal, other than horizontal, numerically controlled	52.6	2
84	845899	Lathes for removing metal, other than horizontal, other than numerically controlled	47.4	2
84	845910	Way-type unit head machines for removing metal	47.4	2
84	845921	Drilling machines for removing metal, numerically controlled	47.4	2
84	845929	Drilling machines for removing metal, other than numerically controlled	63.2	1

Division	Product	Description	Percentage of PM	Group
84	845931	Boring-milling machines for removing metal, numerically controlled	52.6	2
84	845939	Boring-milling machines for removing metal, other than numerically controlled	26.3	3
84	845940	Boring machines for removing metal, NESOI	36.8	2
84	845951	Milling machines, knee-type, numerically controlled	42.1	2
84	845959	Milling machines for removing metal, knee-type, other than numerically controlled	52.6	2
84	845961	Milling machines for removing metal, other than knee-type, numerically controlled	52.6	2
84	845969	Milling machines for removing metal, other than knee-type, other than numerically controlled	63.2	1
84	845970	Threading or tapping machines for removing metal	52.6	2
84	846011	Flat-surface grinding machines, in which the positioning in any one axis can be set up to an accuracy of at least 0.01 mm, numerically controlled	47.4	2
84	846019	Flat-surface grinding machines, in which the positioning in any one axis can be set up to an accuracy of at least 0.01 mm, other than numerically controlled	52.6	2
84	846021	Grinding machines, other than flat-surface, in which the positioning in any one axis can be set up to an accuracy of at least 0.01 mm, numerically controlled	42.1	2
84	846029	Grinding machines, other than flat-surface, in which the positioning in any one axis can be set up to an accuracy of at least 0.01 mm, other than numerically controlled	63.2	1
84	846031	Sharpening (tool or cutter grinding) machines, numerically controlled	52.6	2
84	846039	Sharpening (tool or cutter grinding) machines, other than numerically controlled	57.9	2
84	846040	Honing or lapping machines for removing metal	52.6	2
84	846090	Machine-tools for deburring, polishing, etc. metal	57.9	2
84	846120	Shaping or slotting machines	57.9	2
84	846130	Broaching machines	52.6	2
84	846140	Gear cutting, gear grinding or gear finishing machines	57.9	2
84	846150	Sawing or cutting-off machines	63.2	1
84	846190	Machine-tools working by removing metal, etc., NESOI	63.2	1
84	846210	Forging or die-stamping machines (including presses) and hammers	47.4	2
84	846221	Bending, folding, etc. machines, numerically controlled	52.6	2
84	846229	Bending, folding, straightening or flattening machines NESOI	63.2	1
84	846231	Shearing machines, other than combined punching and shearing machines, numerically controlled	52.6	2
84	846239	Shearing machines, other than combined punching and shearing machines, NESOI	68.4	1
84	846241	Punching or notching machines, numerically controlled	52.6	2
84	846249	Punching or notching machines NESOI	52.6	2
84	846291	Hydraulic presses	57.9	2
84	846299	Machine-tools for working metal by forging, etc., NESOI	63.2	1
84	846310	Draw-benches for bars, tubes, profiles, wire or the like	57.9	2
84	846320	Thread rolling machines	68.4	1
84	846330	Machines for working wire	52.6	2
84	846390	Other machine-tools for working metal or cermets, without removing material, NESOI	52.6	2

Division	Product	Description	Percentage of PM	Group
84	846410	Sawing machines for working stone, etc.	52.6	2
84	846420	Grinding or polishing machines for working stone, etc.	63.2	1
84	846490	Machine-tools for working stone, etc., NESOI	42.1	2
84	846510	Machine-tools for working wood, cork, etc., which can carry out different types of machining operations without tool change between such operations	63.2	1
84	846591	Sawing machines for working wood, cork, etc.	73.7	1
84	846592	Planing, milling or moulding (by cutting) machines	63.2	1
84	846593	Grinding, sanding or polishing machines	57.9	2
84	846594	Bending or assembling machines	47.4	2
84	846595	Drilling or morticing machines	63.2	1
84	846596	Splitting, slicing or paring machines	42.1	2
84	846599	Machine-tools for working wood, cork, etc., NESOI	63.2	1
84	846610	Tool holders and self-opening dieheads	57.9	2
84	846620	Work holders	63.2	1
84	846630	Dividing heads and other special attachments for machine-tools	52.6	2
84	846691	Parts and accessories for machines of heading 84.64	52.6	2
84	846692	Parts and accessories for machines of heading 84.65	63.2	1
84	846693	Parts and accessories for machines of headings 84.56 to 84.61	42.1	2
84	846694	Parts and accessories for machines of heading 84.62 or 84.63	63.2	1
84	846711	Tools for working in the hand, pneumatic, rotary type (including combined rotary-percussion)	47.4	2
84	846719	Tools for working in the hand, pneumatic, other than rotary type (including combined rotary-percussion)	52.6	2
84	846721	Drills of all kinds	63.2	1
84	846722	Saws	73.7	1
84	846729	Tools for working in the hand other than with self-contained electric motor	78.9	1
84	846781	Chain saws	42.1	2
84	846789	Tools for working in the hand, pneumatic, hydraulic or with self-contained electric or non-electric motor, NESOI	47.4	2
84	846791	Parts for chain saws	52.6	2
84	846792	Parts for pneumatic tools	57.9	2
84	846799	Parts of tools for working in the hand, pneumatic, hydraulic, etc., NESOI	68.4	1
84	846810	Hand-held blow pipes	52.6	2
84	846820	Other gas-operated machinery and apparatus for soldering, brazing, etc. NESOI	52.6	2
84	846880	Other machinery and apparatus for soldering, brazing, etc.	63.2	1
84	846890	Parts of machinery and apparatus for soldering, brazing, etc.	57.9	2
84	846900	Typewriters other than printers of heading 84.43; word-processing machines	31.6	3
84	847010	Electronic calculators capable of operation without an external source of electric power and pocket-size data recording, reproducing and displaying machines with calculating functions	52.6	2
84	847021	Other electronic calculating machines, incorporating a printing device	73.7	1
84	847029	Other electronic calculating machines, other than those incorporating a printing device	63.2	1
84	847030	Other calculating machines	63.2	1

Division	Product	Description	Percentage of PM	Group
84	847050	Cash registers	42.1	2
84	847090	Electronic calculators capable of operation without an external source of electric power, etc., NESOI	57.9	2
84	847130	Portable automatic data processing machines, weighing not more than 10 kg, consisting of a least a central processing unit, a keyboard and a display	63.2	1
84	847141	Other automatic data processing machines comprising in the same housing at least a central processing unit and an input and output unit, whether or not combined	57.9	2
84	847149	Other automatic data processing machines, other than comprising in the same housing at least a central processing unit, etc., presented in the form of systems	57.9	2
84	847150	Processing units other than those of sub-heading 8471.41 or 8471.49, whether or not containing in the same housing one or two of the following types of unit: storage units, input units, output units	73.7	1
84	847160	Input or output units, whether or not containing storage units in the same housing	63.2	1
84	847170	Storage units	63.2	1
84	847180	Other units of automatic data processing machines	57.9	2
84	847190	Other automatic data processing machines and units thereof; magnetic or optical readers, machines for transcribing data, etc.	52.6	2
84	847210	Duplicating machines	31.6	3
84	847230	Machines for sorting or folding mail or for inserting mail in envelopes or bands, machines for opening, closing or sealing mail and machines for affixing or cancelling postage stamps	68.4	1
84	847290	Other office machines (for example, automatic banknote dispensers, etc.), NESOI	63.2	1
84	847321	Parts and accessories of electronic calculating machines	42.1	2
84	847329	Parts and accessories of machines, NESOI, incorporating a calculating device	52.6	2
84	847330	Parts and accessories of automatic data processing machines and units thereof	57.9	2
84	847340	Parts and accessories of office machines NESOI	47.4	2
84	847350	Parts and accessories equally suitable for use with machines of two or more of the headings 84.69 to 84.72	68.4	1
84	847410	Sorting, screening, separating or washing machines	57.9	2
84	847420	Crushing or grinding machines	63.2	1
84	847431	Concrete or mortar mixers	52.6	2
84	847432	Machines for mixing mineral substances with bitumen	42.1	2
84	847439	Machines for mixing or kneading mineral substances, NESOI	52.6	2
84	847480	Machines for agglomerating solid mineral fuels and for forming foundry molds of sand	57.9	2
84	847490	Parts of machines for sorting, etc. earth, stone, ores, etc.	63.2	1
84	847510	Machines for assembling electric or electronic lamps, tubes or valves or flashbulbs, in glass envelopes	52.6	2
84	847521	Machines for making optical fibres and preforms thereof	36.8	2
84	847529	Machines for manufacturing or hot working glass or glassware, NESOI	47.4	2
84	847590	Parts of machines for assembling electric or electronic lamps, etc. or for manufacturing or hot working glass or glassware	47.4	2
84	847621	Automatic beverage-vending machines incorporating heating or refrigerating devices	63.2	1
84	847629	Automatic beverage-vending machines other than those incorporating heating or refrigerating devices	57.9	2

