The Rise of the Middle Class and the Pattern of Consumption Imports in Latin America*

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Abstract

This paper examines the relationship between the middle class and the pattern of consumption imports in fifteen Latin American economies over the period 1996-2019, which includes the latest commodity boom. The consumption patterns of the middle class, which are likely to be different from those of lower classes, could be reflected in imports in the case of countries with little diversified productive structures, such as those of Latin America. In the context of highly unequal countries, the middle class might also try to emulate the consumption basket of upper income groups. My results show that the middle class has become the main income group driving both aggregate consumption imports and imports disaggregated by product type, including luxury imports. The estimated coefficients are particularly large for the lower-middle class and in the period of the commodity boom, when this income group expanded most rapidly. The finding that the middle class is the main income group driving imports over the period analyzed is robust to different definitions of the middle class, a different way of treating cross-sectional dependence, and a reduced sample excluding Mexico.

Keywords: consumption imports, middle class, income distribution, emulation, Latin America.

JEL Classification: C23, D31, N76, O11, O54

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1 Introduction

The first decade of the 21st century witnessed major advances in reducing global poverty and inequality. They came accompanied by an unprecedented growth in the global middle class[1] from 14% of total household population in 2001 to 22% in 2011 (Kochhar, 2015). This new phenomenon has attracted much attention, reviving the literature on the role of the middle class in economic development. It is widely acknowledged the key role that this group played in the process of industrialization and development of Western European countries in the 19th century (Adelman and Morris, 1967; Morris, 1979). Therefore, the last global surge of the middle class was seen as a sign of development-oriented growth in the developing countries.

The body of literature that accompanied the expansion of the middle class has pointed to the association of this income group with greater demands for democracy and public goods (Easterly, 2001; Solimano, 2008; OECD, 2010), stronger entrepreneurial spirit, supported by a greater capacity for savings and education (Doepke and Zilibotti, 2008), and improved political stability and social cohesion (Torche and Lopez-Calva, 2013). The examination of the effect of the growing middle class on economic outcomes has also become a growing topic in the literature, but most work has concentrated on examining the effect of the middle-class emergence on GDP (Easterly, 2001; Brueckner et al., 2018). The investment channel is usually cited as the main one by which the middle class contributes to economic growth by increasing investment in human capital in the economy (Chun et al., 2011) and favoring the emergence of economies of scale in the productive sphere (Murphy et al., 1989).

The other channel by which the middle class can impact economic growth is via consumption. This income group has historically been associated with a desire to consume more, especially of high-quality products (Schor, 1999), which has been endorsed by more recent studies (Banerjee and Duflo, 2008; OECD, 2019). The expansion of the middle class is usually seen as favorable since it implies the creation of the necessary demand for the diversification and expansion of markets, and the generation of economies of scale in production, an idea that can be traced back to Smith (1776), but when there is an insufficient development of domestic productive capacity when the middle class develops, the new consumption demands must be covered through foreign markets.

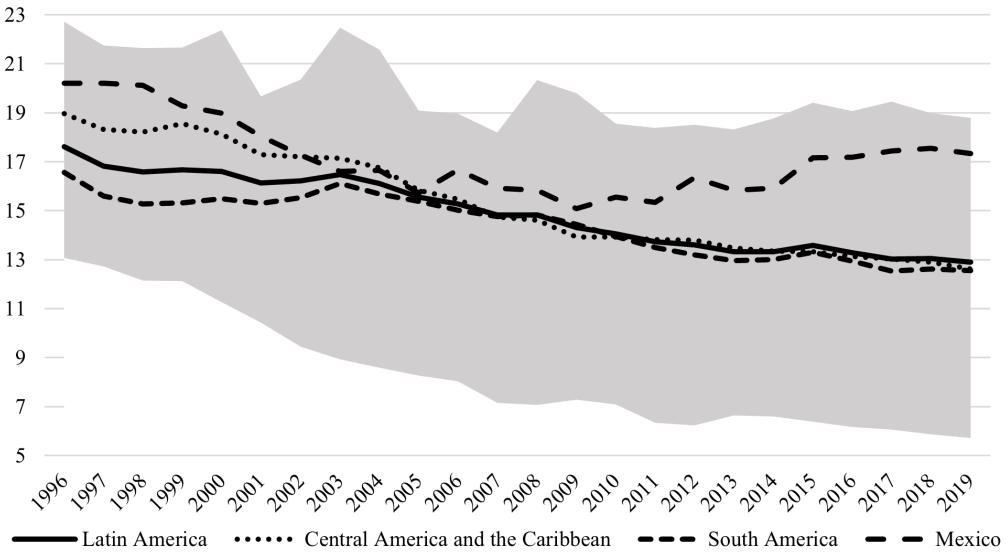
Although the global middle class expanded, it did not do so in all regions of the world. China, Eastern Europe, and Latin America were the three main regions behind this surge (Kochhar, 2015). In the latter, the middle class went from 29% of total household population

[1]Defined in this case as those households that have a daily income between $10 and $50 in 2011 PPP US dollars.

in 2000 to 50% in 2019. The steady economic growth favored by the commodity price boom experienced during the first decade of the 21st Century and the redistributive policies implemented in many Latin American countries are usually cited as two main forces in fostering middle-class growth (Ferreira et al., 2013).

This surge, however, did not come accompanied by a diversification of the productive structures, with many Latin American countries, especially in South America, continuing to rely on a few primary commodities to supply external demand and in fact deepening their resource-oriented economic models amid the commodity price boom (Ocampo, 2017). In the manufacturing sector, productivity gains were limited due to small sectorial reallocation, employment and GDP share declines in most Latin American countries[2] (see Fig. 1), and lack of formation of production clusters over the past thirty years (Schiffbauer et al., 2016). This means that whatever dynamics the middle class had in terms of consumption, increasing its consumption level, and changing the composition of its consumption basket, may have been reflected in the country's import pattern.

Figure 1: Manufacturing value added (% of GDP)



Notes: The colored area represents the range of Latin American manufacturing value added calculated as the difference between the highest and the lowest value at country level for each year.
Source: World Bank.

In line with the developments that show that there exist differentiated consumption patterns in different income strata (Henry, 2014; Aguiar and Bils, 2015), that changes in income distribution have their reflections in consumption patterns (Ribeiro et al., 2016; Hummels and Lee, 2018), and that these changes can be transferred to the pattern of imports (Bray-

[2]Mexico is an exception to this trend since although manufacturing value added as percentage of GDP declined until 2005, it remained stable after that, even increasing after the global financial crisis.

men and Lam, 2014; Behringer and van Treeck, 2018), in this paper I intend to contribute to the literature by analyzing the impact of changes in social class structure on the pattern of imports of consumption goods in a panel of fifteen Latin American countries covering a period of time, between 1996 and 2019, in which the middle class grew in an unprecedented way. Moreover, I also contribute to the study of the emulation consumption of the middle class by examining its relationship with luxury imports in a linear and nonlinear way. In this paper, I estimate import demand functions with panel data to determine the role played by the middle class in the dynamics of consumption imports in an aggregate and disaggregated manner, separating by groups of consumption goods.

My results suggest a positive association of the middle class with imports of consumption goods. Among the three income groups examined in this paper, namely lower, middle, and upper classes, the middle class has the strongest positive impact on imports, both aggregated and in most disaggregated groups. Disaggregating by product group, I find a positive link of the middle class with imports of food and automobiles. The middle class also appears to be related to imports of luxury goods, i.e., goods that households purchase in greater proportion as their income increases. Moreover, the size of the upper class is found to moderate the impact of the middle class on the demand for luxury imports. In countries where the former is larger, the total effect of the latter on luxury imports is greater. The coefficients associated with the middle class are particularly large when I limit my period of analysis to the period of the commodity boom (2003-2013), which coincides with the highest rate of middle-class expansion. In this period, I find a positive association of this income group with both total consumption imports and almost all product subgroups[3], including durable and non-durable goods. The main results, which find that the middle class is the income group with the highest positive coefficients, are robust to different definitions of middle class, different ways of tackling cross-sectional dependence, and a reduced sample excluding Mexico because of its unique productive structure. I conclude that the middle class has become the main income group behind the performance of consumption goods imports in the region, especially but not only during the commodity boom.

Certainly, the expansion of the middle classes can be accompanied by desirable outcomes, but the institutional weakness of the countries to respond to these new demands can also turn it into a source of instability (Huntington, 1991). In the macroeconomic sphere, and through its impact on the balance of payments, the middle class can become a new obstacle to macroeconomic stability in the region. Its effect on consumption imports, both in terms of level and composition, may represent a new source of pressure on the already fragile balance

[3]The associated coefficients to the middle class variables do not show significance in the case of food imports during this period.

of payments dynamics of Latin American countries, which exacerbate economic cycles and are a major determinant behind the stop-and-go growth pattern of these countries (Ocampo, 2016).

The rest of the paper is structured as follows. Section 2 covers some relevant literature on middle class, its consumption patterns, and its relationship with the import dynamics of countries. Section 3 describes the dataset, including its process of construction. Section 4 presents the methodology employed in this work. Section 5 introduces the main results, including those for the commodity boom sub-period. Section 6 includes some extensions and robustness checks. Conclusions, limitations, and policy implications are discussed in the last section.

2 Related literature

Contrary to the assumption of homothetic preferences commonly used to estimate demand functions, households change the composition of their consumption basket when their income changes. High-income households spend a higher share of their income on luxury goods than low-income households, whose consumption baskets are mostly composed of necessities (Aguiar and Bils, 2015). Moreover, as income levels increase, households begin to exhibit more heterogeneous consumption baskets, determined to a greater extent by personal tastes and social influence (Witt, 2017). Thus, changes in the income structure of countries towards a greater presence of wealthier households, associated with more diversified consumption baskets, would lead to an expansion in the number of goods consumed within the country (Chai et al., 2015).

The recent expansion of the middle class globally, concentrated mainly in China, Eastern Europe, and Latin America, has prompted a vast literature on its potential impacts in the political, social, and economic spheres. In the economic sphere, that the middle class has its most immediate effect through consumption is obvious. However, the literature on this phenomenon is somewhat limited. In Latin America, although there has been recognition of the fact that the middle class has developed with new aspirations and consumption patterns that differ from those of lower classes (Castellani et al., 2014; OECD, 2019), there has been no comprehensive study of the phenomenon at the regional level. Nonetheless, in the context of highly unequal countries, such those in the region, the middle class is likely to try to emulate the high-class consumption to differentiate themselves from the lower class, a phenomenon that would be related to Duesenberry (1949) so-called "demonstration effect". Thus, in a context of broad and rapid growth of the middle class, individuals could have been basing their consumption choices not only on changes in their income but also on those experienced

by their social context (Frank et al., 2014; Setterfield and Kim, 2017), amplifying the effects on the consumption of certain goods.

The few studies that analyze the consumption patterns of the middle class in Latin America do so for specific countries and by exploiting data from consumer surveys. Martínez et al. (2019) identify automobiles and non-essentials as consumption goods that identify the Colombian middle-class. In the case of Brazil, Clément et al. (2020) point out that the middle class is characterized by a high level of consumerism, supported by a widespread use of consumer credit to finance it. The possession of high-tech equipment (e.g., cell phone, computer, etc.) is a strong indicator of belonging to the middle class in the country. For the Argentine case, Carrere et al. (2022) point out that the middle class presents a diversified consumption pattern, particularly oriented towards durable goods, technology products, and leisure. However, there are differences between the upper middle class and the lower-middle class, with the latter having a much more restrictive consumption pattern, with a greater weight of food.

Changes in income distribution have effects on consumption, both in terms of its level and composition, and can also be transferred to the trade balance of countries, and particularly to the dynamics of consumption imports. That can happen when the internal market is not able to satisfy the increasing demand, the products demanded are not produced domestically, the imported products are of better quality, or importing is cheaper than buying domestic production. In the case of developing countries, it is usually understood that low-income individuals consume mostly locally supplied non-tradable goods. However, changes in the income distribution based on expansion of the proportion of non-low-income households who may desire to consume in a different way, will undoubtedly have some reflection in the country's import pattern. Although that fact has been acknowledged in the literature for long time (Arestis and Driver, 1987), the so-called Great Trade Collapse revealed the great sensitivity of trade to changes in income distribution. This issue, coupled with the growing recognition of non-homothetic consumer preferences, has led to the development of a literature on the role of income distribution in countries' trade patterns. This literature has shown that countries with similar income distributions have similar import patterns (Braymen and Lam, 2014). Moreover, income shocks have different effects for different types of goods (Hummels and Lee, 2018), which is related to the fact that income elasticities vary across income groups for the same product. An unequal income distribution also affects the composition of imports, with countries with a higher Gini index importing more luxury goods (Dalgin et al., 2008).

In the Latin American context, in which there have been, with some exceptions, few changes in productive structures since the 1990s (McMillan and Rodrik, 2011; Schiffbauer

et al., 2016), and even the commodity-based productive models of many countries in the region deepened in the first decade of the 21st century with the commodity boom (Ocampo, 2017), the rise of the middle class appears as a new potential driver of the dynamics of consumption imports. This fact has been recognized in works looking at the Latin American middle class (Castellani et al., 2014; OECD, 2019), but has not been studied in depth in the literature.

The study of this phenomenon is important since the reflection of changes in income distribution and social class structure in countries' balance of payments through imports may be an additional obstacle to the already fragile balance of payments dynamics in Latin America (Ocampo, 2017). This fact is easy to see in the framework of balance of payments constrained growth (BOCG) models. These models, first developed by Thirlwall (1979), assume that the main demand constraint facing open economies is the one derived from the balance of payments constraint. The external sector imposes a long-run limit on the expansion of the economy, incorporating the idea that an economy cannot permanently maintain a growing deficit in its current account (Pérez Caldentey, 2015). The main idea that emerges from Thirlwall's model, in its simplest form, is that the long-run growth rate of an economy approximates the growth rate of exports divided by the income elasticity of import demand (Thirlwall, 1979, p. 45). The way in which changes in class or income distribution would affect the long run growth rate is through their effect on the income elasticity of imports, hypothetically increasing it in the case of a social transformation toward a greater weight of the middle class and thus exacerbating the balance of payments constraint. This fact has not received much attention in the BOCG literature, and that contribution is beyond the scope of this paper, but this theoretical framework serves to motivate this work.

This paper seeks to add to the literature by analyzing for the first time how the expansion of the middle class has been reflected in the pattern of consumption imports of countries in the region, both in aggregate terms and looking at different types of imports of consumption goods. In particular, I hypothesize that among all three income groups (lower, middle, and upper class), the middle class should have the highest positive estimated coefficients for explaining consumption imports in the region, particularly during the time of the commodity boom (2003-2013) when it grew the fastest. I expect its impact to be particularly high for those consumption goods more associated to the traditional middle class consumption patterns. Those are durable goods and automobiles. In the context of unequal countries such as those in Latin America, the middle class is also likely to try to emulate the consumption of the upper class as a way to show social status, therefore consuming luxury goods in a higher proportion than necessities. Thus, I hypothesize that the middle class should be positively associated with the dynamics of imports of luxury goods.

3 Data

The dataset employed in this work consists of a panel of fifteen Latin American countries (Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Honduras, Mexico, Panama, Paraguay, Peru, and Uruguay) with annual data for the period 1996-2019. Table 1 presents the variable definitions, descriptions, and sources, while Table A1 in the Appendix shows some descriptive statistics.

