Sourcing all the eggs from one basket: Trade dependencies and import prices*

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PRELIMINARY - NOT FOR QUOTE

Abstract

Highly concentrated imports can be a source of vulnerability in an environment characterized by geopolitical tensions. In light of this concern, some recently adopted policies aim at decreasing advanced economies' import concentration for key products. Likewise, a tendency towards supplier diversification has been observed in firm surveys. In this paper, we study how countries' import concentration in a few external providers affects the price they pay for their imports. Import concentration decreased in OECD countries in the last two decades, especially up to the Global Financial Crisis, in the hyper-globalization period. For EU countries, integration in the single market was crucial to foster diversification also beyond the hyper-globalization years. Yet, as concerns a number of strategic goods, imports tend to be more concentrated in geopolitically-distant providers. Panel regression analysis based on granular trade data at the country-product level shows that a high import concentration tends to be associated to higher import prices, which is compatible with the view that strongly concentrated markets correspond to a low level of competition. This effect tends to be more pronounced when firms' perceived market power is strong –for goods whose production is highly concentrated at the world level or for those that a country cannot (fully) produce by itself. The positive relationship between import concentration and import prices is less pronounced in high-tech. industries, consistently with the notion that in these sectors a high concentration is also related to the presence of economies of scale. Exclusive trade relations, i.e. those in which the importer sources a product from one provider only, are associated with lower import prices and could therefore be costlier to break.

Keywords: trade dependencies, import concentration, import prices, market concentration, critical products

JEL classifications: F6, F14, F15, E31

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1 Introduction

In the last years, several events have brought forward the potential risks implied by external trade dependencies and, in particular, by a high concentration of imports in a few external providers. Pandemic-related interruptions of trade flows, as well as trade tensions linked to US-China disputes and the Russian invasion of Ukraine, have shown that highly concentrated imports can be a source of vulnerability for the importer in the face of external shocks –and the more so in an environment characterized by geopolitical tensions and a potential weaponization of supply chains. In light of these considerations, various policies recently adopted by the European Union –like the Critical Raw Materials Act, the Chips Act, and the REPowerEU Plan— specifically aim at decreasing import concentration for key products. [1] A tendency towards supplier diversification has also been observed in recent firm surveys. An ECB survey of leading companies operating in the euro area (Attinasi, Ioannou, Lebastard and Morris, 2023) documents that more than 60% of these firms are planning to diversify their input sourcing across different countries in the next five years. Similarly, a coordinated business survey across Italy, Germany and Spain shows that around half of firms sourcing critical inputs from China are implementing, or plan to implement, de-risking strategies that involve input sourcing diversification (Balteanu, Bottone, Ioannou, Kutten, Fernandez-Cerezo, Mancini and Morris, 2024).

In light of these tendencies, a key question is whether a higher import diversification could have an impact on import –and hence on consumer— prices. Such an issue could be particularly relevant at the current juncture. Several recent analyses show that geopolitical tensions might already be spurring a selective process of international trade fragmentation along geopolitical lines (Gopinath, 2023; International Monetary Fund, 2024; Fernandez-Villaverde, Mineyama and Song, 2024). In the next years, a potential deepening of geopolitical tensions and trade fragmentation tendencies could give rise to negative supply shocks, trade disruptions and higher transport costs, with inflationary consequences at the world level, as shown in IRC (2024). In this context, changes in import concentration could have an additional and potentially significant impact on the level of import prices, which could either limit or boost inflationary pressures.

According to economic theory, a decrease in import concentration could impact prices in two different ways, depending on the factors underlying import concentration itself. On the one hand, if concentrated imports are optimal from an economic point of view –because they are due, for instance, to the presence of economies of scale– a decrease in concentration could limit efficiency –for example, efficient scale effects–, thus resulting in higher import prices (Covarrubias, Gutiérrez and Philippon, 2020; Haskel and Westlake, 2017; Bonfiglioli, Crinò and Gancia, 2021). On the other hand, if concentrated imports are the result of some kind of distortions that give rise to a low level of competition, then a push towards diversification could be beneficial. Namely, a tendency towards import diversification could make countries keener on paying the fixed costs that are associated with opening new trade routes, which would foster competition and result in lower import prices (Jaimovich, 2012). Therefore, in theory, a lower import concentration could

[1] See European Commission (2022), European Commission (2023b) and European Commission (2023a). For instance, the Critical Raw Materials Act requires that no more than 65% of the EU's annual needs of each strategic material at any relevant stage of processing should come from a single extra-EU country.

result either in higher or lower prices. Which effect will materialize in practice is likely to be the outcome of complex effects, and could depend on factors such as the type of products; their technological category and level of sophistication; their position in the supply chain; the political proximity of suppliers; or on whether, for geographical or industrial development circumstances, their production is restricted to a few global producers.

The aim of this paper is to study how countries' import concentration affects the price they pay for their imports. As a first step, we analyze the evolution of import concentration in a sample of OECD and EU countries in the last two decades. We then investigate the impact of the import concentration of these economies on their import prices using granular trade data. In both analyses, we explore the role of sectoral heterogeneity, goods' position in the supply chain, the availability of diversification opportunities, and the political proximity of suppliers, with a special focus on strategic goods, such as the ones related to the digital and green transition.

From a methodological point of view, we rely on bilateral trade flows data and bilateral trade unit values data at the importer country level from, respectively, the CEPII-BACI database (Gaulier and Zignago, 2010) and the CEPII-TUV database (Berthou and Emlinger, 2011). At the product level, both sets of data are highly granular, getting up to the HS 6-digit level and partitioning the universe of each country's imports into more than 5100 different product categories. The focus is on a sample of 43 importers encompassing OECD countries and other EU economies that are not OECD members, between 1996 and 2022. We analyze the evolution of the import concentration of these economies, as well as other dimensions of external trade dependency, using a number of trade dependency indicators. Panel regressions at the importer-product level are employed to study the impact of import concentration on import prices.

Results show that import concentration varies widely across importers. EU economies' imports are less concentrated with respect to other advanced countries', with EU four largest economies displaying the lowest levels of concentration. Import concentration decreased, on average, in OECD countries in the last two decades, especially in the years up to the Global Financial Crisis, in the so-called "hyper-globalization" period.[2] While in the hyper-globalization years the decrease in import concentration was generalized across countries, dynamics were more heterogeneous in the following "slow-balization" phase, as concentration kept decreasing on average for EU economies while it stagnated in other countries. Key to foster the continued import diversification of European economies, was their increasing integration in the intra-EU market, with imports switching away from large traditional suppliers like Germany, Italy and France and towards newly integrated providers such as Poland and Bulgaria. Another relevant finding concerns the role of China as a leading global supplier. China is the main provider of the majority of goods whose production, at the world level, is highly concentrated. Also, focusing on strategic products –advanced technology goods, technologies related to the green transition and semiconductors— shows that OECD countries' imports tend to be much more concentrated

[2]This term, commonly used to refer to the phase characterized by a strong push towards trade globalization that began in the late Nineties and ended with the 2008 Global Financial Crisis, was popularized in several works, such as Antrás (2023) and Brakman and van Marrewijk (2022). The term "slow-balization", instead, is commonly used to indicate the years that followed the Global Financial Crisis, characterized by a marked slowdown of the trade opening and globalization process.

in China with respect to other categories of products.

As concerns the impact of concentration on prices, panel analysis shows that countries whose imports are highly concentrated in a few providers tend to pay a higher price for their imports with respect to economies whose imports of the same products are more diversified across different suppliers. This finding is compatible with the view that strongly concentrated import markets correspond to a low level of competition. A high import concentration results in even higher prices in those cases in which firms' perceived market power is strong –namely, for goods whose production is highly concentrated at the world level, or that a country cannot (fully) produce by itself. On the other hand, a higher geopolitical distance between an importer and its main providers does not result in a higher impact of import concentration on prices. If on average results point to a positive correlation between import concentration and import prices, findings are more heterogeneous at the sectoral level. The positive relationship between concentration and prices is much less pronounced in medium and high-technology industries with respect to goods produced in sectors with a lower level of technological complexity, such as primary products, resource-based manufactures and low-tech. manufactures. This finding is consistent with the notion that in higher-tech. industries a pronounced concentration is also associated to the presence of pro-competitive effects and economies of scale –deriving most likely precisely from their technological processes that rely heavily on IT and intangible capital, which have been shown to give rise to relevant scale effects (Crouzet and Eberly, 2019; Bessen, 2020). The association between concentration and prices is also less pronounced for capital goods as compared to final consumption goods and intermediate products, being capital goods mostly the product of medium and high-tech. industries. Another special case are exclusive trade relations, i.e. those instances in which the importer sources a product from only one provider. We find that these relationships are associated with lower import prices, and could therefore be costlier to break. Finally, for European economies, the positive impact of concentration on import prices applies both to the extra- and to the intra-EU market. Yet, for European countries, sourcing a certain product from just one provider only contributes to lowering import prices if the supplier is located in the EU, which points again at the special role of the single market in shaping EU countries' trade relations.

The next section reviews the literature related to the present study. Section 3 details the trade data and the trade dependency indicators used in the analysis, while section 4 introduces the empirical strategy behind panel estimations. Section 5 presents a number of stylized facts on the evolution of import concentration and other trade dependency dimensions. Empirical results on the impact of concentration on import prices, as well as a battery of robustness checks, are detailed in section 6. We draw some conclusions and policy implications in section 7.

2 Literature Review

This paper is related to three main strands of literature.

A first group of works are those that study import concentration and trade dependencies at the product level and their evolution over time. Several recent analyses of this type have been applied to EU imports. Among these, two studies by the European Commission aim at identifying goods characterized by a high dependency on extra-EU providers (European Commission, 2021; Arjona, Connell and Herghelegiu, 2023). Similarly, Ioannou and Perez (2023) analyze EU dependency on external suppliers for both goods and services. De Rosa, Gainsford, Pallonetto and Finn (2022) study EU energy dependency, while Vicard and Wibaux (2023) analyze the evolution of EU high-dependency imports over the long term. Cadot, Carrère and Strauss-Kahn (2014) document an increasing trend towards import diversification for OECD economies, followed by a slight re-concentration at the beginning of the 2000s, which is explained by the growing importance of Chinese exports. Their very long historical perspective, starting in the 1960s, only reaches 2005, leaving out the post hyper-globalization phase. Arriola, Cai, Kowalski, Miroudot and van Tongeren (2024) find that OECD countries display a high degree of dependency with respect to major non-OECD economies, and in particular with respect to China as concerns imports of strategic products. Jean, Reshef, Santoni and Vicard (2023) also document that China is the leading provider of many categories of goods at the world level. Vivoda (2009), on his part, studies the concentration of oil imports of major economies, finding that only some of them have managed to achieve an effective diversification. Cadot, Carrère and Strauss-Kahn (2011) and Cadot, Carrère and Strauss-Kahn (2013) analyze instead the concentration of exports and its relationship with economic development.

The present paper borrows from these works the main methodological blocs used to quantify import concentration and trade dependencies. Still, our analysis complements existing studies by going beyond the European perspective adopted in most of the other works; by analyzing heterogeneity across sectors and groups of importers; by covering both the hyper-globalization and the following so-called "slow-balization" phase; by taking into account the political distance between the importer and the provider so as to quantify the vulnerability to sudden interruptions in trade flows related to potential geopolitical strains; and, for European countries, by analyzing the concentration of both intra and extra-EU trade flows.

A second group of related papers are those that investigate competition, economies of scale and firms' market power in domestic markets. De Loecker, Eeckhout and Unger (2020), Autor, Dorn, Katz, Patterson and van Reenen (2017), Haskel and Westlake (2017), Crouzet and Eberly (2019), Eeckhout and Veldkamp (2022), Choi, Levchenko, Ruzic and Shim (2024), Syverson (2019) and Cavalleri, Eliet, McAdam, Petroulakis, Soares and Vansteenkiste (2019) are only some examples of the papers that belong to this vast literature. Among these works, the one that is closer to us is perhaps Covarrubias et al. (2020), who investigate whether the increase in production concentration observed in the US is associated to the presence of economies of scale/pro-competitive effects (in which case market concentration is optimal) or to distortions that tend to hamper competition (leading to a distortionary type of concentration), finding that the increase in US firms' production concentration tends to be associated mostly to a lower competition.[3] The present paper studies a similar issue but from an international trade

[3] Amiti and Heise (2024) document that the increase in production concentration of US firms was accompanied by a greater import diversification, so that market concentration (taking into account both firms producing in

perspective, that is, referring to the concentration of external providers in a country's imports rather than to the concentration of production in the domestic market. We document that in foreign destination markets an increase in observed concentration tends to be associated to higher prices, thus signaling a relatively low competition environment.

To the best of our knowledge only one paper focuses, as we do, on the relationship between the concentration of external providers and import prices. Namely, Bonfiglioli et al. (2021) study how the concentration of exporters within each origin country correlates to their export prices to the US, finding that a high concentration of exporters within each origin is associated to lower export prices to the US and to other pro-competitive effects. In the present paper, we study instead how the concentration of a country's imports across different origin countries impacts its import prices –not only in the US, but in a variety of OECD markets. Contrary to what found by Bonfiglioli et al. (2021) relative to firms' concentration within the same origin country, we document that highly concentrated imports at the partner country level tend to be associated to a low level of competition. This seems to suggest that firms located in different countries might face heterogeneous possibilities to access foreign markets –either due to geographical distance, tariff and non-tariff barriers, etc.– so that, across providers settled in different origin countries pro-competitive forces could be more limited than across firms located in the same origin country.

A third group of related works are those that study the impact of international trade on domestic producer prices and markups. Several works (Chen, Imbs and Scott, 2004; Bugamelli, Fabiani and Sette, 2010; Auer and Fischer, 2021; Auer, Degen and Fischer, 2013; Mandel, 2013; Carluccio, Gautier and Guilloux-Nefussi; Jaravel and Sager, 2019) have analyzed the effect of import competition on domestic prices, generally finding a negative relationship. We study instead the impact that a higher diversification of foreign exporters has on import prices, finding additional evidence for the price-reducing effect of competition.

3 Trade data and trade dependency indicators

3.1 Trade data

We use granular bilateral trade data, based on the Harmonized System (HS) at the 6-digit product level, which cover about 5100 products. We rely on the CEPII-BACI database[4] for bilateral gross trade flows (Gaulier and Zignago, 2010). Import prices are proxied by bilateral trade unit values from the CEPII-TUV database (Berthou and Emlinger, 2011). Trade unit values are a widely used measure for prices at the disaggregated level.[5] Both trade flows and

the US and foreign firms) stayed rather constant over time.

[4]BACI provides unique, reconciled trade flows between the importer's and exporter's perspective. If a reporter tends to provide data that are different from the ones of its partners, it will be assigned a lower weight in the determination of the reconciled trade flow value. Trade flows include possible re-exports.

[5]Potential shortcomings of trade unit values compared to other trade price indices are the non-consideration of possible quality effects and a general lower reporting quality of quantities (which are used to calculate unit values), see for example Berthou and Emlinger (2011) and Miao and Wegner (2022). However, other price indices would have other shortcomings, such as the utilisation of different methodologies to achieve quality corrections.

trade unit values are free on board (FOB), i.e. exclusive of transport costs (cost, insurance, freight). We use the HS96-version of the BACI and the TUV database, updated in 2024, to cover the longest available time horizon. Using an older version of HS comes at the cost of slightly reducing the number of products.[6] HS96 BACI spans the period from 1996 to 2022, while HS96 TUV only covers the years from 2000 to 2019. The time dimension of our empirical analysis studying the connection between import concentration and import prices is therefore 2000-2019 (20 years). Instead, the analysis of the evolution of trade dependencies, based exclusively on BACI data, also includes the additional years from 1996 and up to 2022. As for the analysis of trade dependencies of strategic goods, we use instead the more recent HS17 classification, which only begins in 2017 but allows to precisely identify some newer products related to the digital and green transition, such as electric and hybrid vehicles. All data are in annual frequency. As for the identification of strategic goods, we consider three different (and partially overlapping) classifications. The identification of advanced technology products –mainly high-tech. goods, chemical products and medicines– follows the US Census.[7] Green technology goods are defined as in IRC (2024). Semiconductors are identified as in Attinasi, Stefani, Frohm, Gunnella, Koester, Melemenidis and Tóth (2021).

Table 13 in appendix A details the data and classifications used as well as their sources; table 14 provides summary statistics.

We focus our analysis on the 38 OECD countries plus the 5 non-OECD EU economies [8], which form our set of importers. The trading partners (or exporters) include the whole world. Focusing our analysis on OECD countries allows to have relatively similar economies in terms of their development status and their reliability of trade data in the sample.[9] The importers in our sample cover about 56% of total world imports in 2022. They remain, of course, still heterogeneous in terms of their size, their geographical situation and their trade specialisation, which will have a potential influence on their trade relations.

3.2 Trade dependency indicators

We study the evolution of trade dependencies in our sample of importers using a set of indices.

Our central indicator of trade dependency is **import concentration**. Import concentration at the importer-product-year level is measured through the **Herfindahl-Hirschman index (HHI)**, based on the (squared) shares of exporters in each country's imports at the HS6-product level, as in European Commission (2021), Ioannou and Perez (2023) and Arjona et al. (2023). Namely, for each product *pc* at the HS6-level, we measure the concentration of importer's *imp*

[6] According to CEPII, the conversion process from newer to older revisions for data originally expressed in a more recent revision reduces the number of products present in the data. Still, the number of trade flows recorded in BACI does not differ much across revisions.

[7] The classification is available at https://www.census.gov/foreign-trade/reference/codes/atp/index.html.

[8] We add the 5 non-OECD EU countries (Bulgaria, Croatia, Cyprus, Malta and Romania) to the sample to have the full set of EU countries.

[9] Miao and Wegner (2022) show, for example, that unit values are better matched to implicit price indices from national accounts for OECD countries.

imports (gross trade flows as defined in section 3.1) as[10]:

$$HHI_{imp}^{pc} = \sum_{exp=1}^{E} \left(S_{imp,exp}^{pc} \right)^2 \tag{1}$$

where $S_{imp,exp}^{pc}$ is the share of country *imp* imports of product *pc* coming from country *exp* in the total imports of product *pc* of country *imp*. The HHI ranges from 0 to 1, with highly concentrated imports resulting in a higher value of the index. A HHI very close to zero indicates that a country imports a certain product from a continuum of providers, each supplying a very small share. Conversely, a HHI equal to 1 represents a case of extreme concentration, in which an importer sources a product from one trading partner only. For EU countries, we further distinguish between concentration in the extra-EU and in the intra-EU market, by computing the same indicator over the two alternative sets of trade flows.