Division	Product	Description	Percentage of PM	Group
84	847681	Automatic goods-vending machines incorporating heating or refrigerating devices	42.1	2
84	847689	Automatic vending machines for automobile articles, not incorporating heating or refrigerating devices	63.2	1
84	847690	Parts of automatic goods-vending machines	36.8	2
84	847710	Injection moulding machines for working rubber or plastics	47.4	2
84	847720	Extruders for working rubber or plastics	42.1	2
84	847730	Blow moulding machines for working rubber or plastics	47.4	2
84	847740	Vacuum moulding machines and other thermoforming machines for working rubber or plastics	52.6	2
84	847751	Machinery for moulding or retreading pneumatic tyres or for moulding or otherwise forming inner tubes	63.2	1
84	847759	Machinery for moulding or forming rubber or plastics, NESOI	47.4	2
84	847780	Machinery for working rubber or plastics, NESOI	68.4	1
84	847790	Parts of machinery for working rubber or plastics or for the manufacture of products from these materials	47.4	2
84	847810	Machinery for preparing or making up tobacco NESOI	47.4	2
84	847890	Parts of machinery for preparing or making up tobacco NESOI	47.4	2
84	847910	Machinery for public works, buildings or the like	52.6	2
84	847920	Machinery for the extraction or preparation of animal or fixed vegetable fats or oils	52.6	2
84	847930	Presses for the manufacture of particle board or fibre building board of wood or other ligneous materials and other machinery for treating wood or cork	52.6	2
84	847940	Rope or cable-making machines	42.1	2
84	847950	Industrial robots, NESOI	63.2	1
84	847960	Evaporative air coolers	47.4	2
84	847979	Passenger boarding bridges, NESOI	36.8	2
84	847981	Machines for treating metal, including electric wire coil-winders	52.6	2
84	847982	Mixing, kneading, crushing, grinding, etc. machines, NESOI	63.2	1
84	847989	Machines and mechanical appliances having individual functions, NESOI	52.6	2
84	847990	Parts of machines and mechanical appliances having individual functions, NESOI	42.1	2
84	848010	Moulding boxes for metal foundry	57.9	2
84	848020	Moulding bases	36.8	2
84	848030	Moulding patterns	57.9	2
84	848041	Moulds for metal or metal carbides, injection or compression types	47.4	2
84	848049	Moulds, NESOI, for metal or metal carbides	47.4	2
84	848050	Moulds for glass	63.2	1
84	848060	Moulds for mineral materials	52.6	2
84	848079	Moulds for rubber or plastics other than injection or compression types	68.4	1
84	848110	Pressure-reducing valves	63.2	1
84	848120	Valves for oleohydraulic or pneumatic transmissions	52.6	2
84	848130	Check (nonreturn) valves	57.9	2
84	848140	Safety or relief valves	68.4	1
84	848180	Taps, cocks, etc. for pipes, vats or the like, including thermostatically controlled valves, NESOI	57.9	2

Division	Product	Description	Percentage of PM	Group
84	848190	Parts for taps, etc. for pipes, vats or the like, including pressure-reducing and thermostatically controlled valves	73.7	1
84	848210	Ball bearings	47.4	2
84	848220	Tapered roller bearings, including cone and tapered roller assemblies	47.4	2
84	848230	Spherical roller bearings	52.6	2
84	848240	Needle roller bearings	36.8	2
84	848250	Other cylindrical roller bearings	57.9	2
84	848280	Other ball or roller bearings including combined ball/roller bearings	52.6	2
84	848291	Balls, needles and rollers	68.4	1
84	848299	Parts of ball or roller bearings, NESOI	63.2	1
84	848310	Transmission shafts (including camshafts and crankshafts) and cranks	68.4	1
84	848320	Bearing housings, incorporating ball or roller bearings	68.4	1
84	848330	Bearing housings, not incorporating ball or roller bearings; plane shaft bearings	47.4	2
84	848340	Gears and gearing; ball or roller screws; gear boxes, etc.	57.9	2
84	848350	Flywheels and pulleys, including pulley blocks	63.2	1
84	848360	Clutches and shaft couplings (including universal joints)	57.9	2
84	848390	Toothed wheels, chain sprockets and other transmission elements presented separately; parts	57.9	2
84	848410	Gaskets and similar joints of metal sheeting combined with other material or of two or more layers of metal	57.9	2
84	848420	Mechanical seals	42.1	2
84	848490	Sets or assortments of gaskets and similar joints	63.2	1
84	848610	Machines and apparatus for the manufacture of boules or wafers	52.6	2
84	848620	Machines and apparatus for the manufacture of semiconductor devices or of electronic integrated circuits	42.1	2
84	848630	Machines for the manufacture of flat panel displays	42.1	2
84	848640	Machines and apparatus specified in Note 9 (C) to this Chapter	42.1	2
84	848690	Parts and accessories for machines used to manufacture semiconductor boules or wafers, etc.	57.9	2
84	848710	Ships' or boats' propellers and blades therefor	21.1	3

**Source:** Prepared by the authors on the basis of United States Census Bureau, U.S. Imports of Merchandise database; World Customs Organization (WCO), "English Harmonized System (HS) Code & Tariff Index" [online] [http://www.transcustoms.com/World\\_HS\\_Tariff/HS\\_Heading.asp?language=English&Country=&Chapter=90&Heading=9025&Subheading=902500&HS\\_code=902500000080](http://www.transcustoms.com/World_HS_Tariff/HS_Heading.asp?language=English&Country=&Chapter=90&Heading=9025&Subheading=902500&HS_code=902500000080).

**Note:** NESOI is used for items that are not elsewhere specified or indicated in classification systems.

**Table A4**

Value and classification of goods according to probability of miniaturization (PM).

Division 85

Division	Product	Description	Percentage of PM	Group
85	850110	Electric motors of an output not exceeding 37.5 W	73.7	1
85	850120	Universal AC/DC motors of an output exceeding 37.5 W	57.9	2
85	850131	DC motors and DC generators of an output not exceeding 750 W	57.9	2
85	850132	DC motors and DC generators of an output exceeding 750 W but not exceeding 75 kW	68.4	1