Table 1: Variable descriptions and sources

Variable	Definition	Source
CM	Volume of total consumption imports calculated with base 2000=100	Own elaboration based on BACI data
FM	Volume of food imports calculated with base 2000=100	Own elaboration based on BACI data
DM	Volume of durable goods imports calculated with base 2000=100	Own elaboration based on BACI data
NM	Volume of nondurable goods imports calculated with base 2000=100	Own elaboration based on BACI data
AM	Volume of automobile imports calculated with base 2000=100	Own elaboration based on BACI data
LM	Volume of luxury imports calculated with base 2000=100	Own elaboration based on BACI data
LC10	Lower class (defined as the share of total households living on less than $10 per day)	PovcalNet and own calculations
MC1030	Lower-middle class (defined as the share of total households living on between $10 and $30 per day)	PovcalNet and own calculations
MC3050	Upper-middle class (defined as the share of total households living on between $30 and $50 per day)	PovcalNet and own calculations
HC50	Upper class (defined as the share of total households living on more than $50 per day)	PovcalNet and own calculations
C	Volume of households and NPISHs final consumption expenditure with base 2000=100	Own elaboration using World Bank data
REER	Real effective exchange rate (CPI-based)	Bruegel
MR	Number of import restrictions (foreign exchange budget, financing requirements for imports, documentation requirements for release of forex for imports, import licenses and other nontariff measures, import taxes and/or tariffs, and State Import Monopoly) from the measure of aggregate trade restrictions (MATR)	International Monetary Fund
CRISES	Dummy variable for economic crises. 0 if GDP growth higher than 0%, 1 otherwise	Own elaboration based on World Bank data
AT	Applied weighted tariff which incorporates the trading partner composition and the product composition of consumption imports, constructed for total consumption imports and its disaggregations by types of consumption imports	Own elaboration using World Trade Organization and Organization of American States data
MCq3q4	Alesina and Perotti (1996) definition of middle class (defined as the share of income captured by the third and fourth quartiles of the income distribution)	Own elaboration using UNU-WIDER World Income Inequality Database
MCq2q4	Eastely (2001) definition of middle class (defined as the share of income captured by the second, third and fourth quartiles of the income distribution)	Own elaboration using UNU-WIDER World Income Inequality Database
MCd7d9	Solimano (2008) definition of lower-middle class (defined as the share of income captured by the seventh, eighth and ninth deciles of the income distribution)	Own elaboration using UNU-WIDER World Income Inequality Database

MCd3d6	Solimano (2008) definition of upper-middle class (defined as the share of income captured by the third, fourth, fifth, and sixth deciles of the income distribution)	Own elaboration using UNU-WIDER World Income Inequality Database

3.1 Imports

Imports of consumption goods are calculated using the BACI *(Base pour l'Analyse du Commerce International)* database[4] produced by the French international economic research institute *Centre d'Études Prospectives et d'Informations Internationales* (CEPII). This database contains import data in both thousands of current dollars and metric tons at a disaggregated level for more than 5000 products following the Harmonized Commodity Description and Coding System 1996 (HS 1996) developed by the World Customs Organization, with a six-digit level of disaggregation. Because it is not possible to identify the final destination of imports within the economy (final consumption of households, intermediate goods, or capital goods) in this classification, I therefore use the correspondence tables from HS 1996 to BEC to carry out this identification. The BEC classification of economic categories, which was developed by the United Nations Statistics Division, is composed of 19 product categories, and allows us to distinguish the final destination of the goods in each category through their correspondence with the System of National Accounts (SNA). The latter assigns each category of goods in the BEC system to one of the following three purposes: capital goods, intermediate goods, and consumption goods. By merging these two classifications, I can identify which HS 1996 products are mostly destined for final household consumption and build my total consumption import variable.

In addition to using a measure of total imports of consumer goods it is also the purpose of this paper to analyze imports of different types of consumer goods at a disaggregated level. For this purpose, I merge the HS 1996 classification with the 4-digit International Standard Industrial Classification (ISIC) rev. 3. I use the correspondence tables from HS 1996 to ISIC rev. 3 to carry out this identification. The ISIC classification is composed of 147 sectors and allows HS products to be categorized into those sectorial groups, which facilitates the identification of larger sectors. With the purpose of limiting the number of sectors in the analysis, I follow the Global Industry Classification Standard (GICS) classification, developed by MSCI and Standard & Poor's, to include ISIC categories in the GICS categories dealing with consumer goods. Because there is no formal public equivalence for mapping data between these two classifications, I do it by studying the ISIC categories and assigning them to those that fit best in the GICS classification system. Table A2 in the Appendix shows the GICS categories for the imports analyzed in this paper, with the ISIC categories

[4] Gaulier and Zignago (2010).

included in each of them. Those are food products, nondurable goods, household durables, and automobiles.

As a complement to the previous categories of products, and with the purpose of further exploring the consumption pattern of the middle class, which might be trying to emulate that of the upper class by consuming more luxury goods, I also develop a classification of imported products into the categories of necessities or luxuries. For this purpose, I use the 2011 Family Budget Survey (*Encuesta de Presupuestos Familiares*, EPF, in Spanish) for Chile, and assume that it can be an adequate representation of Latin American household consumption in general. This survey has some advantages compared to others in the region. First, it contains highly disaggregated product-level data, with a total of 1099 consumption products, following the classification of individual consumption by purpose (COICOP), developed by the United Nations Statistics Division. Second, the classification employed has correspondence tables available with other product/sectorial classification such as the ISIC. I map the COICOP and the ISIC Rev. 3 classifications to improve the process of identifying luxury and necessity goods, assigning each product to the corresponding sectors/product groups in the ISIC classification.

For defining and classifying each product group as composed of luxury or necessity goods I follow the metric introduced in Henry (2014). I begin by defining a luxury as a good that a household consumes in greater proportion as its income increases. On the other hand, a necessity is a good that is consumed in a smaller proportion in the total consumption basket when a household income increases. I divide the sample into five income quintiles to study the evolution of the share of each group of goods in the household consumption basket as the income level increases. Table A3 in the Appendix shows the classification of each product group as luxury, necessity, or indeterminate when no clear pattern appears. In this paper I use import data of the ISIC categories classified as luxuries as a proxy for luxury imports.

The import variables appear in the BACI database in both thousands of current US$ and in metric tons. In this paper, I use them in metric tons to get rid of the price effect. I build volume variables with base year 2000.

3.2 Middle class

My main explanatory variable is a measure of middle class, and its construction is one of the major challenges that this work faces. Although a large literature on the middle class in Latin America has been generated in the last decade, there is no consensus on its definition. Three different types of measures of middle class can be found in the literature: absolute measures based on fixed income ranges, adjusting for purchasing power parity (PPP) to be

able to compare across countries; relative measures that consider the relative position of the middle class in the income distribution; and opinion surveys in which individuals self-identify as members of the middle class (Castellani et al., 2014, p. 4).

While the use of opinion surveys where individuals classify themselves as middle class can be relevant in the study of certain phenomena such as electoral behavior and public policy preferences (Lora and Fajardo, 2013), it is not so convenient when it comes to studying the impact of the middle class on economic phenomena derived directly from their income capacity. It is for this reason that most authors have been using absolute or relative measures of the middle class.

Absolute measures have been the most widely used to define the middle class in Latin America (Cardenas et al., 2011; Ferreira et al., 2013; Penfold and Rodríguez Guzmán, 2014; Kochhar, 2015; Stampini et al., 2016; Lopez-Calva et al., 2016; Bussolo et al., 2017; Martínez et al., 2019), although they suffer from a problem of arbitrariness in establishing the monetary floor and ceiling between which a person is considered middle class. Relative measures have been used much less in the literature as they are particularly problematic for cross-country comparisons since they incorporate the idiosyncratic country effects of income distribution. Nonetheless, some authors employ these types of measures, understanding middle class as the population group with incomes between 50 and 150 percent of the median income (OECD, 2010), those individuals in the third and fourth quintiles of the income distribution (Alesina and Perotti, 1996), or adding the second quintile (Easterly, 2001), or using the third to ninth deciles of the income distribution (Solimano, 2008).

Table 2: Effect in percentage points of moving the upper threshold (in 2011 PPP US dollars) defining the middle class

	$20 to $30	**$30 to $40**	**$40 to $50**	**$50 to $60**	**$60 to $100**
Argentina	13.63	6.51	3.21	1.78	2.12
Bolivia	7.13	2.99	1.39	0.75	0.92
Brazil	9.23	4.27	2.24	1.46	2.54
Chile	11.50	4.89	2.82	1.39	2.56
Colombia	6.22	2.73	1.46	0.81	1.40
Costa Rica	11.63	5.54	3.16	2.05	3.07
Dominican Republic	8.34	3.16	1.72	1.01	1.36
Ecuador	6.59	2.80	1.46	0.72	0.98
El Salvador	5.08	1.82	0.73	0.40	0.48
Honduras	4.12	1.61	0.72	0.40	0.49
Mexico	6.44	2.54	1.22	0.71	1.10
Panamá	11.25	5.49	3.00	1.80	2.92
Paraguay	9.36	3.76	1.95	1.10	1.67
Peru	6.37	2.33	1.07	0.54	0.77
Uruguay	17.67	8.95	4.83	2.72	3.83
South America	9.74	4.36	2.27	1.25	1.87
Central America	7.81	3.36	1.76	1.06	1.57
Latin America	8.93	3.96	2.06	1.18	1.75

Source: Own calculations based on data from World Bank, PovcalNet.

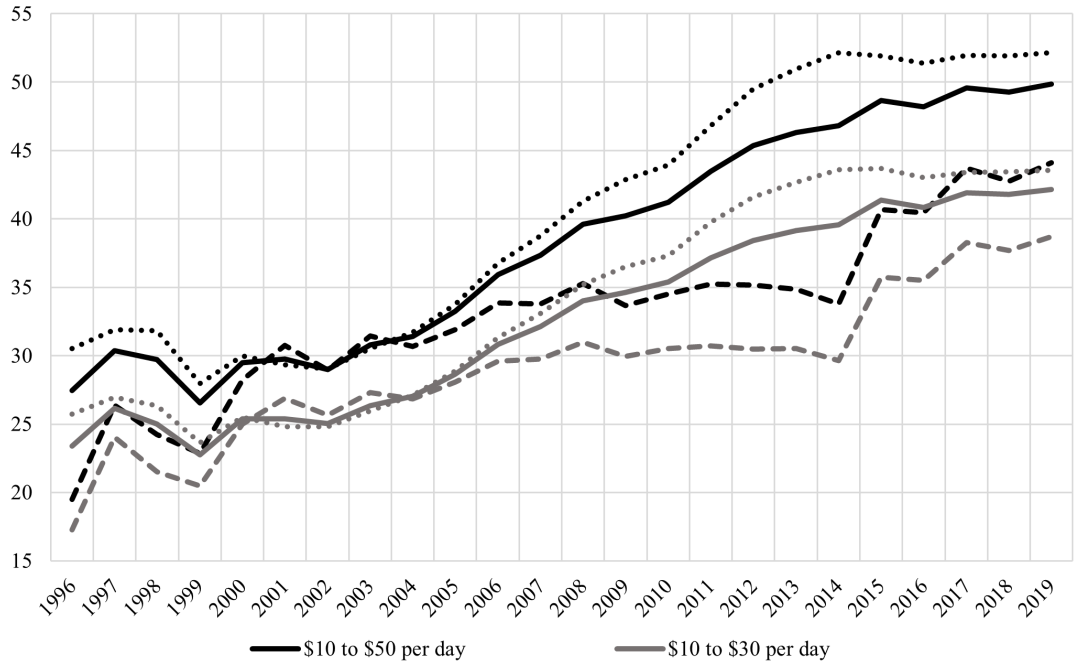
This paper employs an absolute measure of middle class. I define middle class as those households living on between \$10 and \$50 a day in 2011 PPP US dollars. The establishment of \$10 as the lower-threshold of middle class in Latin America has been supported by López-Calva and Ortiz-Juarez (2014) who using the vulnerability-to-poverty approach conclude that the probability of falling into poverty falls below 10% when individuals live with \$10 a day. Their research has provided some ground for considering \$10 as the lower threshold for the middle class, understanding that from this income level there exist certain income stability which prevent individuals from falling into poverty. The choice of \$50 as the upper limit of the middle class does not have such a clear theoretical support but has been accepted by most authors (Ferreira et al., 2013; Penfold and Rodríguez Guzmán, 2014; Bussolo et al., 2017). One data-based way to justify it is by looking at effect on the size of the middle class of considering different upper threshold. This is suggested in López-Calva and Ortiz-Juarez (2014). Table 2 presents the change in the size of the middle class in percentage points when we consider \$10 increases in the upper ceiling for each of the countries included in this paper, as well as for the regional aggregate. We can observe that from \$50 per day the increases are small, indicating some convergence in the size of the middle class at that level of daily income. A characteristic of the Latin American middle class that has been highlighted in the literature is the heterogeneity of its composition (Bazoret et al., 2021; Martínez et al., 2022), which adds an extra difficulty in delimiting it. That is why in this paper I study the middle class by dividing it into two subgroups: the lower (or fragile) middle class, which would be composed of households living on between \$10 and \$30 a day, and the upper (or consolidated) middle class, which is composed of households with a daily income of between \$30 and \$50 dollars a day. Another reason for this breakdown is to better capture the new middle class originated in Latin America during at the beginning of the 21st century and whose incorporation as new middle-class consumers might play a particularly significant role in import dynamics during that period.

The middle-class variables are constructed using the PovcalNet database from the World Bank. This database is based on data from household surveys, which in some cases are not annual, so it does not contain data for all countries and all years covered by this analysis. For those specific years in which a country has no data, I carry out interpolations by calculating an annual average for the Central American and South American subregions using the countries for which there is data and extrapolating it to the country-year with missing data. In this way, I assume that the evolution of the middle class followed the trend of the subregion where it belongs to for each specific country and year for which there is no data.

Figure 2 shows the evolution of the middle class in Latin America using the definition

followed in this work, which is household income between $10 and $50 per day in 2011 PPP US dollars, and also the lower-middle class which comprises those individuals with daily income between $10 and $30 2011 PPP US dollars. The figure also shows measures for the subregions of South America, and Central America and Mexico, respectively. All measures are population-weighted averages for the countries included. As expected, the middle-class size is smaller in Central America in most periods. The exceptions are the years around the Argentine financial crisis of 2001-2002 when the middle class shrank not only in that country but also in those around it that suffered from the transmission of the shock. The gap between the size of the middle class in South America and Central America widened after that period coinciding with the commodity price boom from which the South American countries benefited particularly.

Figure 2: Middle class percentage of population in Latin America



Notes: The dotted line represents South America, and the dashed line represents Central America and Mexico.
Source: PovcalNet and own calculations.

3.3 Other variables

This paper also uses some determinants of imports as controls. The role of income as a determinant of imports is captured here by household final consumption expenditure, whose source is the World Bank. The use of consumption instead of income as a determinant of consumption imports is based on the idea that consumption imports are determined under

a nested decision structure following Armington (1969). In this setup, households would decide, in a first stage, on their level of consumption and, in a second stage, about its composition in terms of domestic versus foreign goods. The inclusion of household consumption in my import function is therefore a product of the consumption maximization problem in the first stage. Moreover, there are other reasons why consumption is preferred to income. First, household income does not include consumer credit, which has become an important determinant of consumption in the region, especially during the commodity price boom (Gutiérrez Rueda et al., 2011; Harbo Hansen and Sulla, 2013; Gómez Aguirre and Krysa, 2022). Second, government transfers as part of poverty reduction policies are also not included in many income measures. The expansion of such policies, especially during the commodity price boom, may have played an important role in boosting the consumption of lower and lower-middle class households during this period. Using a consumption variable rather than an income variable allows us to capture these two sources of consumption expenditures.