The importer-product-year level HHIs are aggregated at the level of the importer country through a weighted sum of the concentration indices of all the goods imported by the country, using as weights products' shares in the country's total imports. The **import concentration at the country level** is computed as:

$$HHI_{imp} = \frac{\sum_{pc=1}^{PC} HHI_{imp}^{pc} * M_{imp}^{pc}}{\sum_{pc=1}^{PC} M_{imp}^{pc}} \tag{2}$$

where M_{imp}^{pc} denotes imports of country *imp* of product *pc* and PC indicates the total number of products imported.

Each country-level HHI can also be partitioned in bilateral concentration indices, showing the contribution of different providers to the overall import concentration of a country. The **bilateral concentration** of country *imp* imports coming from country *exp* is computed as:

$$HHI_{imp,exp} = \frac{\sum_{pc\_max=1}^{PC\_max} HHI_{imp}^{pc\_max} * M_{imp}^{pc}}{\sum_{pc=1}^{PC} M_{imp}^{pc}} \tag{3}$$

where p_max denotes the products for which country *exp* is the major exporter to country *imp*, and P_max is their total number.

For each importer, product and year, we also calculate a politically-distance weighted version of the import concentration index, built using the geopolitical distance measure of Bailey,

[10] For simplicity, we do not report the sub-index t for a given year in this section.

Strezhnev and Voeten (2017), based on countries' votes on human right issues in United Nations assemblies. The politically-distance weighted HHI allows to measure countries' vulnerability to potential interruptions in trade flows related to geopolitical tensions and is calculated as:

$$HHIpol_{imp}^{pc} = \sum_{exp=1}^{E} \left(S_{imp,exp}^{pc}\right)^2 * (poldist_{imp}^{exp}) \tag{4}$$

where $poldist_{imp}^{exp}$ is the political distance measure of Bailey et al. (2017), based on countries' United Nations votes on human rights, averaged across 5 years and centered so that its mean value –computed across all importers, exporters and years– is equal to one.

We complement import concentration with two other trade dependency indicators, namely the centrality of exporters and an external reliance indicator. The **centrality of exporters indicator** is defined at the product-year level and constitutes a measure of concentration of providers/exporters within a network (Korniyenko, Pinat and Dew, 2017)[11], which quantifies the probability that a certain product is provided by just a few central suppliers at the world level, thus proxying the potential for diversification across exporting countries. For each product, it is based on the dispersion, across different suppliers, of the value of world exports provided by distinct exporters. Namely, it is defined as the standard deviation, across all exporters *exp*, of the weighted outdegree centrality of exporters:

$$C_{exp} = \sum_{imp=1}^{N-1} \left(w_{imp,exp}^{pc}\right) / wav_{imp}^{pc}) \tag{5}$$

where $w_{imp,exp}^{pc}$ is the value of exports of country *exp* to country *imp* of product *pc*, and wav_{imp}^{pc} of country *imp*'s imports of the same product. Products that are provided by just a few large exporters at the world level score higher at the centrality indicator, signalling that these goods feature a lower diversification potential at the global level.

Finally, the **external reliance indicator**, defined at the importer-product-year-level, is computed, for each product, importer and year, as the ratio between imports and exports, as in European Commission (2021). Exports proxy domestic production, which is not available at the disaggregated HS6 level. For each product *pc*, we measure the external dependency of importer *imp* as the ratio of *imp*'s imports over *imp*'s exports:

$$Extdep_{imp}^{pc} = M_{imp}^{pc} / X_{imp}^{pc} \tag{6}$$

[11]Bonneau and Nakaa (2020) also employ this indicator as a measure of trade dependency.

where M^{pc}_{imp} and X^{pc}_{imp} are, respectively, imports and exports of country *imp* of product *pc*. We also calculate a dummy variable from this indicator, which is 1 when the ratio between imports and exports > 1, i.e. when a country is importing more than it is exporting of a given product, and 0 otherwise. Higher imports than exports signal that a country would not be able to substitute its imports of a given good by reducing its own exports, thus identifying an economy that is dependent on its external providers for the internal consumption of this particular good. We consider country *imp* to be **externally dependent** as for the provision of product *pc*, if $Extdep^{pc}_{imp} > 1$.

4 Empirical strategy

In order to study the impact of import concentration on import prices, we compute, as a first step, a **relative price index** at the importer-product-year level. For each product, importer and year, the relative price is computed as the ratio of the average price paid for this product by a given importer *imp* (across all providers *exp*) compared to the average price paid for the same product by all importers, at the HS6-level[12] :

$$P^{pc}_{imp} = \frac{\frac{1}{E}\sum_{exp=1}^{E} p^{pc}_{imp,exp}}{\frac{1}{I}\sum_{imp=1}^{I} mp^{pc}_{imp}}, \tag{7}$$

where $p^{pc}_{imp,exp}$ denotes the trade price (trade unit value) of imports of country *imp* of product *pc* coming from country *exp* and mp^{pc}_{imp} the average trade price of country *imp* of product *pc* over all exporters E. By construction, a value of $P^{pc}_{imp} > 1$ indicates an above average import price while a value of $P^{pc}_{imp} < 1$ indicates a below average import price of country *imp* for a given *pc* and a given year. Using relative instead of absolute prices has the advantage of analysing prices in comparison to a reference group. General price trends are thus levelled out.

We study the impact of import concentration on relative import prices employing a panel data model, which takes the following general form:

$$P_{i,t} = \alpha + \beta \cdot HHI_{i,t} + \gamma \cdot gdp_{imp,t} + \delta \cdot rvtf_{i,t} + \eta \cdot gdp\_exp_{i,t} + \zeta \cdot Z_{i,t} + \mu_i + \theta_t + \epsilon_{i,t}, \tag{8}$$

where the subscript t indicates the time period ($t = 1, ..., 20$) and i the importer-specific product. Namely, i is the combination of the importer *imp* and the product *pc* at the HS6-level, *imp#pc*. $P_{i,t}$ stands for the relative import price, that is, the ratio of the average import price of importer *imp* for a given product at the HS6-level *pc* compared to the average price of *pc* over all importers. $HHI_{i,t}$ is the Herfindahl-Hirschman index, as defined in eq. 1. The slope coefficient β quantifies the elasticity of relative import prices to import concentration, and constitutes our main object

[12] By construction, a value above (below) 1 indicates that an importer is paying an import price above (below) the average.

of interest. Its estimation allows to determine whether the fact that a country's imports of a certain product are highly concentrated, implies that it is paying a higher price for it with respect to the price that is paid for the same product by the other importers.

Importantly, we explicitly control for additional variables that can have a potential impact on import prices beyond the one exerted by import concentration ($gdp_{imp,t}$, $rvtf_{i,t}$, and $gdp\_exp_{i,t}$ in eq.8). In particular, we control for the logarithm of real GDP per capita (in constant prices, PPP) of importer imp ($gdp_{imp,t}$), which reflects the income level of importers and allows to take into account that higher income countries are generally characterised by a higher price level (see, for example, Hassan, 2016). This variable also controls for the fact that more developed countries tend to import higher quality and hence more expensive goods, as demonstrated by Feenstra and Romalis (2014). It controls hence also implicitly for the quality of products.[13]

We also take into account, indirectly, the labor cost of the providers, in order to control for the integration in world markets of exporters with low labor costs, such as China and other Asian economies, which, as shown by the literature, tended to depress import prices of advanced economies (Amiti, Dai, Feenstra and Romalis, 2020; Kamin, Marazzi and Schindler, 2006). As labor costs are not available for the more than 200 countries that constitute our universe of exporters, we proxy them with the GDP per capita of providers, at constant prices in USD, which is highly correlated with labor costs in a cross-section for which labor costs are available.[14] For each importer, product and year, the GDP per capita of exporters is weighted with the share of each provider in a country's imports a certain good ($gdp\_exp_{i,t}$). This allows us to control for the effect that the change of the composition from higher wage to lower wage providers could have had on relative import prices.[15]

Besides, we control for the market power of the importer country, by calculating the share of a given importer in total imports for each product ($rvtf_{i,t}$). This allows us to test whether a higher (lower) import concentration has a downward (upward) effect on import prices considering that the negotiating power of the importer increases.

Finally, $Z_{i,t}$ in eq. 8 is a vector of other control variables, such as quadratic terms or variables used in the robustness checks, which are further detailed in the respective sections. μ_i and θ_t capture product (unit) and time fixed effects, whereas $\epsilon_{i,t}$ are error terms. μ_i, in particular, reflects time-invariant, unobserved product-specific characteristics, such as (time-invariant) product quality or product specialisation.

Table 13 and 14 in appendix A provides information on the full set of variables used in the panel.

We estimate the model using the fixed effect (FE) estimator. The Hausman test (Hausman,

[13]In the robustness section, we also test for the influence of market size of importers using total GDP (in constant prices, in USD & PPP) and total population.

[14]We use per capita GDP in PPP terms for importers, as we are interested in the purchasing power effect on prices, while we use per capita GDP in USD for exporters as we take GDP here as a proxy for wage or labour costs.

[15]Edwards and Lawrence (2010) also find a positive association between a country's GDP per capita and its weighted average price of exports to the United States.

1978) rejected the null hypothesis of random effects. We always include time fixed effects to the model, as the Wald-test indicates that time indicators are jointly significant.[16] We also test for serial and cross-sectional correlation of the residuals.[17] As these tests detect some serial and cross-sectional correlation among residuals, we provide autocorrelation-, heteroskedasticity- and cross-sectional dependence-consistent Driscoll-Kraay (DK) standard errors (Driscoll and Kraay, 1998).[18]

Concerning the choice of the fixed effect structure, in our baseline model we use interacted FE at the importer-product level to control for time-invariant country-product specific characteristics, such as product quality or product complexity at the importer level, and time FE to control for common time trends. For the time varying part, we try alternative specifications including the product complexity index (at the product level) and the economic complexity index (at the importer level), as well as an interaction of both. In the robustness section **??**, we employ three alternative FE structures to test for the sensitivity of our results to the chosen FE structure.

To test for the presence of non-linearities, in particular for the inverted U-shaped relationship between concentration and prices, we include a quadratic term of the concentration index $HHI_{i,t}^2$ to some specifications of the model. The sample also contains about 297 thousand observations (7.7% of the full sample) with a single exporter for a given i.[19] The distribution of HHI shows a higher number of observations at this extreme value, indicating a distribution with a heavy tail.[20] For this reason, we also provide estimations controlling for these exclusive trade relations by including a dummy variable d_one_exp that takes the value 1 for an exclusive trade relation and 0 otherwise.

In the baseline, we estimate the model over the full time (2000-2019), importer (38 OECD economies + 5 non-OECD EU countries) and HS6 product (about 5100 products) sample. The full sample contains about 217 thousand importer specific products i and 3.9 million observations. In alternative specifications, we look at smaller samples, for example at a subset of countries (e.g. EU countries) or certain product groups. In particular, in order to analyze how goods

[16] We also tested a specification including a linear time trend on top of time fixed effects, which stay jointly significant in this case. As this model offers no further advantages and the time variations are rather irregular, we keep the model including only time fixed effects.

[17] We employ, respectively, the Wooldridge test for serial correlation and the Pesaran CD test for cross-sectional dependence, see Wooldridge (2010) and Pesaran (2004)

[18] Driscoll-Kraay standard errors are robust to very general forms of cross-sectional dependence for large T asymptotics, independently of the cross-sectional dimension I (i.e., even if the number of units is much larger than T, $I \rightarrow +\infty$), see Hoechle (2007). However, as Hoechle (2007) also notes that one should be somewhat cautious with applying this estimator to panel datasets with a large number of units but a small number of observations over time, we also compute and cross-check our results with clustered or "Roger" standard errors. This estimator produces consistent standard errors if the residuals are correlated within but uncorrelated between cross-sections. Using this estimator does not alter the significance of the coefficient estimates, unless otherwise noted.

[19] The trade value used to calculate the import concentration and the unit value used to calculate the relative import price come from two different data sources, the BACI and TUV database. We speak of a single exporter if there is a single exporter per year and product either in the BACI or the TUV database. About 230 thousand observations have a single exporter in the TUV database but more than 1 exporter in the BACI database, while about 16 thousand observations have a single exporter in the BACI database and more than 1 exporter in the TUV database.

[20] The normal QQ plot shows a deviation from the 45-degree reference line at extreme values.

position in the supply chain influences the impact of import concentration of their price, we run the model above on different product categories, based on the UN BEC classification for intermediate / capital / final consumption goods. Intermediate goods from this classification are often considered as a good proxy for "trade in value added", not available at a disaggregated level, similarly to the strategy employed by Korniyenko et al. (2017). Finally, we link the trade and macro data with different sectoral classifications to examine the impact of import concentration on relative import prices for different groups of products. We analyse different macro sectors based on the classification from Ioannou and Perez (2023). The classification by technological sophistication of products comes instead from Lall (2000).[21]

5 Stylized facts on trade dependencies and their evolution

In this section, we use the trade dependency indicators outlined in section 3.2 to derive some stylized facts on OECD countries' trade dependencies and their evolution over the last two decades.

Import concentration varies widely across importers, being lower in EU countries and higher in EMEs. Concentration varies widely across countries, ranging, in 2022, from a minimum HHI at the country level of 0.2 for Italy to a maximum of 0.5 for Mexico (Figure 1). Intuitively, this corresponds, in the case of Italy, to an average number of 32 providers per product category; the main trade partner for each product category holding, on average, a 43% market share. At the other extreme of the concentration spectrum, Mexico features an average of 16 providers per product line, and the top provider is responsible on average for 66% of imports. EU economies imports are less concentrated with respect to other advanced countries', with EU largest four economies (Germany, France, Italy and Spain) displaying the lowest level of concentration. EMEs OECD countries feature, on the contrary, the highest levels of concentration. EU economies' higher diversification tends to stem from the intensive margin, as they import from the same average number of importers as other advanced countries, but the share they import from the top provider tends to be lower. EMEs' imports higher concentration, on the other hand, stems both from the intensive and the extensive margin, as they source their imports from a lower number of trade partners and their top provider is responsible for a higher share of imports.

For most economies, China represents one of the most important sources of concentrated imports. Concentration indexes can be partitioned into the contribution of individual providers to total import concentration, as explained in section 3.2. At the bilateral level, imports tend to be more concentrated in geographically close providers as well as in trade partners with whom a preferential trade agreement is in force (Figure 2). Still, for most economies, a significant share of import concentration is with respect to China, which constitutes either the first or the second most important source of concentrated imports for the majority of

[21] The data stems from the UNCTAD statistical webpage, https://unctadstat.unctad.org/EN/Classifications.html. We convert data from SITC Rev. 3 to HS6 using the correspondence tables available at UN Statistics.

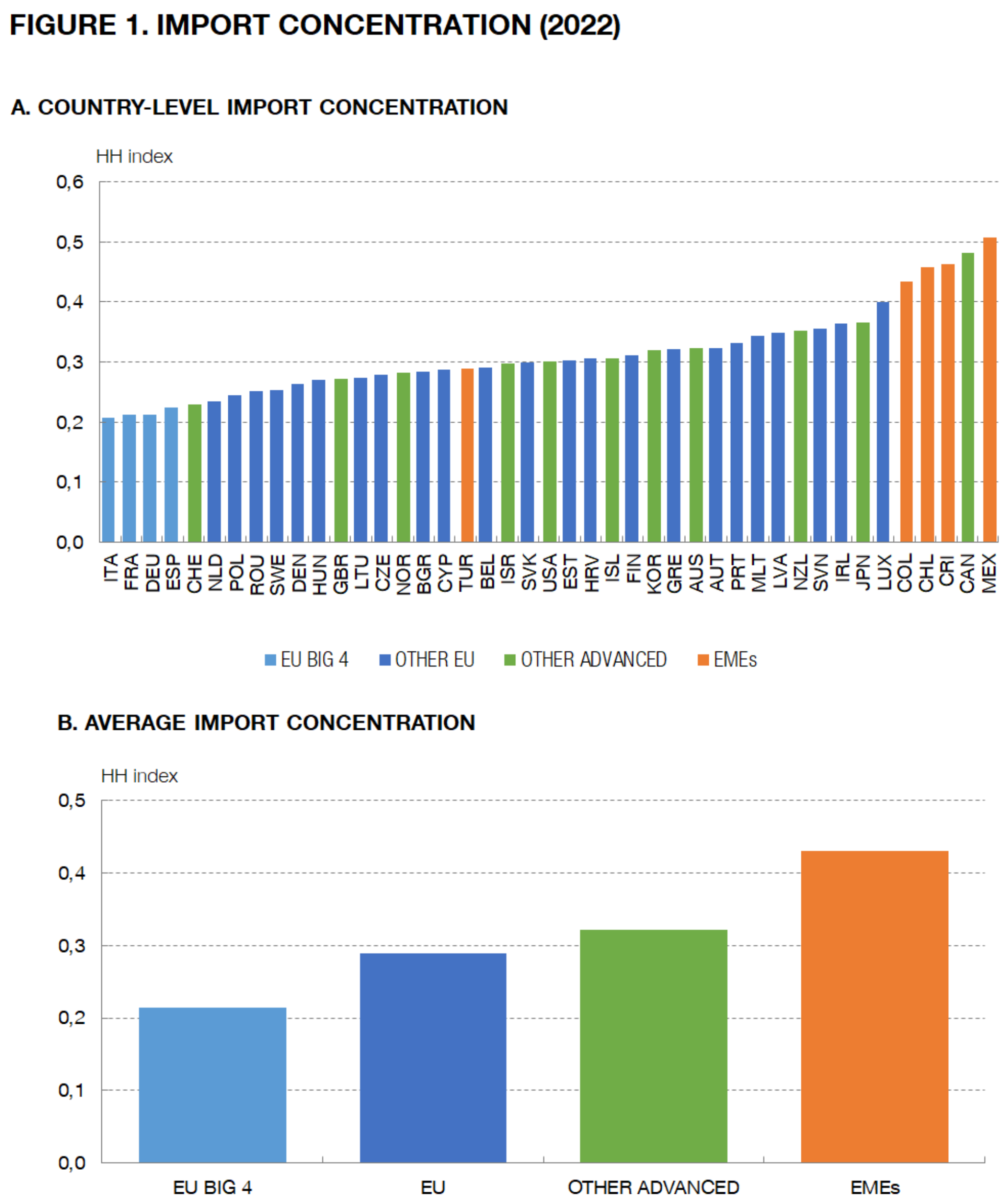

Figure 1: Import concentration at the country level.