Division	Product	Description	Percentage of PM	Group
85	850133	DC motors and DC generators of an output exceeding 75 kW but not exceeding 375 kW	52.6	2
85	850134	DC motors and DC generators of an output exceeding 375 kW	52.6	2
85	850140	AC motors, single-phase, NESOI	63.2	1
85	850151	AC motors, multi-phase, of an output not exceeding 750 W	63.2	1
85	850152	AC motors, multi-phase, of an output exceeding 750 W but not exceeding 75 kW	63.2	1
85	850153	AC motors, multi-phase, of an output exceeding 75 kW	68.4	1
85	850161	AC generators (alternators) of an output not exceeding 75 kVA	52.6	2
85	850162	AC generators (alternators) of an output exceeding 75 kVA but not exceeding 375 kVA	63.2	1
85	850163	AC generators (alternators) of an output exceeding 375 kVA but not exceeding 750 kVA	31.6	3
85	850164	AC generators (alternators) of an output exceeding 750 kVA	63.2	1
85	850211	Electric generating sets with diesel or semi-diesel engines, of an output not exceeding 75 kVA	57.9	2
85	850212	Electric generating sets with diesel or semi-diesel engines, of an output not exceeding 75 kVA but not exceeding 375 kVA	63.2	1
85	850213	Electric generating sets with diesel or semi-diesel engines, of an output exceeding 375 kVA	57.9	2
85	850220	Generating sets with spark-ignition internal combustion piston engines	31.6	3
85	850231	Electric generating sets, wind-powered	52.6	2
85	850239	Electric generating sets, NESOI	57.9	2
85	850240	Electric rotary converters	57.9	2
85	850300	Parts for electric motors and generators, and electric generating sets	57.9	2
85	850410	Ballasts for discharge lamps or tubes	78.9	1
85	850421	Liquid dielectric transformers having a power handling capacity not exceeding 650 kVA	68.4	1
85	850422	Liquid dielectric transformers having a power handling capacity exceeding 650 kVA but not exceeding 10,000 kVA	73.7	1
85	850423	Liquid dielectric transformers having a power handling capacity exceeding 10,000 kVA	52.6	2
85	850431	Transformers, NESOI, having a power handling capacity not exceeding 1 kVA	63.2	1
85	850432	Transformers, NESOI, having a power handling capacity exceeding 1 kVA but not exceeding 16 kVA	57.9	2
85	850433	Transformers, NESOI, having a power handling capacity exceeding 16 kVA but not exceeding 500 kVA	57.9	2
85	850434	Transformers, NESOI, having a power handling capacity exceeding 500 kVA	52.6	2
85	850440	Static converters	73.7	1
85	850450	Inductors NESOI	68.4	1
85	850490	Parts for electrical transformers, static converters and inductors	47.4	2
85	850519	Permanent magnets made from materials other than metal	68.4	1
85	850520	Electro-magnetic couplings, clutches and brakes	63.2	1
85	850590	Electro-magnets, clamps, similar holding devices and parts thereof	42.1	2
85	850610	Primary cells and primary batteries, manganese dioxide	78.9	1
85	850630	Primary cells and primary batteries, mercuric oxide	63.2	1
85	850640	Primary cells and primary batteries, silver oxide	57.9	2

Division	Product	Description	Percentage of PM	Group
85	850650	Primary cells and primary batteries, lithium	47.4	2
85	850660	Primary cells and primary batteries, air-zinc	73.7	1
85	850680	Primary cells and primary batteries, NESOI	68.4	1
85	850690	Parts of primary cells and primary batteries	57.9	2
85	850710	Electric accumulators, lead-acid, of a kind useful starting piston engines	73.7	1
85	850720	Lead-acid accumulators, NESOI	47.4	2
85	850730	Electric accumulators, nickel-cadmium	47.4	2
85	850740	Electric accumulators, nickel-iron	52.6	2
85	850750	Electric accumulators, nickel-metal hydride	21.1	3
85	850760	Electric accumulators, lithium-ion	15.8	3
85	850780	Electric accumulators, NESOI	47.4	2
85	850790	Parts of electric accumulators, including separators therefor	63.2	1
85	850811	Vacuum cleaners of a power not exceeding 1,500 W and having a dust bag or other receptacle capacity not exceeding 20 l	52.6	2
85	850819	Vacuum cleaners with self-contained electric motor, NESOI	42.1	2
85	850860	Vacuum cleaners other than with self-contained electric motor	47.4	2
85	850870	Parts of vacuum cleaners	52.6	2
85	850940	Electromechanical food grinders and mixers; fruit or vegetable juice extractors	57.9	2
85	850980	Electro-mechanical domestic appliances, with self-contained electric motor, NESOI	47.4	2
85	850990	Parts of electro-mechanical domestic appliances, with self-contained electric motor	68.4	1
85	851010	Electric shavers	57.9	2
85	851020	Electric hair clippers	73.7	1
85	851030	Hair removing appliances with self-contained electric motor	52.6	2
85	851090	Parts of electric shavers and electric hair clippers	63.2	1
85	851110	Sparking plugs for internal combustion engines	84.2	1
85	851120	Magnetos, magneto-dynamos for internal combustion engines	26.3	3
85	851130	Distributors; ignition coils	42.1	2
85	851140	Starter motors for internal combustion engines	63.2	1
85	851150	Generators for internal combustion engines, NESOI	52.6	2
85	851180	Electrical ignition or starting equipment for spark-ignition or compression-ignition internal combustion engines; generators, NESOI	63.2	1
85	851190	Parts for electrical ignition or starting equipment; generators and cutouts	63.2	1
85	851210	Lighting or visual signalling equipment of a kind use on bicycles	52.6	2
85	851220	Lighting or visual signalling equipment other than for bicycles	52.6	2
85	851230	Sound signalling equipment for motor vehicles	47.4	2
85	851240	Windscreen wipers, defrosters and demisters	52.6	2
85	851290	Parts of electrical lighting or signalling equipment, windscreen wipers, defrosters, etc.	57.9	2
85	851310	Portable electric lamps, NESOI, designed to function by battery or magneto	68.4	1
85	851390	Parts for portable electric lamps NESOI	68.4	1

Division	Product	Description	Percentage of PM	Group
85	851410	Resistance heated industrial or laboratory electric furnaces and ovens	63.2	1
85	851420	Industrial or laboratory electric furnaces and ovens functioning by induction or dielectric loss	47.4	2
85	851430	Industrial or laboratory electric furnaces and ovens, NESOI	63.2	1
85	851440	Equipment for the heat treatment of materials by induction or dielectric loss, NESOI	52.6	2
85	851490	Parts for industrial or laboratory electric furnaces and ovens or equipment for heat treatment	63.2	1
85	851511	Electric soldering irons and guns	63.2	1
85	851519	Soldering or welding machines, NESOI	57.9	2
85	851521	Electric machines and apparatus for resistance welding of metal, fully or partly automatic	47.4	2
85	851529	Electric machines and apparatus for resistance welding of metal, NESOI	52.6	2
85	851531	Machines and apparatus for arc welding of metals, fully or partly automatic	47.4	2
85	851539	Machines and apparatus for arc welding of metals, other than fully or partly automatic	52.6	2
85	851580	Electric, laser, ultrasonic, etc. soldering, etc. machines and apparatus; electric machines and apparatus for hot spraying of metals, NESOI	42.1	2
85	851590	Parts of electric, laser, ultrasonic, etc. soldering, etc. machines and apparatus; electric machines and apparatus for hot spraying of metals	57.9	2
85	851610	Electric instantaneous or storage water heaters and immersion heaters	63.2	1
85	851621	Electric storage heating radiators	73.7	1
85	851629	Electric space heating apparatus, NESOI	68.4	1
85	851631	Electric hair dryers	52.6	2
85	851632	Electro-thermic hair-dressing apparatus, NESOI	57.9	2
85	851633	Electric hand-drying apparatus	47.4	2
85	851640	Electric smoothing irons	52.6	2
85	851650	Microwave ovens	73.7	1
85	851660	Ovens, cookers, cooking plates, boiling rings, grillers and roasters, NESOI	63.2	1
85	851671	Electric coffee or tea makers	68.4	1
85	851672	Electric toasters	57.9	2
85	851679	Other electro-thermic appliances used for domestic purposes, NESOI	73.7	1
85	851680	Electric heating resistors	52.6	2
85	851690	Parts of electric heaters, electro-thermic hair-dressing apparatus, smoothing irons, heating resistors, etc.	36.8	2
85	851711	Line telephone sets with cordless handsets	42.1	2
85	851712	Telephones for cellular networks or for other wireless networks	31.6	3
85	851718	Telephone sets, NESOI	63.2	1
85	851761	Base stations	36.8	2
85	851762	Machines for the reception, conversion and transmission or regeneration of voice, images or other data	47.4	2
85	851769	Apparatus for the transmission or reception of voice, images or other data, NESOI	36.8	2
85	851770	Parts of telephones and other apparatus for transmission/reception, etc.	47.4	2