Relative prices are also an important determinant of imports and are captured in this paper by the real effective exchange rate (REER) constructed by Bruegel (Darvas, 2021). A rise in the REER represents a real appreciation of the currency while a decline is a depreciation. The period analyzed includes the commodity price boom, which allowed a relaxation of the external constraint favored by capital inflows and an appreciation of the exchange rate (which makes imports cheaper) in the countries that benefited from it, as reflected in the REER. This variable therefore helps to capture also macroeconomic conditions in this sense.

Another relevant variables that I use as control in my estimations are measures of applied tariffs. The literature has shown how the imposition of trade barriers or the occurrence of trade distortions, both on the export and import side, has distributional consequences within countries (Nicita, 2009; Fajgelbaum and Khandelwal, 2016; Adão et al., 2022). One of the main trade barriers that countries most commonly use are tariffs. I construct measures for the total consumption imports and for the dissagregations by product type. My applied tariff measures consider the annual import composition of the countries in my sample, their trading partners, and the changes in their tariff policy with them through the implementation of free trade agreements. With these new measures I aim to provide a more accurate picture of tariff barriers by considering the previous two issues: product and trading partner composition changes throughout the time. By incorporating each measure as a control into the relevant import function, I aim to limit omitted variable bias.

The measure measures have the following equation form:

$$AppliedTariff_{ct} = \sum_{p=1}^{P} ProductTariff_{pct} * ProductShare_{pct} \quad (1)$$

where $p = 1, \ldots, P$; $c = 1,\ldots, C$ and $t = 1, \ldots, T$ denote the product, country and time dimensions, respectively. $ProductTariff$ refers to the tariff applied at the product level, and $ProductShare$ comprises the product shares in total imports. The $AppliedTariff$ measure, specific to each group of consumption imports, therefore, incorporates the tariff structure by product and the product composition of imports.

Since $ProductTariff$ varies by trade partner and across time with the implementation of new trade agreements, it is defined here as follows:

$$ProductTariff_{pct} = \sum_{i=1}^{I} TradingPartnerTariff_{ipct} * TradingPartnerShare_{ipct} \quad (2)$$

where $i = 1,\ldots, I$; $p = 1, \ldots, P$; $c = 1, \ldots, C$ and $t = 1, \ldots, T$ denote the country importer, product, country, and time dimensions, respectively. $TradingPartnerTariff$ refers to the tariff applied at the product level to each trading partner with which the country imports in a given year, and $TradingPartnerShare$ incorporates the import share of each trading partner for a given product at a given year. The $ProductTariff$ measure, therefore, accounts for the tariff structure by partner and incorporates the changes in that derived from trade policies.

To construct my measures, I used the Tariff Database from the World Trade Organization (WTO) which contains ad valorem tariff data about both the most favored nation (MFN) regime and tariffs applied outside the WTO MFN regime, i.e., within trade agreements. However, the information for the latter tariffs is not accurate as to the year each agreement enters into force and lower tariffs begin to be applied within those agreements. That is why I combined the tariffs information from the database with that contained in the SICE Foreign Trade Information System of the OAS. A summary of the trade information included in the measure is shown in Table A4.

Lastly, I include as controls when relevant the number of import restrictions from the measure of aggregate trade restrictions (MATR) developed by Estefania-Flores et al. (2022) with which I aim to be able to capture non-tariff barriers to trade, and a dummy variable to account for economic crises during the covered period.

4 Methodology

4.1 Model

The literature on import functions has a long tradition and was extensively developed between the 1950s and 1970s (Neisser and Modigliani, 1953; Houthakker and Magee, 1969; Kohli, 1978). In general, imports are understood to be driven by demand, under the assumption of a small country in import markets, which is determined by some income measure such as GNP, GDP, or the more recently developed import intensity adjusted demand (IAD) by Bussière et al. (2013), and by relative prices, i.e., the ratio of the import deflator divided by the GDP deflator or the PCE (or by a measure of the real exchange rate). To these two main factors, other authors have added the capacity to produce imported goods within the country (Thirlwall, 1979), usually introduced in the model by including some measure of capacity creation such as gross domestic fixed capital formation (Abbott and Seddighi, 1996).

From the standard consumer demand theory, imports of consumption goods can be seen as the result of the representative consumer utility maximization problem in which the consumer optimally chooses the amount of both imports and domestic goods she wishes to consume subject to her income. This process can be modelled in the form of a nested decision structure as in Armington (1969). Adapting his nested decision structure to our setup would allow us to divide the household decision process into two sequential steps, thus justifying the use of household consumption in our import function estimation. First, households would decide on their level of consumption, considering standard determinants in the literature such as disposable income, wealth, interest rates, and flow and stock of debt. The aggregate consumption function could be represented as follows:

$$C_i = f(YD_i, r_i, W_i, B_i, \triangle B_i) \tag{3}$$

where C_i refers refers to total household consumption of country i, YD_i denotes denotes total household disposable income (expected positive $\partial \mathrm{C}_i/\partial \mathrm{YD}_i$), r_i refers to real interest rate (ambiguous sign $\partial \mathrm{C}_i/\partial \mathrm{r}_i$), W_i represents total household wealth (exp. positive $\partial \mathrm{C}_i/\partial \mathrm{W}_i$), B_i refers to the total stock of household debt (exp. positive $\partial \mathrm{C}_i/\partial \mathrm{B}_i$), and $\triangle B_i$ is the net new borrowing (exp. positive $\partial \mathrm{C}_i/\partial \triangle B_i$).

Second, households would decide their consumption composition of domestic versus foreign goods. This means that demand of consumption imports will be estimated in the second step, once and considering consumption demand. The consumption import function will have

the following form:

$$CM_i = g(C_i, \frac{P_i^M}{P_i}) \tag{4}$$

where CM_i refers to total consumption imports of country i , C_i denotes total household consumption, and $\frac{P_i^M}{P_i}$ represents relative prices, in this case measured by the real effective exchange rate (REER).

In this paper, I estimate an augmented function of imports of consumption goods in the framework of the Armington (1969) nested decision structure, including the shares of the population in the different income groups as a determinant of the volume of imports. I do my estimations for a panel of fifteen Latin American countries in the period 1996-2019 to analyze the impact of size of the middle class on the import pattern of these countries. The functional form follows the traditional trade literature employing a constant-elasticity-of-substitution (CES) demand function. Under this type of preferences, the (log) long-run import function is as follows:

$$\ln(CM)_{it} = \beta_0 + \beta_1 ln(C)_{it} + \beta_2 ln(REER)_{it} + \beta_3 ln(MC)_{it} + \varepsilon_{it} \tag{5}$$

where i= 1, ..., N and t = 1, ..., T denote the cross-sectional and time dimensions, respectively. The dependent variable CM is consumption imports, C is total household consumption (exp. + sign), $REER$ is the real effective exchange rate (exp. + sign), and MC is the size of the middle class as percentage of total population (exp. + sign).

4.2 Estimation method

One concern when working with a country sample of the same region, as in this case, is that there is a possibility that the cross-sections may not be independent, which affects the consistency of the estimates if it is not taken into account. The presence of cross-sectional dependence when working with regional data can be due to a numerous of factors including spatial spillovers, omitted common factors, etc. In those cases, the disturbances are not cross-sectionally independent. The literature has developed specific estimators for dealing with this issue in the case where both the time dimension (T) and the number of cross-sections (N) are large (Pesaran, 2015), but those might yield biased results in the case of small dimension panels[5].

I test and confirm the presence of cross-sectional dependence in my data by employing the Pesaran (2015) test for weak cross-sectional dependence. Results can be found in Table A5 in the Appendix. I find that all my variables test positive for the presence of weak

[5]I will use one of these estimators, specifically the CCEPMG, as a robustness check later in the paper.

cross-sectional dependence, therefore there exist a finite number of unobservable (and/or observed) common factors, probably of a global nature, that shape both macro and socio-economic conditions within the region. One way to address this issue is to control for some common macroeconomic factors for the whole Latin American region, such as oil prices and the US federal funds rate. The literature has shown how macroeconomic cycles in the region are largely influenced both by the evolution of oil prices (da Silva Souza and de Mattos, 2023), and by US monetary policy decisions, through their effects on the capital accounts and external debt service of Latin American economies (Albagli et al., 2019; IMF, 2022). I therefore control for both the log of crude oil prices (in current dollars) and the log of US monetary policy rate in all my specifications.

In this scenario and assuming exogeneity of the income group variables after controlling for the main determinants of imports of consumption goods as well as other relevant variables to avoid omitted variable bias, I estimate Eq. (5) using a country fixed effects (FE) estimator with Driscoll-Kraay standard errors robust to heteroskedasticity, and general forms of serial correlation and cross-sectional ("spatial") dependence. FE capture most of the unobserved factors at the country level that could be influencing the behavior of the consumption imports. The choice of a static model is motivated in part by the annual nature of my import data, which means that the dynamic effects may be lost within the time frame. The lack of significance of the first lag of the dependent variable when introduced as regressor in my model also pointed into that direction and that is why I did not include a lag in the final model. In static panel models with unobserved heterogeneity, the FE estimator yields consistent estimates.

The estimated consumption imports equation is therefore the following:

$$\ln(CM)_{it} = \beta_0 + \beta_1 ln(C)_{it} + \beta_2 ln(REER)_{it} + \beta_3 ln(MC)_{it} + A\theta_i + \alpha_i + \mu_t + \varepsilon_{it} \quad (6)$$

where $i = 1, \ldots, N$ and $t = 1, \ldots, T$ denote the cross sectional and time dimensions, respectively. The equation extends eq. (5) by including $A\theta_i$ which is a matrix of relevant controls for the Latin American scenario. It contains a measure of import restrictions (MR), a dummy variable accounting for the occurrence of an economic crisis during a given year ($CRISES$), and a measure of applied tariff, specific to consumption imports and its disaggregation by product groups, respectively, that considers both the product composition of consumption imports and trade policy changes (AT). α_i represents country fixed effects and μ_t refers to the country-invariant variables that are included to account for regional common factors, which are crude oil prices and the US monetary policy rate.

I estimate this model specification for total consumption imports as dependent variable,

as well as for the subcategories of consumption goods, which are food products, non-durable goods, household durables, automobiles, and luxury goods, as explained earlier. Moreover, I run repetitions of every specification introducing lower-class and upper-class measures with the purpose of comparing the coefficients for the middle-class groups with those of the other income groups.

5 Main results

Table 3 reports FE estimates of total consumption imports. The first two columns present the estimates for the long-run import demand function including the standard determinants, expanded in the case of the second column to incorporate a dummy variable to account for economic crises during the period, the non-tariff import restrictions measure, and the constructed measure of trade policy changes. Coefficients associated with the standard determinants show significant and expected signs. Both household consumption and a real appreciation of the currency are positively associated with total consumption imports. The additional control variables, incorporated in the expanded equation and shown in the second column, do not show significance. However, I keep the measure of trade policy changes in the estimated model equation since it shows significance when some income groups variables are added. I therefore incorporate the lower-, middle-, and upper-class variables into the specification shown in column (1) including trade policy changes, resulting in the estimations shown in columns (3) to (6). The decision not to include all income group variables in the same estimation was made for two reasons. First, including them all together in the same equation would result in a loss of degrees of freedom which is important given the small sample size. Second, the aim is to have clean estimates given the high correlations that the income groups have with each other (greater than |0.77| in all cases).

Both middle-class coefficients show significant positive signs, with the one for the lower-middle class ($\beta = 0.20$) being larger than that of the upper-middle class ($\beta = 0.16$). The lower class, however, shows a significant negative coefficient (β = -0.32), which reinforces the idea that its consumption is mostly based on local production and therefore its evolution would be negatively related to the behavior of consumption imports. The coefficient associated with the upper class is close to zero and statistically insignificant.

When looking at the consumption imports at a disaggregated level (Table 4) the results differ. The middle-class variables show significant positive coefficients in the case of food products and automobiles. However, in the case of food products, it is only the upper-middle class the one with a significant coefficient ($\beta = 0.21$). For the automobile imports, the difference between the two subgroups of the middle class is particularly large with the

lower-middle class ($\beta = 1.06$) exhibiting a much higher coefficient than the upper-middle class ($\beta = 0.50$). The acquisition of automobiles is found to be highly related with this income group, a fact that has been already pointed out by other studies exploring middle income consumption patterns (Martínez et al., 2019; Carrere et al., 2022). For nondurable and durable goods, the coefficients for the middle class do not show significance. The lower class displays significant negative estimates for all product groups, which again comes to support the idea that they primarily consume in the local markets. About the upper class, it shows only significance in the case of food product imports ($\beta = 0.14$). For the other groups of imported goods we find insignificant small estimates in all cases, which suggests that it does not have much relevance as a determinant of the dynamics of consumption imports in the region.

Table 3: FE estimates of total consumption imports

Dep. variable	*CM*					
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
C	1.045***	0.991***	0.725***	0.860***	0.829***	0.942***
	(0.042)	(0.072)	(0.102)	(0.081)	(0.087)	(0.080)
REER	0.467***	0.478***	0.472***	0.455***	0.459***	0.468***
	(0.101)	(0.106)	(0.108)	(0.103)	(0.100)	(0.102)
MR		-0.005				
		(0.022)				
CRISES		-0.0008				
		(0.033)				
AT		-0.028	-0.042**	-0.023	-0.033	-0.032
		(0.028)	(0.020)	(0.025)	(0.022)	(0.024)
LC10			-0.320***			
			(0.108)			
MC1030				0.195*		
				(0.099)		
MC3050					0.155***	
					(0.054)	
HC50						0.061
						(0.056)
Adj. R-squared	0.737	0.738	0.747	0.742	0.744	0.740
Observations	360	360	360	360	360	360
Number of countries	15	15	15	15	15	15

Notes: All estimations include a constant term, country fixed effects, and controls for common regional variables such as the log of crude oil prices and the log of US monetary policy rate. Driscoll-Kraay standard errors in parentheses. All variables are in logs except for $CRISES$ and MR. *** p<0.01, ** p<0.05, * p<0.1.

Table 4: FE estimates by groups of consumption imports

Dep. variable	*FM*				*NM*				*DM*				*AM*			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
C	0.814***	1.010***	0.853***	0.951***	0.618***	0.701***	0.842***	0.843***	0.431***	0.457**	0.572***	0.582***	0.666**	0.579**	0.847***	1.259***
	(0.128)	(0.074)	(0.111)	(0.091)	(0.091)	(0.113)	(0.100)	(0.087)	(0.148)	(0.176)	(0.098)	(0.111)	(0.285)	(0.217)	(0.164)	(0.127)
REER	0.579***	0.573***	0.558***	0.563***	0.294***	0.285***	0.306***	0.306***	1.024***	1.008***	1.026***	1.021***	0.517*	0.433	0.481*	0.523*
	(0.148)	(0.141)	(0.136)	(0.134)	(0.095)	(0.092)	(0.092)	(0.087)	(0.166)	(0.167)	(0.164)	(0.158)	(0.258)	(0.289)	(0.276)	(0.290)
MR					-0.074**	-0.066**	-0.070**	-0.070**	-0.179***	-0.171***	-0.176***	-0.175***				
					(0.031)	(0.030)	(0.032)	(0.032)	(0.036)	(0.034)	(0.035)	(0.035)				
CRISES									-0.215***	-0.220***	-0.217***	-0.220***	-0.353***	-0.369***	-0.346***	-0.371***
									(0.053)	(0.050)	(0.053)	(0.054)	(0.096)	(0.098)	(0.093)	(0.106)
AT	-0.067***	-0.047*	-0.058**	-0.065***												
	(0.019)	(0.024)	(0.022)	(0.022)												
LC10	-0.308**				-0.290**				-0.257*				-0.908**			
	(0.112)				(0.105)				(0.141)				(0.379)			
MC1030		0.106				0.192				0.237				1.059***		
		(0.075)				(0.145)				(0.225)				(0.205)		
MC3050			0.212***				-0.002				0.055				0.504**	
			(0.068)				(0.091)				(0.059)				(0.187)	
HC50				0.142**				-0.003				0.064				0.135
				(0.051)				(0.108)				(0.099)				(0.184)
Adj. R-squared	0.711	0.710	0.713	0.710	0.609	0.605	0.601	0.601	0.573	0.573	0.570	0.571	0.578	0.596	0.572	0.553
Observations	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360
No. of countries	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15

Notes: All estimations include a constant term, country fixed effects, and controls for common regional variables such as the log of crude oil prices and the log of US monetary policy rate. Driscoll-Kraay standard errors in parentheses. All variables are in logs except for $CRISES$ and MR. FM to food imports, NM to nondurable goods imports, DM to durable goods imports, and AM to automobile imports. *** p<0.01, ** p<0.05, * p<0.1.