Note: Import concentration at the country level as measured by the Herfindahl-Hirschman index (HHI). For each country, the product-level HHIs are aggregated using as weights products' shares in total country imports. Simple averages of country-level HHIs are then computed across country groups. EU big 4: Germany, France, Italy, Spain. EU refers to EU 27. Other advanced: Australia, Canada, Iceland, Israel, Japan, Korea, New Zealand, Norway, Switzerland, UK, US. EMEs: Chile, Colombia, Costa Rica, Mexico, Turkey.

importers in our sample.

At the sectoral level, imports tend to be more concentrated in primary sectors, such as mineral and agricultural products, with respect to manufactures. On average, while the mineral product sector featured in 2022 an HHI of 0.47–corresponding to an average of 12 providers and a 66% share of the top exporter—, among the sectors at the other hand of the spectrum, the machinery and electronic industry, featured an HHI of 0.25, with an average of 30 providers and a 46% share provided, on average, by the top one. Overall, distinguishing sectors according to their technological level, as in Lall (2000), shows that primary products tend to feature the highest import concentration, while high and medium-tech. manufactures exhibit the lowest concentration levels. As concerns goods position in production chains, intermediate products' imports –especially food's and minerals'– are more concentrated with respect to consumption and capital goods.

The hyper-globalization period resulted in a generalized decrease in import concentration. Concentration decreased on average in our sample of importers in the last two decades, with the fall being more pronounced between 1996 and the Global Financial Crisis, in the so-called "hyper-globalization" phase, than in the following "slow-balization" period (Figure 3). In the hyper-globalization years, the decrease was generalized across all country groups, although it was particularly pronounced in EMEs. The slow-balization period, on the contrary, was characterized by heterogeneous dynamics across country groups, as concentration kept decreasing on average for EU economies, while it stagnated in other advanced countries and slightly increased back in emerging countries. A small increase in concentration was observed during the pandemics years. At the sectoral level, the decrease in concentration observed since 1996 was due to a decline in import concentration within sectors –especially in the transport, textiles, machinery and electronic industries, that is, in the sectors that feature nowadays the lowest concentration levels— rather than to import switching towards sectors with less concentrated imports. At the bilateral level, for the average EU country, import concentration decreased mostly *vis-à-vis* other EU members, while for other advanced economies and EMEs, concentration diminished mostly *vis-à-vis* the US. On the other hand, the integration of China in global markets contributed –everything else equal— to increase the import concentration of all groups of importers.

For EU countries, integration in the single market was crucial to foster import diversification in the slow-balization period. Among EU members, the decrease in import concentration in the hyper-globalization years was due both to a higher diversification in the intra-EU and in the extra-EU market (Figure 4). Still, in the slow-balization years, only diversification in the internal market took place –away from Germany, Italy and France and towards newly integrated providers like Poland and Bulgaria.

Import concentration may have different implications for importers' vulnerability depending on other dimensions of trade dependency. In what follows we will focus on three of them. First, the more distant –from a geopolitical point of view— the importer and its main providers, the more vulnerable, for each degree of import concentration, its imports.

FIGURE 2. BILATERAL IMPORT CONCENTRATION, SELECTED COUNTRIES (2022)

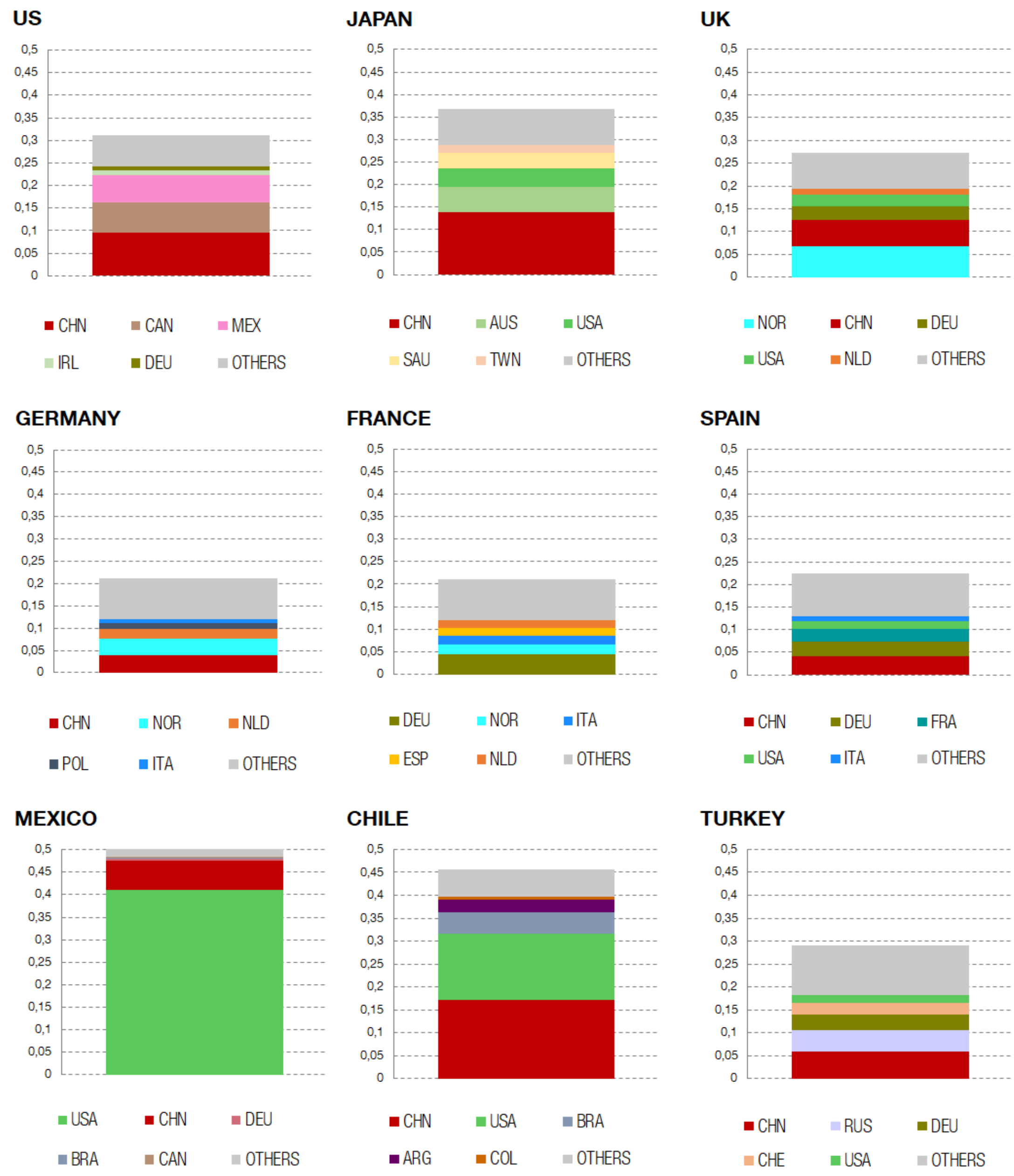

Figure 2: Bilateral import concentration at the country level.

Note: Bilateral import concentration indexes are built by assigning the country-level HHI to the top exporter of each product.

FIGURE 3. EVOLUTION OF IMPORT CONCENTRATION

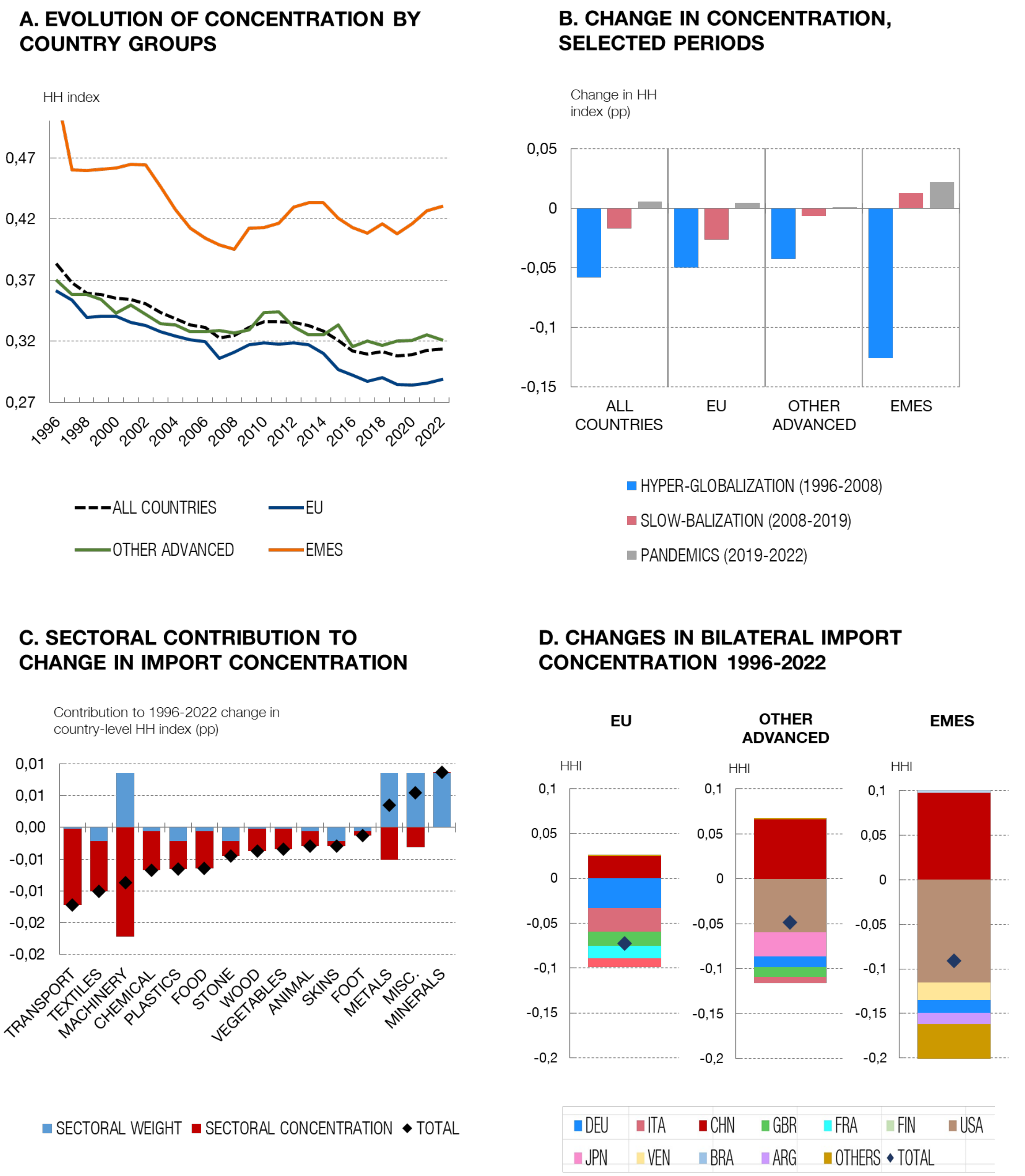

Figure 3: Evolution of import concentration.

Note: Country groups defined as in Figure 1. Panel A: Simple average of country-level HHI across country groups. Panel B: Simple average of country-level HHI across country groups, change. Panel C: Average country-level import concentration change between 1996 and 2022 approximated as the sum of changes in concentration within each sector (keeping sectoral weights constant at their 1996 level) and changes in concentration due to changes in sectoral weights (keeping within-sector concentration at its 1996 level). Panel D: Change in average country-level bilateral concentration between 1996 and 2022.

FIGURE 4. EU COUNTRIES' IMPORT CONCENTRATION

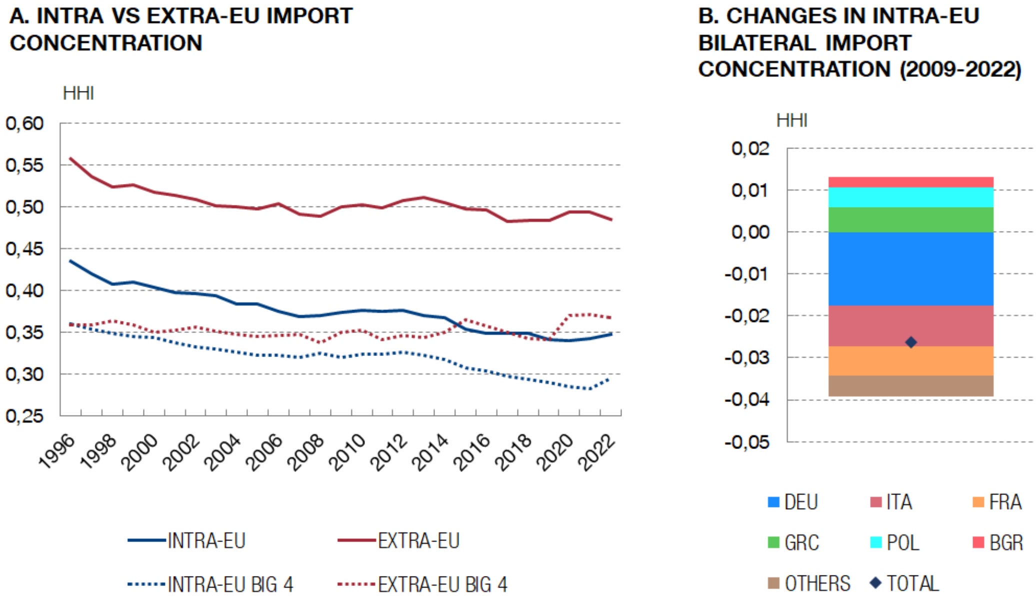

Figure 4: Evolution of EU countries' import concentration.

Note: Panel A: Evolution of import concentration in the intra-EU and in the extra-EU market for the average EU country and for EU big four economies. Panel B: Change in intra-EU bilateral import concentration between 2009 and 2022, simple average across Eu countries.

Second, import concentration implies a higher vulnerability if countries are externally dependent for product sourcing, that is, if their imports of a certain product exceed the internal production that is exported abroad, so that, in case of an interruption in import flows, these cannot be substituted for by reducing exports. Finally, import concentration results in a higher vulnerability in the case of goods whose production, either for geographical or industrial development circumstances, is restricted to a few global producers.

Although import concentration decreased in the last two decades, imports tended to switch towards more politically-distant providers due to the growing importance of China. The political distance-weighted concentration index, as defined in 3.2, decreased less with respect to its non-weighted version in EU countries and in other advanced economies, as the fall in import concentration was accompanied by a compositional shift towards China (Figure 5). In the emerging economies of our sample –the majority of which belongs to Latin America—, the politically-weighted index decreased more than its non-weighted counterpart, as imports switched away from the US, which is far from some of these economies from a political point of view, and towards some other Latin American countries, like Brazil and Argentina, which tend to locate closer in geopolitical terms.

Still, nowadays the EU internal market keeps providing a shield from the vulnerability that arises due to strongly concentrated imports in politically distant providers. In EU countries, the politically-weighted index is slightly lower than its non-weighted version, as for these economies the high geopolitical distance of some key partners, like China and

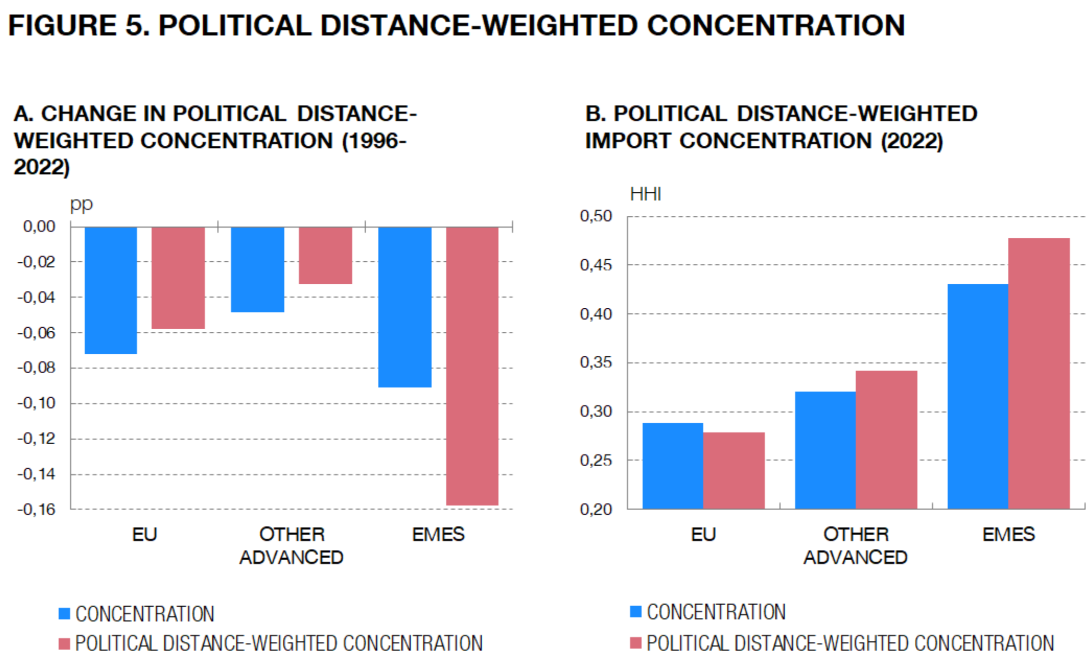

Figure 5: Political distance-weighted concentration.

Note: Panel A: Change over time in the country-level political distance-weighted Herfindahl-Hirschman concentration index and in the non-weighted index. Panel B: Political distance-weighted Herfindahl-Hirschman concentration index and non-weighted index in 2022. Simple averages across country groups are reported. Country groups defined as in Figure 1.

Russia, is compensated by the closeness –in geopolitical terms— of other important providers located in the internal market, like Germany and Italy.[22] Other advanced economies' imports, on the other hand, are less shielded from political vulnerability, being more concentrated in China. As for EMEs, the politically-weighted index is higher than its non-weighted counterpart, as these countries' imports are very much concentrated in the US and China, but their political alignment is often far from both of these providers.

Globalization implied a small increase in the share of externally dependent products, that is, those goods whose imports cannot be fully substituted for by reducing exports. On average in our sample of importers, externally dependent goods –as defined in 3.2– account for 75% of products and 80% of import value in 2022, being higher in other advanced economies and EMEs than in the average EU country (Figure 6). Globalization brought about a small increase in external dependency in terms of the share of imported products that cannot be fully substituted for by reducing exports. Interestingly, the different dependencies reinforce each other, as externally dependent products tend to exhibit a slightly higher degree of import concentration than non-externally dependent types of imports.

Still, the share of goods characterized by a high import vulnerability –that is, those with both highly concentrated and externally dependent imports— decreased

[22]Political distance-weighted concentration indexes tend to be higher than non-weighted indexes when importers are more politically distant from their main providers than all importers are on average from all potential providers. The index formula in appendix A clarifies this point.

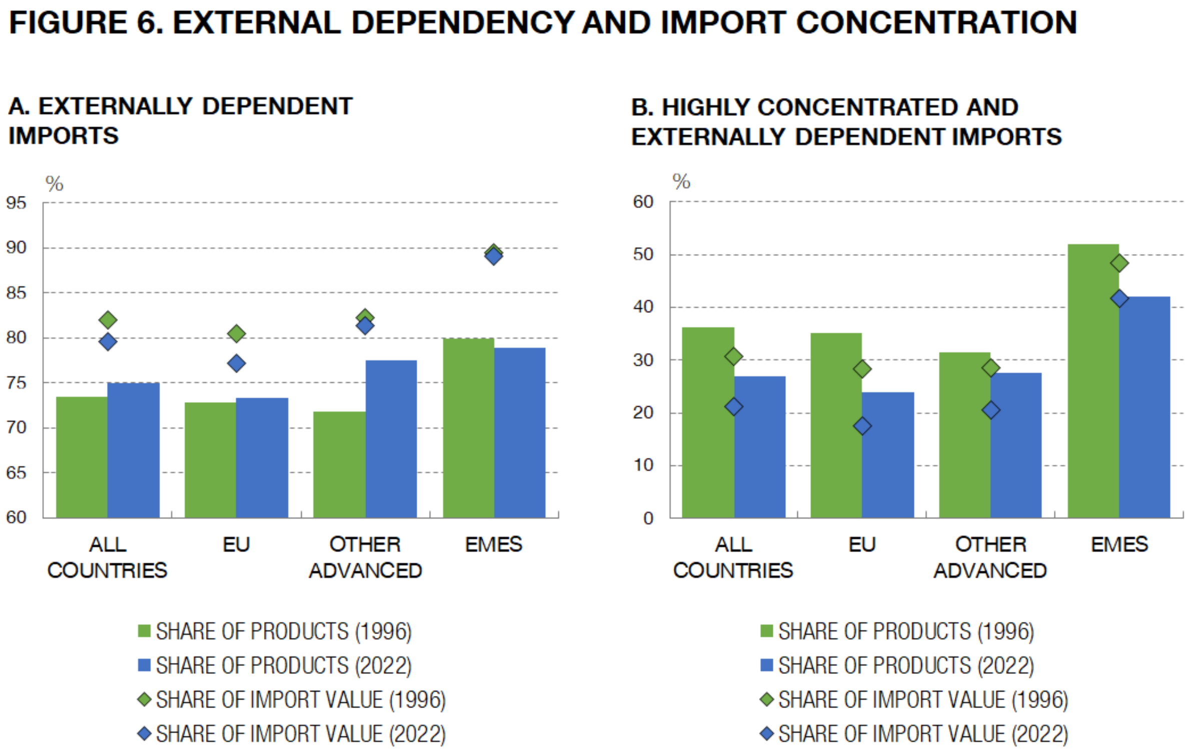

Figure 6: External dependency and import concentration.

Note: Panel A: Share of products and import value of products whose imports exceed exports, simple average across countries belonging to each group. Panel B: Share of products and import value of products whose imports exceed exports and whose imports are highly concentrated according to the definition of European Commission (2021) (HHI $>$ 0.4). Country groups defined as in Figure 1.

over time, being lower in EU countries and higher in EMEs. The generalized decrease in import concentration observed in the last two decades, implied a reduction in the share of highly vulnerable products over time, as defined accordingly to the European Commission methodology (European Commission (2021)), as those characterized by a relatively high degree of import concentration (a HHI $>$ 0.4) and by external dependency (imports exceeding own exports).[23] Although these goods are pretty much evenly distributed across industries, the sectors that feature the most are the mineral, animal and chemical products ones. Importers differ widely in the share of highly vulnerable products, which is lower, on average, in EU countries, where they constituted 18% of imports in 2022, and higher in EMEs, where this share exceeds 40%.

China is the leading global provider of the majority of the goods whose production, at the world level, is highly concentrated in a few exporters. A high import concentration also implies a higher vulnerability for the importer in the case of those goods whose production, at the world level, is highly concentrated in a few exporters, as diversification opportunities are hampered. We quantify such probability using an index of centrality of exporters, defined at the product level as in 3.2. At the global level, the probability of facing a few leading exporters tends to be higher in the footwear, machinery and plastic sectors –industries

[23]Being applied to the EU bloc, the European Commission methodology takes into account a third dependency dimension, that is, the scarcity of a product in the internal EU market. Given that our sample of importers goes beyond EU countries, we do not present results for this metric.

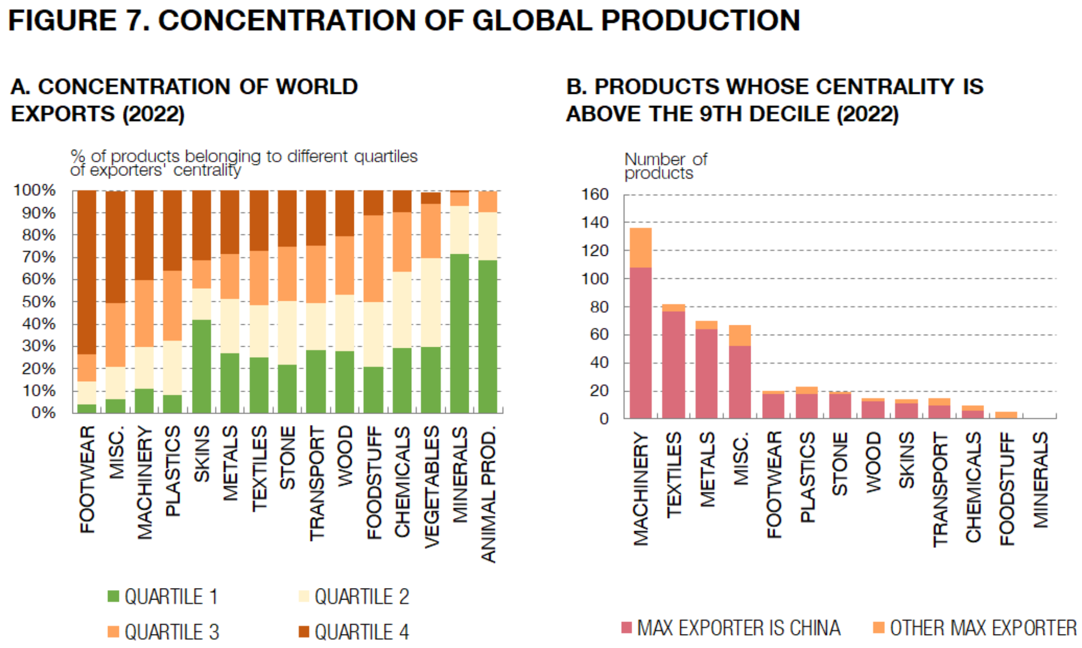

Figure 7: Concentration of global production.

Note: Panel A: Share of products belonging to the different quartiles of the centrality of exporters measure of Korniyenko et al. (2017), quantifying the probability that there exist just a few global exporters of a certain product. Panel B: Number of products belonging to the ninth decile of the centrality measure.

in which the centrality of exporters measure belongs to the 3rd and 4th quartiles of the overall distribution for more than 70% of products (Figure 7). At the other end of the spectrum, primary products, with more than 90% of goods belonging to the lowest centrality quartiles. The goods with a very high concentration at the production level –in the top 10% of the centrality distribution— mostly belong to the machinery and electronic, textile and metal industries, like some types of fabric, turbines and circuits, and alloys. For the vast majority of them, the leading global exporter is China. Several of these products also represent raw materials whose resources are particularly concentrated in a few countries, like tungsten, uranium and lithium.[24]

The imports of critical products –advanced technology goods, technologies necessary for the green transition, and semiconductors— are particularly concentrated in China. Critical products are characterized by the presence of a few central exporters in global markets (Figure 8). Import concentration increased significantly for green technologies and semiconductors starting from the mid-2010. For all the critical products categories, imports tend to be more concentrated in China –and significantly so— with respect to other goods. As a consequence, the index of import concentration weighted by politically distance is higher for these goods with respect to the non-weighted index, signaling a higher import vulnerability.

[24]Some of the so-called "critical raw materials", like rare earths, germanium or gallium, whose world top exporter is China, cannot be precisely identified at the HS6 level of disaggregation.

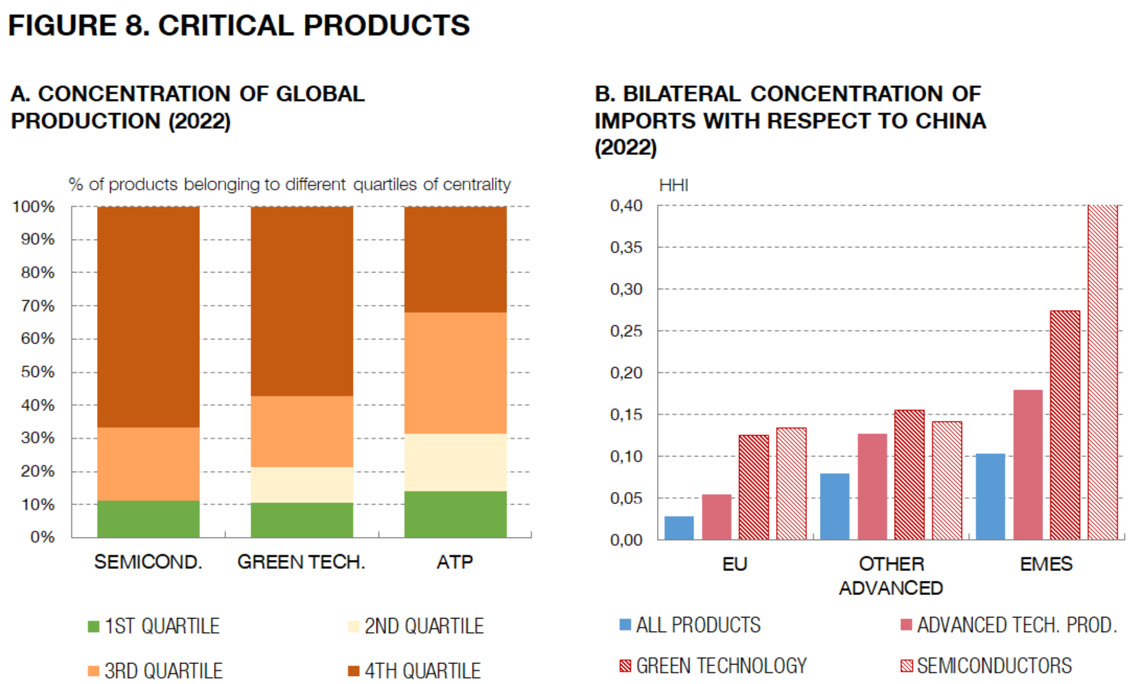

Figure 8: Critical products.

Note: Panel A: Share of products belonging to the different quartiles of the centrality measure of Korniyenko et al. (2017). Panel B: Country-level HHI relative to products for which China is the top provider. Advanced Technology Products definition follows US Census; green technology goods defined as in IRC (2024); semiconductors identified as in Attinasi et al. (2021). Simple averages across economies belonging to different country groups. Country groups as in Figure 1.

6 Empirical results

6.1 Baseline estimations

In this section, we answer the question of whether countries whose imports of a given product are more concentrated pay a higher relative import price for this good compared to other importers whose concentration is lower. To give a first visual idea, Figure 9 plots (simple) average concentration indices for each importer against the (simple) average relative price level for each importer over all years 2000-2019. The relationship is slightly positive.

Table 1 presents the estimation results for the entire country-, time- and product-sample for equation 8. The estimates in column (1) & (3) refer to the linear model, while the estimates in column (2) & (4) include a quadratic term to capture possible non-linear effects of import concentration on prices.

All variables in the baseline model are significant determinants of relative import prices and have the expected sign. Our main variable of interest, the concentration index HHI, shows a significant (at the 1% significance level) impact of import concentration on relative import prices (column (1)). Everything else equal, countries whose imports of a certain product are

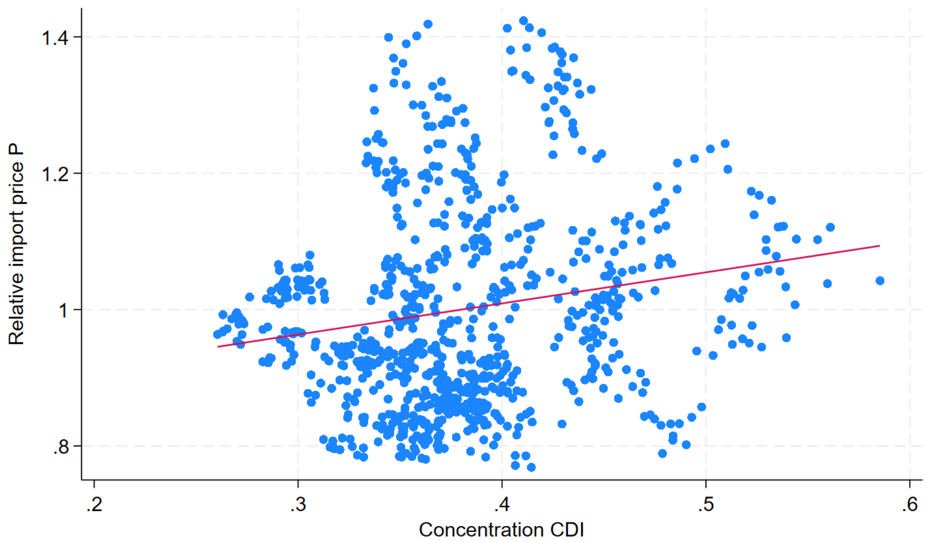

Figure 9: Relationship between concentration HHI and relative import prices P averaged on the importer level, over all years (2000-2019)

more concentrated, tend to pay a higher price for this product compared to other importers with less concentrated imports. This is consistent with the idea that highly concentrated markets feature a lower level of competition, resulting in higher import prices. We also find evidence for nonlinearities in the impact of concentration, namely for the fact that the positive impact of concentration on prices tends to diminish at higher levels of concentration, as the quadratic term of HHI is significantly negative (at the 1% significance level) (column (2)). That means that concentration and prices co-move positively up to a certain threshold of concentration, beyond which the relationship between concentration and prices turns negative. The turning point is reached at a concentration index of about 0.6[25], which represents a strongly concentrated market.

Columns (3) and (4) of table 1 show specifications including a dummy variable for exclusive trade relations, that is, those cases in which an importer sources a certain product from only one provider. We find that the dummy variable for exclusive trade relations is highly significant (at the 1% significance level). Sourcing imports from one exclusive exporter decreases the price level of a given product by about 0.13 point compared to the price paid by other importers for the same product, which makes exclusive trade relations costly to break. Controlling for these relations has an impact on the size of the coefficient of the concentration index. In the linear model (column (3)), the size of the coefficient of HHI almost doubles, implying that an increase of concentration by 0.1 point increases relative import prices by about 0.01 point. Also, the nonlinearities that we found in column (2) seem to be actually due to the presence of these relations, as they lose significance when we add the dummy that identifies them, in column (4).

Concerning the other explanatory variables, an importer with a higher level of development as proxied by its GDP (gdp in equation 8) tends to pay a higher price, most likely because it

[25] At average values of the other variables.

Table 1: Regression of relative import prices P on import concentration HHI, over all years, importers and products (baseline)

VARIABLES	Linear (1)	Quadr. (2)	Linear (3)	Quadr. (4)
HHI	0.049***	0.175***	0.092***	0.118***
	(0.006)	(0.017)	(0.005)	(0.020)
HHI^2		-0.119***		-0.024
		(0.013)		(0.016)
Importer GDP	0.061***	0.063***	0.061***	0.061***
	(0.021)	(0.021)	(0.022)	(0.022)
Imp. market power	-0.019***	-0.020***	-0.027***	-0.027***
	(0.002)	(0.002)	(0.002)	(0.002)
Exporters GDP	0.059***	0.058***	0.056***	0.056***
	(0.004)	(0.004)	(0.004)	(0.004)
Exclusive trade rel.			-0.127***	-0.126***
			(0.005)	(0.006)
Constant	-0.262	-0.294	-0.236	-0.243
	(0.196)	(0.194)	(0.201)	(0.199)
Nb. of obs.	3,877,496	3,877,496	3,877,496	3,877,496
Nb. of i	217,067	217,067	217,067	217,067
Imp#product FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Note: Standard errors in parentheses, Driscoll and Kraay standard errors, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (importer#product group).

is importing higher-quality products. Conversely, an importer that has a higher market power as a buyer because it is importing a large share of a product ($rvtf$ in equation 8), is getting a lower price, which is also consistent with what trade theory predicts. Finally, an importer that is sourcing a product from a set of providers with higher labor costs, as proxied by their GDP (gdp_exp in 8), tends to pay a higher price, which is consistent with the results of a large literature that studies the impact of China's integration in world markets (Amiti et al., 2020; Kamin et al., 2006).

To sum up, baseline results show that, across OECD and EU countries, import concentration at the product level tends to be associated with higher import prices, which is compatible with the view that a high concentration is associated to an environment of low competition. This effect is counterbalanced at very high concentration levels by the dampening effect of exclusive trade relationships on relative import prices.

6.2 Sectoral heterogeneity

This section is devoted to studying whether the impact of concentration on relative prices varies across sectors and across different type of products. In a first step, we estimate this relationships for a broad classification of products according to their degree of processing or technology intensity, as specified in the classification of Lall (2000). This classification distinguishes non-processed (primary) goods and processed goods, and the processed goods further based on the technological know-how needed for processing them (resource-based manufactures, low-technology manufactures, medium-technology manufactures and high-technology manufactures). Next, we distinguish more detailed categories of products according to the macro classification provided by Ioannou and Perez (2023). This allows a finer distinction of different type of primary goods (animal, vegetable and mineral products, metals) and specific other interesting product groups (textiles). Finally, we look at different types of products depending on their position in the production chain. Namely, we distinguish between final goods, which are divided again into capital and consumption goods[26], and intermediate products, which are inputs in the production process. Intermediate goods are also a frequently used proxy in the literature for trade in value added (see, for example, Korniyenko et al., 2017).

As for the technological classification, table 2 reports the results of the quadratic specification that also includes the exclusive relationships dummy.[27] The effect of import concentration on relative import prices is more pronounced and significant for goods produced by standard manufactures (resource-based and low-technology manufactures) than for medium and high tech. manufactures. This result is compatible with the notion that in higher tech. industries a pronounced concentration is partly associated to the presence of economies of scale. Industries with a higher technological level rely more on IT and other intangible capital for their production processes –factors that, as it has been shown in the literature (Crouzet and Eberly, 2019; Bessen, 2020), tend to generate economies of scale due to their non-rivalry in use, synergies and network effects. This result is also consistent with several findings in the literature that studies market concentration, both in the US and in the euro area. Covarrubias et al. (2020) shows that US high tech. industries, like computer manufacturing and chemicals, tend to feature a consistent stock of intangible capital as well as several characteristics compatible with a more competitive environment. This could suggest that in these industries a high concentration is associated to economies of scale created precisely by their technological characteristics, related to the role of intangible capital in their production processes. Cavalleri et al. (2019) on their part, document that euro area firms belonging to sectors that exhibit a high concentration and are categorized as "high-tech. users", generally have higher TFP growth rates, which also hints at an association between market concentration and pro-competitive effects in these sectors.

Another possible explanation for the lower price impact of concentration in higher tech. industries is that price competition is stronger for more standardised products than for knowledge-intensive and differentiated manufactures, such as the products of medium and high tech. indus-

[26] We use a separate category for vehicles which can either be capital or consumption good.

[27] Table 15 and 16 in appendix B show the corresponding results for the linear specification and the quadratic specification without the exclusive relations dummy.

Table 2: Regression of relative import prices P on import concentration HHI, for different technological groups

VARIABLES	Primary prod. (1)	Resource-based manuf. (2)	Low tech manuf. (3)	Med. tech manuf. (4)	High tech manuf. (5)
HHI	0.167***	0.149***	0.141***	0.059*	-0.024
	(0.031)	(0.031)	0.030	0.028	0.042
HHI^2	-0.076***	-0.011	-0.035	-0.000	0.033
	(0.029)	(0.024)	(0.026)	(0.028)	(0.038)
Importer GDP	0.059**	0.095**	0.022	0.080***	0.038*
	(0.026)	(0.033)	(0.021)	(0.017)	(0.020)
Imp. market power	-0.047***	-0.049***	-0.029***	-0.009***	0.017***
	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)
Exporters GDP	0.058***	0.054***	0.056***	0.063***	0.024***
	(0.006)	(0.006)	(0.004)	(0.004)	(0.006)
Exclusive trade rel.	-0.156***	-0.171***	-0.118***	-0.095***	-0.064***
	(0.012)	(0.006)	(0.009)	(0.006)	(0.008)
Constant	-0.263	-0.604*	0.153	-0.490***	0.379*
	(0.260)	(0.341)	(0.192)	(0.145)	(0.206)
Nb. of obs.	480,043	746,373	1,082,302	1,052,059	297,236
Nb. of i	28,306	43,367	59,179	57,263	16,684
Imp#product FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Note: Standard errors in parentheses, Driscoll and Kraay standard errors, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (importer#product group), technology groups according to Lall (2000).

tries, as consumers could more easily substitute standardized products across different importers. A lower substitutability and, hence, price competition in higher tech. sectors could explain the lower elasticity of import prices to changes in import concentration.[28]

Interestingly, for high tech. products the coefficient of $rvtf$, the import share of global imports of a given product, is estimated to be significant and positive, signaling that a higher market share of the importer has an upward effect on prices. This is in contrast with what estimated in baseline regressions and for other technological sectors, where this coefficient is estimated to be negative. One possible explanation for the different impact of the import shares on relative prices in the case of high tech. goods is that, being these products more specific and knowledge-intense and therefore more difficult to substitute imports across providers, they tend to create a greater dependency or "lock-in" effect on the importer side, with an upward effect on prices.

A final relevant result from technological sectors regressions concerns primary products. For the goods produced in this sector, contrary to other industries, relevant nonlinearities in the impact of concentration on prices are estimated (column (1) of 2), signaling that the positive association between import concentration and prices tends to fade away at higher levels of concentration –an effect that is significant even when controlling for the presence of exclusive trade relations. This could indicate that, for these highly standardized products, at high levels of concentration scale effects could hamper the positive impact of a low competition environment on prices.

A look at a more granular partition of products into macro sectors, according to the macro classification provided in Ioannou and Perez (2023), confirms these results. We find an above average and significantly positive impact of concentration on price levels for more standardised manufacturing products, such as food products, chemicals, plastics and rubber products, wood and wood products, textiles, footwear, stone and glass and metal products.[29] The coefficient of concentration is either significantly positive but small (in the linear model) or not significant (in the quadratic model) for the big group of machinery and electrical products, which are more strongly oriented towards the high-tech sector.[30] For transportation products, the relationship is negative, which is however only significant in the quadratic model. As for primary products and commodities, we detect strong nonlinearities. As mineral oil and mineral products are concerned, we find that the relationship between concentration and prices is significantly positive but decreasing in higher concentration (the quadratic term being strongly negative and significant). We observe a similar pattern for animals and animal products and vegetable products,

[28]Although we are not aware of any other paper that studies the price effect of market concentration at the product level, a parallel can be drawn with trade elasticities at the product level. Trade elasticities indicate the degree of substitutability between varieties, i.e. between products exported by different countries into a given destination (Fontagné, Guimbard and Orefice, 2022). Trade elasticities differ considerably across product groups. Fontagné et al. (2022) show that for more homogeneous products, such as mineral and chemical products (according to the HS1-digit classification), the average trade elasticity is high as the importing country can easily substitute imports across countries when a change in bilateral import price occurs. For differentiated products (such as machinery and footwear) they obtain smaller values of trade elasticity.

[29]See tables 17, 18 and 19 in appendix B

[30]The two classifications are not fully congruent. Some of the machinery and electrical products are classified as medium-technology and others as high-technology goods.

which exhibit a small positive or non-significant coefficient of concentration in the linear model but much higher coefficients (positive in the linear term and negative in the quadratic term) in the quadratic regression model (see table 19 in appendix B).

As concerns goods position in production chains, the regression results based on the BEC classification, which distinguishes intermediate and final goods, reveal that the significant positive effect of market concentration on relative prices holds for intermediate goods and final consumption goods, while the effect is negative (albeit not significant in the linear model) for final capital goods (see table 3). The technological classification of products, discussed in detail above, provides an explanation for this result. Indeed, high-tech. products represent about 29% of observations of final capital goods but only 5% of intermediate goods and 2% of final consumption goods. If we run the regression for capital goods excluding high-tech. goods, the coefficient of the concentration index becomes significantly positive.[31]

As far as intermediate inputs are concerned, the BEC classification allows a further distinction into food and beverages, industrial supplies, fuels and lubricants and parts and equipment. We observe a positive and significant relationship between concentration and prices for all four of these intermediate goods' categories.[32] In absolute size, the effect is the strongest for fuels and lubricants among intermediate goods (see column (3) of table 20 in appendix B). The effect is also significant and relatively strong for industrial supplies and parts and equipment (see columns (2) and (4) of table 20). As in the previous classifications, the relationship exhibits strong nonlinearities (inverse-U) for commodities. The coefficient of the quadratic term and the dummy variable for one-provider relationships is particularly strong for intermediate food products and fuels and lubricants (see columns (1) and (3) of table 21 and table 22 in appendix B). Intermediate parts and equipment, the category with the highest degree of sophistication among intermediate inputs, exhibits the lowest - and in the quadratic regression - not significant coefficient of concentration.

6.3 Interaction with other dependency indicators

In this section, we investigate whether the impact of import concentration on prices varies depending on other dimensions of trade dependency. We focus in particular on the centrality of exporters –a proxy for diversification opportunities across providers at the global level–, and on external reliance –identifying cases in which the importer is dependent on external suppliers for the internal consumption of a certain product. Both indices are defined in section 3.2. As the former indicator is product-specific but not importer-specific, we interact it with the import concentration index to study their combined effect on relative import prices.[33] The latter indicator, instead, is importer- and product-specific and we test it both separately and in interaction with concentration.

[31] The coefficient of the linear term stands at 0.346 vs. -0.013 for all capital goods and the one of the quadratic term to -0.205 vs. 0.120 for all capital goods, both being significant at the 1% significance level.

[32] See tables 20, 21, 22 in appendix B

[33] The index itself is not significant when included separately into the regression. This is not surprising, as our empirical setup aims to detect importer-specific and not product-specific differences of prices.

Table 3: Regression of relative import prices P on import concentration HHI, for main BEC categories

VARIABLES	Linear Intermed. (1)	Quadr. Intermed. (2)	Linear Capital (3)	Quadr. Capital (4)	Linear Cons. (5)	Quadr. Cons. (6)
HHI	0.063***	0.154***	-0.013	-0.118***	0.037***	0.149***
	(0.006)	(0.019)	(0.011)	(0.022)	(0.010)	(0.038)
HHI^2		-0.035**		0.120***		-0.085**
		(0.015)		(0.024)		(0.033)
Importer GDP	0.064***	0.062**	0.042***	0.043***	0.043***	0.040***
	(0.021)	(0.022)	(0.013)	(0.013)	(0.031)	(0.031)
Imp. market power	-0.032***	-0.041***	0.032***	0.029***	-0.013***	-0.019***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)
Exporters GDP	0.065***	0.062***	0.042***	0.043***	0.043***	0.040***
	(0.004)	(0.004)	(0.007)	(0.007)	(0.005)	(0.005)
Exclusive trade rel.		-0.150***		-0.058***		-0.082***
		(0.006)		(0.007)		(0.007)
Constant	-0.364*	-0.334	0.292***	0.304***	-0.002	-0.003
	(0.198)	(0.205)	(0.086)	(0.085)	(0.302)	(0.300)
Nb. of obs.	2,347,205	2,347,205	526,652	526,652	986,553	986,553
Nb. of i	134,237	134,237	28,827	28,827	53,100	53,100
Imp#product FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Note: Standard errors in parentheses, Driscoll and Kraay standard errors, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (importer#product group).

The interaction effect between import concentration and centrality is significant and positive (column (1) of table 4), leaving the significance and the sign of the concentration index itself unaffected.[34] This means that a high import concentration results in even higher prices for goods whose production is strongly concentrated at the world level, as providers of more centralised goods tend to exploit their market power.[35]

As concerns external reliance, we find that the index ext_rel defined in section 3.2, computed, for each year and importer, as imports over exports of a certain product, has no significant effect on relative prices both as a independent variable and in interaction with import concentration (see table 23 in appendix B). However, the external dependency dummy –which is equal to 1 when a country's imports of a certain product exceed its own exports, and 0 otherwise– is found a significant and positive determinant of import prices, both as a separate variable and in interaction with concentration (columns (2)-(5) of table 4). Countries that are dependent on external suppliers as for the internal consumption of a certain product, pay a higher price for their imports compared to economies whose exports of the same product exceed their own imports. Importantly, a high import concentration has a more pronounced impact on import prices for externally dependent countries.[36]

Overall, our results show that the positive impact of import concentration on prices is more marked when firms' perceived market power is strong –for goods whose production is highly concentrated at the world level or for those that a country cannot (fully) produce by itself.

6.4 Country subgroups

In this section, we examine the relationship between import dependency and import prices for a subset of countries in our sample, more precisely for core advanced economies (CAE) and EU economies. For EU economies we also investigate how import concentration affects import prices inside and outside the EU single market.

The core advanced economies group includes the countries in our sample of importers that are classified as advanced economies according to the IMF definition.[37] The positive relationship between import concentration and import prices also holds when considering only core advanced economies, as shown in table 5.[38] The results are comparable to the full country sample, with a coefficient of HHI that is only slightly smaller in absolute size than in the baseline. All the other coefficients are also close to baseline results.

EU countries' trade flows also show a positive relationship between import concentration

[34]In regression analyses, the centrality index has been rescaled in order for it to be bounded between 0 and 1. This transformation only affects the size of the coefficient.

[35]Similar results apply if we measure (the lack of) diversification opportunities using the market share of the top global exporter of a certain product. Results are available upon request.

[36]All results apply also to the quadratic specification of the model, reported in table 24 in appendix B.

[37]In particular, they comprise 34 countries, including the 20 euro area countries and 14 other advanced economies, see IMF-WEO database.

[38]Table 25 in appendix B provides the full regression results.

Table 4: Regression of relative import prices P on import concentration HHI, controlling for other dependency indicators

VARIABLES	(1)	(2)	(3)	(4)	(5)
HHI	0.081***	0.092***	0.083***	0.080***	0.070***
	(0.005)	(0.005)	(0.008)	(0.008)	(0.010)
Importer GDP	0.061**	0.061**	0.061**	0.061**	0.061**
	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)
Imp. market power	-0.027***	-0.027***	-0.027***	-0.027***	-0.027***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Exporters GDP	0.056***	0.056***	0.056***	0.056***	0.056***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Exclusive trade rel.	-0.126***	-0.127***	-0.127***	-0.127***	-0.126***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
HHI#Centrality	0.114*				0.108*
	(0.060)				(0.060)
External dependency dum		0.004*		-0.002	-0.002
		(0.002)		(0.002)	(0.002)
HHI#(External dependency dum)			0.013**	0.017*	0.016*
			(0.006)	(0.008)	(0.008)
Constant	-0.233	-0.246	-0.246	-0.243	-0.240
	(0.201)	(0.201)	(0.201)	(0.201)	(0.202)
Nb. of obs.	3,877,452	3,877,496	3,877,496	3,877,496	3,877,452
Nb. of i	217,064	217,067	217,067	217,067	217,064
Imp#product FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Note: Standard errors in parentheses, Driscoll and Kraay standard errors, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (importer#product group). Centrality defined as in Korniyenko et al. (2017), reflects the probability that a product is supplied by just a few providers at the world level. External dependency dummy is equal to 1 if importer's imports of product pc exceed its own exports, and to 0 otherwise.

and relative import prices, see table 5.[39] In the linear specification, the coefficient of HHI estimated on EU economies only is similar in magnitude to the one estimated for the full sample of importers. Yet, including (significant) quadratic terms and the exclusive trade relations dummy shows that the relationship between import concentration and import prices is lower for EU countries as compared to the full sample.

In order to investigate heterogeneous effects across intra and extra-EU trade, we split the bilateral imports of EU countries into those *vis-à-vis* other EU economies and those that have as a counterpart a country outside of the region, and calculate both the HHI index and the relative import price index separately for each of the two markets. We find that the upward price effect of higher concentration applies both to intra- and extra-EU trade relations, and that its strength is similar across the two markets.[40] Yet, we also find some relevant differences between the intra and the extra-EU market. First, sourcing a certain product from only one exporter does not seem to have a significant impact on import prices for providers located outside of the region, while exclusive trade relations are found to have a price-reducing effect when suppliers are located within the single market. Also, the labour cost of exporters, as proxied by their GDP, has a much stronger impact on prices if providers are located outside of the EU, as labour costs differ more across extra-EU suppliers than across those located in the single market. Therefore, strategies to switch providers to reduce costs have a greater influence on prices in the extra- than in the intra-EU market. Finally, the market power of the importer exerts a stronger impact on import prices in extra-EU trade as compared to what happens in the single market.

Table 5: Coefficients of import concentration HHI for different country (importer) groups

	Linear	Quadratic		Quadratic + exclusive dum.		
COUNTRY GROUP	HHI	HHI	HHI^2	HHI	HHI^2	Exclusive trade rel.
	(1)	(2)	(3)	(4)	(5)	(6)
Full sample	0.049***	0.175***	-0.119***	0.118***	-0.024	-0.126***
CAE	0.046***	0.156***	-0.105***	0.102***	-0.014	-0.125***
EU	0.045***	0.09***	-0.045***	0.053***	0.020	-0.088***
Extra EU	0.050***	0.084***	-0.029	0.081***	-0.026	-0.003
Intra EU	0.047***	0.105***	-0.053***	0.068***	0.000	-0.065***

Note: *** p<0.01, ** p<0.05, * p<0.1. Core advanced economies (CAE) defined according to the IMF-WEO classification. Extra EU and intra EU indentify regressions run considering EU countries as importers and using only, respectively, extra-EU trade flows and intra-EU trade flows. For full regression results, see tables **??**, **??** in appendix B.

6.5 Politically-weighted concentration

In this section, we investigate whether the upward price effect of concentration is stronger (or weaker) if a country's providers are politically more distanced. Or, in other words, whether

[39]See table 25 in appendix B for the full regression results

[40]Table 26 in appendix B reports the full regression results.

suppliers charge an additional mark-up on relative prices for importers that are more distant from a political point of view, depending on market concentration. For this reason, we replace in baseline regressions the HHI index with the politically-distance weighted HHI, built based on the political distance index of Bailey et al. (2017) and defined in section 3.2. The politically-distance weighted HHI is higher (respectively, lower) than the HHI if a countries' imports are more (respectively, less) concentrated in providers that are politically farther (respectively, closer) to the importer.

We find that the significant upward price effect of import concentration still holds if we consider the politically-weighted HHI instead of the non-weighted HHI (see table 6). Also, the size of the estimated coefficient is very similar across the two indices of concentration, and so are the coefficients of the other explanatory variables. One small exception is the quadratic model with exclusive trade relations dummy, in which the quadratic term of the politically-distance weighted concentration index is significant, contrary to the baseline. That means that the downward effect for higher and increasing levels of concentration is more predominant when considering the political closeness of trading partners. Apart from that, the political proximity of suppliers does not seem to have a significant impact on relative import prices beyond the impact of import concentration.

Table 6: Regression of relative import prices P on politically-distance weighted HHI

VARIABLES	Linear (1)	Quadr. (2)	Linear (3)	Quadr. (4)
HHI_POL	0.047***	0.167***	0.088***	0.154***
	(0.008)	(0.014)	(0.007)	(0.016)
HHI_POL^2		-0.109***		-0.060***
		(0.013)		(0.014)
Importer GDP	0.061***	0.064***	0.060***	0.062***
	(0.021)	(0.021)	(0.022)	(0.022)
Imp. market power	-0.019***	-0.020***	-0.027***	-0.027***
	(0.002)	(0.002)	(0.002)	(0.002)
Exporters GDP	0.060***	0.059***	0.059***	0.058***
	(0.005)	(0.005)	(0.005)	(0.005)
Exclusive trade rel.			-0.126***	-0.124***
			(0.005)	(0.005)
Constant	-0.275	-0.308	-0.260	-0.278
	(0.192)	(0.192)	(0.197)	(0.196)
Nb. of obs.	3,877,496	3,877,496	3,877,496	3,877,496
Nb. of i	217,067	217,067	217,067	217,067
Imp#product FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Note: Standard errors in parentheses, Driscoll and Kraay standard errors, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (importer#product group). HHI_POL is the politically-distance weighted HHI, based on the political distance index of Bailey et al. (2017).

6.6 Robustness analysis

This section presents a number of robustness checks to our baseline model. In our robustness analyses, we control for product complexity; for China's integration in global markets; for effective tariffs applied by the importer; we use lagged HHIs as well as concentration indices alternative to the HHI; and we implement a battery of alternative FE structures. Our baseline results prove robust to all these exercises, as detailed in the following paragraphs.[41]

Controlling for product complexity First, we provide additional controls for product & importers economic complexity as well as product quality.[42] Product complexity and product quality are taken into account in our baseline specification by two factors: importer's per capita GDP and importer-product FE. Per capita GDP of importers has a close tie with the quality of imports, as richer countries usually consume higher quality goods (see Feenstra and Romalis, 2014). However, this variable reflects product quality only at the importer level, being equal across all products. Importer-product FE control for importer-product-specific characteristics, such as quality; they are however invariant over time and do not capture the likely impact of a change of these characteristics on prices. That is, if an importer "upgrades" its product quality over time, this would not be absorbed by the FE. For these reasons, we include as additional explanatory variables product complexity and the importer's economic complexity (at trade). The Product Complexity Index (PCI) and the Economic Complexity Index (ECI) from the Observatory of Economic Complexity (OEC) are, respectively, measures of the relative knowledge intensity of a product or an economy (Simoes and Hidalgo, 2011; Hausmann and Hidalgo, 2014). Both indices are available at the yearly frequency and the PCI is available at the HS6-digit level, which makes them good candidates to control for the time-varying part of the complexity of a product or an importer. We use also an interacted PCI & ECI index to analyse the impact of importer-specific product complexity/quality on prices.[43]

Table 7 reports the results of the linear model (see table 28 in appendix B for the quadratic regression results). The coefficient of our main variable of interest, import concentration HHI, stays highly significant and positive in all the specifications controlling for complexity. The coefficient of product complexity PCI, i.e. complexity at the product level, reveals a significant, if small, negative impact on relative import prices (column (1)). This means that an increase in the sophistication of a product weighs on its relative import price. We explain this result by the fact that more complex products exhibit a smaller range of relative price differences than less complex products (see figure 10 in appendix B).[44] Also, the coefficient of the ECI of importers

[41] For completeness, in appendix B we show estimation results including additional control variables for the market size of the importer, namely population and total GDP, see table 27. These specifications provide similar estimates to the baseline. Most importantly, the coefficient of the concentration index is practically unaffected by the additional control variables. In the interest of parsimony, we use the smaller model as baseline.

[42] We understand product complexity as a product-specific characteristic, reflecting the sophistication or knowledge intensity of a given product. Product quality refers to within product's attributes. It is generally defined as how well a product satisfies the consumer's needs. It can hence differ within the same product.

[43] As the PCI and ECI are only available for a smaller number of products than our full product sample, the sample size is slightly reduced with respect to baseline estimations.

[44] As we are more interested in relative price differences between importers (at the product level), and not

shows a significant negative impact on relative price levels (column (2)). The variable is however highly correlated with per capita GDP of importers[45], whose coefficient increases approximately by the same size as the absolute size of the coefficient of ECI compared to the benchmark. We hence presume that multicollinearity (overfitting) between the two variables could be an issue here, which makes it difficult to isolate the effects of the two variables. Finally, column (4) shows a slightly positive and significant (at the 10% significance level) impact of the interacted product and economy complexity on import prices. We take this as confirmation that importer-specific product characteristics, which we summarise as "quality", have a small positive impact on relative import prices.

Table 7: Regression of relative import prices P on import concentration HHI, controlling for product complexity & product quality

VARIABLES	(1)	(2)	(3)	(4)
HHI	0.065***	0.052***	0.068***	0.069***
	(0.011)	(0.006)	(0.009)	(0.009)
Importer GDP	0.053**	0.083***	0.079***	0.048**
	(0.020)	(0.027)	(0.026)	(0.021)
Imp. market power	-0.020***	-0.021***	-0.021***	-0.021***
	(0.002)	(0.002)	(0.003)	(0.003)
Exporters GDP	0.044***	0.053***	0.036***	0.036***
	(0.003)	(0.004)	(0.004)	(0.004)
PCI	-0.002***		0.000	
	(0.000)		(0.001)	
ECI		-0.027***	-0.036***	
		(0.008)	(0.009)	
PCI#ECI				0.002*
				(0.001)
Constant	-0.022	-0.387	-0.173	0.111
	(0.199)	(0.241)	(0.241)	(0.193)
Nb. of obs.	2,104,346	3,314,700	1,779,372	1,779,372
Nb. of i	134,104	182,529	112,523	112,523
Imp#product FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Note: Standard errors in parentheses, Driscoll and Kraay standard errors, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (importer#product group). PCI is the Product Complexity Index defined at the year-importer-product level; ECI is the Economic Complexity (at trade) Index defined at the year-importer level (Simoes and Hidalgo, 2011; Hausmann and Hidalgo, 2014).

Controlling for China's integration in global markets Next, we investigate how importing from China affects the relationship between import concentration and import prices. China has become a dominant provider for many products in world trade (Jean et al., 2023). One

between products, we only show this result for illustrative purposes.

[45]This high correlation is also well documented by Hausmann and Hidalgo (2014).

possible explanation could be that China offers lower prices beyond what could be expected from its level of labour costs (controlled for in our baseline model by weighted exporter's GDP). With an increasing import concentration towards China in our sample period (see section 5), this could result in a negative association between concentration and prices, that could affect the coefficient of the concentration index. We therefore introduce an additional control variable into the regression that represents China's market share at the importer-product-year level. A negative coefficient would indeed speak in favour of a downward price effect of sourcing from China (a "China effect"), while a positive coefficient would rather support the assumption of a (profit-maximizing) market power effect.[46]

Table 8 shows that our baseline result concerning the positive impact of import concentration HHI on prices proves to be robust to the inclusion of China's share in exports.[47] Also, China's share in exports has a significant positive influence on relative import prices at the importer-product-year level. The market power effect seems to clearly outweigh a possible "China effect" (i.e., a below-average price level not explained by the economic development/labour costs of China). This result is in line with Jean et al. (2023), who also find that Chinese exporters do set higher prices when they enjoy a higher market share.

Controlling for import tariffs Third, we test whether bilateral tariffs effectively applied by each importer (bundled across exporters using as weights their shares in the imports of each product) affect the impact of concentration on relative prices.[48] The idea is to control for the fact that exporters could charge a lower price (compared to "world market prices" for a given product) to compensate for higher tariffs applied by a certain importer. While the inclusion of this variable does not change the coefficient of HHI, the coefficient of effectively applied tariffs is not significant in any of the specifications (see table 9).

Employing lagged HHI Reverse causality could be an issue to the extent that countries that pay a higher price for their imports of a certain product compared to other importers, decide to reshape their network of providers so as to lower import costs, with an impact on their import concentration. In order to control for this possible effect, we use lagged values of the HHI in baseline regressions. Table 10 reports results for a specification using previous year HHIs, while table 29 in appendix B employs three-year-lagged HHIs. Both sets of results show that the positive impact of concentration on prices still holds –and significantly so– when measuring import concentration through previous years values, which suggests that our results are robust to possible reverse causality issues.

[46] The sample is reduced to products that are exported by China. It is also possible that the integration of China into world markets exerted downward pressure on the general price level. However, this effect is already controlled for in our empirical strategy by the fact that we are looking at relative and not absolute price levels.

[47] The estimated coefficient of HHI decreases somewhat in absolute size in the linear specification. This is not surprising, as the concentration towards China is now controlled for by an additional variable.

[48] Contrary to Most Favoured Nation (MFN) tariffs, effectively applied tariffs take into account the existence of preferential trade agreements between countries, which can lower applied duties below their MFN level.

Table 8: Regression of relative import prices P on import concentration HHI, controlling for China's share in exports

VARIABLES	Linear (1)	Quadr. (2)	Linear (3)	Quadr. (4)
HHI	0.040***	0.082***	0.059***	0.066**
	(0.009)	(0.027)	(0.009)	(0.027)
HHI^2		-0.044*		-0.008
		(0.025)		(0.025)
Importer GDP	0.042*	0.043*	0.041*	0.041*
	(0.022)	(0.022)	(0.022)	(0.022)
Imp. market share	-0.004	-0.004	-0.009***	-0.009***
	(0.003)	(0.003)	(0.003)	(0.003)
Exporters GDP	0.050***	0.050***	0.049***	0.049***
	(0.003)	(0.003)	(0.003)	(0.003)
China's share	0.039***	0.038***	0.042***	0.042***
	(0.008)	(0.008)	(0.009)	(0.008)
Exclusive trade rel.			-0.163***	-0.163***
			(0.007)	(0.007)
Constant	0.039	0.031	0.060	0.058
	(0.209)	(0.208)	(0.215)	(0.215)
Nb. of obs.	2,640,840	2,640,840	2,640,840	2,640,840
Nb. of i	188,990	188,990	188,990	188,990
Imp#product FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Note: Standard errors in parentheses, Driscoll and Kraay standard errors, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (importer#product group).

Table 9: Regression of relative import prices P on import concentration HHI, controlling for applied tariffs

VARIABLES	Linear (1)	Quadr. (2)	Linear (3)	Quadr. (4)
HHI	0.052***	0.144***	0.079***	0.115***
	(0.007)	(0.023)	(0.007)	(0.023)
HHI^2		-0.093***		-0.037***
		(0.018)		(0.018)
Importer GDP	0.086**	0.087**	0.085**	0.086**
	(0.019)	(0.018)	(0.019)	(0.019)
Imp. market power	-0.009***	-0.009***	-0.015***	-0.015***
	(0.002)	(0.002)	(0.002)	(0.002)
Exporters GDP	0.057***	0.057***	0.056***	0.056***
	(0.003)	(0.003)	(0.003)	(0.003)
Effectively applied tariffs	0.002	0.002	0.002	0.002
	(0.001)	(0.001)	(0.001)	(0.001)
Exclusive trade rel.			-0.132***	-0.131***
			(0.005)	(0.005)
Constant	-0.497**	-0.521***	-0.483**	-0.493**
	(0.183)	(0.180)	(0.188)	(0.186)
Nb. of obs.	2,310,087	2,310,087	2,310,087	2,310,087
Nb. of i	161,157	161,157	161,157	161,157
Imp#product FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Note: Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (product groups).

Table 10: Regression of relative import prices P on import concentration HHI, with lagged HHI

VARIABLES	Linear (1)	Quadr. (2)	Linear (3)	Quadr. (4)
1-yr lagged HHI	0.049***	0.115***	0.063***	0.102***
	(0.006)	(0.016)	(0.006)	(0.016)
1-yr lagged HHI^2		-0.064***		-0.038***
		(0.012)		(0.013)
Importer GDP	0.060**	0.061**	0.058**	0.059**
	(0.023)	(0.023)	(0.024)	(0.024)
Imp. market power	-0.015***	-0.015***	-0.021***	-0.021***
	(0.002)	(0.002)	(0.002)	(0.002)
Exporters GDP	0.046***	0.046***	0.041***	0.041***
	(0.004)	(0.004)	(0.004)	(0.004)
Exclusive trade rel.			-0.134***	-0.133***
			(0.007)	(0.007)
Constant	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Nb. of obs.	3,584,598	3,584,598	3,584,598	3,584,598
Nb. of i	212,617	212,617	212,617	212,617
Imp#product FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Note: Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (product groups).

Employing alternative concentration measures We then explore the sensitivity of our results to the use of alternative concentration indices. First, we replace the HHI with a Herfindahl-Hirschman index built using bilateral trade flows expressed in quantity terms, instead than in USD as in our baseline analysis, using data from CEPII-BACI. As granular bilateral quantity-based trade flows data are of a lower quality than value-based data, our baseline estimations, as well as the descriptive analysis in section 5, are based on the latter measure, in line with the literature (European Commission (2021), Arjona et al. (2023), Ioannou and Perez (2023)). Yet, columns (1) and (2) of table 11 test the robustness of our results to the use of an alternative HHI built using quantity-based data. In columns (3) and (4) we use instead as an alternative measure of import concentration the concentration ratio of the first two providers (CR2), computed as the sum of their export shares, as in Covarrubias et al. (2020).[49] Finally, columns (5) and (6) employ as an alternative measure of import concentration the Theil's entropy index, as Cadot et al. (2014), which is defined as:

$$Theil_{imp}^{pc} = \frac{1}{n} \cdot \sum_{exp=1}^{N} \frac{M_{imp,exp}^{pc}}{\mu_{imp}^{pc}} \cdot \ln \frac{M_{imp,exp}^{pc}}{\mu_{imp}^{pc}}, \tag{9}$$

where n is the number of potential exporters of product pc, defined as in Cadot et al. (2014) as countries that export pc for at least two consecutive years, and μ_{imp}^{pc} is the average of country's imp imports of product pc over all the potential exporters.

As shown in table 11, the positive impact of import concentration on prices is robust to the use of the three alternative concentration measures.[50]

Alternative FE structures Finally, in a last robustness check, we employ three different fixed effect strategies, to check for the robustness of our baseline results to the time-invariant intercept of each unit. First, we use separate product, importer and time FE, which control individually for time-invariant country-specific factors, time-invariant product-specific factors (e.g. non-importer specific product characteristics) and time-specific intercepts. Second, we employ interacted importer-time FE, which control for omitted time-varying importer-specific fluctuations (macro shocks, exchange rate fluctuations, etc.) as well as product FE. Third, we use importer-sector-time FE, identifying sectors at the HS 2-digit level. In the latter two settings, importer's per capita GDP proves to be strongly collinear with importer-time FE, and is hence omitted from the estimation. Results are presented in table 12. The sign and significance of the relation between relative prices and concentration is robust to the different FE structures, as concentration has a positive impact on relative prices. However, the size of the coefficient increases considerably compared to the baseline in the first two alternative FE strategies. An increase of the concentration index by 0.1 point increases relative import prices by about 0.02

[49]Covarrubias et al. (2020) employ the concentration ratio of the first 8 providers (CR8), as their analysis is at the provider-firm level.

[50]The main results on the evolution of import concentration outlined in section 5 are also robust to the use of these alternative indices of concentration. Results are available upon request.

Table 11: Regression of relative import prices P on import concentration using alternative concentration measures

VARIABLES	Qt-based HHI (1)	Qt-based HHI (2)	CR2 (3)	CR2 (4)	Theil (5)	Theil (6)
HHI_qt	0.120***	0.151***				
	(0.008)	(0.008)				
$CR2$			0.072***	0.104***		
			(0.008)	(0.008)		
$Theil$					0.022***	0.039***
					(0.003)	(0.002)
Importer GDP	0.065***	0.062**	0.063***	0.061**	0.063***	0.063***
	(0.021)	(0.022)	(0.021)	(0.021)	(0.021)	(0.022)
Imp. market power	-0.019***	-0.026***	-0.020***	-0.026***	-0.019***	-0.026***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Exporters GDP	0.066***	0.062***	0.058***	0.054***	0.059***	0.056***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Exclusive trade rel.		-0.135***		-0.120***		-0.126***
		(0.005)		(0.005)		(0.005)
Constant	-0.401*	-0.336	-0.304	-0.254	-0.336	-0.353*
	(0.203)	(0.206)	(0.193)	(0.196)	(0.195)	(0.200)
Nb. of obs.	3,875,822	3,875,822	3,877,496	3,877,496	3,877,496	3,877,496
Nb. of i	216,988	216,988	217,067	217,067	217,067	217,067
Imp#product FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Note: Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections, HHI_qt is the HHI computed using quantity-based bilateral trade flows data, $CR2$ is the concentration ratio of the first two providers (Covarrubias et al., 2020), $Theil$ is Theil's entropy index (Cadot et al., 2014).

point in the linear model (columns (1) and (3)). We interpret this finding as signaling that this FE structure controls less for (importer-specific) differences within the individual products. Therefore, a larger part of the variability of relative prices within each individual product is attributed to concentration (and other explanatory variables, whose coefficients also increase in absolute size). Columns (3) and (4) of table show that controlling for importer-specific time-shocks, beyond the level of GDP, does not add anything to the model. Likewise, controlling for importer-time-sector FE at the HS2-level increases the coefficient of HHI slightly, but has otherwise only a minor impact on results, as shown in columns (5) and (6).

Table 12: Regression of relative import prices P on import concentration HHI, using a different fixed effect structures

VARIABLES	Linear (1)	Quadr. (2)	Linear (3)	Quadr. (4)	Linear (5)	Quadr. (6)
HHI	0.183***	0.464***	0.181***	0.458***	0.099***	0.259***
	(0.018)	(0.058)	(0.006)	(0.019)	(0.003)	(0.008)
HHI^2		-0.270***		-0.265***		-0.156***
		(0.045)		(0.017)		(0.009)
Importer GDP	0.119***	0.122***				
	(0.032)	(0.032)				
Imp. market power	-0.051***	-0.052***	-0.052***	-0.053***	-0.045***	-0.046***
	(0.003)	(0.003)	(0.001)	(0.001)	(0.001)	(0.001)
Exporters GDP	0.073***	0.072***	0.072***	0.071***	0.056***	0.055***
	(0.007)	(0.007)	(0.003)	(0.003)	(0.001)	(0.001)
Constant	-1.081***	-1.153***	0.171***	0.128***	0.368***	0.347***
	(0.347)	(0.344)	(0.029)	(0.028)	(0.011)	(0.011)
Nb. of obs.	3,877,496	3,877,496	3,877,496	3,877,496	3,877,477	3,877,477
Nb. of i	5,110	5,110	5,110	5,110		
Product FE	YES	YES	YES	YES		
Imp FE	YES	YES				
Year FE	YES	YES				
Imp#year FE			YES	YES		
Imp#year#sector FE					YES	YES

Note: Standard errors in parentheses, clustered standard errors (at respective units), *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (product groups).

7 Conclusions

Recent events have shown that highly concentrated imports can represent a source of vulnerability for the importer, which motivates an observed tendency towards import diversification. In this paper, we study the evolution of import concentration in OECD countries in the last two decades, highlighting the role of China as a leading global exporter and the role of the EU internal market as a source of diversification for European economies. We also investigate the impact of import concentration on import prices, finding a positive relationship, which is compatible with the view that highly concentrated markets are associated to a low level of competition –although results are heterogeneous across industries.

Our results have relevant policy implications. As it has been shown in recent contributions (IRC, 2024), a potential deepening of geopolitical tensions in the next years could entail inflationary consequences at the world level. Our results –showing that countries whose imports are highly concentrated tend to pay more, everything else equal, to source the same product– suggest that import diversification could mitigate these upward pressures on prices. Recent contributions have also documented that a selective process of trade fragmentation along geopolitical lines could already be under way (Gopinath, 2023; International Monetary Fund, 2024; Fernandez-Villaverde et al., 2024). Our results indicate that, in this context of trade flows reallocation, it is important that shifts away from geopolitically-distant exporters to be coupled with effective diversification across alternative providers, as diversification itself could contribute to contain import prices. Finally, some works have also found recent evidence of a tendency towards a regionalization of trade flows (IRC, 2024; Alicke, Foster, Hauck and Trautwein, 2023). In light of this trend, our findings suggest that regionalization –that is, an increase in concentration on a regional basis– could likely result in a lower competition and higher prices.

A Appendix: Data

Table 13: Data source and description

Variable	Source	Comment
Bilateral trade flows	CEPII-BACI HS96	Used to compute dependency indicators, China's share
Bilateral trade flows	CEPII-BACI HS17	Used to compute dependency indicators, China's share
Bilateral unit values	CEPII-TUV HS96	Used to compute relative import prices
Political distance	Bailey et al. (2017)	Used to compute politically-distance weighted HHI
GDP per capita	OECD	National accounts, in constant prices & PPP
Total GDP	OECD	National accounts, in constant prices & PPP and USD
Population	OECD	
GDP per capita of exporters	World Bank	National accounts, in constant prices & USD
Product complexity index	OEC HS-1996	
Economic complexity index	OEC HS-1996	Economic complexity at trade
Applied tariff duties	WTO	Effectively applied tariffs
Macro groups	Ioannou and Perez (2023)	
Technology groups	Lall (2000)	From UNCTAD, own conversion from SITC Rev. 3 to HS6
BEC		From UN, own conversion from BEC Rev. 4 to HS6
Advanced Technology Products	US Census	From UN, own conversion from HS22 to HS17
Green technologies	IRC (2024)	
Semiconductors	Attinasi et al. (2021)	

Table 14: Summary statistics

VARIABLES	Nb. of obs.	Nb. of years	Mean	Median	Std.dev.	10th perc.	90th perc.
Bilateral trade flows HS96	108,498,719	27	2149.6	19.2	69103.1	0.3	1299.5
Bilateral trade flows HS17	29,951,104	6	2438.0	14.8	77052	0.2	1375.7
Bilateral unit values HS96	3,879,415	20	517313	9503	4.49e+07	874.5	130094
Political distance	216,077	27	1.260596	1.289441	0.8234495	0.1172016	2.310746
GDP p.c.	860	20	36388.3	35104.4	17032.9	17002.5	53245.5
Total GDP	860	20	1162560	331455.1	2625584	42622.8	2511841
Population	860	20	30635.7	10056.7	52576.4	1322.5	76665
GDP p.c. of exporters	3,975	20	13804.9	5180.1	19411.9	705.2	41486.2
Product complexity index	50,579	20	0.0001	0.14	0.99	-1.44	1.19
Economic complexity index	720	20	1.00	1.09	0.61	0.085	1.74
Applied tariff duties	91,725,992	27	2.58	0	6.73	0	8.4

B Appendix: Additional results

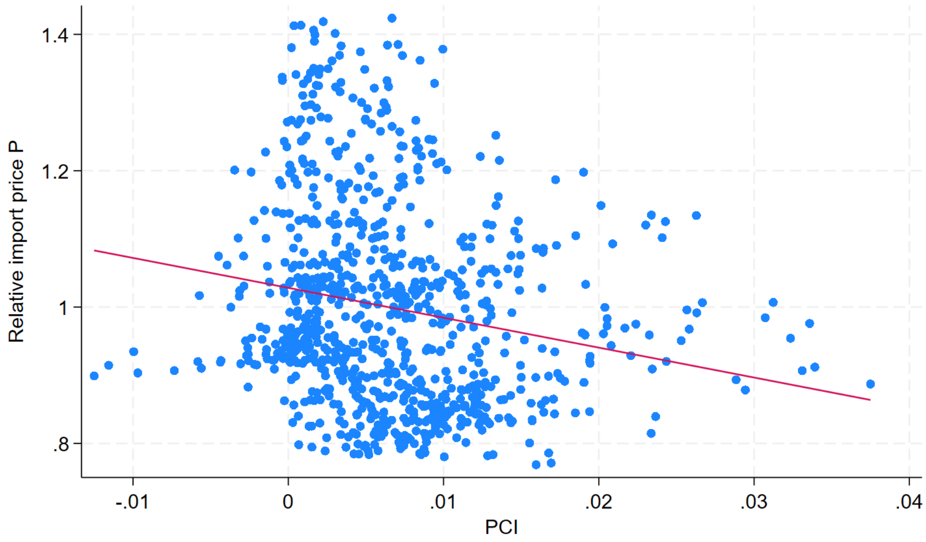

Figure 10: Relationship between product complexity PCI and relative import prices P averaged on the importer level, over all years (2000-2019)

Table 15: Regression of relative import prices P on import concentration HHI, for technological groups

VARIABLES	Primary prod. (1)	Resource-based manuf. (2)	Low tech manuf. (3)	Med. tech manuf. (4)	High tech manuf. (5)
HHI	0.012**	0.074***	0.070***	0.031**	-0.011
	(0.005)	(0.008)	(0.009)	(0.006)	(0.016)
Importer GDP	0.069**	0.102***	0.020	0.079***	0.038*
	(0.026)	(0.034)	(0.021)	(0.017)	(0.020)
Imp. market power	-0.037***	-0.040***	-0.022***	-0.004*	0.020***
	(0.003)	(0.002)	(0.003)	(0.002)	(0.003)
Exporters GDP	0.061***	0.057***	0.059***	0.064***	0.025***
	(0.005)	(0.006)	(0.004)	(0.004)	(0.006)
Constant	-0.374	-0.684*	0.164	-0.486***	0.361*
	(0.252)	(0.350)	(0.193)	(0.143)	(0.208)
Nb. of obs.	480,043	746,373	1,082,302	1,052,059	297,236
Nb. of i	28,306	43,367	59,179	57,263	16,684
Imp#product FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Note: Standard errors in parentheses, Driscoll and Kraay standard errors, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (importer#product group), technology groups according to Lall (2000).

Table 16: Regression of relative import prices P on import concentration HHI, for technological groups

VARIABLES	Primary prod. (1)	Resource-based manuf. (2)	Low tech manuf. (3)	Med. tech manuf. (4)	High tech manuf. (5)
HHI	0.278***	0.233***	0.192***	0.094***	0.002
	(0.029)	(0.031)	(0.025)	(0.028)	(0.039)
HHI^2	-0.230***	-0.143***	-0.121***	-0.061***	-0.013
	(0.024)	(0.025)	(0.022)	(0.027)	(0.034)
Importer GDP	0.071**	0.103***	0.023	0.080***	0.038
	(0.026)	(0.034)	(0.021)	(0.016)	(0.020)
Imp. market power	-0.037***	-0.040***	-0.023***	-0.005*	0.020***
	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)
gdp_exp	0.060***	0.056***	0.058***	0.064***	0.025***
	(0.005)	(0.006)	(0.004)	(0.004)	(0.006)
Constant	-0.436	-0.718*	0.122	-0.500***	0.360
	(0.255)	(0.348)	(0.188)	(0.140)	(0.209)
Nb. of obs.	480,043	746,373	1,082,302	1,052,059	297,236
Nb. of i	28,306	43,367	59,179	57,263	16,684
Imp#product FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Note: Standard errors in parentheses, Driscoll and Kraay standard errors, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (importer#product group), technology groups according to Lall (2000).

Table 17: Regression of relative import prices P on import concentration HHI, for macro groups

VARIABLES	Linear-FE Animal prod. (1)	Linear-FE Vegetable prod. (2)	Linear-FE Food prod. (3)	Linear-FE Mineral prod. (4)	Linear-FE Chemical prod. (5)	Linear-FE Plastics, rubbers (6)	Linear-FE Hides, skins leathers (7)	Linear-FE Wood prod. (8)	Linear-FE Textiles (9)	Linear-FE Footwear (10)	Linear-FE Stone, glass (11)	Linear-FE Metals (12)	Linear-FE Machinery, electr. (13)	Linear-FE Transport. prod. (14)	Linear-FE Misc. (15)
HHI	-0.015	0.021**	0.079***	0.048***	0.062***	0.089***	0.101***	0.054***	0.058***	0.067**	0.062***	0.073***	0.023**	-0.025	0.014
	(0.014)	(0.010)	(0.013)	(0.014)	(0.010)	(0.012)	(0.029)	(0.011)	(0.009)	(0.028)	(0.018)	(0.013)	(0.010)	(0.022)	(0.011)
Importer GDP	0.152***	0.106***	0.102**	-0.099**	0.119***	0.112***	-0.043	-0.016	0.029	0.122**	0.055*	0.048**	0.044***	0.078**	0.007
	(0.031)	(0.031)	(0.039)	(0.046)	(0.028)	(0.028)	(0.058)	(0.050)	(0.024)	(0.046)	(0.031)	(0.021)	(0.015)	(0.036)	(0.017)
Imp. market power	-0.030***	-0.037***	-0.051***	-0.059***	-0.023***	-0.045***	-0.013	-0.031***	-0.030***	-0.007	-0.008**	-0.041***	0.016***	0.040***	0.026***
	(0.004)	(0.003)	(0.006)	(0.005)	(0.002)	(0.004)	(0.009)	(0.006)	(0.003)	(0.005)	(0.003)	(0.004)	(0.002)	(0.004)	(0.004)
Exporters GDP	0.043***	0.052***	0.054***	0.082***	0.059***	0.041***	0.039***	0.031***	0.076***	0.059***	0.047***	0.056***	0.037***	0.055***	0.044***
	(0.010)	(0.006)	(0.008)	(0.006)	(0.009)	(0.010)	(0.012)	(0.005)	(0.003)	(0.013)	(0.007)	(0.005)	(0.006)	(0.011)	(0.009)
Constant	-1.039**	-0.649**	-0.651	1.115**	-0.867***	-0.616*	0.992*	0.802	-0.092	-0.856*	-0.067	-0.112	0.164	-0.330	0.484**
	(0.374)	(0.305)	(0.417)	(0.452)	(0.281)	(0.300)	(0.549)	(0.464)	(0.230)	(0.443)	(0.329)	(0.211)	(0.124)	(0.307)	(0.169)
Nb. of obs.	145,575	235,740	149,921	95,537	562,116	165,049	43,655	171,637	626,571	42,832	150,225	449,159	637,569	99,571	302,313
Nb. of i	8,527	13,425	7,938	6,078	32,790	8,509	2,983	9,782	35,032	2,362	8,401	24,410	34,488	5,602	16,740
Imp#pr. FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: Standard errors in parentheses, Driscoll and Kraay standard errors, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (importer#product group), macro groups according to Ioannou and Perez (2023).

Table 18: Regression of relative import prices P on import concentration HHI, for macro groups

VARIABLES	Quadr.-FE Animal prod. (1)	Quadr.-FE Vegetable prod. (2)	Quadr.-FE Food prod. (3)	Quadr.-FE Mineral prod. (4)	Quadr.-FE Chemical prod. (5)	Quadr.-FE Plastics, rubbers (6)	Quadr.-FE Hides, skins leathers (7)	Quadr.-FE Wood prod. (8)	Quadr.-FE Textiles (9)	Quadr.-FE Footwear (10)	Quadr.-FE Stone, glass (11)	Quadr.-FE Metals (12)	Quadr.-FE Machinery, electr. (13)	Quadr.-FE Transport. prod. (14)	Quadr.-FE Misc. (15)
HHI	0.205***	0.207***	0.396***	0.255***	0.170***	0.295***	0.200**	0.257***	0.265***	0.006	0.076**	0.266***	0.002	-0.175***	-0.048
	(0.034)	(0.043)	(0.034)	(0.045)	(0.026)	(0.038)	(0.081)	(0.037)	(0.029)	(0.049)	(0.033)	(0.028)	(0.032)	(0.047)	(0.031)
HHI^2	-0.187***	-0.166***	-0.296***	-0.172***	-0.097***	-0.209***	-0.090	-0.190***	-0.200***	0.062	-0.013	-0.182***	0.021	0.137**	0.065**
	(0.032)	(0.040)	(0.039)	(0.038)	(0.024)	(0.042)	(0.069)	(0.035)	(0.028)	(0.062)	(0.035)	(0.029)	(0.027)	(0.052)	(0.030)
Importer GDP	0.154***	0.106***	0.102**	-0.099**	0.120***	0.115***	-0.040	-0.013	0.034	0.120**	0.055*	0.050**	0.044***	0.076**	0.006
	(0.031)	(0.030)	(0.040)	(0.046)	(0.027)	(0.028)	(0.059)	(0.050)	(0.023)	(0.046)	(0.031)	(0.021)	(0.015)	(0.036)	(0.017)
Imp. market power	-0.031***	-0.037***	-0.051***	-0.059***	-0.024***	-0.045***	-0.013	-0.032***	-0.031***	-0.006	-0.008**	-0.042***	0.016***	0.041***	0.026***
	(0.004)	(0.003)	(0.006)	(0.005)	(0.002)	(0.004)	(0.009)	(0.006)	(0.003)	(0.005)	(0.003)	(0.004)	(0.002)	(0.004)	(0.004)
Exporters GDP	0.042**	0.051***	0.052***	0.081***	0.058***	0.040***	0.039***	0.029***	0.076***	0.061***	0.047***	0.055***	0.038***	0.056***	0.045***
	(0.010)	(0.006)	(0.008)	(0.006)	(0.009)	(0.010)	(0.012)	(0.005)	(0.003)	(0.014)	(0.007)	(0.005)	(0.006)	(0.011)	(0.009)
Constant	-1.098***	-0.684**	-0.705	1.076**	-0.890***	-0.672**	0.953	0.752	-0.178	-0.834*	-0.070	-0.160	0.167	-0.291	0.491***
	(0.375)	(0.303)	(0.422)	(0.466)	(0.277)	(0.298)	(0.557)	(0.466)	(0.220)	(0.440)	(0.325)	(0.207)	(0.126)	(0.298)	(0.171)
Nb. of obs.	145,575	235,740	149,921	95,537	562,116	165,049	43,655	171,637	626,571	42,832	150,225	449,159	637,569	99,571	302,313
Nb. of i	8,527	13,425	7,938	6,078	32,790	8,509	2,983	9,782	35,032	2,362	8,401	24,410	34,488	5,602	16,740
Imp#pr. FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: Standard errors in parentheses, Driscoll and Kraay standard errors, *** $p<0.01$, ** $p<0.05$, * $p<0.1$, i number of unique cross-sections (importer#product group), macro groups according to Ioannou and Perez (2023).

Table 19: Regression of relative import prices P on import concentration HHI, for macro groups

VARIABLES	Quadr.-FE Animal prod. (1)	Quadr.-FE Vegetable prod. (2)	Quadr.-FE Food prod. (3)	Quadr.-FE Mineral prod. (4)	Quadr.-FE Chemical prod. (5)	Quadr.-FE Plastics, rubbers (6)	Quadr.-FE Hides, skins leathers (7)	Quadr.-FE Wood prod. (8)	Quadr.-FE Textiles (9)	Quadr.-FE Footwear (10)	Quadr.-FE Stone, glass (11)	Quadr.-FE Metals (12)	Quadr.-FE Machinery, electr. (13)	Quadr.-FE Transport. prod. (14)	Quadr.-FE Misc. (15)
HHI	0.101**	0.126***	0.318***	0.107**	0.110***	0.220***	0.168*	0.166***	0.217***	-0.024	0.040	0.192***	-0.024	-0.186***	-0.074*
	(0.037)	(0.038)	(0.035)	(0.056)	(0.028)	(0.037)	(0.086)	(0.040)	(0.031)	(0.052)	(0.029)	(0.030)	(0.034)	(0.049)	(0.035)
HHI^2	-0.050	-0.050	-0.186***	0.034	0.008	-0.084**	-0.041	-0.054	-0.117***	0.116*	0.054	-0.067**	0.067**	0.155**	0.112***
	(0.037)	(0.035)	(0.040)	(0.053)	(0.027)	(0.040)	(0.071)	(0.040)	(0.030)	(0.062)	(0.034)	(0.029)	(0.031)	(0.056)	(0.037)
Importer GDP	0.144***	0.092***	0.098**	-0.119**	0.111***	0.117***	-0.039	-0.013	0.032	0.118**	0.051	0.049**	0.045***	0.077**	0.005
	(0.032)	(0.030)	(0.038)	(0.048)	(0.028)	(0.029)	(0.059)	(0.050)	(0.023)	(0.047)	(0.032)	(0.022)	(0.015)	(0.036)	(0.017)
Imp. market power	-0.038***	-0.044***	-0.058***	-0.073***	-0.033***	-0.055***	-0.016	-0.038***	-0.038***	-0.011**	-0.014***	-0.050***	0.013***	0.040***	0.023***
	(0.004)	(0.003)	(0.006)	(0.006)	(0.002)	(0.004)	(0.009)	(0.006)	(0.002)	(0.005)	(0.004)	(0.004)	(0.002)	(0.005)	(0.004)
Exporters GDP	0.041***	0.048***	0.051***	0.080***	0.057***	0.041***	0.037***	0.025***	0.074***	0.060***	0.045***	0.054***	0.037***	0.056***	0.043***
	(0.010)	(0.007)	(0.008)	(0.006)	(0.009)	(0.010)	(0.013)	(0.005)	(0.003)	(0.014)	(0.007)	(0.005)	(0.006)	(0.011)	(0.008)
Exclusive trade rel.	-0.117***	-0.125***	-0.141***	-0.246***	-0.155***	-0.235***	-0.047*	-0.155***	-0.114***	-0.072***	-0.116***	-0.173***	-0.065***	-0.023	-0.071***
	(0.007)	(0.027)	(0.019)	(0.024)	(0.008)	(0.013)	(0.027)	(0.018)	(0.009)	(0.025)	(0.026)	(0.013)	(0.009)	(0.027)	(0.016)
Constant	-0.955**	-0.495	-0.641	1.346**	-0.774**	-0.690**	0.962*	0.808*	-0.135	-0.802*	-0.007	-0.122	0.158	-0.289	0.524***
	(0.391)	(0.295)	(0.409)	(0.478)	(0.276)	(0.305)	(0.551)	(0.467)	(0.220)	(0.453)	(0.344)	(0.222)	(0.126)	(0.299)	(0.170)
Nb. of obs.	145,575	235,740	149,921	95,537	562,116	165,049	43,655	171,637	626,571	42,832	150,225	449,159	637,569	99,571	302,313
Nb. of i	8,527	13,425	7,938	6,078	32,790	8,509	2,983	9,782	35,032	2,362	8,401	24,410	34,488	5,602	16,740
Imp#pr. FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: Standard errors in parentheses, Driscoll and Kraay standard errors, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (importer#product group), macro groups according to Ioannou and Perez (2023).

Table 20: Regression of relative import prices P on import concentration HHI, for main BEC categories

VARIABLES	Intermed. food (1)	Intermed. ind. supply (2)	Intermed. fuels (3)	Intermed. parts (4)	Capital (5)	Consumption (6)
HHI	0.018	0.063***	0.179***	0.054***	-0.013	0.037***
	(0.025)	(0.007)	(0.050)	(0.012)	(0.011)	(0.010)
Importer GDP	0.069**	0.059**	0.097	0.064***	0.028**	0.054*
	(0.032)	(0.024)	(0.069)	(0.019)	(0.013)	(0.031)
Imp. market power	-0.042***	-0.033***	-0.083***	0.002	0.032***	-0.013***
	(0.004)	(0.002)	(0.010)	(0.003)	(0.003)	(0.002)
Exporters GDP	0.058***	0.066***	0.087***	0.038***	0.042***	0.043***
	(0.007)	(0.004)	(0.023)	(0.005)	(0.007)	(0.005)
Constant	-0.339	-0.323	-1.029	-0.071	0.292***	-0.002
	(0.303)	(0.222)	(0.660)	(0.190)	(0.086)	(0.302)
Nb. of obs.	104,127	1,917,508	17,915	307,655	526,652	986,553
Nb. of i	6,168	110,810	1,022	16,237	28,827	53,100
Imp#product FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Note: Standard errors in parentheses, Driscoll and Kraay standard errors, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (importer#product group).

Table 21: Regression of relative import prices P on import concentration HHI, for main BEC categories

VARIABLES	Intermed. food (1)	Intermed. ind. supply (2)	Intermed. fuels (3)	Intermed. parts (4)	Capital (5)	Consumption (6)
HHI	0.289***	0.227***	0.762***	0.045	-0.094***	0.189***
	(0.022)	(0.020)	(0.201)	(0.046)	(0.022)	(0.033)
HHI^2	-0.232***	-0.150***	-0.493**	0.010	0.079***	-0.150***
	(0.025)	(0.017)	(0.199)	(0.048)	(0.023)	(0.027)
Importer GDP	0.068**	0.060**	0.095	0.064***	0.027**	0.057*
	(0.031)	(0.024)	(0.070)	(0.019)	(0.013)	(0.031)
Imp. market power	-0.043***	-0.034***	-0.082***	0.002	0.032***	-0.014***
	(0.004)	(0.002)	(0.010)	(0.003)	(0.003)	(0.002)
Exporters GDP	0.057***	0.065***	0.085***	0.038***	0.043***	0.042***
	(0.007)	(0.004)	(0.023)	(0.004)	(0.007)	(0.005)
Constant	-0.376	-0.364	-1.119	-0.069	0.306***	-0.050
	(0.301)	(0.219)	(0.670)	(0.190)	(0.083)	(0.300)
Nb. of obs.	104,127	1,917,508	17,915	307,655	526,652	986,553
Nb. of i	6,168	110,810	1,022	16,237	28,827	53,100
Imp#product FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Note: Standard errors in parentheses, Driscoll and Kraay standard errors, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (importer#product group).

Table 22: Regression of relative import prices P on import concentration HHI, for main BEC categories

VARIABLES	Intermed. food (1)	Intermed. ind. supply (2)	Intermed. fuels (3)	Intermed. parts (4)	Capital (5)	Consumption (6)
HHI	0.159***	0.158***	0.560**	0.025	-0.118***	0.149***
	(0.021)	(0.022)	(0.200)	(0.047)	(0.022)	(0.038)
HHI^2	-0.058*	-0.037*	-0.215	0.047	0.120***	-0.085**
	(0.033)	(0.020)	(0.204)	(0.050)	(0.024)	(0.033)
Importer GDP	0.044	0.057**	0.076	0.066***	0.028**	0.054*
	(0.031)	(0.024)	(0.066)	(0.019)	(0.013)	(0.031)
Imp. market power	-0.053***	-0.042***	-0.098***	-0.001	0.029***	-0.019***
	(0.004)	(0.002)	(0.009)	(0.003)	(0.003)	(0.002)
Exporters GDP	0.054***	0.063***	0.089***	0.037***	0.043***	0.040***
	(0.007)	(0.004)	(0.023)	(0.004)	(0.007)	(0.005)
Exclusive trade rel.	-0.166***	-0.153***	-0.364***	-0.060***	-0.058***	-0.082***
	(0.018)	(0.007)	(0.067)	(0.020)	(0.007)	(0.007)
Constant	-0.070	-0.290	-0.908	-0.072	0.304***	-0.003
	(0.299)	(0.229)	(0.636)	(0.190)	(0.085)	(0.300)
Nb. of obs.	104,127	1,917,508	17,915	307,655	526,652	986,553
Nb. of i	6,168	110,810	1,022	16,237	28,827	53,100
Imp#product FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Note: Standard errors in parentheses, Driscoll and Kraay standard errors, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (importer#product group).

Table 23: Regression of relative import prices P on import concentration HHI, controlling for external dependency

VARIABLES	(1)	(2)	(3)	(4)
HHI	0.049***	0.092***	0.049***	0.049***
	(0.006)	(0.005)	(0.006)	(0.006)
Importer GDP	0.061***	0.061**	0.061***	0.061***
	(0.021)	(0.022)	(0.021)	(0.021)
Imp. market power	-0.019***	-0.027***	-0.019***	-0.019***
	(0.002)	(0.002)	(0.002)	(0.002)
Exporters GDP	0.059***	0.056***	0.059***	0.059***
	(0.004)	(0.004)	(0.004)	(0.004)
External dependency	-0.000	-0.000		
	(0.000)	(0.000)		
Exclusive trade rel.		-0.127***		
		(0.005)		
HHI#(External dependency)			-0.000	-0.000
			(0.000)	(0.000)
Constant	-0.262	-0.236	-0.262	-0.262
	(0.196)	(0.201)	(0.196)	(0.196)
Nb. of obs.	3,877,496	3,877,496	3,877,496	3,877,496
Nb. of i	217,067	217,067	217,067	217,067
Imp#product FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Note: Standard errors in parentheses, Driscoll and Kraay standard errors, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (importer#product group), external dependency is defined as imports over exports.

Table 24: Regression of relative import prices P on import concentration HHI, controlling for other dependency indicators

VARIABLES	(1)	(2)	(3)	(4)	(5)
HHI	0.097***	0.117***	0.108***	0.106***	0.088***
	(0.013)	(0.020)	(0.019)	(0.017)	(0.011)
HHI^2	-0.014	-0.024	-0.025	-0.025	-0.016
	(0.013)	(0.016)	(0.017)	(0.017)	(0.013)
HHI#centrality	0.101*				0.094*
	(0.053)				(0.052)
Importer GDP	0.061**	0.061**	0.062**	0.062**	0.062**
	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)
Imp. market power	-0.027***	-0.027***	-0.027***	-0.027***	-0.027***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Exporters GDP	0.056***	0.056***	0.056***	0.056***	0.056***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Exclusive trade rel.	-0.126***	-0.127***	-0.126***	-0.126***	-0.126***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
External dependency dum		0.004*		-0.003	-0.002
		(0.002)		(0.003)	(0.002)
HHI#(External dependency dum.)			0.013**	0.017*	0.016*
			(0.006)	(0.009)	(0.009)
Constant	-0.237	-0.252	-0.253	-0.250	-0.245
	(0.200)	(0.199)	(0.199)	(0.199)	(0.200)
Nb. of obs.	3,877,452	3,877,496	3,877,496	3,877,496	3,877,452
Nb. of i	217,064	217,067	217,067	217,067	217,064
Imp#product FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Note: Standard errors in parentheses, Driscoll and Kraay standard errors, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (importer#product group). Centrality defined as in Korniyenko et al. (2017), reflects the probability that a product is supplied by just a few providers at the world level. External dependency dummy is equal to 1 if importer's imports of product pc exceed its own exports, and to 0 otherwise.

Table 25: Regression of relative import prices P on import concentration HHI, for core advanced and EU economies

	Core Advanced Economies			EU Economies		
VARIABLES	Linear-FE	Quadr.-FE	Quadr.-FE	Linear-FE	Quadr.-FE	Quadr.-FE
	(1)	(2)	(3)	(4)	(5)	(6)
HHI	0.046***	0.156***	0.102***	0.045***	0.092***	0.053***
	(0.007)	(0.016)	(0.019)	(0.007)	(0.015)	(0.016)
HHI^2		-0.105***	-0.014		-0.045***	0.020
		(0.014)	(0.017)		(0.011)	(0.013)
gdp	0.082***	0.084***	0.080***	0.080***	0.081***	0.079***
	(0.023)	(0.023)	(0.024)	(0.012)	(0.012)	(0.012)
rvtf	-0.019***	-0.019***	-0.026***	-0.013***	-0.013***	-0.018***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
gdp_exp	0.059***	0.058***	0.056***	0.061***	0.061***	0.060***
	(0.004)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)
d_one_exp			-0.125***			-0.088***
			(0.006)			(0.005)
Constant	-0.461**	-0.487**	-0.418*	-0.552***	-0.563***	-0.530***
	(0.217)	(0.215)	(0.220)	(0.141)	(0.141)	(0.139)
Nb. of obs.	3,077,291	3,077,291	3,077,291	2,430,871	2,430,871	2,430,871
Nb. of i	171,643	171,643	171,643	136,159	136,159	136,159
Imp#product FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Note: Standard errors in parentheses, Driscoll and Kraay standard errors, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (importer#product group).

Table 26: Regression of relative import prices P on import concentration HHI, over all years and products, for intra & extra EU trade

	Extra EU trade			Intra EU trade		
VARIABLES	Linear-FE	Quadr.-FE	Quadr.-FE	Linear-FE	Quadr.-FE	Quadr.-FE
	(1)	(2)	(3)	(4)	(5)	(6)
HHI	0.050***	0.084***	0.081***	0.047***	0.105***	0.068***
	(0.009)	(0.024)	(0.026)	(0.006)	(0.018)	(0.017)
HHI^2		-0.029	-0.026		-0.053***	0.000
		(0.021)	(0.023)		(0.014)	(0.014)
gdp	-0.018	-0.017	-0.017	0.069***	0.069***	0.069***
	(0.026)	(0.026)	(0.026)	(0.018)	(0.018)	(0.018)
rvtf	-0.030***	-0.030***	-0.030***	-0.022***	-0.022***	-0.026***
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
gdp_exp	0.069***	0.069***	0.068***	0.016***	0.016***	0.016***
	(0.006)	(0.006)	(0.006)	(0.004)	(0.004)	(0.004)
d_one_exp			-0.003			-0.065***
			(0.004)			(0.004)
Constant	0.480*	0.472*	0.474*	0.126	0.111	0.126
	(0.249)	(0.246)	(0.244)	(0.176)	(0.174)	(0.176)
Nb. of obs.	1,883,846	1,883,846	1,883,846	2,186,770	2,186,770	2,186,770
Nb. of i	129,665	129,665	129,665	129,665	129,665	129,665
Imp#product FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Note: Standard errors in parentheses, Driscoll and Kraay standard errors, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (importer#product group). Different trade variables are calculated separately for intra and extra trade flows.

Table 27: Regression of relative import prices P on import concentration HHI, controlling for total GDP and total population

VARIABLES	Linear-FE (1)	Quadr.-FE (2)	Linear-FE (3)	Quadr.-FE (4)	Linear-FE (5)	Quadr.-FE (6)
HHI	0.048***	0.171***	0.048***	0.171***	0.048***	0.171***
	(0.006)	(0.016)	(0.006)	(0.016)	(0.006)	(0.016)
HHI^2		-0.116***		-0.116***		-0.116***
		(0.012)		(0.012)		(0.012)
gdp	-0.080	-0.077	0.089***	0.090***	-0.271*	-0.271*
	(0.064)	(0.065)	(0.023)	(0.023)	(0.104)	(0.105)
gdptot	0.168**	0.166**			0.306**	0.307**
	(0.075)	(0.075)			(0.120)	(0.120)
pop			0.168**	0.166**	-0.137**	-0.141**
			(0.075)	(0.075)	(0.050)	(0.050)
rvtf	-0.019***	-0.020***	-0.019***	-0.020***	-0.019***	-0.020***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
gdp_exp	0.059***	0.059***	0.059***	0.059***	0.059***	0.059***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Constant	-0.948**	-0.971**	-2.112**	-2.121**	0.000	0.000
	(0.344)	(0.343)	(0.829)	(0.830)	(0.000)	(0.000)
Nb. of obs.	3,877,496	3,877,496	3,877,496	3,877,496	3,877,496	3,877,496
Nb. of i	217,067	217,067	217,067	217,067	217,067	217,067
Imp#product FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Note: Standard errors in parentheses, Driscoll and Kraay standard errors, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (importer#product group).

Table 28: Regression of relative import prices P on import concentration HHI, controlling for product complexity & product quality

VARIABLES	Quadr.-FE (1)	Quadr.-FE (2)	Quadr.-FE (3)	Quadr.-FE (4)
HHI	0.192***	0.182***	0.192***	0.194***
	(0.018)	(0.016)	(0.021)	(0.021)
HHI^2	-0.126***	-0.123***	-0.125***	-0.126***
	(0.014)	(0.013)	(0.019)	(0.019)
gdp	0.055**	0.084***	0.080***	0.050**
	(0.020)	(0.027)	(0.026)	(0.021)
rvtf	-0.020***	-0.021***	-0.021***	-0.021***
	(0.002)	(0.002)	(0.003)	(0.003)
gdp_exp	0.043***	0.052***	0.036***	0.036***
	(0.003)	(0.004)	(0.004)	(0.004)
PCI	-0.002***		-0.000	
	(0.000)		(0.001)	
ECI		-0.027***	-0.035***	
		(0.008)	(0.009)	
PCI#ECI				0.002*
				(0.001)
Constant	-0.056	-0.413	-0.201	0.077
	(0.198)	(0.240)	(0.241)	(0.192)
Nb. of obs.	2,104,346	3,314,700	1,779,372	1,779,372
Nb. of i	134,104	182,529	112,523	112,523
Imp#product FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Note: Standard errors in parentheses, Driscoll and Kraay standard errors, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (importer#product group).

Table 29: Regression of relative import prices P on import concentration HHI, with lagged-3 HHI

VARIABLES	Linear-FE (1)	Quadr.-FE (2)	Linear-FE (3)	Quadr.-FE (4)
L3.HHI	0.024***	0.088***	0.029***	0.086***
	(0.006)	(0.021)	(0.007)	(0.019)
$L3.HHI^2$		-0.064***		-0.057***
		(0.015)		(0.013)
gdp	0.078***	0.078***	0.078***	0.078***
	(0.026)	(0.026)	(0.026)	(0.026)
rvtf	-0.011***	-0.011***	-0.017***	-0.017***
	(0.002)	(0.002)	(0.002)	(0.002)
gdp_exp	0.037***	0.037***	0.032***	0.032***
	(0.003)	(0.003)	(0.004)	(0.004)
d_one_exp			-0.152***	-0.152***
			(0.009)	(0.009)
Constant	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Nb. of obs.	3,108,670	3,108,670	3,108,670	3,108,670
Nb. of i	204,533	204,533	204,533	204,533
Imp#product FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Note: Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, i number of unique cross-sections (product groups).

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