Division	Product	Description	Percentage of PM	Group
85	851810	Microphones and stands therefor	63.2	1
85	851821	Single loudspeakers, mounted in their enclosures	73.7	1
85	851822	Multiple loudspeakers, mounted in the same enclosure	68.4	1
85	851829	Loudspeakers, NESOI	78.9	1
85	851830	Headphones and earphones combined with a microphone/loudspeakers	68.4	1
85	851840	Audio-frequency electric amplifiers	73.7	1
85	851850	Electric sound amplifier sets	57.9	2
85	851890	Parts of microphones; headphones and earphones; electric sound amplifier sets, etc.	73.7	1
85	851920	Sound recording or reproducing apparatus, operated by coins, etc.	47.4	2
85	851930	Turntables (record-decks)	47.4	2
85	851950	Telephone answering machines	57.9	2
85	851981	Sound recording or reproducing apparatus using magnetic, optical or semiconductor media, NESOI	26.3	3
85	851989	Sound recording or reproducing apparatus, NESOI	31.6	3
85	852110	Video recording or reproducing apparatus, whether or not incorporating a video tuner, magnetic tape-type	47.4	2
85	852190	Video recording or reproducing apparatus, whether or not incorporating a video tuner, other than magnetic tape-type	68.4	1
85	852210	Pick-up cartridges for sound recording or reproducing apparatus	57.9	2
85	852290	Other parts and accessories for sound/video recording or reproducing apparatus	63.2	1
85	852321	Cards incorporating a magnetic stripe	52.6	2
85	852329	Magnetic media for recording sound or other phenomena, NESOI	47.4	2
85	852341	Optical media for recording sound or other phenomena, not recorded	26.3	3
85	852349	Optical media for recording sound or other phenomena, recorded	42.1	2
85	852351	Semiconductor media solid-state non-volatile storage devices	31.6	3
85	852352	"Smart cards"	52.6	2
85	852359	Semiconductor media for recording sound or other phenomena, NESOI	42.1	2
85	852380	Media for recording sound or other phenomena, NESOI	36.8	2
85	852550	Transmission apparatus for radio-broadcasting or television	57.9	2
85	852560	Transmission apparatus incorporating reception apparatus for radio-broadcasting or television	47.4	2
85	852580	Television cameras, digital cameras and video camera recorders	42.1	2
85	852691	Radio navigational aid apparatus	47.4	2
85	852692	Radio remote control apparatus	52.6	2
85	852712	Pocket-size radio cassette-players	52.6	2
85	852713	Apparatus combined with sound recording or reproducing apparatus, NESOI	47.4	2
85	852719	Radio-broadcast receivers, battery type, NESOI	36.8	2
85	852721	Radio-broadcast receivers combined with sound recording or reproducing apparatus	52.6	2
85	852729	Radio-broadcast receivers of a kind used in motor vehicles, NESOI	63.2	1

Division	Product	Description	Percentage of PM	Group
85	852791	Reception apparatus for radio-broadcasting, whether or not combined with sound recording or reproducing apparatus, NESOI	42.1	2
85	852792	Reception apparatus for radio-broadcasting combined with a clock	42.1	2
85	852799	Reception apparatus for radio-broadcasting, NESOI	47.4	2
85	852849	Cathode-ray tube monitors, not incorporating television reception apparatus	36.8	2
85	852851	Other monitors of a kind used in an automatic data processing system of heading 84.71	26.3	3
85	852852	Other monitors with the capacity for direct connection to an automatic data processing system	15.8	3
85	852859	Monitors, not incorporating television reception, NESOI	42.1	2
85	852861	Projectors of a kind used in an automatic data processing system of heading 84.71	26.3	3
85	852869	Projectors, reception apparatus for television, not incorporating radio-broadcast receivers, NESOI	36.8	2
85	852871	Reception apparatus for television not designed to incorporate a video display screen	52.6	2
85	852872	Reception apparatus for television, NESOI, colour	36.8	2
85	852873	Reception apparatus for television, NESOI, black and white or other monochrome	42.1	2
85	852910	Aerials and aerial reflectors and parts thereof	63.2	1
85	852990	Parts, other than aerials and aerial reflectors, for transmission apparatus, radar apparatus, reception apparatus for radio-broadcasting, television, etc., NESOI	42.1	2
85	853010	Electrical signalling, safety or traffic control equipment for railways or tramways	47.4	2
85	853080	Electrical signalling, safety or traffic control equipment, NESOI	52.6	2
85	853090	Parts for electrical signalling, safety or traffic control equipment	57.9	2
85	853110	Burglar or fire alarms and similar apparatus	52.6	2
85	853120	Indicator panels incorporating LCDs or LEDs	57.9	2
85	853180	Electrical sound or visual signalling apparatus, NESOI	63.2	1
85	853210	Fixed capacitors designed for use in 50/60 Hz circuits and having a reactive power handling capacity of not less than 0.5 kvar	52.6	2
85	853221	Electrical fixed capacitors, tantalum	36.8	2
85	853222	Electrical fixed capacitors, aluminium electrolytic	42.1	2
85	853223	Fixed capacitors, ceramic dielectric, single layer	57.9	2
85	853224	Fixed capacitors, ceramic dielectric, multilayer	52.6	2
85	853225	Fixed capacitors, dielectric of paper or plastics	57.9	2
85	853229	Fixed capacitors, NESOI	47.4	2
85	853230	Variable or adjustable (preset) capacitors	57.9	2
85	853290	Parts for electrical capacitors	57.9	2
85	853310	Fixed carbon resistors, composition or film types	52.6	2
85	853321	Fixed resistors, NESOI, for a power handling capacity not exceeding 20 W	42.1	2
85	853329	Fixed resistors, NESOI, for a power handling capacity of 20 W	63.2	1
85	853331	Wirewound variable resistors for a power handling capacity not exceeding 20 W	47.4	2
85	853339	Wirewound variable resistors, including rheostats, etc., NESOI	57.9	2

Division	Product	Description	Percentage of PM	Group
85	853340	Variable resistors including rheostats and potentiometers, NESOI	47.4	2
85	853390	Parts for electrical resistors (including rheostats and potentiometers)	52.6	2
85	853400	Printed circuits	52.6	2
85	853510	Fuses for electrical apparatus, for a voltage exceeding 1,000 volts	78.9	1
85	853521	Automatic circuit breakers for a voltage exceeding 1,000 V but not exceeding 72.5 kV	57.9	2
85	853529	Automatic circuit breaker for a voltage exceeding 72.5 kV	57.9	2
85	853530	Isolation switches and make-and-break switches for a voltage exceeding 1,000 V	57.9	2
85	853540	Lightning arresters, voltage limiters, surge suppressers	52.6	2
85	853590	Electrical apparatus for switching or protecting electrical circuits, etc., for a voltage exceeding 1,000 V, NESOI	68.4	1
85	853610	Fuses for a voltage not exceeding 1,000 V	52.6	2
85	853620	Automatic circuit breakers for a voltage not exceeding 1,000 V	68.4	1
85	853630	Other apparatus for protecting electrical circuits for a voltage not exceeding 1,000 V	84.2	1
85	853641	Relays for voltage not exceeding 60 V	52.6	2
85	853649	Relays for voltage exceeding 60 V but not exceeding 1,000 V	47.4	2
85	853650	Switches for a voltage not exceeding 1,000 V, NESOI	47.4	2
85	853661	Lamp-holders for a voltage not exceeding 1,000 V	57.9	2
85	853669	Plugs and sockets for a voltage not exceeding 1,000 V	63.2	1
85	853670	Connectors for optical fibres, optical fibre bundles or cables	31.6	3
85	853690	Electrical apparatus for switching or protecting electrical circuits, for a voltage not exceeding 1,000 V, NESOI	63.2	1
85	853710	Boards, panels, etc. for electric control or the distribution of electricity for a voltage not exceeding 1,000 V	47.4	2
85	853720	Boards, panels, etc. for electric control or the distribution of electricity for a voltage exceeding 1,000 V	52.6	2
85	853810	Boards, panels, consoles, etc. for the goods of heading 85.37, not equipped with their apparatus	36.8	2
85	853890	Parts for electrical apparatus for switching or protecting at school circuits; for electric control or the distribution of electricity, NESOI	63.2	1
85	853910	Sealed beam lamp units	42.1	2
85	853921	Electric filament lamps, tungsten halogen	73.7	1
85	853922	Filament lamps of a power not exceeding 200 W and for a voltage exceeding 100 V	52.6	2
85	853929	Filament lamps, other than ultra-violet or infra-red lamps, NESOI	52.6	2
85	853931	Discharge lamps, other than ultra-violet lamps, fluorescent	42.1	2
85	853932	Mercury or sodium vapour lamps; metal halide lamps	36.8	2
85	853939	Discharge lamps, other than ultra-violet lamps or fluorescent, hot cathode lamps	47.4	2
85	853941	Arc-lamps	52.6	2
85	853949	Ultra-violet or infra-red lamps	47.4	2
85	853990	Parts for electric filament or discharge lamps or arc lamps	73.7	1
85	854011	Cathode-ray television picture tubes, including video monitor cathode-ray tubes, colour	26.3	3
85	854012	Cathode-ray television picture tubes, including video monitor cathode-ray tubes, black and white or other monochrome	26.3	3