5.1 Luxury imports

The results for the estimation of the luxury good import function are presented in Table 5. In this case both middle class subgroups show significant positive coefficients. The lower-middle class has a higher associated estimate (β = 0.34) than the upper-middle class (β = 0.19), in line with the results obtained for the total consumption imports. The lower class displays a significant negative estimate (β = -0.60), and the upper class shows again an insignificant and small positive coefficient. These findings come to partially validate the hypothesis that when income rises, so does the share of luxury goods in the consumption basket as opposed to necessities whose share declines. The lower-middle class shows a positive significant impact on the imports of luxury goods as opposed to the lower class whose associated coefficient is negative, but the upper-middle class's coefficient is, although significant and positive, lower than the one of the lower-middle class. Moreover, the upper class does not show a significant impact on luxury imports. These results suggest a major role of the middle class in the consumption of imported luxury goods in Latin America.

The consumption basket of the middle class could be determined, not only by their own preferences, but by the consumption patterns of the social strata above them (Frank et al., 2014; Setterfield and Kim, 2017). Thus, there might be an emulation motive behind the consumption choices of the individuals. While this might be true in many scenarios, in the one of rapid growth of the middle class in the context of highly unequal societies such as the ones of Latin America, could be particularly relevant. The size of the upper class, which could serve as a proxy for the likelihood of exposure to higher income groups consumption patterns, might influence the consumption choices of luxury items of the middle class. In fact, some works have found that individuals' consumption and borrowing decisions are conditioned by their proximity to other individuals with higher economic status (Agarwal et al., 2021) and that increased inequality is correlated with increased purchases of luxury goods (Akarsu et al., 2023). I therefore introduce interactions between the upper class and the middle class variables in my estimations to test whether in those cases where the upper class has a bigger size, the impact of the middle class in luxury imports is larger.

Columns 7 and 8 of Table 5 present the results for the interactions of the upper class and middle class variables. In the case of the total effect of the lower-middle class on luxury imports, it ranges from 0.13 for the smallest size of the upper class, which appears in the case of Honduras, to 1.14 when the upper class reaches its largest size in the sample, which is found for Panama. Regarding the total effect of the upper-middle class on the demand for luxury imports, we again find a positive moderating effect of the upper class. The total effect in this case ranges from a significant 0.13 for the lowest upper class size to 0.45 for the highest upper class size in the sample. Thus, these results suggest that in the context of

countries with a larger upper class, the increase in the size of the middle class is associated with a higher positive impact on the demand for luxury imports. This effect is particularly large in the case of the lower-middle class, where the class-size elasticity of luxury imports is greater than 1. These findings support the hypothesis that middle class luxury consumption decisions are moderated by their exposure to the consumption patterns of the upper class.

Table 5: FE estimates of luxury imports

Dep. variable	*LM*							
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
C	0.987***	0.963***	0.541***	0.748***	0.801***	0.925***	0.485***	0.710***
	(0.048)	(0.100)	(0.113)	(0.121)	(0.097)	(0.070)	(0.156)	(0.080)
REER	0.349***	0.335***	0.316***	0.300***	0.311***	0.318***	0.329***	0.324***
	(0.101)	(0.116)	(0.093)	(0.105)	(0.099)	(0.097)	(0.097)	(0.102)
MR		-0.0123						
		(0.037)						
CRISES		-0.112***	-0.100***	-0.111***	-0.102***	-0.112***	-0.112***	-0.094***
		(0.029)	(0.027)	(0.029)	(0.027)	(0.027)	(0.030)	(0.028)
AT		-0.024						
		(0.073)						
LC10			-0.598***					
			(0.148)					
MC1030				0.338**			0.301**	
				(0.144)			(0.126)	
MC3050					0.193*			0.183***
					(0.101)			(0.062)
HC50						0.0979	-1.230***	-0.258
						(0.098)	(0.393)	(0.181)
*MC1030*HC50*							0.342***	
							(0.111)	
*MC3050*HC50*								0.107*
								(0.061)
Adj. R-squared	0.639	0.645	0.673	0.655	0.652	0.647	0.669	0.658
Observations	360	360	360	360	360	360	360	360
Number of groups	15	15	15	15	15	15	15	15

Notes: All estimations include a constant term, country fixed effects, and controls for common regional variables such as the log of crude oil prices and the log of US monetary policy rate. Driscoll-Kraay standard errors in parentheses. All variables are in logs except for $CRISES$ and MR. *** p<0.01, ** p<0.05, * p<0.1.

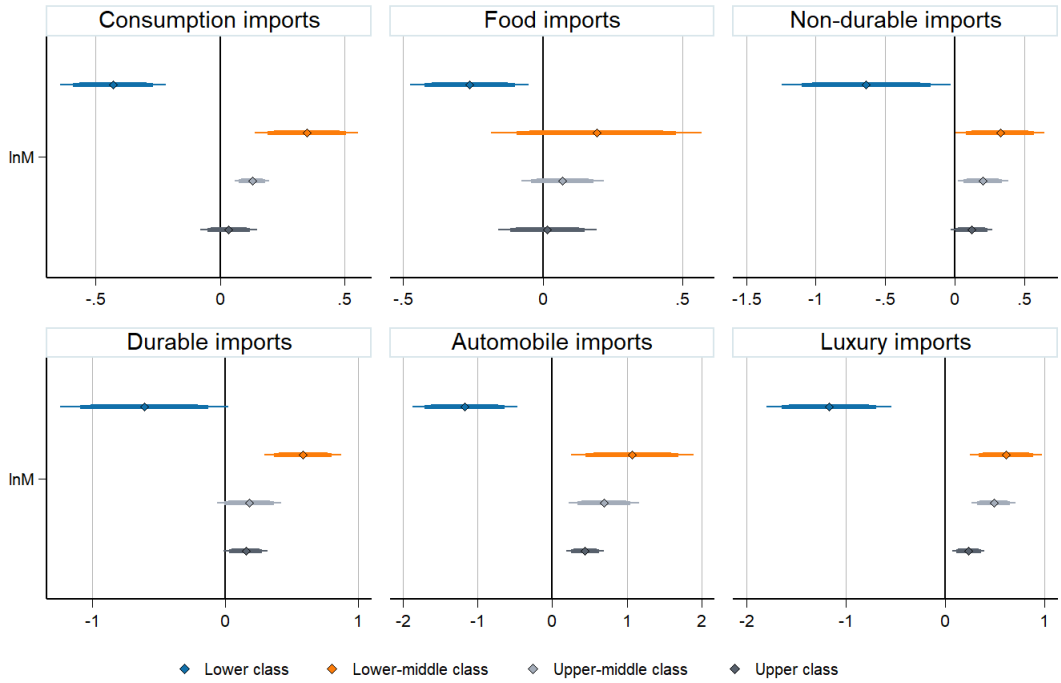
5.2 Commodity boom period

The study of the stability of estimates over time takes a particular relevance for our topic since during the period covered in this work we have an episode of rapid growth of the middle class, favored among other causes by the commodity price boom from which many Latin American countries benefited in the period 2003-2013. The large capital inflows during this period, as well as the relentless growth of export revenues, relieved Latin American economies from their external constraints, which in turn supported the dynamics of imports.

With the aim of taking into account the particularities of this period, in which it would be expected higher coefficients of both middle- and upper-class variables, in this section I limit my analysis to the commodity boom phase and compare the results with those of the entire period.

Figure 3 shows the income groups coefficients for the commodity boom sub-period of the estimated import function for consumption goods, and those for each subcategory of imports. They are also shown for luxury imports in the last panel of the graph. Full estimation results can be found in Table A6 in the Appendix.

Figure 3: Estimates of income group variables for the commodity boom period (2003-2013)



Notes: All estimations include a constant term, country fixed effects, and controls for common regional variables such as the log of crude oil prices and the log of US monetary policy rate. Driscoll-Kraay standard errors used. 90%, 95% and 99% confident intervals are displayed.

When limiting the period to the commodity boom, the estimates again support the role of the lower-middle class as the main income group associated with the dynamics of imports of consumption goods, both on an aggregate basis and disaggregating by groups of goods. The lower-middle class has the highest coefficients among all income groups. Moreover, during the commodity boom, the two segments of the middle class show significant positive coefficients on practically all import product groups, including durable and non-durable goods. The only exception to it is the case of food imports where neither the middle class groups nor the upper class show significant coefficients.

The estimates, when significant, are also generally higher in this period, which can be explained by the faster growth rate of the middle class in these years plus the relaxation of the external constraint linked to the commodity boom itself, which would have acted as forces favoring the impact of the middle class on imports. In the case of total consumption imports, the coefficients associated with the middle class are 0.35 and 0.13 for the lower- and upper-middle classes, respectively, while they are 0.20 and 0.16 for the whole period. This is also the case for automobiles, but the largest differences are found in the estimates for luxury imports. In this case, the coefficients associated with the middle class ($\beta = 0.61$ and $\beta = 0.49$ for the lower-middle and upper-middle classes, respectively) are much higher during the commodity boom than those found for the whole period ($\beta = 0.34$ and $\beta = 0.19$, respectively).

The upper class also exhibits positive and significant coefficients in this period, although smaller than those of the middle class. However, in durable and non-durable goods, the difference with the upper-middle class is quite minimal. Again, the conditions of the commodity boom also favored the growth of the size of the upper class, which registered an annual growth of 4.9% during the boom period compared to 2.5% in the full period, thus allowing this group to play a role in the dynamics of consumption imports. The negative estimates associated with the lower class are even lower for all import groups in the commodity boom period, with the exception of food products, which reinforces the idea that the lower class consumes mostly in the domestic market and that in an scenario of lax external constraint that favor import dynamics, a shift in income distribution towards greater impoverishment, which would be reflected in an increase in the size of the lower class, would be linked to a greater reduction in imports than in conditions not so favorable for the dynamics of imports.

6 Robustness checks

In this section I explore the sensitivity of my results to variations in the model specification. I present the results when (1) introducing alternative measures of middle class, (2) employing a different estimator to deal with cross-sectional dependence, and (3) excluding Mexico from the sample because of its unique economic and trade structure.

6.1 Alternative measures of middle class

For my first robustness exercise, I consider three relative definitions of the middle class employed in the literature. In relative definitions the middle class is defined in terms of the

share of total income that this group captures instead of as the share of total population. The first is followed by Alesina and Perotti (1996) who define the middle class as those individuals in the third and fourth quintiles of the income distribution. The second is employed by Easterly (2001) for whom the middle class are those individuals belonging to the second, third and fourth quintiles. The third considers the work of Solimano (2008) who define the middle class as those individuals belonging to deciles 3 to 9 of the income distribution. He also divides this income group into two subgroups: lower-middle class corresponding to deciles 9 to 7, and upper-middle class, which are those in deciles 6 to 3, and I follow that division for my estimations.

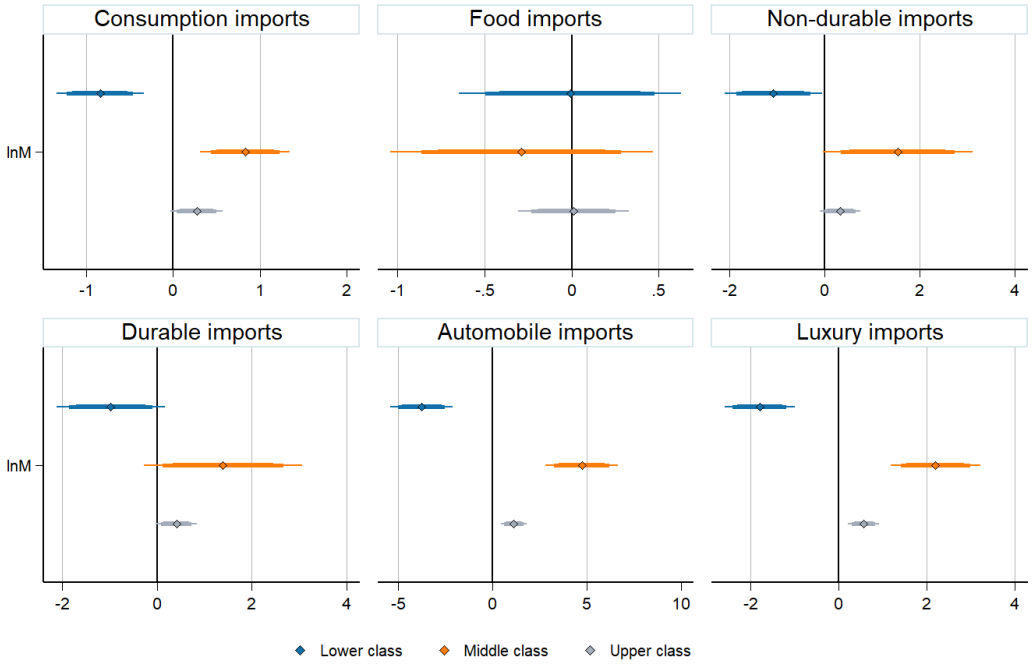
I build my income groups variables using data from the UNU-WIDER World Income Inequality Database. I carry out interpolations for those specific years in which a country has no data, using the regional trend calculated with the countries for which there is available data for the entire period. The full results of the estimates of total imports of consumption goods incorporating the new income group variables are shown in Table A7 in the Appendix. Income groups coefficients are displayed in Figure 4.