Division	Product	Description	Percentage of PM	Group
85	854020	Television camera tubes; image converters and intensifiers; other photo-cathode tubes	42.1	2
85	854040	Data/graphic display tubes, colour	73.7	1
85	854060	Cathode-ray tubes, NESOI	63.2	1
85	854071	Magnetron microwave tubes	31.6	3
85	854081	Receiver or amplifier tubes	57.9	2
85	854089	Thermionic and other cathode-ray tubes, NESOI	52.6	2
85	854091	Parts of cathode-ray tubes	47.4	2
85	854099	Parts of cathode-ray tubes, NESOI	31.6	3
85	854110	Diodes, other than photosensitive or light emitting diodes	63.2	1
85	854121	Diodes, other than photosensitive or light emitting diodes, with a dissipation rate of less than 1 W	52.6	2
85	854129	Transistors, other than photosensitive transistors, NESOI	57.9	2
85	854130	Thyristors, diacs and triacs, other than photosensitive devices	47.4	2
85	854140	Photosensitive semiconductor devices, including photovoltaic cells, etc.	26.3	3
85	854150	Semiconductor devices, other than photosensitive semiconductor devices, including photovoltaic cells	57.9	2
85	854160	Mounted piezo-electric crystals	47.4	2
85	854190	Parts for diodes, transistors and similar semiconductor devices	57.9	2
85	854231	Processors and controllers, electronic integrated circuits	36.8	2
85	854232	Memories, electronic integrated circuits	36.8	2
85	854233	Amplifiers, electronic integrated circuits	42.1	2
85	854239	Electronic integrated circuits, NESOI	36.8	2
85	854290	Parts of electronic integrated circuits	42.1	2
85	854310	Particle accelerators	31.6	3
85	854320	Signal generators	57.9	2
85	854330	Machines and apparatus for electroplating, electrolysis or electrophoresis	57.9	2
85	854370	Electrical machines and apparatus, having individual functions, NESOI	42.1	2
85	854390	Parts of electrical machines and apparatus, having individual functions, NESOI	52.6	2
85	854411	Insulated winding wire of copper	84.2	1
85	854419	Insulated winding wire, NESOI	52.6	2
85	854420	Insulated winding wire, co-axial cable and other co-axial electric conductors	63.2	1
85	854430	Ignition wiring sets and other wiring sets of a kind used in vehicles, aircraft or ships	63.2	1
85	854442	Electrical conductors, for a voltage not exceeding 1,000 V, fitted with connectors, NESOI	57.9	2
85	854449	Insulated electrical conductors, for a voltage not exceeding 80 V, NESOI	52.6	2
85	854460	Electrical conductors, for a voltage exceeding 1,000 V	42.1	2
85	854470	Optical fibre cables made up of individually sheathed fibres	52.6	2
85	854511	Carbon electrodes of a kind used for furnaces	63.2	1
85	854519	Carbon electrodes, NESOI	57.9	2
85	854520	Carbon or graphite brushes used for electrical purposes	63.2	1
85	854590	Articles of graphite or carbon used for electrical purposes, NESOI	63.2	1



Division	Product	Description	Percentage of PM	Group
85	854610	Electrical insulators of glass	52.6	2
85	854620	Electrical insulators of ceramics	57.9	2
85	854690	Electrical insulators, NESOI	47.4	2
85	854710	Insulating fittings for electrical machines, of ceramics	47.4	2
85	854720	Insulating fittings for electrical machines, of plastics	57.9	2
85	854790	Insulating fittings for electrical machines, other than of ceramics or plastics; electrical conduit tubing and joints therefor, of base metal, etc.	68.4	1
85	854810	Waste and scrap of batteries; spent batteries and spent cells	31.6	3
85	854890	Electrical parts of machinery or apparatus, NESOI in chapter XX	47.4	2

**Source:** Prepared by the authors on the basis of United States Census Bureau, U.S. Imports of Merchandise database; World Customs Organization (WCO), "English Harmonized System (HS) Code & Tariff Index" [online] [http://www.transcustoms.com/World\\_HS\\_Tariff/HS\\_Heading.asp?language=English&Country=&Chapter=90&Heading=9025&Subheading=902500&HS\\_code=902500000080](http://www.transcustoms.com/World_HS_Tariff/HS_Heading.asp?language=English&Country=&Chapter=90&Heading=9025&Subheading=902500&HS_code=902500000080).

**Note:** NESOI is used for items that are not elsewhere specified or indicated in classification systems.

**Table A5**

Value and classification of goods according to probability of miniaturization (PM).

Division 87

Division	Product	Description	Percentage of PM	Group
87	870110	Pedestrian controlled tractors	52.6	2
87	870120	Road tractors for semi-trailers	36.8	2
87	870130	Track-laying tractors	63.2	1
87	870190	Tractors, NESOI	47.4	2
87	870210	Motor vehicles for the transport of ten or more persons; with compression-ignition internal combustion piston engine (diesel or semi-diesel)	52.6	2
87	870290	Motor vehicles for the transport of ten or more persons, NESOI	47.4	2
87	870310	Passenger motor vehicles specially designed for travelling on snow; golf cars and similar vehicles	42.1	2
87	870321	Passenger motor vehicles, with spark-ignition internal combustion reciprocating piston engine, of a cylinder capacity not exceeding 1,000 cc	31.6	3
87	870322	Passenger motor vehicles, with spark-ignition internal combustion reciprocating piston engine, of a cylinder capacity exceeding 1,000 cc but not exceeding 1,500 cc	73.7	1
87	870323	Passenger motor vehicles, with spark-ignition internal combustion reciprocating piston engine, of a cylinder capacity exceeding 1,500 cc but not exceeding 3,000 cc	52.6	2
87	870324	Passenger motor vehicles, with spark-ignition internal combustion reciprocating piston engine, of a cylinder capacity exceeding 3,000 cc	47.4	2
87	870331	Passenger motor vehicles, with diesel or semi-diesel engine, of a cylinder capacity not exceeding 1,500 cc	47.4	2
87	870332	Passenger motor vehicles, with compression-ignition internal combustion piston engine, of a cylinder capacity exceeding 1,500 cc but not exceeding 2,500 cc	36.8	2
87	870333	Passenger motor vehicles, with compression-ignition internal combustion piston engine, of a cylinder capacity exceeding 2,500 cc	47.4	2
87	870390	Passenger motor vehicles, NESOI	52.6	2
87	870410	Dumpers designed for off-highway use	63.2	1
87	870421	Lorries, NESOI, with diesel engine, g.v.w. not exceeding 5 tonnes	47.4	2

Division	Product	Description	Percentage of PM	Group
87	870422	Motor vehicles for the transport of goods, with compression-ignition internal combustion piston engine, g.v.w. exceeding 5 tonnes but not exceeding 20 tonnes	68.4	1
87	870423	Lorries, with diesel engine, g.v.w. exceeding 20 tonnes	31.6	3
87	870431	Motor vehicles for the transport of goods, with spark-ignition internal combustion piston engine, g.v.w. not exceeding 5 tonnes	57.9	2
87	870432	Motor vehicles for the transport of goods, with spark-ignition internal combustion piston engine, g.v.w. exceeding 5 tonnes	26.3	3
87	870490	Lorries/motor vehicles for the transport of goods, NESOI	42.1	2
87	870510	Crane lorries	73.7	1
87	870530	Fire fighting vehicles	42.1	2
87	870540	Concrete mixer lorries, special purpose motor vehicles	26.3	3
87	870590	Special purpose motor vehicles, NESOI	63.2	1
87	870600	Chassis fitted with engines for tractors, passenger motor vehicles, motor vehicles for the transport of goods, and special purpose motor vehicles	63.2	1
87	870710	Bodies for motor cars and other motor vehicles designed for the transport of persons	57.9	2
87	870790	Bodies for tractors and motor vehicles (public transit, etc.)	68.4	1
87	870810	Bumpers and parts thereof, for motor vehicles	52.6	2
87	870821	Safety seat belts for motor vehicles	47.4	2
87	870829	Parts and accessories of motor vehicles, NESOI	47.4	2
87	870830	Brakes and servo-brakes; parts thereof	36.8	2
87	870840	Gearboxes and parts thereof, for motor vehicles	63.2	1
87	870850	Drive-axles with differential, for motor vehicles	57.9	2
87	870870	Road wheels and parts and accessories thereof, for motor vehicles	57.9	2
87	870880	Suspension systems (including shock-absorbers), for motor vehicles	47.4	2
87	870891	Radiators for motor vehicles	47.4	2
87	870892	Silencers (mufflers) and exhaust pipes, for motor vehicles	57.9	2
87	870893	Clutches and parts thereof, for motor vehicles	63.2	1
87	870894	Steering wheels, steering columns and steering boxes, for motor vehicles	57.9	2
87	870895	Safety air bags with inflator system; parts thereof	26.3	3
87	870899	Parts and accessories of motor vehicles, NESOI	31.6	3
87	870911	Electrical vehicles (used in factories, etc., works trucks and tractors)	63.2	1
87	870919	Works trucks (used in factories, etc., works trucks and tractors), other than electrical	63.2	1
87	870990	Parts for works trucks not fitted with lifting or handling equipment	47.4	2
87	871000	Tanks and other armoured fighting vehicles, motorised; and parts thereof	47.4	2
87	871110	Motorcycles (including mopeds) with reciprocating internal combustion piston engine of a cylinder capacity not exceeding 50 cc	52.6	2
87	871120	Motorcycles (including mopeds) of a cylinder capacity exceeding 50 cc but not exceeding 250 cc	47.4	2
87	871130	Motorcycles (including mopeds) of a cylinder capacity exceeding 250 cc but not exceeding 500 cc	57.9	2
87	871140	Motorcycles (including mopeds) of a cylinder capacity exceeding 500 cc but not exceeding 800 cc	57.9	2

Division	Product	Description	Percentage of PM	Group
87	871150	Motorcycles (including mopeds) of a cylinder capacity exceeding 800 cc	52.6	2
87	871190	Motorbikes (including mopeds), NESOI, with side-cars	78.9	1
87	871200	Bicycles and other cycles (including delivery tricycles) not motorised	57.9	2
87	871310	Carriages for disabled persons, not mechanically propelled	68.4	1
87	871390	Carriages for disabled persons, mechanically propelled	52.6	2
87	871410	Parts and accessories of motorcycles	10.5	3
87	871420	Parts and accessories of carriages for disabled persons	63.2	1
87	871491	Bicycle frames and forks, and parts thereof	63.2	1
87	871492	Wheel rims and spokes, for bicycles, etc.	68.4	1
87	871493	Hubs, other than coaster breaking hubs and hub brakes, and free-wheel sprocket-wheels	63.2	1
87	871494	Brakes, including coaster brake hubs and hub brakes, and parts thereof	73.7	1
87	871495	Saddles for bicycles, etc.	63.2	1
87	871496	Pedals and crank-gear, and parts thereof, for bicycles, etc.	42.1	2
87	871499	Parts and accessories of bicycles, etc., NESOI	52.6	2
87	871500	Baby carriages and parts thereof	78.9	1
87	871610	Trailers and semi-trailers for housing or camping	52.6	2
87	871620	Self-loading or self-unloading trailers and semi-trailers	31.6	3
87	871639	Trailers and semi-trailers for the transport of goods, NESOI	63.2	1
87	871640	Trailers and semi-trailers, NESOI	52.6	2
87	871680	Vehicles, not mechanically propelled, NESOI	73.7	1
87	871690	Parts of trailers and semi-trailers and of other vehicles, not mechanically propelled	63.2	1

**Source:** Prepared by the authors on the basis of United States Census Bureau, U.S. Imports of Merchandise database; World Customs Organization (WCO), "English Harmonized System (HS) Code & Tariff Index" [online] [http://www.transcustoms.com/World\\_HS\\_Tariff/HS\\_Heading.asp?language=English&Country=&Chapter=90&Heading=9025&Subheading=902500&HS\\_code=902500000080](http://www.transcustoms.com/World_HS_Tariff/HS_Heading.asp?language=English&Country=&Chapter=90&Heading=9025&Subheading=902500&HS_code=902500000080).

**Note:** NESOI is used for items that are not elsewhere specified or indicated in classification systems.

**Table A6**

Value and classification of goods according to probability of miniaturization.  
Division 90

Division	Product	Description	Percentage of PM	Group
90	900110	Optical fibres, optical fibre bundles and cables	52.6	2
90	900120	Sheets and plates of polarising material	47.4	2
90	900130	Contact lenses	21.1	3
90	900140	Spectacle lenses of glass	52.6	2
90	900150	Spectacle lenses of other materials	42.1	2
90	900190	Optical fibres, optical fibre bundles and cables, NESOI	47.4	2
90	900211	Objective lenses, for cameras, projectors or photographic enlarges or reducers	52.6	2
90	900219	Objective lenses, other than for cameras, projectors or photographic enlarges or reducers	42.1	2
90	900220	Filters	52.6	2
90	900290	Lenses, prisms, mirrors and other optical elements, etc., NESOI	52.6	2
90	900319	Frames and mountings, of other materials	63.2	1

Division	Product	Description	Percentage of PM	Group
90	900390	Parts of frames and mountings for spectacles, goggles or the like	63.2	1
90	900410	Sunglasses	68.4	1
90	900490	Spectacles, goggles and the like, NESOI	73.7	1
90	900510	Binoculars	57.9	2
90	900580	Other instruments	52.6	2
90	900590	Parts and accessories (including mountings) of binoculars, monoculars, other optical telescopes, etc.	36.8	2
90	900630	Cameras specially designed for underwater use, for aerial survey or for medical or surgical examination of internal organs; comparison cameras for forensic or criminological purposes	52.6	2
90	900640	Instant print cameras	57.9	2
90	900651	Other cameras with a through-the-lens viewfinder (single lens reflex (SLR)), for roll film of a width not exceeding 35 mm	57.9	2
90	900652	Other cameras with a through-the-lens viewfinder (single lens reflex (SLR)), for roll film of a width less than 35 mm	52.6	2
90	900653	Other cameras with a through-the-lens viewfinder (single lens reflex (SLR)), for roll film of a width of 35 mm	52.6	2
90	900659	Photographic (other than cinematographic) cameras; photographic flashlight apparatus and flashbulbs other than discharge lamps of heading 85.39, NESOI	47.4	2
90	900661	Discharge lamp ("electronic") flashlight apparatus	42.1	2
90	900669	Photographic flashlight apparatus and flashbulbs, other than discharge lamp flashlight apparatus	52.6	2
90	900691	Parts and accessories for cameras	73.7	1
90	900699	Parts and accessories for cameras, NESOI	42.1	2
90	900719	Cameras other than for film of less than 16 mm width or for double-8 mm film	26.3	3
90	900720	Projectors	47.4	2
90	900791	Parts and accessories for cameras	42.1	2
90	900792	Parts and accessories for projectors	47.4	2
90	900850	Projectors, enlargers and reducers	31.6	3
90	900890	Parts and accessories of image projectors, other than cinematographic; photographic (other than cinematographic) enlargers and reducer	36.8	2
90	901010	Apparatus and equipment for automatically developing photographic (including cinematographic) film or paper in rolls or for automatically exposing developed film to rolls of photographic paper	57.9	2
90	901050	Other apparatus and equipment for photographic (including cinematographic) laboratories; negatoscopes	47.4	2
90	901060	Projection screens	52.6	2
90	901090	Parts and accessories, of apparatus and equipment for photographic (including cinematographic) laboratories, not specified or included elsewhere in this Chapter; negatoscopes; projection screens.	42.1	2
90	901110	Stereoscopic microscopes	52.6	2
90	901120	Other microscopes, for photomicrography, cinephotomicrography or microprojection	52.6	2
90	901180	Other microscopes	42.1	2
90	901190	Parts and accessories, of compound optical microscopes, including those for photomicrography, cinephotomicrography or microprojection	47.4	2
90	901210	Microscopes other than optical microscopes; diffraction apparatus	36.8	2