For the estimation of total consumption imports, the estimates of the income shares of the relative middle class groups as defined above are positive and significant for the three alternative definitions, with the only exception of the lower-middle class in Solimano's classification, which does not show insignificance. The magnitudes of the coefficients are not comparable to those in the main estimates because the income groups are measured differently here, in terms of income shares rather than population shares. Nevertheless, the middle class has the largest positive betas among the income groups in all cases, which seems to confirm the central argument of the middle class as the main income group behind the behavior of consumption imports at the aggregate level. The upper class shows a positive significant estimate only when Alesina and Perotti's definition is applied, although it is smaller than that of the middle class. This finding, although not in line with the main results where the upper class does not show a significant coefficient, comes to highlight the role of this income group, which has historically been related to consumption imports in the region and in the period analyzed, although to a lesser extent than the middle class, continues to play an important role. Disaggregating by product types, I find positive and significant coefficients of the middle class variables in all import categories except food products. In this case, the income group structure does not seem to play a role, as none of groups show significance. The coefficients associated with the middle class measures are also larger than those of the upper class in all cases. Nonetheless, the latter group shows significant positive estimates in most cases. What goes in line with the main results is the fact that the estimates of the middle class are consistently, across the income group definitions, particularly large

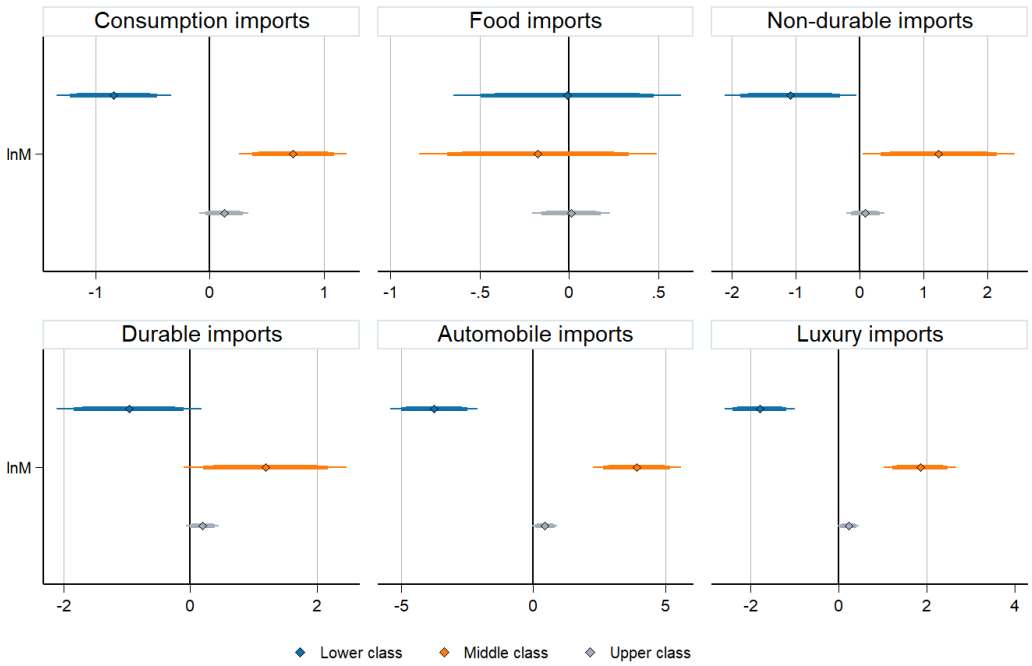
for automobiles and luxury goods.

Figure 4: Estimates of income group variables with relative income group definitions

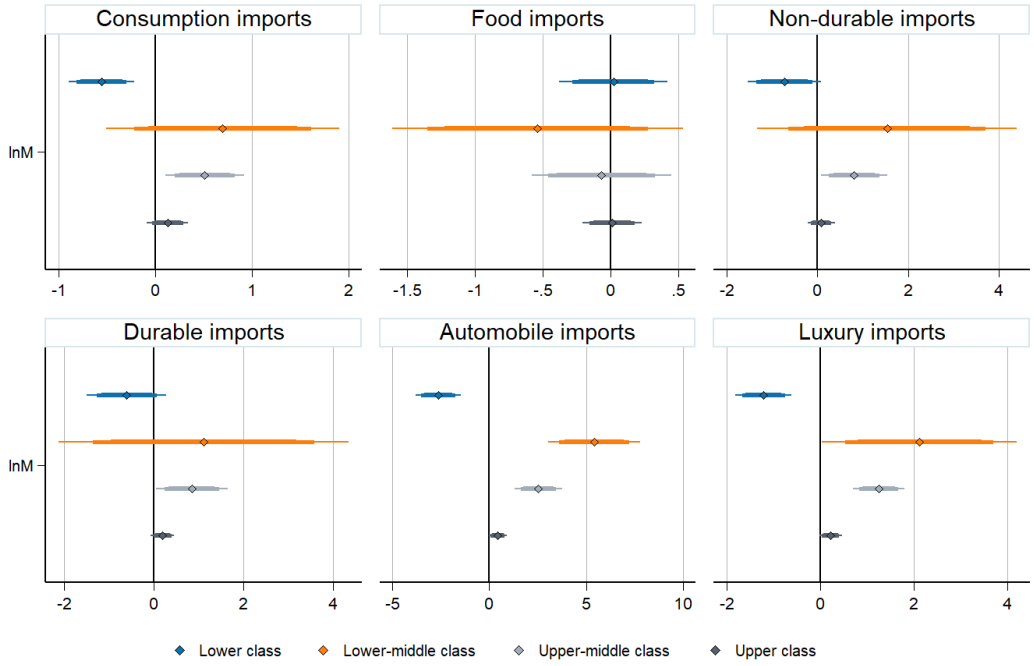
(a) Alesina and Perotti (1996)



(b) Easterly (2001)



(c) Solimano (2008)



Notes: All estimations include a constant term, country fixed effects, and controls for common regional variables such as the log of crude oil prices and the log of US monetary policy rate. Driscoll-Kraay standard errors used. 90%, 95% and 99% confident intervals are displayed.

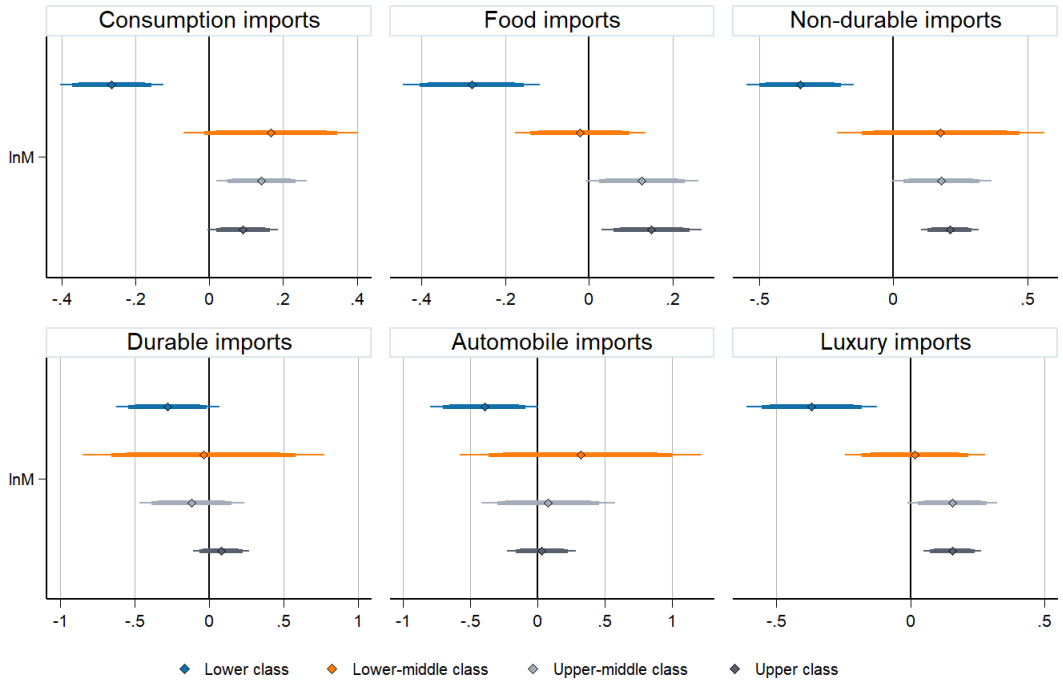
6.2 Common correlated effects (CCE) estimator

Although I tackled the issue of cross-sectional dependence by controlling for common regional variables in my baseline estimates, I study the sensitivity of my estimates using the CCEPMG estimator which is specifically designed to account for that issue. This estimator is designed for the estimation of nonstationary heterogenous large panels and addresses both the potential concerns of cross-sectional dependence and heterogeneity by combining two types of econometric techniques. The first is the pooled mean group (PMG) estimation by Pesaran et al. (1999), which allows the estimation of both heterogenous short-run and common long-run parameters by adopting an error correction specification, thus allowing the countries to differ in the short run but assuming convergence in the long run. PMG has better properties than the mean group (MG) estimator in the scenario of a reduced number of cross-sections in which the MG is usually inconsistent due to its sensitivity to permutations of non-large model and outliers (Favara, 2003). For my data on Latin American middle-income countries, convergence in the import dynamics across countries in the long run could be expected, considering the common economic features of these countries. However, they are likely to differ in the short run when country specificities might play a bigger role in shaping

the behavior of imports. The second is the common correlated effects (CCE) estimator by Pesaran (2006), which is meant to tackle the issue of potential cross-sectional dependence in the data by explicitly modelling it.

The CCEPMG is designed for those cases where both T and N are large, thus its estimates might be biased in the case of a small panel ($T = 24$; $N = 15$) as mine. This is why it was not my preferred option in this work since results from this estimator should be taken with caution in this case. Nonetheless, it is a well-recognized way to effectively tackle cross-sectional dependence and some recent papers have proven its satisfactory properties in the case of small T (Westerlund et al., 2019). Another advantage of this method is that it allows for the establishment of cointegration even if regressors are integrated of different order which it is exactly my case. The CIPS panel unit root test (Pesaran, 2007), which is appropriate for the presence of cross-sectional dependence, helps me confirm that some of my variables are I(0) while others are I(1). Results can be found in Table A8 in the Appendix.

Figure 5: CCEPMG estimates of income group variables



Notes: Long-run coefficients with Newey-West standard errors for pooled coefficients are shown. 90%, 95% and 99% confident intervals are displayed.

The full estimates of the import function with the CCEPMG estimator are shown in Table A9 in the Appendix while income group coefficients are displayed in Figure 5. For the total consumption imports, the results are similar to those of the main estimation, indicating a positive and significant effect of the middle-class variables as explanatory of

consumption goods imports. Moreover, this income group shows the highest coefficients, which corroborates its leading role. The lower-middle class shows a slightly higher coefficient ($\beta = 0.17$) than the upper-middle class ($\beta = 0.14$), in line with what was observed with the FE estimator. When we disaggregate by product group, the results continue to suggest a prominent role for the middle class, especially the upper-middle class, but the upper class shows slightly higher coefficients in some cases such as for food and nondurable imports. In the case of durable imports, as in the main estimates, we find no significance of the coefficients associated with the income group variables, with the sole exception of that of the lower class, which appears negative. The same is true for imports of automobiles, which, on the contrary, have higher positive coefficients in the main estimates with FE. For luxury goods, only the coefficients of the upper-middle class and upper class are significant, with a similar magnitude ($\beta = 0.16$), which does not support the results of the main estimation pointing to the role of the lower-middle class as a predictor of luxury goods imports. Nevertheless, the limitations of this method when applied to a small panel suggest that the results should be treated with caution.

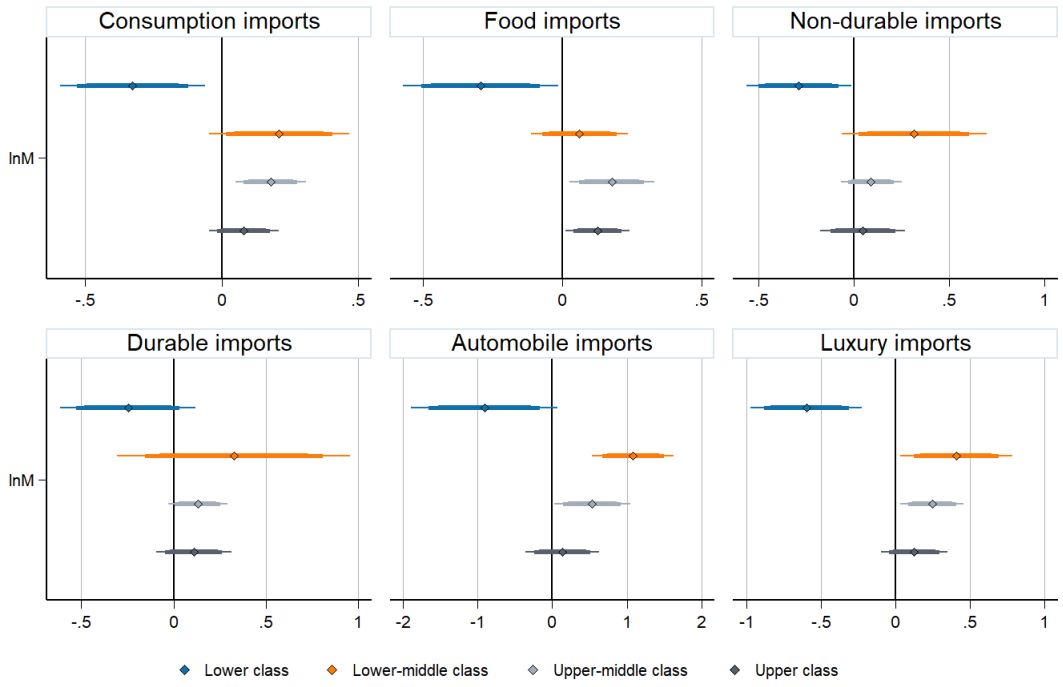
6.3 Estimates excluding Mexico

The presence of Mexico in the sample may influence the coefficients associated with the income groups downwards, due to the singularities of the productive structure of this country. Mexico has a larger and more developed manufacturing sector than the Latin American average. The value added of the Mexican manufacturing sector as a percentage of GDP averaged 17% over the period considered, while the Latin American average was 14%. On the export side, Mexican manufacturing exports accounted for 79% of total merchandise exports over the same period. For Latin America as a whole, the figure was only 32%. The trade relationship established with the US and Canada under NAFTA, which entered into force in 1994, although with limitations, is one of the factors explaining this figure (López-Córdova, 2003; Moreno Brid et al., 2005; Blecker, 2016), which puts Mexico in a unique situation in the Latin American context. The productive capacity created in the country could make it less dependent on imports of consumption goods to satisfy domestic demand, and therefore changes in income distribution would have less impact on the behavior of consumption imports in the country. For this reason, I repeat my estimates without Mexico as a robustness test for the main results.

The full results of the estimates excluding Mexico are presented in Table A10 in the Appendix. The significant coefficients for the income groups are shown in Figure 6. The downward influence of Mexico on the main (full-sample) estimates is confirmed when it is

included in the sample, but the difference in the size of the coefficients is minimal. However, in the estimates without Mexico we find that some middle-class measures that did not have significant coefficients in the main estimates now show significant ones. This is the case for the lower-middle class as a predictor of imports of nondurable goods, which shows a significant positive coefficient when we exclude Mexico from the sample. The same applies to the estimates for durable goods, where the upper-middle class appears with a significant positive coefficient. The middle class, whether lower- or upper-middle class, has now a significant positive impact on all product groups. Thus, these results suggest what we already suspected. The inclusion of Mexico in the sample, whose economy has a more developed manufacturing sector, does affect the results of the main estimates, especially for some of the disaggregated import categories. When the country is excluded, the role of the middle class in the dynamics of consumption imports becomes more pronounced.

Figure 6: Estimates of income group variables without Mexico



Notes: All estimations include a constant term, country fixed effects, and controls for common regional variables such as the log of crude oil prices and the log of US monetary policy rate. Driscoll-Kraay standard errors used. 90%, 95% and 99% confident intervals are displayed.

With regard to the other income groups, the lower class keeps significant negative coefficients, similar to the main estimates. The upper class continues to show insignificant coefficients in almost all groups of imports even when Mexico is excluded from the sample. The only exception is food imports where, as in the main estimates, this income group dis-

plays a positive significant coefficient ($\beta = 0.13$), although of a smaller size than that of the upper-middle class ($\beta = 0.18$).

7 Conclusions and potential policy implications

The findings of this paper suggest that the middle class has become the main income group behind the performance of consumption goods imports in the region during the period covered which includes the latest commodity price boom. This result holds for total imports of consumption goods as well as on a disaggregated basis in the case of imports of food products and automobiles. In addition, this paper also examined the relationship between the middle class and imports of luxury goods, since in the context of highly unequal countries, such as those in Latin America, the middle class may emulate the consumption patterns of the upper class in order to differentiate itself from the poor majority of the countries. In this sense, the results indicate a positive and significant relationship between the middle class and luxury imports, with higher coefficients for this income group than for the upper class. Within the middle class, the lower-middle class has the highest coefficients. This could be understood as the attempt of this new middle class, mostly originated during the period of analysis of this paper, to differentiate itself from the lower class through consumption. As mentioned by Witt (2017), the influence of personal tastes and social factors is greater when purchasing power increases. In the context of high inequality and rapid growth of the middle class experienced in Latin America, social factors could be playing an important role in the consumption decisions of households in this social stratum that would seek to catch-up with their own income group or the groups right above it (Frank et al., 2014; Setterfield and Kim, 2017) and try to emulate the consumption of higher strata. This point is supported by our findings since the impact of the middle class on luxury imports is found to be moderated by the size of the upper class, with those countries in which the latter represents a bigger size of the population accounting for the highest effects.

The size of the middle class estimates is especially large during the commodity price boom, which can be explained by two factors. On the one hand, it was during this period that the middle class grew at its fastest pace. Commodity prices as well as political changes in some countries in the region towards governments more favorable to redistributive policies contributed to its growth (Ferreira et al., 2013). On the other hand, the growth of export revenues as well as capital inflows during this period relaxed the external constraint on the Latin American economies, thus favoring imports. Both factors could explain the larger size of the coefficients of the middle class in this period, where we also find a significant impact of the upper class on some groups of consumption goods imports, which could be a result of

the fact that this group also benefited from this period of rising commodity prices.

Although the results of the robustness tests confirm the main result of this paper, that the middle class is the main income group behind imports in the period analyzed, some do not fully support the main result of specifically the lower-middle class being the one mostly behind import behavior. This is the case of the estimates using Solimano's (2008) relative measure of the middle class or the CCEPMG estimator, both of which point to the upper-middle class as the main income group behind most groups of consumption imports. However, in both cases the results should be treated with caution due to the inability to fully compare absolute and relative definitions of middle class in the first case, and the limitations of using a CCEPMG estimator in the case of a small sample in the second case. The remaining robustness tests do indeed support the leading role of the lower-middle class as the main income group behind imports of consumption goods.

While the literature has focused on the political, social, and also economic benefits of having a large middle class, linking the middle class to higher rates of economic growth because of its more entrepreneurial spirit, which would increase investment levels in countries (Doepke and Zilibotti, 2008), the reality is that changes in income distribution and in social class structure have macroeconomic effects that are not always so clearly positive. In this paper we have analyzed how changes in income distribution, in this case the rise of the middle class, are transmitted to the external sector through their impact on imports. Although this should not be seen as negative in principle, in the case of Latin American countries with fragile balance of payments dynamics due to their poorly diversified production structures and dependence on a small number of export commodities, whose prices are determined in the international markets, the increase in imports associated with the growth of the middle class could constitute an additional obstacle to macroeconomic stability, since it can contribute to exacerbate the external constraint by increasing pressure on the current account via imports – especially when a commodity boom ends, as must eventually happen.

Moreover, the consumption basket of the middle class looks different from that of the lower class, a fact that had already been studied through the exploitation of consumption surveys at the country level (Martínez et al., 2019; Clément et al., 2020; Carrere et al., 2022), but that has its reflection in the import structure of the countries, as shown in this paper. This fact implies the generation of new demands both at the commercial level, through imports, and at the domestic level, through new demands on the state. In this sense, with the purpose of meeting the consumption demands of this new emerging class, Latin American countries must be able to promote social policies that can respond to the needs of this income group, as well as policies of structural change in their productive structures to ensure their stability and the sustainability of their consumption patterns in all phases of the economic

cycle.

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Appendix

Table A1: Descriptive statistics

Variable	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**
ln(CM)	360	4.91	0.49	2.69	5.96
ln(FM)	360	4.89	0.52	2.47	6.07
ln(NM)	360	4.89	0.55	2.65	6.30
ln(DM)	360	4.94	0.71	1.91	7.33
ln(AM)	360	5.08	0.82	1.53	6.61
ln(LM)	360	4.96	0.53	3.07	6.31
ln(LC10)	360	3.98	0.35	2.72	4.48
ln(MC1030)	360	3.47	0.35	2.22	4.07
ln(MC3050)	360	1.63	0.58	0.02	2.97
ln(HC50)	360	1.09	0.68	-0.49	2.46
ln(C)	360	4.89	0.28	4.35	5.54
ln(REER)	360	4.59	0.29	3.12	5.24
MR	360	2.52	0.94	1.00	5.00
CRISES	360	0.11	0.31	0.00	1.00
ln(AT)	360	1.20	0.79	-1.09	2.56
ln(ATFM)	360	1.21	1.03	-1.89	3.49
ln(ATNM)	360	1.77	0.75	-0.89	3.08
ln(ATDM)	360	2.05	0.84	-1.75	3.32
ln(ATAM)	360	2.09	0.94	-2.20	3.60
ln(ATLM)	360	1.90	0.74	-0.83	3.15
ln(MCq3q4)	360	3.52	0.07	3.31	3.68
ln(MCq2q4)	360	3.75	0.08	3.53	3.92
ln(MCd7d9)	360	3.09	0.11	2.81	3.32
ln(MCd3d6)	360	3.60	0.04	3.42	3.69

Table A2: Consumption imports categories

GICS category	ISIC category
Food products	111 - Growing of cereals and other crops n.e.c.
	112 - Growing of vegetables, horticultural specialties and nursery products
	113 - Growing of fruit, nuts, beverage and spice crops
	122 - Other animal farming
	200 - Forestry, logging and related service activities
	500 - Fishing, operation of fish hatcheries and fish farms
	1511 - Production, processing and preserving of meat and meat products
	1512 - Processing and preserving of fish and fish products
	1513 - Processing and preserving of fruit and vegetables
	1514 - Manufacture of vegetable and animal oils and fats
	1520 - Manufacture of dairy products
	1531 - Manufacture of grain mill products
	1541 - Manufacture of bakery products
	1542 - Manufacture of sugar
	1543 - Manufacture of cocoa, chocolate and sugar confectionery
	1544 - Manufacture of macaroni, noodles and farinaceous products
	1549 - Manufacture of other food products n.e.c.
	1551 - Distilling, rectifying and blending of spirits
	1552 - Manufacture of wines
	1553 - Manufacture of malt liquors and malt
	1554 - Manufacture of soft drinks
Nondurable goods	1600 - Manufacture of tobacco products
	2211 - Publishing of books, brochures, musical books and other publications
	2212 - Publishing of newspapers, journals and periodicals
	2213 - Publishing of recorded media
	2219 - Other publishing
	3511 - Building and repairing of ships
	3512 - Building and repairing of pleasure and sporting boats
	3692 - Manufacture of musical instruments
	3693 - Manufacture of sports goods
	3694 - Manufacture of games and toys
	9214 - Dramatic arts, music and other arts activities
	1721 - Manufacture of made-up textile articles, except apparel
	1722 - Manufacture of carpets and rugs
	1730 - Manufacture of knitted and crocheted fabrics and articles
	1810 - Manufacture of wearing apparel, except fur apparel
	1820 - Dressing and dyeing of fur
	1912 - Manufacture of luggage, handbags and the like, saddlery and harness
	1920 - Manufacture of footwear
	2424 - Manufacture of soap and detergents, perfumes and toilet products

	3311 - Manufacture of medical and surgical equipment and orthopaedic appliances
	3320 - Manufacture of optical instruments and photographic equipment
	3330 - Manufacture of watches and clocks
	3691 - Manufacture of jewellery and related articles
	2029 - Manufacture of other products of wood
	2109 - Manufacture of other articles of paper and paperboard
	2422 - Manufacture of paints, varnishes and similar coatings, printing ink and mastics
	2423 - Manufacture of pharmaceuticals, medicinal chemicals and botanical products
	2429 - Manufacture of other chemical products n.e.c.
	2520 - Manufacture of plastics products
	2691 - Manufacture of non-structural non-refractory ceramic ware
	2893 - Manufacture of cutlery, hand tools and general hardware
	2921 - Manufacture of agricultural and forestry machinery
	2926 - Manufacture of machinery for textile, apparel and leather production
	3150 - Manufacture of electric lamps and lighting equipment
Household durables	2930 - Manufacture of domestic appliances n.e.c.
	3230 - Manufacture of television and radio receivers, sound or video recording or reproducing apparatus
	3610 - Manufacture of furniture
Automobiles	3410 - Manufacture of motor vehicles
	3420 - Manufacture of bodies (coachwork) for motor vehicles
	3591 - Manufacture of motorcycles
	3592 - Manufacture of bicycles and invalid carriages

Table A3: Luxury-necessity classification

	Income distribution by quintiles					
ISIC category	**Q1 (Low.)**	**Q2**	**Q3**	**Q4**	**Q5 (High.)**	**Type of goods**
1531 - Grain mill products	1.39	1.39	1.58	1.49	1.58	Luxury
1543 - Cocoa, chocolate products	0.61	0.74	0.76	0.79	0.94	Luxury
1551 - Spirit drinks	0.26	0.36	0.45	0.54	0.62	Luxury
1552 - Wines	0.60	0.64	0.63	0.71	0.90	Luxury
1721 - Textile articles, except apparel	0.15	0.18	0.19	0.21	0.23	Luxury
1722 - Carpets and rugs	0.06	0.10	0.10	0.20	0.42	Luxury
1730 - Knitted and crocheted articles	0.81	0.99	1.21	1.12	1.60	Luxury
1810 - Wearing apparel	3.09	3.65	4.86	5.78	6.64	Luxury
1912 - Luggage, handbags	0.57	0.51	0.72	0.75	1.01	Luxury
2211 - Books, brochures, and other publications	0.58	0.52	0.50	0.84	1.61	Luxury
2212 - Newspapers, journals and periodicals	0.10	0.11	0.12	0.15	0.16	Luxury
2219 - Other publishing	0.01	0.02	0.02	0.02	0.03	Luxury
2423 - Pharmaceuticals and botanical products	3.92	4.39	4.81	5.59	6.75	Luxury
2424 - Soap and detergents, perfumes and toilet products	2.58	2.82	3.13	3.42	3.45	Luxury
2520 - Plastics products	0.12	0.14	0.15	0.21	0.47	Luxury
2893 - Cutlery, hand tools and general hardware	0.41	0.43	0.49	0.53	0.68	Luxury
2926 - Machinery for textile, apparel and leather production	0.40	0.50	0.54	0.63	1.10	Luxury
3150 - Electric lamps and lighting equipment	0.21	0.23	0.27	0.29	0.46	Luxury
3230 - Television and radio receivers, sound or video apparatus	3.55	3.62	4.09	4.81	4.70	Luxury
3320 - Optical instruments and photographic equipment	0.30	0.30	0.28	0.57	0.66	Luxury
3330 - Watches and clocks	0.03	0.03	0.05	0.05	0.17	Luxury
3410 - Motor vehicles	2.97	5.12	6.93	9.57	16.38	Luxury
3420 - Bodies (coachwork) for motor vehicles	0.50	0.63	0.93	1.01	1.43	Luxury
3591 - Motorcycles	0.04	0.03	0.09	0.07	0.33	Luxury
3592 - Bicycles	0.02	0.03	0.04	0.03	0.07	Luxury
3610 - Furniture	1.94	1.74	2.04	2.09	2.49	Luxury
3691 - Jewellery and related articles	0.12	0.19	0.19	0.29	0.48	Luxury
3693 - Sports goods	0.26	0.24	0.27	0.35	0.48	Luxury
3694 - Games and toys	0.69	0.99	1.21	1.35	1.61	Luxury
111 - Cereals and other crops	1.55	1.16	0.91	0.73	0.35	Necessity

112 - Vegetables	8.98	7.89	6.16	5.24	3.48	Necessity
113 - Fruit, nuts, beverage and spice crops	2.60	2.26	2.25	2.08	1.72	Necessity
122 - Other animal farming	1.38	1.16	0.97	0.72	0.42	Necessity
1511 - Meat and meat products	13.67	12.64	11.42	9.83	6.74	Necessity
1512 - Fish and fish products	0.67	0.49	0.49	0.47	0.41	Necessity
1514 - Vegetable and animal oils and fats	1.25	1.13	0.88	0.77	0.46	Necessity
1520 - Dairy products	6.66	6.29	5.94	5.43	4.69	Necessity
1541 - Bakery products	10.57	8.94	7.47	5.93	3.35	Necessity
1542 - Sugar products	1.17	1.08	0.78	0.70	0.39	Necessity
1544 - Pasta and similar farinaceous products	1.22	0.91	0.80	0.64	0.35	Necessity
1549 - Other food products	0.91	0.90	0.75	0.71	0.56	Necessity
1554 - Soft drinks	6.30	6.86	6.71	5.89	5.03	Necessity
1600 - Tobacco products	2.25	2.41	2.50	2.18	1.19	Necessity
2109 - Other articles of paper and paperboard	3.17	3.21	3.25	2.80	2.33	Necessity
2429 - Other chemical products	2.70	2.78	2.24	2.24	1.99	Necessity
2691 - Non-structural non-refractory ceramic ware products	1.19	1.01	1.01	1.08	0.78	Necessity
2930 - Domestic appliances	2.19	2.30	2.17	2.11	2.00	Necessity
500 - Fishing, operation of fish hatcheries and fish farms	0.80	0.91	0.74	0.76	0.72	Indeterminate
1513 - Processing and preserving of fruit and vegetables	0.26	0.32	0.35	0.35	0.30	Indeterminate
1553 - Malt liquors and malt	0.58	0.73	0.80	0.73	0.65	Indeterminate
1920 - Footwear	1.97	2.34	2.53	3.14	2.62	Indeterminate
2029 -Other products of wood	0.59	0.65	0.46	0.59	0.80	Indeterminate
2213 - Publishing of recorded media	0.11	0.07	0.21	0.13	0.22	Indeterminate
2422 - Paints, varnishes and similar coatings	0.49	0.58	0.54	0.65	0.42	Indeterminate
2921 - Agricultural and forestry machinery	0.30	0.17	0.37	0.34	0.26	Indeterminate
3692 - Musical instruments	0.17	0.16	0.63	0.29	0.34	Indeterminate

Source: own elaboration using data from the 2011 Family Budget Survey for Chile.