Division	Product	Description	Percentage of PM	Group
90	901290	Parts and accessories, of microscopes other than optical microscopes; diffraction apparatus	52.6	2
90	901310	Telescopic sights for fitting to arms; periscopes; telescopes designed to form parts of machines, appliances, instruments or apparatus of this Chapter or Section XVI	63.2	1
90	901320	Lasers, other than laser diodes	52.6	2
90	901380	Other devices, appliances and instruments	47.4	2
90	901390	Parts and accessories, of liquid crystal devices not constituting articles provided for more specifically in other headings; lasers, other than laser diodes; other optical appliances and instruments, NESOI	52.6	2
90	901410	Direction finding compasses	63.2	1
90	901420	Instruments and appliances for aeronautical or space navigation (other than compasses)	47.4	2
90	901480	Other instruments and appliances	52.6	2
90	901490	Parts and accessories, of direction finding compasses; other navigational instruments and appliances	47.4	2
90	901510	Rangefinders	36.8	2
90	901520	Theodolites and tachymeters (tacheometers)	47.4	2
90	901530	Levels	52.6	2
90	901540	Photogrammetrical surveying instruments and appliances	52.6	2
90	901580	Other instruments and appliances	47.4	2
90	901590	Parts and accessories, of surveying (including photogrammetrical surveying), hydrographic, oceanographic, hydrological, meteorological or geophysical instruments and appliances, excluding compasses; rangefinders.	52.6	2
90	901600	Balances of a sensitivity of 5 cg or better, with or without weights	36.8	2
90	901710	Drafting tables and machines, whether or not automatic	63.2	1
90	901720	Other drawing, marking-out or mathematical calculating instruments	36.8	2
90	901730	Micrometers, callipers and gauges	52.6	2
90	901780	Other instruments	73.7	1
90	901790	Parts and accessories, of drawing, marking-out or mathematical calculating instruments (for example, drafting machines, pantographs, protractors, drawing sets, slide rules, disc calculators); instruments for measuring length, for use in the hand (for example, measuring rods and tapes, micrometers, callipers), NESOI	36.8	2
90	901811	Electro-cardiographs	42.1	2
90	901812	Ultrasonic scanning apparatus	47.4	2
90	901813	Magnetic resonance imaging apparatus	63.2	1
90	901814	Scintigraphic apparatus	57.9	2
90	901819	Other electro-diagnostic apparatus (including apparatus for functional exploratory examination or for checking physiological parameters)	52.6	2
90	901820	Ultra-violet or infra-red ray apparatus	52.6	2
90	901831	Syringes, with or without needles	63.2	1
90	901832	Tubular metal needles and needles for sutures	47.4	2
90	901839	Other syringes, needles, catheters, cannulae and the like	36.8	2
90	901841	Dental drill engines, whether or not combined on a single base with other dental equipment	52.6	2
90	901849	Other instruments and appliances, used in dental sciences, other than dental drill engines	63.2	1

Division	Product	Description	Percentage of PM	Group
90	901850	Other ophthalmic instruments and appliances	52.6	2
90	901890	Other instruments and appliances	57.9	2
90	901910	Mechano-therapy appliances; massage apparatus; psychological aptitude-testing apparatus	73.7	1
90	901920	Ozone therapy, oxygen therapy, aerosol therapy, artificial respiration or other therapeutic respiration apparatus	52.6	2
90	902000	Other breathing appliances and gas masks, excluding protective masks having neither mechanical parts nor replaceable filters	42.1	2
90	902110	Orthopaedic or fracture appliances	68.4	1
90	902121	Artificial teeth	52.6	2
90	902129	Artificial teeth and dental fittings, NESOI	31.6	3
90	902131	Artificial joints and their parts and accessories	42.1	2
90	902139	Other artificial parts of the body, other than artificial joints	73.7	1
90	902140	Hearing aids	57.9	2
90	902190	Other artificial parts of the body, NESOI	68.4	1
90	902212	Computed tomography apparatus	52.6	2
90	902213	Apparatus based on the use of X-rays, for dental use, NESOI	52.6	2
90	902214	Apparatus based on the use of X-rays, for medical, surgical or veterinary use, NESOI	68.4	1
90	902219	Apparatus based on the use of X-rays, for uses other than medical, etc.	73.7	1
90	902221	Apparatus based on the use of alpha, beta or gamma radiations, for medical, surgical, dental or veterinary use	52.6	2
90	902229	Apparatus based on the use of alpha, beta or gamma radiations, other than for medical, surgical, dental or veterinary use	52.6	2
90	902230	X-ray tubes	52.6	2
90	902290	Other X-ray tubes and other X-ray generators, high tension generators, control panels and desks, screens, examination or treatment tables, including their parts and accessories	36.8	2
90	902300	Instruments, apparatus and models, designed for demonstrational purposes (for example, in education or exhibitions), unsuitable for other uses.	42.1	2
90	902410	Machines and appliances for testing metals	52.6	2
90	902480	Machines and appliances, protesting the hardness, strength, etc. of metals, NESOI	57.9	2
90	902490	Parts and accessories of machines and appliances for testing the hardness, strength, etc. of metals	47.4	2
90	902511	Thermometers and pyrometers not combined with other instruments, liquid-filled, for direct reading	42.1	2
90	902519	Thermometers and pyrometers not combined with other instruments, NESOI	52.6	2
90	902580	Hydrometers and similar floating instruments, hygrometers, etc., NESOI	47.4	2
90	902590	Parts and accessories of hydrometers, thermometers, pyrometers, etc.	52.6	2
90	902610	Instruments and apparatus for measuring or checking the flow or level of liquids	47.4	2
90	902620	Instruments and apparatus for measuring or checking pressure	63.2	1
90	902680	Instruments and apparatus for measuring or checking the variables of liquids or gases, NESOI	57.9	2
90	902690	Parts and accessories of instruments and apparatus for measuring or checking the variables of liquids or gases	52.6	2