Table A4: Trade agreements and customs union into force by country

	Trade Agreements and Customs Unions
Argentina	Mercosur (1991) → Argentina, Brazil, Paraguay, and Uruguay; Mercosur - Andean Community of Nations (Bolivia, Colombia, Ecuador, and Peru) (2005); Argentina - Israel (2011); Mercosur - Egypt (2017).
Bolivia	Andean Community of Nations (1988) → Bolivia, Colombia, Ecuador and Perú; Bolivia joins Mercosur (1997); Bolivia - Mexico (2010); Mercosur - Egypt (2017).
Brazil	Mercosur (1991) → Argentina, Brazil, Paraguay, and Uruguay; Brazil - Israel (2010); Mercosur - Egypt (2017).
Chile	Chile joins Mercosur (1996); Chile - Canada (1997); Chile - Mexico (1999); Chile - Costa Rica, El Salvador (2002); Chile - UE (27) (2003); Chile - Korea (2004); Chile - US (2004); Chile - EFTA (Iceland, Liechtenstein, Norway, and Switzerland) (2004); Chile - China (2006); Chile - Japan (2007); Chile - Honduras (2008); Chile - Panama (2008); Chile - Peru (2009); Chile - Colombia (2009); Chile - Australia (2009); Chile - Guatemala (2010); Chile - Turkey (2011); Chile - Nicaragua (2012); Chile - Malaysia (2012); Chile - Vietnam (2014); Chile - Hong Kong (2014); Chile - Tailandia (2015); Chile - Pacific Alliance (Colombia, Mexico and Peru) (2016); Chile - Uruguay (2018); CPTPP Comprehensive and Progressive Agreement for Trans-Pacific Partnership (Australia, Brunei Darussalam, Canada, Chile, Japan, Malaysia, Mexico, Peru, New Zealand, Singapore and Vietnam) (2018); Chile - Argentina (2019); Chile - Indonesia (2019).
Colombia	Colombia - Mexico (1995); Colombia - Chile (2009); Colombia - Guatemala (2009); Colombia - El Salvador, Honduras (2010); Colombia - Canada (2011); Colombia - EFTA (Iceland, Liechtenstein, Norway, and Switzerland) (2011); Colombia - US (2012); Colombia - EU (27) and Peru (2013); Colombia - Pacific Alliance (Chile, Mexico, and Peru) (2016); Colombia - Korea (2016); Colombia - Costa Rica (2016); Colombia - Argentina, Brazil (2017); Colombia - Uruguay (2018); Colombia - Paraguay (2019).
Costa Rica	Central America (Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua) - Dominican Republic (2002); Central America - Chile (2002); Costa Rica - Canada (2002); Costa Rica - Trinidad and Tobago (2005); Costa Rica - Guyana, Barbados (2006); Central America - Panama (2008); Dominican Republic - CAFTA (Central America - Dominican Republic - United States) (2009); Costa Rica - Belize (2011); Costa Rica - China (2011); Costa Rica - Siganpore, Peru (2013); Central America - Mexico (2013); Central America Association Agreement - European Union (27) (2013); Central America - European Free Trade Association (EFTA) (2014); Costa Rica - Jamaica (2015); Costa Rica - Colombia (2016); Costa Rica - Korea (2019).

Dominican Republic	Dominican Republic - Central America (2002); Dominican Republic - CARICOM (Suriname, Guyana, Barbados, Jamaica, Trinidad y Tobago) (2002); Dominican Republic - Central America - United States (2007); CARIFORUM - EU (2008).
Ecuador	Andean Community of Nations (1988) → Bolivia, Colombia, Ecuador and Perú; Ecuador-European Union (27) (2017).
El Salvador	Central America - Dominican Republic (2001); Central America - Chile (2002); Central America - Panama (2003); Dominican Republic - CAFTA (2006); El Salvador - Taiwan (2008); Northen Triangle - Colombia (2010); Central America - Mexico (2012); Central America - EU (2013); Central America - Korea (2019).
Honduras	Central America - Dominican Republic (2001); Dominican Republic - CAFTA (2006); Central America - Chile (2008); Honduras - Taiwan (2008); Central America - Panama (2009); Northen Triangle - Colombia (2010); Central America - Mexico (2013); Central America - EU (2013); Honduras - Canada (2014); Honduras - Peru (2017); Central America - Korea (2019).
Mexico	NAFTA (Canada - Mexico - United States) (1994); Mexico - Colombia (1995); Mexico - Chile (1999); Mexico - EU (2000); Mexico - Israel (2001); Mexico - EFTA (2001); Mexico - Uruguay (2004); Mexico - Japan (2005); Mexico joins Mercosur (2006); Mexico - Bolivia (2010); Mexico - Peru (2012); Mexico - Central America (El Salvador and Nicaragua) (2012); Mexico - Central America (Costa Rica, Guatemala, Honduras) (2013); Mexico - Panama (2015); Mexico - Pacific Alliance (Colombia, Mexico, and Peru) (2016); CPTPP Comprehensive and Progressive Agreement for Trans-Pacific Partnership (Australia, Brunei Darussalam, Canada, Chile, Japan, Malaysia, Mexico, Peru, New Zealand, Singapore, and Vietnam) (2018).
Panama	Panama - El Salvador (2003); Panama - Taiwan (2004); Panama - Singapore (2006); Panama - Chile (2008); Panama - Costa Rica (2008); Panama - Guatemala, Honduras, Nicaragua (2009); Panama - US (2012); Panama - Peru (2012); Panama - Canada (2013); Central America Association Agreement - EU (2013); Central America - EFTA (2014); Panama - Mexico (2015).
Paraguay	Mercosur (1991) → Argentina, Brazil, Paraguay, and Uruguay; Mercosur - Chile (1996); Mercosur - Bolivia (1997); Mercosur - Peru (2006); Mercosur - Israel (2010); Mercosur - Colombia (2019).

Peru	Andean Community of Nations (1988) → Bolivia, Colombia, Ecuador and Peru; Mercosur - Peru (2005); Peru - US (2009); Peru - Chile (2009); Peru - Singapore (2009); Peru - Canada (2009); Peru - China (2010); Peru - EFTA (2011); Peru - Korea (2011); Peru - Thailand (2011); Peru - Mexico (2012); Peru - Panama (2012); Peru - Japan (2012); Peru - Costa Rica (2013); Peru - EU (2013); Pacific Alliance (2016); Peru - Honduras (2017); CPTPP Comprehensive and Progressive Agreement for Trans-Pacific Partnership (Australia, Brunei Darussalam, Canada, Chile, Japan, Malaysia, Mexico, Peru, New Zealand, Singapore, and Vietnam) (2018).
Uruguay	Mercosur (1991) → Argentina, Brazil, Paraguay, and Uruguay; Mercosur - Chile (1996); Mercosur - Bolivia (1997); Uruguay - Mexico (2004); Mercosur - Peru (2005); Mercosur - Israel (2009); Mercosur - Egypt (2017); Uruguay - Chile (2018); Mercosur - Colombia (2018).

Source: own elaboration based on data from SICE Foreign Trade Information System by the OAS.

Table A5: Pesaran (2015) test for weak cross-sectional dependence

CM	38.07	*C*	48.48
	(0.000)		(0.000)
FM	35.50	*REER*	11.47
	(0.000)		(0.000)
NM	28.98	*MR*	2.45
	(0.000)		(0.014)
DM	20.82	*CRISES*	8.51
	(0.000)		(0.000)
AM	28.93	*AT*	11.83
	(0.000)		(0.000)
LM	32.22	*ATFM*	10.64
	(0.000)		(0.000)
LC10	38.87	*ATNM*	13.33
	(0.000)		(0.000)
MC1030	35.15	*ATDM*	10.08
	(0.000)		(0.000)
MC3050	26.07	*ATAM*	6.00
	(0.000)		(0.000)
HC50	11.58	*ATLM*	14.99
	(0.000)		(0.000)

Notes: The probability to accept the null hypothesis of presence of cross-sectional dependence is presented here. P-value in parenthesis.

Table A6: Commodity boom period FE estimates

Panel A. Total consumption, food, and nondurable goods imports

Dep. variable	*CM*				*FM*				*NM*			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
C	0.749***	0.788***	0.912***	1.022***	0.601*	0.637*	0.705**	0.768**	0.695***	0.857***	0.890***	0.994***
	(0.137)	(0.177)	(0.159)	(0.134)	(0.281)	(0.300)	(0.305)	(0.312)	(0.163)	(0.217)	(0.167)	(0.198)
REER	0.325**	0.350**	0.368**	0.379**	0.360*	0.381*	0.391*	0.398*	0.246***	0.348***	0.332***	0.330***
	(0.112)	(0.120)	(0.119)	(0.127)	(0.174)	(0.180)	(0.179)	(0.180)	(0.063)	(0.060)	(0.062)	(0.071)
MR									-0.104**	-0.0892**	-0.101**	-0.105**
									(0.035)	(0.032)	(0.035)	(0.035)
AT	0.005	0.032	0.021	0.022	-0.042*	-0.028	-0.035	-0.034*				
	(0.018)	(0.021)	(0.020)	(0.019)	(0.020)	(0.021)	(0.020)	(0.018)				
LC10	-0.431***				-0.262***				-0.637**			
	(0.083)				(0.082)				(0.236)			
MC1030		0.348***				0.192				0.327**		
		(0.081)				(0.146)				(0.125)		
MC3050			0.129***				0.070				0.204**	
			(0.027)				(0.057)				(0.071)	
HC50				0.035				0.016				0.122*
				(0.044)				(0.068)				(0.058)
Adj. R-squared	0.854	0.848	0.842	0.840	0.770	0.767	0.766	0.765	0.702	0.677	0.677	0.674
Observations	165	165	165	165	165	165	165	165	165	165	165	165
No. of countries	15	15	15	15	15	15	15	15	15	15	15	15

Panel B. Durable goods, automobiles, and luxury imports

Dep. variable	*DM*				*AM*				*LM*			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
C	0.234	0.178	0.438	0.486*	0.805	0.714	0.802	1.140*	0.669***	0.945***	0.893***	1.203***
	(0.240)	(0.293)	(0.278)	(0.220)	(0.565)	(0.525)	(0.505)	(0.560)	(0.159)	(0.188)	(0.170)	(0.124)
REER	1.308***	1.393***	1.396***	1.381***	1.470***	1.597***	1.572***	1.566***	0.308**	0.477***	0.447***	0.464**
	(0.0874)	(0.0907)	(0.0775)	(0.0894)	(0.246)	(0.232)	(0.238)	(0.221)	(0.115)	(0.125)	(0.123)	(0.153)
MR	-0.126*	-0.0956	-0.124*	-0.127*								
	(0.0583)	(0.0563)	(0.0598)	(0.0581)								
CRISES	-0.168***	-0.175***	-0.151**	-0.156**	-0.114	-0.117	-0.0950	-0.103	-0.116***	-0.0980**	-0.0891**	-0.0891**
	(0.0498)	(0.0511)	(0.0584)	(0.0567)	(0.0708)	(0.0753)	(0.0706)	(0.0839)	(0.0331)	(0.0316)	(0.0341)	(0.0396)
LC10	-0.611**				-1.170***				-1.166***			
	(0.246)				(0.274)				(0.243)			
MC1030		0.582***				1.072***				0.610***		
		(0.112)				(0.317)				(0.141)		
MC3050			0.178*				0.694***				0.487***	
			(0.0939)				(0.182)				(0.0858)	
HC50				0.151**				0.440***				0.235***
				(0.0640)				(0.0965)				(0.0628)
Adj. R-squared	0.716	0.711	0.701	0.702	0.726	0.718	0.719	0.713	0.760	0.700	0.711	0.693
Observations	165	165	165	165	165	165	165	165	165	165	165	165
No. of countries	15	15	15	15	15	15	15	15	15	15	15	15

Notes: All estimations include a constant term, country fixed effects, and controls for common regional variables such as the log of crude oil prices and the log of US monetary policy rate. Driscoll-Kraay standard errors in parentheses. All variables are in logs except for $CRISES$ and MR. CM refers to total consumption imports, FM to food imports, NM to nondurable goods imports, DM to durable goods imports, AM to automobile imports, and LM to luxury imports. *** p<0.01, ** p<0.05, * p<0.1.

Table A7: FE estimates of groups of consumption imports with alternative income groups definitions

Panel A. Total consumption and food imports

Dep. variable	*CM*									*FM*								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
C	0.854***	0.893***	0.905***	0.881***	0.940***	0.865***	0.881***	0.970***	0.939***	1.080***	1.111***	1.078***	1.104***	1.077***	1.085***	1.093***	1.097***	1.076***
	(0.070)	(0.077)	(0.070)	(0.073)	(0.071)	(0.075)	(0.070)	(0.082)	(0.072)	(0.083)	(0.085)	(0.083)	(0.086)	(0.079)	(0.084)	(0.086)	(0.081)	(0.079)
REER	0.493***	0.478***	0.487***	0.482***	0.483***	0.486***	0.488***	0.464***	0.483***	0.586***	0.587***	0.586***	0.585***	0.586***	0.585***	0.585***	0.597***	0.586***
	(0.111)	(0.110)	(0.107)	(0.110)	(0.106)	(0.112)	(0.109)	(0.102)	(0.106)	(0.141)	(0.140)	(0.141)	(0.141)	(0.142)	(0.142)	(0.140)	(0.139)	(0.142)
AT	-0.030	-0.028	-0.029	-0.028	-0.028	-0.029	-0.029	-0.025	-0.028	-0.051*	-0.053**	-0.051*	-0.053**	-0.050*	-0.051**	-0.052**	-0.054**	-0.050*
	(0.025)	(0.025)	(0.026)	(0.025)	(0.027)	(0.025)	(0.025)	(0.025)	(0.027)	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)	(0.023)	(0.025)
LCq5	-0.840***									-0.010								
	(0.195)									(0.247)								
MCq3q4		0.829***									-0.288							
		(0.200)									(0.292)							
HCq2q1			0.271**									0.011						
			(0.116)									(0.124)						
MCq2q4				0.731***									-0.173					
				(0.183)									(0.259)					
HCq1					0.126									0.013				
					(0.083)									(0.085)				
LCd10						-0.555***									0.022			
						(0.130)									(0.155)			
MCd7d9							0.511***									-0.065		
							(0.159)									(0.200)		
MCd3d6								0.694									-0.537	
								(0.467)									(0.417)	
HCd2d1									0.127									0.014
									(0.083)									(0.084)
Adj. R-squared	0.746	0.744	0.742	0.744	0.740	0.745	0.743	0.740	0.740	0.705	0.705	0.705	0.705	0.705	0.705	0.705	0.705	0.705
Observations	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360
No. of countries	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15

Panel B. Nondurable goods and durable goods imports

Dep. variable	*NM*									*DM*								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
C	0.665***	0.655***	0.740***	0.653***	0.803***	0.674***	0.667***	0.775***	0.802***	0.471***	0.459***	0.499***	0.449***	0.548***	0.489***	0.449***	0.581***	0.548***
	(0.067)	(0.076)	(0.062)	(0.072)	(0.058)	(0.073)	(0.066)	(0.057)	(0.058)	(0.087)	(0.090)	(0.086)	(0.091)	(0.078)	(0.085)	(0.093)	(0.064)	(0.078)
REER	0.323***	0.304***	0.316***	0.311***	0.309***	0.315***	0.320***	0.276***	0.309***	1.050***	1.033***	1.046***	1.040***	1.041***	1.042***	1.048***	1.014***	1.041***
	(0.101)	(0.099)	(0.095)	(0.099)	(0.093)	(0.101)	(0.098)	(0.098)	(0.093)	(0.178)	(0.173)	(0.174)	(0.175)	(0.172)	(0.176)	(0.176)	(0.163)	(0.172)
MR	-0.070*	-0.069*	-0.067*	-0.066*	-0.069**	-0.071**	-0.064*	-0.073**	-0.069**	-0.175***	-0.174***	-0.171***	-0.172***	-0.173***	-0.176***	-0.169***	-0.177***	-0.173***
	(0.034)	(0.035)	(0.033)	(0.035)	(0.032)	(0.032)	(0.035)	(0.032)	(0.032)	(0.035)	(0.034)	(0.034)	(0.034)	(0.035)	(0.035)	(0.034)	(0.035)	(0.035)
CRISES										-0.219***	-0.215***	-0.224***	-0.218***	-0.223***	-0.217***	-0.223***	-0.212***	-0.223***
										(0.052)	(0.048)	(0.055)	(0.050)	(0.056)	(0.051)	(0.053)	(0.046)	(0.056)
LCq5	-1.082**									-0.968**								
	(0.400)									(0.444)								
MCq3q4		1.530**									1.392**							
		(0.611)									(0.645)							
HCq2q1			0.320*									0.411**						
			(0.167)									(0.166)						
MCq2q4				1.239**									1.188**					
				(0.463)									(0.499)					
HCq1					0.0905									0.194*				
					(0.115)									(0.101)				
LCd10						-0.723**									-0.604*			
						(0.314)									(0.344)			
MCd7d9							0.815***									0.842**		
							(0.280)									(0.310)		
MCd3d6								1.541									1.112	
								(1.110)									(1.258)	
HCd2d1									0.0916									0.195*
									(0.115)									(0.101)
Adj. R-squared	0.613	0.618	0.606	0.616	0.602	0.612	0.614	0.609	0.602	0.575	0.578	0.574	0.578	0.572	0.574	0.577	0.572	0.572
Observations	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360
No. of countries	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15

Panel C. Automobile and luxury imports

Dep. variable	*AM*									*LM*								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
C	0.747***	0.778***	0.992***	0.759***	1.172***	0.752***	0.807***	1.129***	1.172***	0.705***	0.728***	0.815***	0.714***	0.902***	0.718***	0.726***	0.907***	0.902***
	(0.151)	(0.148)	(0.158)	(0.150)	(0.172)	(0.156)	(0.145)	(0.150)	(0.172)	(0.058)	(0.069)	(0.056)	(0.065)	(0.057)	(0.064)	(0.059)	(0.069)	(0.057)
REER	0.611*	0.547*	0.582*	0.567*	0.565*	0.586*	0.591*	0.451	0.565*	0.367***	0.336***	0.354***	0.346***	0.345***	0.354***	0.358***	0.299**	0.345***
	(0.304)	(0.288)	(0.320)	(0.295)	(0.324)	(0.303)	(0.302)	(0.303)	(0.324)	(0.116)	(0.109)	(0.116)	(0.111)	(0.116)	(0.116)	(0.112)	(0.112)	(0.116)
CRISES	-0.365***	-0.353***	-0.381***	-0.364***	-0.377***	-0.357***	-0.380***	-0.329***	-0.377***	-0.109***	-0.103***	-0.117***	-0.109***	-0.115***	-0.105***	-0.116***	-0.0952***	-0.115***
	(0.096)	(0.089)	(0.108)	(0.094)	(0.109)	(0.093)	(0.101)	(0.089)	(0.109)	(0.030)	(0.031)	(0.030)	(0.030)	(0.030)	(0.030)	(0.030)	(0.033)	(0.030)
LCq5	-3.752***									-1.790***								
	(0.641)									(0.311)								
MCq3q4		4.739***									2.200***							
		(0.743)									(0.398)							
HCq2q1			1.139***									0.568***						
			(0.267)									(0.136)						
MCq2q4				3.917***									1.849***					
				(0.649)									(0.317)					
HCq1					0.441**									0.225**				
					(0.184)									(0.094)				
LCd10						-2.627***									-1.208***			
						(0.448)									(0.233)			
MCd7d9							2.542***									1.252***		
							(0.469)									(0.213)		
MCd3d6								5.424***									2.124**	
								(0.924)									(0.807)	
HCd2d1									0.441**									0.226**
									(0.184)									(0.094)
Adj. R-squared	0.604	0.613	0.572	0.608	0.558	0.607	0.596	0.588	0.558	0.673	0.677	0.657	0.675	0.649	0.673	0.671	0.658	0.649
Observations	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360
No. of countries	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15

Notes: All estimations include a constant term, country fixed effects, and controls for common regional variables such as the log of crude oil prices and the log of US monetary policy rate. Driscoll-Kraay standard errors in parentheses. All variables are in logs except for $CRISES$ and MR. CM refers to total consumption imports, FM to food imports, NM to nondurable goods imports, DM to durable goods imports, AM to automobile imports, and LM to luxury imports. *** p<0.01, ** p<0.05, * p<0.1.

Table A8: Pesaran (2007) test for stationarity

	Log levels		**1st log differences**	
	Constant	Constant & Trend	Constant	Constant & Trend
CM	-6.407***	-6.151***	-	-
FM	-6.074***	-5.352***	-	-
NM	-8.164***	-7.848***	-	-
DM	-7.485***	-5.883***	-	-
AM	-3.954***	-4.090***	-	-
LM	-6.175***	-5.300***	-	-
LC10	-1.743*	-1.108	-11.448***	-10.462***
MC1030	-4.341***	-3.684***	-	-
MC3050	-4.246***	-4.250***	-	-
HC50	-5.917***	-3.970***	-	-
C	-2.166**	-0.802	-5.716***	-4.624***
REER	-1.103	-0.703	-8.397***	-6.702***
MR	3.046	4.951	-2.263**	-1.647*
CRISES	-4.197***	-3.084***	-	-
AT	-2.559***	-2.689***	-	-
ATFM	-3.461***	-2.532***	-	-
ATNM	-2.547***	-0.062	-12.497***	-10.904***
ATDM	-2.409***	-0.831	-10.869***	-9.354***
ATAM	-1.844**	0.119	-12.815***	-11.328***
ATLM	-3.262***	-1.946**	-	-

Notes: *** p<0.01, ** p<0.05, * p<0.1. *Null hypothesis*: series is I(1).

Table A9: CCEPMG estimates by groups of consumption imports

Panel A. Total consumption, food, and nondurable goods imports

Dependent variable		*CM*				*FM*				*NM*			
		(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Long-run	*C*	0.965***	1.050***	1.010***	1.092***	0.629***	0.762***	0.899***	0.892***	0.722***	0.830***	0.773***	0.838***
		(0.095)	(0.114)	(0.085)	(0.094)	(0.134)	(0.159)	(0.188)	(0.161)	(0.082)	(0.118)	(0.099)	(0.080)
	REER	0.323***	0.324***	0.323***	0.345***	0.439***	0.493***	0.476***	0.454***	0.213***	0.217***	0.294***	0.287***
		(0.063)	(0.063)	(0.056)	(0.060)	(0.064)	(0.066)	(0.067)	(0.069)	(0.057)	(0.053)	(0.054)	(0.051)
	MR									-0.048	-0.070**	-0.057**	-0.073***
										(0.030)	(0.029)	(0.025)	(0.025)
	CRISES	-0.067	-0.055	-0.063*	-0.049					-0.193***	-0.195***	-0.201***	-0.149***
		(0.042)	(0.039)	(0.038)	(0.040)					(0.038)	(0.040)	(0.038)	(0.040)
	AT	-0.034**	-0.003	-0.008	-0.003	-0.039***	-0.021	-0.013	-0.016				
		(0.014)	(0.014)	(0.013)	(0.013)	(0.013)	(0.013)	(0.015)	(0.014)				
	LC10	-0.264***				-0.280***				-0.347***			
		(0.055)				(0.063)				(0.078)			
	MC1030		0.167*				-0.021				0.177		
			(0.092)				(0.060)				(0.150)		
	MC3050			0.142***				0.126**				0.180**	
				(0.048)				(0.052)				(0.073)	
	HC50				0.091**				0.149***				0.211***
					(0.037)				(0.046)				(0.042)
EC coefficient		-0.609***	-0.607***	-0.592***	-0.591***	-0.602***	-0.610***	-0.614***	-0.622***	-0.479***	-0.429***	-0.456***	-0.449***
		(0.079)	(0.079)	(0.074)	(0.078)	(0.077)	(0.077)	(0.075)	(0.078)	(0.059)	(0.056)	(0.057)	(0.055)
CD test		0.28	14.04	9.28	12.56	-1.60	-2.18	-1.78	-1.70	-1.49	-2.18	-1.99	-2.10
(p-value)		*(0.78)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.11)*	*(0.03)*	*(0.08)*	*(0.09)*	*(0.14)*	*(0.03)*	*(0.05)*	*(0.04)*
R-squared		0.618	0.627	0.627	0.633	0.631	0.625	0.611	0.603	0.656	0.700	0.668	0.675
Observations		345	345	345	345	345	345	345	345	345	345	345	345
Number of countries		15	15	15	15	15	15	15	15	15	15	15	15

Panel B. Durable goods, automobiles, and luxury imports

Dependent variable		*DM*				*AM*				*LM*			
		(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Long-run	*C*	0.736***	0.957***	1.040***	0.876***	1.567***	1.539***	1.666***	1.724***	0.997***	1.210***	1.038***	1.094***
		(0.109)	(0.221)	(0.145)	(0.103)	(0.147)	(0.221)	(0.192)	(0.136)	(0.076)	(0.087)	(0.074)	(0.067)
	REER	0.817***	0.813***	0.841***	0.853***	0.156	0.123	0.141	0.171	0.047	0.089	0.092*	0.073
		(0.139)	(0.127)	(0.122)	(0.124)	(0.099)	(0.107)	(0.101)	(0.108)	(0.050)	(0.056)	(0.054)	(0.050)
	MR	-0.175***	-0.229***	-0.233***	-0.232***	-0.025	-0.115**	-0.148***	-0.120**				
		(0.048)	(0.050)	(0.043)	(0.050)	(0.052)	(0.048)	(0.055)	(0.054)				
	CRISES	-0.488***	-0.429***	-0.549***	-0.466***	-0.908***	-0.918***	-0.986***	-1.056***	-0.111***	-0.136***	-0.178***	-0.138***
		(0.087)	(0.076)	(0.082)	(0.074)	(0.078)	(0.071)	(0.079)	(0.078)	(0.037)	(0.039)	(0.041)	(0.040)
	LC10	-0.278**				-0.397**				-0.368***			
		(0.134)				(0.156)				(0.095)			
	MC1030		-0.0387				0.318				0.017		
			(0.314)				(0.349)				(0.101)		
	MC3050			-0.117				0.077				0.156**	
				(0.137)				(0.192)				(0.065)	
	HC50				0.080				0.029				0.156***
					(0.073)				(0.099)				(0.042)
EC coefficient		-0.552***	-0.541***	-0.527***	-0.543***	-0.382***	-0.367***	-0.339***	-0.345***	-0.476***	-0.409***	-0.438***	-0.433***
		(0.083)	(0.095)	(0.083)	(0.085)	(0.041)	(0.050)	(0.041)	(0.042)	(0.055)	(0.049)	(0.049)	(0.050)
CD test		-0.12	-0.54	-0.51	-0.59	-1.92	-2.00	-2.17	-1.98	-0.25	-1.16	-0.69	-0.86
(p-value)		*(0.91)*	*(0.59)*	*(0.61)*	*(0.56)*	*(0.06)*	*(0.05)*	*(0.03)*	*(0.05)*	*(0.80)*	*(0.25)*	*(0.49)*	*(0.39)*
R-squared		0.637	0.657	0.652	0.654	0.740	0.758	0.773	0.758	0.546	0.593	0.564	0.588
Observations		345	345	345	345	345	345	345	345	345	345	345	345
Number of countries		15	15	15	15	15	15	15	15	15	15	15	15

Notes: Only long-run coefficients are shown in the table. Newey-West standard errors for pooled coefficients in parentheses. A constant term was included in all estimations. All variables are in logs except for $CRISES$ and MR. CM refers to consumption imports, FM to food imports, NM to nondurable goods imports, DM to durable goods imports, AM to automobile imports, and LM to luxury imports. *** p<0.01, ** p<0.05, * p<0.1.

Table A10: FE estimates excluding Mexico

Panel A. Total consumption, food, and nondurable goods imports

Dep. variable	*CM*				*FM*				*NM*			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
C	0.682***	0.818***	0.764***	0.888***	0.832***	1.048***	0.894***	0.969***	0.605***	0.602***	0.735***	0.792***
	(0.091)	(0.092)	(0.097)	(0.084)	(0.122)	(0.069)	(0.101)	(0.082)	(0.105)	(0.105)	(0.079)	(0.085)
REER	0.493***	0.475***	0.479***	0.489***	0.596***	0.594***	0.579***	0.584***	0.310***	0.284**	0.309***	0.314***
	(0.116)	(0.111)	(0.109)	(0.109)	(0.142)	(0.137)	(0.132)	(0.130)	(0.107)	(0.104)	(0.103)	(0.098)
MR									-0.057*	-0.046	-0.055	-0.053
									(0.032)	(0.031)	(0.033)	(0.032)
AT	-0.055*	-0.035	-0.0487	-0.0466	-0.060***	-0.041	-0.051**	-0.057**				
	(0.027)	(0.034)	(0.0312)	(0.0320)	(0.020)	(0.024)	(0.022)	(0.022)				
LC10	-0.327***				-0.294**				-0.289**			
	(0.103)				(0.108)				(0.107)			
MC1030		0.209**				0.061				0.316**		
		(0.0995)				(0.068)				(0.148)		
MC3050			0.178***				0.178***				0.090	
			(0.0502)				(0.060)				(0.062)	
HC50				0.0807				0.126***				0.047
				(0.0493)				(0.045)				(0.087)
Adj. R-squared	0.752	0.747	0.750	0.745	0.709	0.703	0.709	0.707	0.677	0.679	0.671	0.670
Observations	336	336	336	336	336	336	336	336	336	336	336	336
Number of countries	14	14	14	14	14	14	14	14	14	14	14	14

Panel B. Durable goods, automobiles, and luxury imports

Dep. variable	*DM*				*AM*				*LM*			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
C	0.408**	0.366*	0.466***	0.519***	0.610**	0.521**	0.761***	1.201***	0.526***	0.687***	0.732***	0.889***
	(0.158)	(0.180)	(0.0947)	(0.110)	(0.294)	(0.224)	(0.191)	(0.141)	(0.125)	(0.121)	(0.0920)	(0.0736)
REER	1.073***	1.043***	1.064***	1.063***	0.531**	0.433	0.492*	0.540*	0.313***	0.285**	0.301***	0.312***
	(0.172)	(0.173)	(0.169)	(0.162)	(0.256)	(0.290)	(0.274)	(0.291)	(0.102)	(0.109)	(0.102)	(0.0986)
MR	-0.165***	-0.155***	-0.164***	-0.161***								
	(0.0362)	(0.0342)	(0.0367)	(0.0359)								
CRISES	-0.205***	-0.208***	-0.203***	-0.210***	-0.388***	-0.400***	-0.376***	-0.406***	-0.0799**	-0.0898**	-0.0783**	-0.0919**
	(0.0515)	(0.0496)	(0.0500)	(0.0518)	(0.104)	(0.112)	(0.100)	(0.117)	(0.0333)	(0.0397)	(0.0352)	(0.0344)
LC10	-0.247*				-0.908**				-0.597***			
	(0.143)				(0.381)				(0.145)			
MC1030		0.326				1.082***				0.407**		
		(0.245)				(0.212)				(0.145)		
MC3050			0.130**				0.535**				0.246***	
			(0.0623)				(0.197)				(0.0820)	
HC50				0.109				0.139				0.126
				(0.0790)				(0.192)				(0.0865)
Adj. R-squared	0.606	0.609	0.604	0.605	0.581	0.599	0.576	0.555	0.704	0.690	0.687	0.680
Observations	336	336	336	336	336	336	336	336	336	336	336	336
Number of countries	14	14	14	14	14	14	14	14	14	14	14	14

Notes: All estimations include a constant term, country fixed effects, and controls for common regional variables such as the log of crude oil prices and the log of US monetary policy rate. Driscoll-Kraay standard errors in parentheses. All variables are in logs except for $CRISES$ and MR. CM refers to consumption imports, FM to food imports, NM to nondurable goods imports, DM to durable goods imports, AM to automobile imports, and LM to luxury imports. *** p<0.01, ** p<0.05, * p<0.1.