Division	Product	Description	Percentage of PM	Group
90	902710	Gas or smoke analysis apparatus	57.9	2
90	902720	Chromatographs and electrophoresis instruments	63.2	1
90	902730	Spectrometers, spectrophotometers and spectrographs using optical radiations	57.9	2
90	902750	Instruments and apparatus using optical radiations	52.6	2
90	902780	Instruments and apparatus for physical or chemical analysis; for measuring viscosity and heat, NESOI	52.6	2
90	902790	Parts and accessories of instruments and apparatus for physical or chemical analysis, etc., NESOI	73.7	1
90	902810	Gas meters	63.2	1
90	902820	Liquid meters	63.2	1
90	902830	Electricity meters	42.1	2
90	902890	Parts and accessories of gas, liquid or electricity supply or production meters, including calibrating meters therefor	52.6	2
90	902910	Revolution counters, production counters, etc.	57.9	2
90	902920	Speed indicators and tachometers; stroboscopes	73.7	1
90	903010	Instruments and apparatus for measuring or detecting ionising radiations	63.2	1
90	903020	Oscilloscopes and oscillographs	52.6	2
90	903031	Multimeters without a recording device	52.6	2
90	903032	Multimeters with a recording device	31.6	3
90	903033	Other instruments and apparatus, for measuring or checking voltage, etc., without a recording device	47.4	2
90	903039	Other instruments and apparatus, for measuring or checking voltage, etc., with a recording device	73.7	1
90	903040	Other instruments and apparatus, specially designed for telecommunications	52.6	2
90	903082	Other instruments and apparatus, for measuring or checking semiconductor wafers or devices	47.4	2
90	903084	Other instruments and apparatus, with a recording device, NESOI	36.8	2
90	903089	Instruments and apparatus for measuring or checking electrical quantities, NESOI	68.4	1
90	903090	Parts and accessories of instruments and apparatus for measuring or checking electrical quantities; alpha, beta, gamma, X-ray, cosmic or other ionising radiations	63.2	1
90	903110	Machines for balancing mechanical parts	47.4	2
90	903120	Test benches	57.9	2
90	903141	Optical instruments and appliances for inspecting semiconductor wafers, etc.	57.9	2
90	903149	Measuring or checking instruments, appliances and machines, NESOI	57.9	2
90	903180	Instruments, appliances and machines, NESOI	36.8	2
90	903190	Parts and accessories of measuring or checking instruments, appliances and machines NESOI in this chapter; profile projectors	63.2	1
90	903210	Thermostats	57.9	2
90	903220	Manostats	68.4	1
90	903281	Hydraulic or pneumatic automatic regulating or controlling instruments and apparatus	47.4	2
90	903289	Automatic regulating or controlling instruments and apparatus, other than hydraulic or pneumatic	63.2	1

Division	Product	Description	Percentage of PM	Group
90	903290	Parts and accessories of automatic regulating or controlling instruments and apparatus	57.9	2
90	903300	Parts and accessories (NESOI in this Chapter) for machines, appliances, instruments or apparatus of Chapter 90	47.4	2

**Source:** Prepared by the authors on the basis of United States Census Bureau, U.S. Imports of Merchandise database; World Customs Organization (WCO), "English Harmonized System (HS) Code & Tariff Index" [online] [http://www.transcustoms.com/World\\_HS\\_Tariff/HS\\_Heading.asp?language=English&Country=&Chapter=90&Heading=9025&Subheading=902500&HS\\_code=902500000080](http://www.transcustoms.com/World_HS_Tariff/HS_Heading.asp?language=English&Country=&Chapter=90&Heading=9025&Subheading=902500&HS_code=902500000080).

**Note:** NESOI is used for items that are not elsewhere specified or indicated in classification systems.

**Table A7**

Value and classification of goods according to probability of miniaturization (PM).

Division 94

Division	Product	Description	Percentage of PM	Group
94	940110	Seats of a kind used for aircraft	47.4	2
94	940120	Seats of a kind used for motor vehicles	63.2	1
94	940130	Swivel seats with variable height adjustment, other than dental, etc.	73.7	1
94	940140	Seats other than garden seats or camping equipment, convertible into beds	68.4	1
94	940151	Seats of bamboo or rattan	36.8	2
94	940159	Seats of cane, osier, bamboo or similar materials, NESOI	36.8	2
94	940161	Seats with wooden frames, upholstered, NESOI	52.6	2
94	940169	Seats with wooden frames, other than upholstered, NESOI	63.2	1
94	940171	Seats with metal frames, upholstered, NESOI	73.7	1
94	940179	Seats with metal frames, other than upholstered, NESOI	78.9	1
94	940180	Seats, other than with metal or wooden frames, NESOI	73.7	1
94	940190	Parts of seats (other than medical, barbers', dental, etc.)	52.6	2
94	940210	Dentists', barbers' or similar chairs and parts thereof	42.1	2
94	940290	Medical, surgical, dental or veterinary furniture, other than dentists', barbers' or similar chairs and parts thereof	52.6	2
94	940310	Metal furniture of a kind used in offices, other than seats	63.2	1
94	940320	Metal furniture, NESOI	73.7	1
94	940330	Wooden furniture of a kind used in offices, other than seats	52.6	2
94	940340	Wooden furniture of a kind used in the kitchen, other than seats	52.6	2
94	940350	Wooden furniture of a kind used in the bedroom, other than seats	52.6	2
94	940360	Wooden furniture, NESOI	73.7	1
94	940370	Furniture of plastics, NESOI	63.2	1
94	940381	Furniture of bamboo or rattan, NESOI	42.1	2
94	940389	Furniture, NESOI	47.4	2
94	940390	Parts of furniture, NESOI	73.7	1
94	940410	Mattress supports	57.9	2
94	940421	Mattresses of cellular rubber or plastics	52.6	2
94	940429	Mattresses of materials other than cellular rubber or plastics	73.7	1
94	940430	Sleeping bags	73.7	1
94	940490	Articles of bedding, etc. (for example, mattresses, quilts, eiderdowns, cushions)	47.4	2



Division	Product	Description	Percentage of PM	Group
94	940510	Chandeliers and other electric ceiling or wall lighting fittings, excluding public lighting	73.7	1
94	940520	Electric table, desk, bedside or floor-standing lamp	73.7	1
94	940530	Lighting sets of a kind used for Christmas trees	63.2	1
94	940540	Electrical lamps and lighting fittings, NESOI	73.7	1
94	940550	Non-electrical lamps and lighting fittings	68.4	1
94	940560	Illuminated signs, illuminated name-plates and the like	57.9	2
94	940591	Parts for lamps, etc., of glass	57.9	2
94	940592	Parts for lamps, etc., of plastics	63.2	1
94	940599	Parts for lamps and lighting fittings, NESOI	78.9	1
94	940600	Prefabricated buildings	47.4	2

**Source:** Prepared by the authors on the basis of United States Census Bureau, U.S. Imports of Merchandise database; World Customs Organization (WCO), "English Harmonized System (HS) Code & Tariff Index" [online] [http://www.transcustoms.com/World\\_HS\\_Tariff/HS\\_Heading.asp?language=English&Country=&Chapter=90&Heading=9025&Subheading=902500&HS\\_code=902500000080](http://www.transcustoms.com/World_HS_Tariff/HS_Heading.asp?language=English&Country=&Chapter=90&Heading=9025&Subheading=902500&HS_code=902500000080).

**Note:** NESOI is used for items that are not elsewhere specified or indicated in classification systems.

## VI. Publications of interest



*FAL Bulletin No. 391*

### 2021 Port Report: early signs of a recovery in international container shipping in Latin America and the Caribbean

Eliana Barleta  
Ricardo J. Sánchez

In 2020 the entire world was overwhelmed by the coronavirus disease (COVID-19) pandemic, which changed the daily lives of people around the globe and had a devastating impact on humankind. The pandemic and its effects in different sectors have been the object of intensive analysis. This edition of the *FAL Bulletin* will focus on the question as to whether or not the international container shipping industry in Latin America and the Caribbean is on the path to recovery. It will also look at the upward trend in container freight rates and its implications as one of the emerging issues associated with the pandemic and its aftermath.

Available in:



*Bulletin FAL N° 366*

### Reflections on the future of container ports in view of the new containerization trends

Eliana Barleta  
Ricardo J. Sánchez

Recent years have seen a relative slowdown in container movements, which cannot be fully explained by fluctuations in the world economy. The authors note that the year-on-year change in throughput is decreasing relative to changes in GDP. In an attempt to explain these "seesaw" variations, several hypotheses are proposed and some are demonstrated, in particular the reprimerization of the economy, the miniaturization of cargoes, the possible decrease in transshipments, and the increasing use of 40-foot containers.

Available in: