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The Portuguese Economy in the Doldrums: Can Exporting to the Global South Fill the Sails?

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Abstract

Portugal's post-1960 growth was export-led, but the economy is now in the doldrums: GDP per capita has plateaued at roughly two-thirds of the EU average and merchandise export growth has slowed to its weakest sustained rate in six decades. Using an illustrative quality-threshold trade model, with non-homothetic demand and capability-dependent costs, we show how an intermediate-capability country such as Portugal can fall into what we describe as a European market-concentration trap. The empirical record, covering six phases of Portuguese trade history from 1960, is consistent with this model. As a remedy, we propose that the country should revive exports as an engine of growth by diversifying its geographic destination, in particular to countries in the Global South. Applying an export Decision-Support Model (DSM) to CEPII-BACI trade data, we estimate significant untapped short-term export potential (around €8 billion) for Portugal across a combination of 16 products to 8 markets in the Global South. Diversifying exports to markets where Portugal's existing capability is a comparative advantage may generate revenue, scale and firm-level learning which would promote the country's technological upgrading.

JEL classification

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exports, trade, economic growth, Portugal

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1 Introduction

Over the past six decades Portugal transformed itself. GDP per capita rose from about US$4,000 in 1960 to over US$22,000 by 2025 (constant 2015 prices), and the country achieved high-income status in 1994. This transformation was export-led - see also (Andraz and Rodrigues, 2010; Felke and Eide, 2014; Ferraz, 2022). Merchandise exports grew from around 10% of GDP in 1960 to 27% by 2025.

The export-dependent economy is now in the doldrums. Merchandise export growth, which averaged double digits in the 1960s and 1970s, slowed to roughly 1.4% CAGR between 2011 and 2019, the slowest since 1960. It has been established Portuguese long-run growth is governed by the ratio of export growth to the income elasticity of import demand, with domestic growth forced down whenever external deficits accumulate (Soukiazis and Antunes, 2011). It is therefore plausible that the slowing down of export growth can help explain why Portugal has failed to catch-up with the European core in terms of GDP per capita: GDP per capita in 2025 had reached only about 65% of the EU average and has been stuck at this level for the past two decades. Moreover, with export growth slowing down, Portugal has become one of the most externally indebted economies in the eurozone, requiring stronger export growth to restore current account sustainability (Das, 2023).

In this paper we claim that the economy is in the doldrums mainly as the outcome of the Euro-centric growth model Portugal has pursued since the 1960s. This model was characterised by the country joining European Free Trade Association (EFTA) in 1960, the European Economic Community (EEC) in 1986,[1] and adopting the euro in 1999. This succeeded for a time - as in the country achieving high-income status - but has now after six decades essentially left the country in the economic doldrums. We label this a European market-concentration trap. It has two components.

[1]The EEC became the European Community - EC - in 1993.

The first is geographic. European markets absorbed about 78.5% of Portugal's merchandise exports in 2025; Spain, France and Germany alone take roughly half, with Spain the single largest market at about 26%. While the share of exports going to Europe is significant and has been increasing, the share of merchandise exports going to low- and middle-income countries declined from 37% in 1960 to 11.5% by 2025. This dependence on European markets locks Portugal into the European business cycle and exposes it to eurozone stagnation, energy shocks and demographic decline. At the same time, the country has to compete with new EC member states for a share of a market that is no longer expanding (Amador and Opromolla, 2013). Economic dependence on one geographic area furthermore creates supply-chain vulnerability amid rising geopolitical fragmentation (Nogueira et al., 2025).

The second component of the European market-concentration trap is domestic resource misallocation. Euro membership significantly reduced Portugal's exchange-rate risk, and generated large FDI inflows and investment of EU structural funds. The downsides of this was heavy investment in the non-tradable sector, into activities such as construction, real estate and tourism, and not into high-complexity export sectors (Reis, 2013). The resulting real exchange rate appreciation in particular eroded Portugal's competitiveness in European markets (Inchausti-Sintes, 2024). This competitiveness was already under pressure, since country cannot match the innovative EU core on quality and skills, and also cannot undercut the lower-wage Central and Eastern European (CEE) members on price (Fabrizio et al., 2007; Felke and Eide, 2014).

We argue that to get out of the economic doldrums caused by the European market-concentration trap is to revive export-led growth, not towards Europe, but towards low- and middle-income countries in the Global South. The factors that constrain further export expansion to Europe do not apply here: demand is calibrated to a quality level Portugal can supply at minimum cost; local producers lack the technological capability to match it; and core European competition are priced out by their own wage structure. We use an export

Decision-Support Model (DSM) calibrated to reconciled CEPII-BACI trade data, from which we estimate that there is a short-term export potential of around €8 billion for Portugal across a combination of 16 products to 8 markets in the Global South. Over the medium to longer-term, we estimate realistic export opportunities in 34 countries in the Global South to be worth around €93 billion. Note that, as per the methodology, these are not forecasts of additional Portuguese exports, but opportunity-size indicators constructed from relative competitor performance.

The remainder of the paper is organized as follows. Section 2 sets out a quality-threshold trade model to explain why an intermediate-capability country such as Portugal can fall into a European market-concentration trap, and why reorientation toward the Global South can overcome this. The theoretical model in Section 2 generates four core predictions regarding Portugal's export performance, competitive positioning, and diversification potential. Sections 3 and 4 corroborate these predictions through historical trade empirics and the Decision-Support Model (DSM) findings. Section 3 reviews six phases of Portuguese trade history since 1960, describing how Portugal got caught in the European market-concentration trap and how the decline in merchandise export-growth is underpinning economic stagnation. Section 4 applies an export Decision-Support Model (DSM) using reconciled CEPII-BACI trade data to identify significant short-term and medium-term untapped realistic export potential for Portugal in the Global South. Section 5 concludes.

2 A Model of the European Market Concentration Trap

This section sets out a simple model to explain how a country of intermediate technological capability, such as Portugal, can become trapped in a high-income regional market such as Europe. The model builds on Flam and Helpman (1987), Fajgelbaum et al. (2009), Murphy and Shleifer (1997), Jaimovich and Merella (2012) and Bastos et al. (2018), and is

deliberately kept simple: the aim is to illustrate why Portugal has fallen into an European market-concentration gap and how diversifying exports to the Global South can help the country get out of this trap. The model abstracts from heterogeneous firms, capital and intermediate inputs, fixed and trade costs, and its parameters are not calibrated. We leave the calibration of the the model using Portuguese data for future research.

2.1 Demand

We assume a global economy consisting of heterogeneous households with income y. Each consumer buys one unit of a vertically differentiated good of quality q and spends the rest on a homogeneous numeraire z produced under constant returns.

Preferences are described by equation (1), subject to the budget constraint (2). In equation (2) the numeraire price is normalized to one, $p(q)$ is the price of a variety of quality q, and $\underline{z} \geq 0$ represents an essential subsistence requirement of the numeraire good that must be satisfied before purchasing discretionary quality:

$$U = z + \theta(y)q \tag{1}$$

$$z + p(q) \leq y, \quad \text{with } z \geq \underline{z} \tag{2}$$

For a household whose income permits purchasing variety q, the budget constraint binds ($z = y - p(q) \geq \underline{z}$), yielding the indirect utility function conditional on purchasing variety q:

$$U(q) = y - p(q) + \theta(y)q \tag{3}$$

Non-homotheticity of preferences is captured by letting the marginal valuation of quality increase linearly in household income:

$$\theta(y) = \alpha y, \quad \alpha > 0 \tag{4}$$

Under constant returns and competitive pricing, variety price equals marginal cost, $p(q) = C_c(q)$.

Substituting the supplier-specific cost function (equation 6 below) into indirect utility yields the consumer's objective function conditional on selecting a supplier from country c:

$$U_c(q) = y - H_c \left[c_0 + \kappa \left(\frac{q}{H_c} - \theta_0 \right)^2 \right] + \alpha y q \tag{4a}$$

A consumer choosing quality from supplier c sets $\partial U_c / \partial q = 0$:

$$-2\kappa \left(\frac{q}{H_c} - \theta_0 \right) + \alpha y = 0 \tag{4b}$$

Rearranging (4b) yields the optimal quality demanded conditional on supplier c:

$$q^*(y, H_c) = \theta_0 H_c + \frac{\alpha y}{2\kappa} H_c \tag{4c}$$

Equation (4c) characterizes quality choice along the intensive margin for a given supplier. The household's full decision problem is a two-stage optimization. In the intensive stage, for each candidate supplier country c, the household chooses conditional quality $q^*(y, H_c)$ according to (4c), yielding maximized supplier-specific utility $U_c^*(y) \equiv U_c(q^*(y, H_c))$.

In the extensive (supplier selection) stage the household chooses supplier $c^* \in \{A, P, G\}$, from the domestic Global South (A), Portugal (P), or the core European region (G), so as to maximize $U_c^*(y)$, subject to the feasibility set defined by technical viability requirements ($q \geq \underline{q}$) and the affordability constraint ($p(q) \leq y - \underline{z}$).

When consumers evaluate varieties at the suppliers' capability-matched benchmarks $q_c^{opt} = \theta_0 H_c$ priced at $p_c = H_c c_0$, the utility comparison between any two feasible suppliers c and c' simplifies to:

$$U(q_c^{opt}) - U(q_{c'}^{opt}) = (H_c - H_{c'})(\alpha\theta_0 y - c_0) \tag{4e}$$

From (4e), in an unconstrained market where all benchmark varieties are feasible and affordable, consumers strictly prefer the higher-capability supplier if and only if $y > y^* \equiv c_0/(\alpha\theta_0)$ (equation 4f). As shown in Section 2.5, supplier selection in the Global South is governed by the boundary constraints of affordability and technical viability.

$$y > \frac{c_0}{\alpha\theta_0} \equiv y^* \tag{4f}$$

Equation (4f) defines an endogenous income sorting threshold y^*. For all European markets where representative income exceeds y^* ($y_E > y^*$), the marginal utility of quality exceeds the baseline production cost penalty. At the benchmark marginal-cost prices, consumers with $y > y^*$ strictly prefer the core-quality variety. Bastos et al. (2018), using Portuguese firm-level export data, found evidence that higher income markets indeed have a higher aggregate willingness to pay for quality, consistent with the theoretical concerns discussed so far.

Jaimovich and Merella (2012) has used arguments such as these to argue that as world income expands over time that expenditure would tend to shift non-homothetically toward

what is, following Khandelwal (2010), known as "long-ladder" goods, whose quality can be raised at lower marginal cost, while "short-ladder" goods, whose quality cannot, will lose share. In other words, goods differ in their scope for upgrading potential (Jaimovich and Merella, 2012; Khandelwal, 2010).

2.2 Supply

We assume that labour is the only factor of production and is paid a nominal wage w_c in country c. The capability of human capital to produce technologically complex manufactures is denoted by the parameter H_c. Wages are tied to national capability such that:

$$w_c = H_c$$

In the differentiated sector, producing one unit of a variety of quality q requires $a(q, H_c)$ units of labour. The unit labour requirement is U-shaped in the ratio of quality to capability:

$$a(q, H_c) = c_0 + \kappa \left(\frac{q}{H_c} - \theta_0 \right)^2 \tag{5}$$

where $c_0 > 0$ is the baseline labour requirement, $\theta_0 > 0$ is the optimal quality-to-capability ratio, and $\kappa > 0$ is the mismatch-cost penalty parameter. Total marginal (unit) cost $C_c(q)$ is given by the product of the wage rate and the unit labour requirement:

$$C_c(q) = w_c \, a(q, H_c) = H_c \left[c_0 + \kappa \left(\frac{q}{H_c} - \theta_0 \right)^2 \right] \tag{6}$$

A country c minimizes unit production cost by choosing the capability-matched quality level:

$$q_c^{\text{opt}} = \theta_0 H_c \tag{7}$$

At this optimal quality, the mismatch penalty vanishes $\left(\frac{q_c^{\text{opt}}}{H_c} - \theta_0 = 0\right)$, yielding the minimum marginal cost:

$$C_c(q_c^{\text{opt}}) = H_c c_0$$

Any deviation will incur a quadratic penalty. Higher capability raises the quality export a country can supply, but requires a higher wage for every unit of labour. Blanchard and Portugal (2017) describes how the Portuguese labour market has low worker and job reallocation and is dominated by temporary contracts, so employers under-invest in training; in the modelling terms in this section this puts a cap on Portugal's capability parameter of H_P and prevents its exporters from absorbing the wages required for high quality exports to compete in the core. Domestic input dependencies, which for Portugal has been found to be in semiconductors, rare-earth metals and chemical feedstocks, and which the country largely sources outside Europe (Nogueira et al., 2025), further raises κ when the country attempts to produce high-complexity export goods.

2.3 The technological exclusion frontier

For present purposes we divide the world into three regions based on capability. Portugal (P) has intermediate capability H_P and wage $w_P = H_P$. The core European region (G) has high capability $H_G > H_P$ and wage $w_G = H_G$. Central and Eastern Europe (CEE) has lower capability $H_{CEE} < H_P$ and wage $w_{CEE} = H_{CEE}$ (Felke and Eide, 2014). Three optimal quality levels are as follows. First,

$$q_G^{\text{opt}} = \theta_0 H_G \;>\; q_P^{\text{opt}} = \theta_0 H_P \;>\; q_{CEE}^{\text{opt}} = \theta_0 H_{CEE} \tag{8}$$

This indicates that high-income European consumers demand quality matched to the core frontier, $q_E = \theta_0 H_G$, which core firms supply at their minimised marginal cost $C_G(q_E) = H_G c_0$. If Portuguese firms attempt to serve this quality, their cost carries the technological-gap penalty (9).

$$C_P(q_E) = H_P \left[c_0 + \kappa \left(\frac{\theta_0 H_G}{H_P} - \theta_0 \right)^2 \right] = H_P c_0 + H_P \kappa \theta_0^2 \left(\frac{H_G}{H_P} - 1 \right)^2 \tag{9}$$

Portugal can compete in the core only if $C_P(q_E) \leq C_G(q_E)$, that is (10). Dividing by H_G gives (11); isolating the technological gap gives (12); and simplifying gives (13), which yields the Technological Feasibility Boundary (14).

$$H_P c_0 + H_P \kappa \theta_0^2 \left(\frac{H_G - H_P}{H_P} \right)^2 \;\leq\; H_G c_0 \tag{10}$$

$$\frac{H_P}{H_G} c_0 + \frac{H_P}{H_G} \kappa \theta_0^2 \left(\frac{H_G - H_P}{H_P} \right)^2 \;\leq\; c_0 \tag{11}$$

$$\frac{H_P}{H_G} \kappa \theta_0^2 \frac{(H_G - H_P)^2}{H_P^2} \;\leq\; c_0 \left(1 - \frac{H_P}{H_G} \right) \tag{12}$$

The right-hand side bracket of equation (12) can be factored as :

$$1 - \frac{H_P}{H_G} = \frac{H_G - H_P}{H_G}$$

Dividing both sides by $(H_G - H_P)/H_G$ (valid since $H_G > H_P$) yields:

$$\frac{H_P}{H_G} \kappa \theta_0^2 \frac{(H_G - H_P)^2}{H_P^2} \cdot \frac{H_G}{H_G - H_P} = \kappa \theta_0^2 \frac{H_G - H_P}{H_P}$$

Equating this to the remaining right-hand side (c_0) yields:

$$\kappa\theta_0^2 \frac{H_G - H_P}{H_P} \leq c_0 \implies \frac{H_G - H_P}{H_P} \leq \frac{c_0}{\kappa\theta_0^2}$$

Which can be written as equation (13):

$$\kappa\theta_0^2 \, \frac{H_G - H_P}{H_P} \; \leq \; c_0 \tag{13}$$

or

$$\frac{H_G - H_P}{H_P} \; \leq \; \frac{c_0}{\kappa\theta_0^2} \tag{14}$$

The interpretation of this equation is that if the relative capability gap between core and home exceeds the ratio of baseline efficiency to mismatch cost, the exporter is excluded from the high-income market (15). i.e. if:

$$\frac{H_G - H_P}{H_P} \; > \; \frac{c_0}{\kappa\theta_0^2} \tag{15}$$

Two features here deserve emphasis. First, below the boundary Portugal participates in the core European market; above it, it is excluded, and marginal capability gains that fail to cross the boundary do not restore cost competitiveness at the core-quality benchmark. Second, the boundary can be crossed from either side: Portugal can be pushed outside it not by losing capability but by the core pulling away, i.e. H_G rising while H_P is static. In this regard, Section 3 (Figure 4) documents a persistent export-complexity gap between Portugal and the European core as represented by Germany.

2.4 Why scaling down does not help

It may be asked why Portugal cannot simply continue to sell its own basic quality products $q_P^{\text{opt}} = \theta_0 H_P$ into the European core market and avoid the mismatch penalty. The answer is that it faces two obstacles.

The first obstacle concerns buyers' willingness to pay for quality. When both benchmark varieties are affordable, buyers with income above the threshold in (4f), $y > y^*$, strictly prefer the core variety q_E to Portugal's capability-matched variety q_P at their respective marginal-cost prices. This preference applies regardless of the buyer's location. Consequently, neither lower income than Europe nor Portugal's cost advantage at q_P is sufficient to establish that Global South buyers select Portuguese output: core producers can offer their own higher-quality variety. The comparison establishes a preference between these benchmark offerings, rather than a complete supplier-choice result. In section 2.5 we provide the complete supplier-choice result for Portuguese output.

The second obstacle is that low-wage Central and Eastern European (CEE) new member states are undercutting Portuguese goods. Portugal may produce exports of CEE quality, but only at a cost that exceeds the CEE's cost (16), because $H_P > H_{CEE}$. Portugal is therefore trapped in middle zone: it cannot compete with the European core on quality and cannot compete with the CEE in terms of price.

$$C_P(q_{CEE}) = H_P \left[c_0 + \kappa \theta_0^2 \left(\frac{H_{CEE}}{H_P} - 1 \right)^2 \right] > H_{CEE}\, c_0 = C_{CEE}(q_{CEE}) \tag{16}$$

Micro-evidence supports this conclusion. For example, Amador and Opromolla (2013) find intense product and destination churning among Portuguese exporters but a near-zero net contribution of these extensive additions to aggregate export growth. Carreira and Lopes (2026) show that when Portuguese firms expand exports inside competitive European mar-

kets they do so by compressing price-cost markups. Estimating a two-stage gravity model across 142 countries, Malik and Lahiri (2025) found that a 1% rise in export quality raises total exports by 3.18% for OECD economies but only 0.79% for intermediate ones, and that quality reorientation toward foreign demand depresses domestic sales the most where capability is lower. Portugal is cost-disadvantaged relative to the European core at the core-quality frontier and relative to CEE at the CEE-quality frontier.

This does not imply that Portuguese exports to Europe will necessarily decline. Intra-European trade continues on the intensive margin of established products and relationships. What the model outlined so far suggests is that the continued growth rate of exports will increasingly be constrained.

2.5 Escaping the trap: Exporting to the Global South

To understand how exporting to the Global South enables Portugal to escape the European market-concentration trap, we analyze the supplier choice and conditional quality demand of a representative Global South household with income $y_A < y_E$.

In differentiated manufactures and industrial goods (such as automotive components, plastics, and precision electrical machinery), products must satisfy a minimum threshold of technical, regulatory, or functional viability to be usable in downstream production or consumption:

$$\underline{q} \equiv \theta_0 H_P \tag{17}$$

Any variety with quality below this viability threshold ($q < \underline{q}$) fails basic operational requirements and delivers zero functional surplus ($U = \underline{z}$). Furthermore, Global South consumers

face the subsistence budget constraint from equation (2), requiring that total expenditure on the differentiated variety satisfies $p \leq y_A - \underline{z}$.

The feasible choice set of suppliers for the Global South market is characterized by two structural boundaries. The first is an affordability ceiling. Core European producers (G) operate at capability $H_G > H_P$ with benchmark prices $p_G = H_G c_0$. While high-income European buyers afford this frontier tier, representative Global South income y_A is subject to an affordability ceiling, which is:

$$H_P c_0 \leq y_A - \underline{z} < H_G c_0 \tag{18}$$

Equation (18) implies that core European varieties are strictly unaffordable to Global South buyers. Frontier core producers cannot serve this market at their capability-matched benchmark without violating the buyer's budget constraint.

A second structural boundary to the feasible choice set of suppliers for the Global South market is a technical quality floor. Domestic firms in the Global South (A) possess low capability $H_A < H_P$. Their natural cost-minimizing output $q_A^{opt} = \theta_0 H_A$ falls strictly below the viability threshold ($\theta_0 H_A < \underline{q}$).

Consequently, local firms cannot capture the market by simply supplying low-cost, low-quality varieties at $H_A c_0$. To participate in the market, local firms must upgrade their output to meet the viability threshold $\underline{q} = \theta_0 H_P$. In doing so, they incur the technological mismatch penalty from equation (6):

$$C_A(\underline{q}) = H_A \left[c_0 + \kappa \left(\frac{\theta_0 H_P}{H_A} - \theta_0 \right)^2 \right] = H_A c_0 + H_A \kappa \theta_0^2 \left(\frac{H_P - H_A}{H_A} \right)^2 \tag{19}$$

Portuguese firms, by contrast, possess capability H_P exactly matched to the viability stan-

dard $\underline{q} = \theta_0 H_P$, producing at zero mismatch penalty:

$$C_P(\underline{q}) = H_P c_0 \tag{20}$$

Comparing (19) and (20), Portugal holds a strict unit-cost advantage over local producers ($C_P(\underline{q}) < C_A(\underline{q})$) whenever

$$H_P c_0 < H_A c_0 + H_A \kappa \theta_0^2 \left(\frac{H_P - H_A}{H_A} \right)^2$$

Dividing by H_A, isolating the capability gap $(H_P - H_A)/H_A$, and simplifying yields the Domestic Capability Feasibility Condition:

$$\frac{H_P - H_A}{H_A} > \frac{c_0}{\kappa \theta_0^2} \tag{21}$$

Equation (21) establishes that when the capability gap between Portugal and the Global South exceeds the ratio of baseline efficiency to mismatch curvature, Portugal's technological advantage dominates the local wage advantage.

Together, equations (18) and (21) indicates that core Europe is excluded by unaffordability, while local competitors are excluded by technological mismatch costs at the viability threshold. **Hence, the Global South consumer uniquely selects Portugal: $c^* = P$.**

Having selected supplier P, the consumer chooses quality along the intensive margin according to the conditional demand equation (4c):

$$q^*(y_A, H_P) = \theta_0 H_P + \frac{\alpha y_A}{2\kappa} H_P = \theta_0 H_P (1 + \epsilon_A) \tag{22}$$

where $\epsilon_A \equiv \frac{\alpha y_A}{2\kappa\theta_0}$.

Because income y_A is low relative to the penalty curvature 2κ, the income term is small ($\epsilon_A \ll 1$). The optimal demanded quality converges to Portugal's cost-minimizing capability envelope:

$$q_A^* \approx q_A \equiv \theta_0 H_P < q_E \tag{23}$$

Equation (23) establishes that Global South consumers demand a quality level that Portuguese exporters can supply at minimum unit cost ($C_P(q_A) = H_P c_0$) without incurring the mismatch penalties that restrict their growth in core European markets. Core European firms, by contrast, cannot shed their high domestic wage ($w_G = H_G$) and incur a mismatch penalty if attempting to reduce their quality to $q_A = \theta_0 H_P$. This is because their unit cost to supply q_A is:

$$C_G(q_A) = H_G \left[c_0 + \kappa \left(\frac{\theta_0 H_P}{H_G} - \theta_0 \right)^2 \right] = H_G c_0 + \kappa \theta_0^2 \frac{(H_G - H_P)^2}{H_G} \tag{24}$$

Portugal holds a unit-cost advantage over core Europe in the Global South market ($C_P(q_A) < C_G(q_A)$) whenever:

$$H_P c_0 < H_G c_0 + \kappa \theta_0^2 \frac{(H_G - H_P)^2}{H_G} \tag{25}$$

Rearranging (25) yields:

$$(H_G - H_P) \left[c_0 + \kappa \theta_0^2 \left(\frac{H_G - H_P}{H_G} \right) \right] > 0 \tag{26}$$

Since $H_G > H_P$ by construction, and all parameters (c_0, κ, θ_0) are strictly positive, condition (26) is satisfied unconditionally. Core European producers are unambiguously priced out of the Global South quality tier q_A by the compounding burden of their higher wage structure and downward mismatch costs.

Reorientation of Portugal's exports to the Global South does not require inventing new capabilities. Both our findings (Section 4) and those of Konstantakopoulou and Tsionas (2024) place Portugal's revealed comparative advantages in medium-complexity manufactures (SITC 6) and machinery and transport equipment (SITC 7). The policy recommendation from this paper is not that Portugal changes what it produces, but to change where its production is sold. By reorienting exports to the Global South also resolves the tension in Malik and Lahiri (2025): exporting to markets whose demand matches $q_A = \theta_0 H_P$ lets firms expand volumes without bidding up unit costs or depressing home sales, and avoids the wage-premium pressure Guerra (2024) associates with rapid upgrading under skilled-labour scarcity.

The theoretical results from the modelling in this section is consistent with empirical evidence. Analysing 23 Portuguese NUTS-III regions, Lopes et al. (2024) find that R&D raises export productivity in high- and medium-high-technology sectors while the gap to low-tech activities widens. They also report negative diversification spillovers, which are when localised congestion and isolated knowledge pockets develop.

In conclusion, continuing to try and achieve marginal export growth within saturated European markets will only yield diminishing returns for Portugal, whereas redirecting its largely intermediate-capability goods to the Global South offers the scale and revenue with which to fund domestic R&D. In this sense, export reorientation is not a substitute for technological upgrading of production capacity in Portugal - its H_P must eventually rise - but it buys the time and the revenue with which upgrading can be financed.

2.6 Interpretation and limitations of the benchmark model, and predictions

The simple model that was outlined in this section was, as already mentioned, kept as an illustrative, stylized model. It abstracts from heterogeneous firms, capital and intermediate inputs, fixed and trade costs, and its parameters are not calibrated. We leave the calibration of the the model using Portuguese data for future research.

In the absence of such calibration, we can note that theoretical model developed in this section generates four core predictions regarding Portugal's export performance, competitive positioning, and diversification potential.

Prediction one is that when high-income European buyers demand frontier quality ($q_E = \theta_0 H_G$), Portuguese exporters incur a quadratic technological mismatch penalty because $H_P < H_G$. If the capability gap exceeds a critical threshold ($\frac{H_G - H_P}{H_P} > \frac{c_0}{\kappa \theta_0^2}$), Portugal is cost-disadvantaged and excluded from the core European quality tier.

Prediction two is that if Portugal attempts to scale down to avoid mismatch penalties, it faces two barriers: high-income European buyers prefer the frontier core varieties at marginal cost prices ($y > y^*$), while at lower quality tiers (q_{CEE}), low-wage Central and Eastern European producers undercut Portuguese goods ($C_P(q_{CEE}) > C_{CEE}(q_{CEE})$ because $w_P = H_P > H_{CEE}$). Portugal is therefore squeezed between core quality and CEE price competitiveness.

Prediction three is that in the Global South, lower consumer income (y_A) imposes an affordability ceiling that prices out core European producers ($H_P c_0 \leq y_A - \underline{z} < H_G c_0$). At the same time, the technical viability requirement ($\underline{q} = \theta_0 H_P$) imposes a quality floor that domestic Southern producers cannot meet without incurring substantial mismatch costs. As a result, Global South buyers uniquely choose Portugal ($c^* = P$), whose natural capability

matches the required standard at minimum unit cost without penalties ($C_P(\underline{q}) = H_P c_0$).

Finally, prediction 4 is that escaping the market-concentration trap does not require Portugal to invent new high-frontier capabilities immediately; rather, it requires selling existing intermediate-capability products (H_P) to markets whose operational thresholds match that capability.

Sections 3 and 4 corroborate these predictions through historical trade empirics and the Decision-Support Model (DSM) findings. Specifically, the next section provides the descriptive historical empirics of Portugal's growth and export dynamics over the past six decades. This offers tentative support for the benchmark model's predictions, which are that rising income and technological capability in the European core increase the quality requirements faced by Portuguese exporters; that Portugal's intermediate capability leaves it squeezed between higher-quality core producers and lower-cost CEE competitors; and that diversification towards the Global South - markets with lower quality thresholds - may provide opportunities for further export-led growth.

3 The Empirics of Falling into the Market Concentration Trap, 1960-2024

This section provides an empirical counterpart to the simple theoretical model outlined in the previous section. It describes how Portugal became, since the 1960s, increasingly entangled in the EU and the eurozone, and slowly over time experienced an erosion of export dynamism and a retreat from non-European markets. In short, this section describes how over time Portugal became ensnared in the European market-concentration trap.

3.1 Six phases of export-led growth

Between 1960 and 2024 Portuguese GDP per capita rose from 47% of the European average at EFTA accession to about 64–65% , reaching US$22,647 in constant 2015 prices by 2024. The rise in GDP however gradually decelerated over time. The deceleration in GDP growth was mirrored by a deceleration in merchandise export growth.

Over the period this deceleration in growth can be traced over six phases. These phases are summarised in Table 1 and Figure 1.

Table 1: Six phases of Portuguese growth and merchandise export performance, 1960–2024

Phase	**Period and feature**	**Real GDP p.c. CAGR**	**Nominal export CAGR**	**Real export volume CAGR**
1	1960–1973: EFTA entry	7.1%	12.5%	10.6%
2	1974–1985: Revolution, oil shocks	1.0%	8.7%	7.9%
3	1986–1998: EEC accession	3.7%	10.8%	10.1%
4	1999–2010: Euro adoption	0.7%	6.6%	3.1%
5	2011–2019: Troika, austerity	1.3%	1.4%	4.8%
6	2020–2024: Covid, war, tourism	3.5%	8.6%	5.6%

Source: Authors, based on World Bank *World Development Indicators* and *Banco de Portugal*'s BPstat. Compound Annual Growth Rates (CAGRs) are calculated over the duration of each phase using the initial year as the base (T_0).

Table 1 summarises the periods in terms of their timing and key features, and list the respective GDP per capita and merchandise export growth rates (in nominal[2] and real /volume terms) in compounded annual growth rates (CAGRs). It can be seen from this table that GDP per capita CAGR and merchandise export growth, whether in nominal or real terms, were highest during the first phase, and subsequently declined to their lowest rates over the period between 1999 (following euro adoption) and 2020. The Covid crisis was followed by a rebound - higher growth and higher exports.

It can be seen from Table 1 that nominal export growth rates are noticeably higher than

[2]We retain nominal export growth because receipts matter for external financing as we outline below.

real volume growth across most phases, especially during Phase 4 (1999–2010) (nominal 6.6% vs. real 3.1%) and Phase 6 (2020–2024) (nominal 8.6% vs. real 5.6%). This reflects global commodity price surges and post-COVID / energy-shock inflation, rather than volume expansion. Also noticeable is that during Phase 5, real export volume growth (4.8% CAGR) was for the only period higher than nominal export growth (1.4% CAGR). As discussed below, this reflects the export price deflation and unit-labour-cost compression (internal devaluation) following the troika adjustment program, forcing Portuguese firms to expanded physical volumes under depressed price levels.

In the rest of this section the key features and developments of each phase will be described.

Phase 1 (1960–1973). In 1960 Portugal joined the EFTA. This gave Portugal tariff-free access to European markets while allowing it to retain temporary protective tariffs. Merchandise exports expanded 465% in cumulative terms over the period (12.5% CAGR nominally and 10.6% in volume terms). Lains (2003) records that the ratio of foreign trade to GDP rose from roughly 17% to 30% over the period, and GDP per capita more than doubled, from US$ 4,067 to US$ 9,877. He is explicit about causation, pointing out that "the high levels of industrial growth during the period from 1950 to 1973 were due to the expansion of external demand, induced by European growth and to Portugal's participation in EFTA" (Lains, 2003, p.381). Export growth was boosted by foreign direct investment which flowed to Portugal given its membership of EFTA - especially into chemicals, metal-mechanics and energy (Chabrier and Rosenblatt, 1966).

Phase 2 (1974–1985). The 1974 political revolution in Portugal and the global oil shocks created significant uncertainty and economic turbulence during this phase. As noted in Table 1 nominal and real export growth fell respectively to 8.7% CAGR and 7.9% CAGR. Real GDP per capita only achieved a CAGR of 1.0% over the period. During this phase Portugal increasingly specialized exports in products from sectors that were "less intensive in the usage of capital and technology and having lower levels of labor productivity" (Lains, 2003,

p.382). In other words, during this period Portugal was starting to specializing in sectors with a lower growth potential. Lains (2003)'s conclusion from this — that the structure of exports matters for growth, and that this may offset any benefit from merely higher export levels — anticipates the economic complexity literature (Hausmann et al., 2007; Stojkoski et al., 2023). This literature posits that countries with higher trade complexity grow faster.

Phase 3 (1986–1998). In 1986 Portugal became member of the EEC. This at first accelerated income and export growth. As per Table 1, real GDP per capita CAGR was 3.7% and nominal and real export CAGRs were respectively 10.8% and 10.1%. Although higher that phase 2, it remained lower than in Phase I rates. Overall, this was a period of income convergence to the rest of the EU (Duarte et al., 2013). Bação et al. (2019) identify three channels through which EEC membership benefited Portugal: institutional stability, falling interest rates, and European structural funds. The latter provided resources worth more than 3% of GDP during the 1990s (Baer and Leite, 2003). A negative outcome of the investments facilitated by these structural funds were, however, that it biased activity toward non-tradables. As a result, Portugal de-industrialised in the early 1990s as larger firms exposed to competition gave way to small, flexible ones (Myrodias, 2025), while tourism expansion crowded out traditional exports (Inchausti-Sintes, 2024).

Phase 4 (1999–2010). In 1999 Portugal adopted the euro. This deepened European integration and, paradoxically, halted convergence: nominal merchandise exports grew slower than before at 6.6% (CAGR) and real merchandise export growth fell even further, to 3.1%. Real GDP per capita only achieved 0.70% in terms of CAGR (Duarte et al., 2013). Hence it is clear that "from 1999 onwards, however, Portugal embarked in a period of stagnation during which its GDP per capita remained largely unchanged relative to the EU average" (Duarte et al., 2013, p.4).

The convergence failure during this period is explained succinctly by Arnold (2015, p.7) who writes that "Between 2001 and 2010, the Portuguese economy recorded average annual

GDP growth of less than one percent and a series of imbalances built up. As traditional exports contracted due to increasing competition in export markets, the non–tradable sector expanded excessively." Soukiazis and Antunes (2011) show that after EU entry the income elasticity of import demand rose from 2.22 to 2.66 while export growth slowed, cutting the balance-of-payments-consistent growth rate from 2.99% to 2.07% and doubling the average current-account deficit to -5.51% of GDP.

Furthermore, during this period the spread over German bonds fell from 5.1 to 0.3 points (Eichenbaum et al., 2017). This cheap credit financed a boom in non-tradables rather than in productive investment (Arnold, 2015). The real exchange rate appreciation eroded competitiveness in Europe (Andrade and Duarte, 2011); high-technology goods were just 3.7% of exports in 2009 against an EU14 average of 12.6% (Duarte et al., 2013), and the current-account deficit reached about -12% of GDP by 2008. That convergence stalled at the same time that domestic demand crowded out export orientation is tentative evidence for the export-led-growth hypothesis.

Phase 5 (2011–2019). Following the global financial crisis (2008-2009) real GDP per capita fell 4.5% between 2010 and 2014 and regained its 2010 level only in 2016; as a result the overall real GDP per capita CAGR over the period was a mere 1.3%. Table 1 shows that nominal merchandise export growth slowed to its weakest since 1960: a 1.4% CAGR over the period. By May 2011 the country concluded a three-year €78 billion assistance program (equal to 45% of its GDP) with the IMF, in cooperation with the European Central Bank (ECB) and the European Commission (EC) (the “troika") (Eichenbaum et al., 2017). The core of the assistance program was an internal devaluation through a significant fiscal adjustment of which “roughly 32 percent of the planned fiscal adjustment was to come from tax revenue increases and 68 percent from government spending cuts" (Eichenbaum et al., 2017, p.389).

The troika programme did not work as intended: export prices fell only about 6% relative to competitors and manufacturing unit labour costs by just 2.2% between 2010 and 2014,

while wage compression produced the 2011–2013 recession (Westmore and Adamczyk, 2019; Doulos et al., 2020). The 4.8% real export growth that did occur (table 1) was a survival-driven venting of excess capacity by lower-productivity firms, rather than a competitiveness upgrade (Carreira and Lopes, 2026).

Meanwhile austerity cut the investments that higher production complexity requires, such as investment in education, which declined during the period from 5.6% to 4.9% of GDP. This, combined with rising graduate emigration and the ubiquity of temporary labour contracts (roughly 80% of new jobs after 2000), locked Portugal into a low-wage, low-complexity, low-skills equilibrium. Unemployment peaked at 17.5% in 2013 (de Souza and Diaz, 2024).

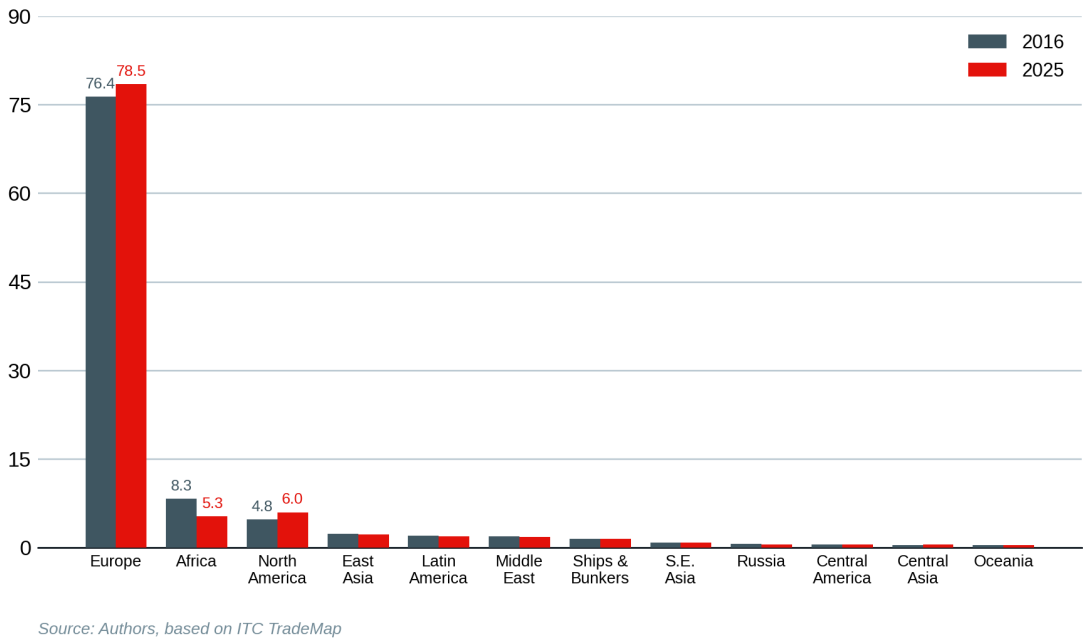
Broadly speaking, this phase can perhaps be split in two, since after the the troika/austerity phase which lasted between 2011 and 2013, the period 2014 to 2019 saw some recovery. This was partly due to the internal devaluation making Portugal cheap for tourists: arrivals nearly doubled to about 25 million by 2019, and tourism generated around a fifth of exports (Westmore and Adamczyk, 2019; IMF, 2022) — shifting the basket further toward low-complexity services.

Phase 6 (2020–2024). The COVID pandemic reduced GDP per capita 8.3% in 2020. However, the economy rebounded with higher subsequent economic growth and export growth. As Table 1 records, over the period the real GDP per capita CAGR was 3.5%, boosted by a real export CAGR of 5.6%. This reflects recovery from a deep trough, rather than a change of regime. The rebound in GDP largely leaned on tourism and traditional services, leaving low productivity, low complexity, high public debt and labour-market dualism unresolved (de Souza and Diaz, 2024). By 2021 approximately 40% of the adult population aged 25–64 had not completed more than lower secondary education, well above the EU average, mitigating against technological upgrading in production.

3.2 Key Features of the market-concentration trap

The cumulative result of the six phases of growth and exports discussed in the previous sub-section is an export profile of pronounced geographic concentration - see Figure 1.

Figure 1: *Portugal: Exports Are Concentrated on the European Market, 2016 and 2025, percentage share*



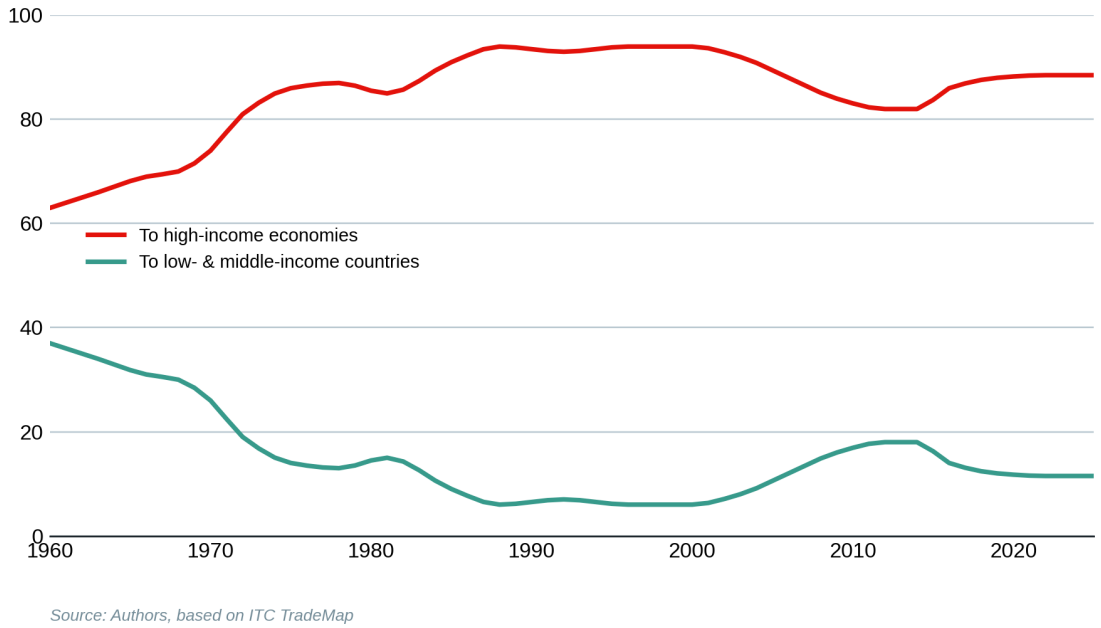
Source: *Authors, based on data from ITC TradeMap, downloaded 7 July 2026*

As Figure 1 shows, Europe absorbed 76.4% of Portuguese merchandise exports in 2016 and even more - 78.5% - in 2025. Within Europe, Spain, France and Germany take roughly half, Spain alone about 26%. Africa's share fell from 8.3% to 5.3%; East and South-East Asia, Latin America and the Middle East are each in the low single digits. Given the size and growth of Asian and African economies in recent decades, these low and declining shares are remarkable.

Figure 2 takes the perspective of the destinations' income levels. In 1960 about 37% of Portugal's exports were destined for low- and middle-income countries; by 2025 they it was down to 11.5%, while exports destined for high-income countries (Europe) rose from roughly

62% to close to 89%. The steepest increase in relative share of exports to high-income countries occurred between 1968 and 1972 and was consolidated after EEC accession.

Figure 2: *Merchandise exports by destination income group, 1960–2025 (% of total)*



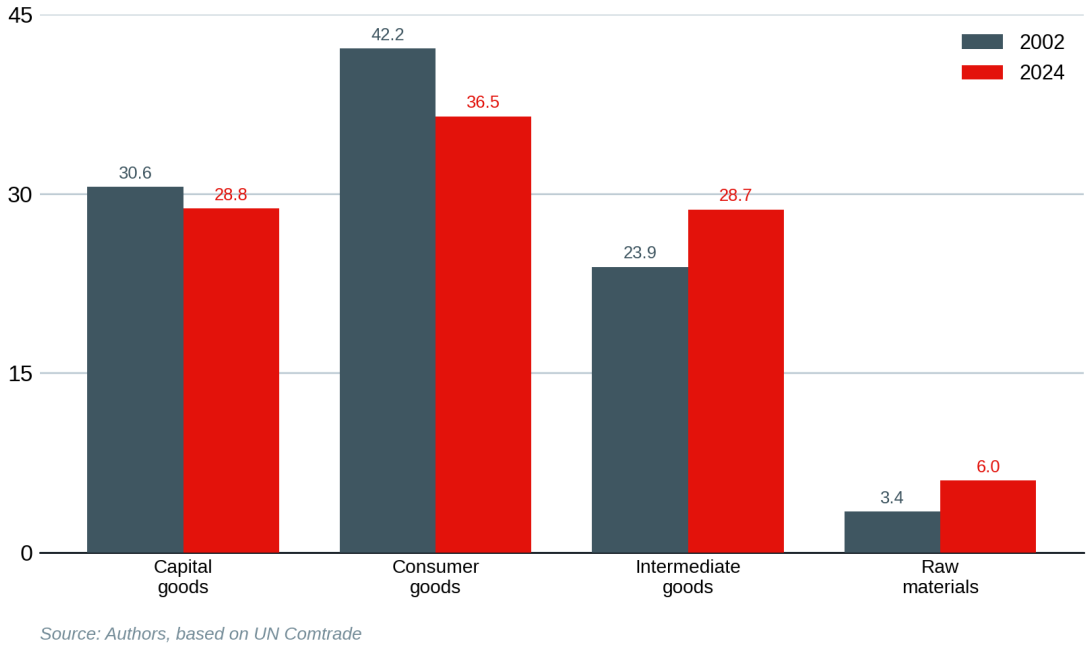
Source: *Authors, based on data from ITC TradeMap, downloaded 7 July 2026*

Figure 3 shows how the composition of Portugal's export by stage of production between shifted between 2002 and 2024. It can be seen that the shares of capital and consumer goods declined respectively from 30.6% to 28.8% and 42.2% to 36.5%, while the shares of intermediate goods and raw materials increased respectively from 23.9% to 28.7% and 3.4% to 6.0%.

The rise in the share of intermediate goods in the country's export basket reflects Portugal's integration into European production networks, wherein the county's firms increasingly supplied components and semi-finished inputs to lead firms in Germany, France and Spain. As Amador et al. (2015) argue, consistent with the theoretical model outlined in section 2, frictionless intra-eurozone transactions push periphery countries toward intermediate manufacturing and make them structurally dependent on core demand cycles. Notably, while 78.5% of the country's exports go to Europe, its own domestic supply chains rely on non-EU

suppliers — such as China, which accounts for nearly a quarter of Portugal's trade dependencies. Nogueira et al. (2025) found that of 137 critical strategic product categories in which the EU faces extra-EU dependencies, Portugal holds a surplus in only five.

Figure 3: *Composition of merchandise exports by stage of production, 2002 and 2024 (% share)*



Source: *Authors, based on data from UN Comtrade, downloaded 15 July 2026*

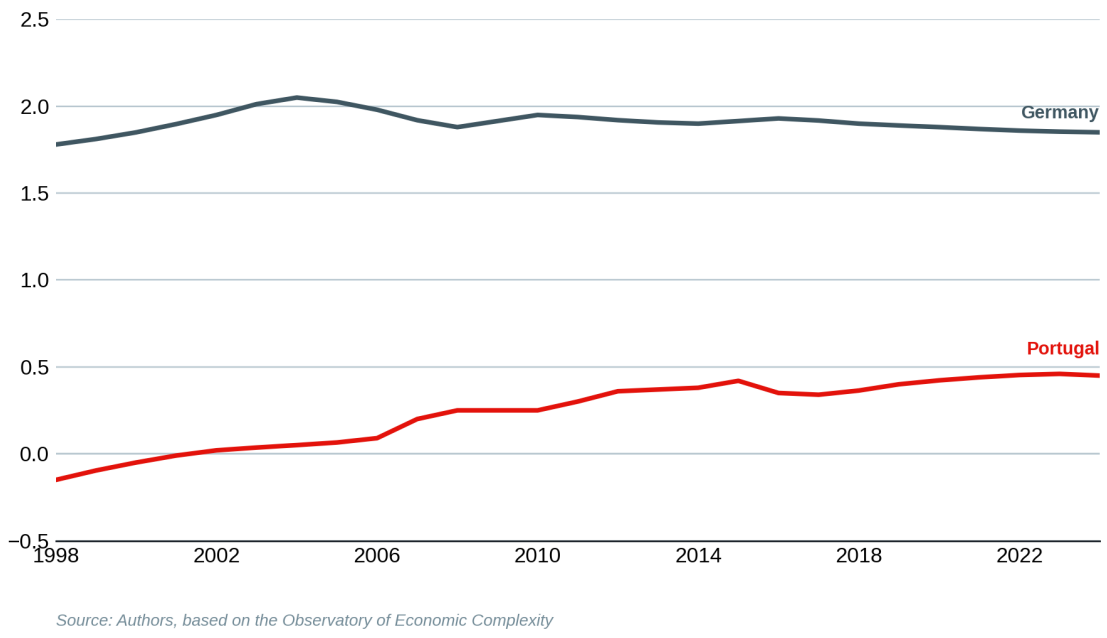
Data on the complexity of Portugal's export basket confirms the diagnosis - see Figure 4. Figure 4 presents the ECI Trade Index, comparing the country to Germany. The ECI, based on the work of Hausmann et al. (2007) and Hidalgo et al. (2007) measures the complexity of a country's export basket.

Figure 4 shows a persistent difference in export-basket complexity between Portugal and Germany over 1998–2024. Portugal's ECI increased from approximately −0.15 to 0.45, while Germany's remained substantially higher and broadly stable. After 2015, Germany's index declined slightly, while Portugal's ended modestly higher following a dip. The figure therefore documents a persistent complexity gap, rather than the European core pulling away. ECI is not a direct measure of the model's capability parameter and does not establish whether

Portugal satisfies the technological exclusion condition.

The GVC literature distinguishes between process upgrading (producing existing goods more efficiently) and functional upgrading (moving into higher-value activities like R&D, design, and marketing) (Humphrey and Schmitz, 2002; Cattaneo et al., 2013). The constancy of Germany's ECI at a world-class level, contrasted against Portugal's slow upward trajectory, suggests that Portugal has remained predominantly downstream in EU GVCs, with evidence of productivity and technological gains but limited movement into higher-value upstream functions. Portugal has successfully become an efficient downstream partner (Shim et al., 2026) - doing the assembly and component manufacturing — but it has not captured the highly complex, upstream intellectual property or advanced engineering capabilities that drive both economic complexity and sustained economic growth (Stojkoski et al., 2023).

Figure 4: *Economic Complexity Index (trade), Portugal versus Germany, 1998–2024*



Source: *Authors, based on data from the Observatory of Economic Complexity, downloaded 16 July 2026*

4 Quantifying the Global South Export Opportunity

If the argument of Sections 2 and 3 is correct, there should exist a large, currently unexploited set of product-market combinations (opportunities) outside Europe in which Portuguese firms can compete. This section quantifies that set using an export Decision-Support Model (DSM), drawing on Naudé and Cameron (2021, 2025) and Cameron and Naudé (2026).

4.1 Methodology

As we also describe elsewhere (see Cameron and Naudé (2026) the Decision Support Model (DSM) for exports where proposed in 1995 by Cuyvers et al. (1995) who illustrated the model for the case of Belgium. They described this decision support model (DSM) as consisting "of four consecutive filters that are constructed using and applying a set of selection and decision rules. Information related to country and product category is brought together, and realistic export opportunities for Belgium are finally filtered out" (Cuyvers et al., 1995, p.173).

Since then, the DSM has been applied for a growing number of countries, also for firms and organizations outside of government export promotion institutions, and moreover in light of the growth in big trade data, computing resources and software developments, has been improved and extended in terms of methodology and reach. By 2023 the global multilateral International Trade Centre noted that the DSM had become " the only other comprehensive approach that combines supply, demand, and market access conditions to provide advice on export opportunities at a detailed product level" (ITC, 2023, p.5).

The approach takes into consideration all possible worldwide product (HS 6-digit) and market (country) combinations, using four major filter categories containing various subfilters. The approach systematically eliminates less-promising markets until those with the greatest

prospects of success are revealed.

The filtering approach can be understood as a heuristic for a complex combinatorial optimization problem. Konstantakopoulou and Tsionas (2024) compare the DSM's export-opportunity selections with benchmark solutions obtained using a GRASP-based procedure, reporting that the DSM identifies 98.2% to 100% of the benchmark product–market opportunities. GRASP combines randomized construction with local search; it is a metaheuristic rather than an exact optimization algorithm and does not, by itself, certify global optimality. These findings support the DSM's selection performance on the instances examined, rather than establishing a general optimality guarantee.

The DSM has been operationalised as a software tool made available as the AEXI Export Market Finder (www.aexi.nl). The tool is made available free of charge to all academic users in Portugal through the University of Coimbra, see `https://www.uc.pt/en/uid/ceber/projects/project/1ca9819d`.

The filters and their data sources are summarised in Table 2.

Filter 1 screens broad market potential with reference to economic size, growth and risk. Two sub-filters, one removing markets of excessive political or commercial risk (using Credendo country-risk ratings), and the other retaining those of sufficient macroeconomic size or growth are applied.

Filter 2 classifies each product-market combination by import-demand characteristics: short-term (two-year) and long-term (five-year) import growth and relative market size.

Filter 3 assesses market access considering supplier concentration in the import source markets (using an adjusted Herfindahl-Hirschman index) and trade restrictions. The latter are converted to *ad valorem* equivalents and combined with logistics performance, shipping time and cost into a market-accessibility index for each combination (Cuyvers et al., 1995; Hoek-

man and Nicita, 2008).

Finally, filter 4 categorises each surviving combination after application of Filters 1 to 3 by the home market's current exports, the target's size, growth and accessibility, and the home market's revealed comparative and trade advantage (RCA and RTA), benchmarking performance against the top six competitors in each market.

The outcome is, for each opportunity, a monetary indicator of the estimated size of the untapped export potential of each shortlisted opportunity that has passed the filters - i.e. has been constrained by the key variables listed in column 3 of Table 2- as the average import value of the top six competitors in that market (excluding the home market where it is already a leading supplier). This is moreover provided as a time-weighted format (over the past six years) that dampens volatility. Importantly to stress, this means that the estimates for untapped export potential that we report in the next sub-section are not forecasts of additional Portuguese exports but opportunity-size indicators constructed from relative competitor performance.

4.2 Data

The analysis uses the BACI dataset, which is CEPII's reconciled version of UN Comtrade (202601 version), at the HS 6-digit level. BACI excludes re-exports and applies verification and mirror-reporting reconciliation, which greatly reduces missing values and yields more comprehensive and up-to-date coverage than raw Comtrade data. Other inputs come from the UN macroeconomic database (GDP, income, exchange rates, population), Credendo (country risk), the ITC Market Access Map (tariffs), major shipping lines and freight databases (shipping cost and time), and the World Bank (logistics performance).

Table 2 summarises the DSM filters and the data sources for these.

Table 2: Summary of DSM filters and data sources

Filter step	Focus area	Key variables	Theoretical basis	Core data sources
Filter 1	General Market Potential (country level)	GDP_t; GDP $growth_{t+h}$; IMF projections (WEO); GDP/capita, political risk, commercial risk	Gravity model (economic mass); risk aversion	UN National Accounts; ICRG risk ratings; IMF WEO
Filter 2	Import Demand Potential (product level)	Import $value_t$; $size_t$; short-term $growth_t$; 2yr/1m; long term $growth_t$; Δ	Demand-driven growth; product life cycle	CEPII BACI; UN Comtrade
Filter 3	Market Accessibility (barriers — country × product)	Market $concentration_t$; (HHI); tariffs (AVE); logistics costs (LMA/CMA); time costs	New economic geography; trade costs; institutional friction	ITC MacMap; World Bank Doing Business; shipping; CTS
Filter 4	Strategic Categorisation (competitiveness — country × product)	RCA_{t+h}; RTA_t; untapped potential $value_{t+h}$	Comparative advantage; heterogeneous firms	CEPII BACI; calculated

Source: Authors, drawing on Cameron and Naudé (2026); Naudé and Cameron (2021, 2025)

4.3 Findings: realistic untapped export opportunities

Table 3 reports untapped realistic export potential for Portuguese merchandise in the most significant Global South markets, alongside actual 2025 exports. Short-term opportunities are ready to exploit; medium-term opportunities require export-development support. The estimated untapped export potential should be interpreted as a model-based opportunity-size measure, not as a forecast, expected-value estimate or simultaneously attainable increase in Portuguese exports.

Table 3: Untapped realistic export opportunities for Portugal in the Global South / Low-and-Middle Income Countries (US$ billions)

Country / region	Short-term	Medium-term	Exports, 2025
Africa (30 countries)	7.85	10.23	3.52
Brazil	3.95	7.70	1.24
China	21.87	55.24	0.74
India	6.31	10.35	0.21
Vietnam	5.21	10.23	0.08
Total	**45.19**	**93.75**	**5.79**

Source: Authors' DSM estimates on reconciled CEPII-BACI data. Short-term = ready to exploit; medium-term = requiring export-development support.

Three conclusions are worth emphasizing. First, the opportunities are significant in value.

Short-term untapped export potential is US$45.19 billion and medium-term potential about US$93.75 billion. That this is indeed substantial can be seen when this is compared against actual 2025 exports to these markets - which is only around US$5.79 billion. The significance is particularly notable given that Portugal's total merchandise exports to the world in 2025 was around US$93 billion (according to World Bank Development Indicators online), which means that the available opportunities, if only a fraction could be realized (which would depend on aggressive trade and industrial policies, including capital deepening, labour reallocation and directed trade facilitation), would significantly add to the country's exports.

Second, the untapped export opportunities are concentrated in Asia. China accounts for US$21.87 billion short-term and US$55.24 billion longer-term. Thirty countries in Africa offers realistic untapped export potential, over the short-term valued at US$7.85 billion and over the medium term at US$10.23 billion. Brazil offers realistic export opportunities over the short term of US$3.95 billion and over the medium term of US$7.7 billion, with India offering respectively US$6.31 and US$10.35, and finally Vietnam offering US$5.21 and US$10.23.

Third, the ratio of potential exports to actual exports is notable. Portugal exports US$740 million to China against a medium-term potential of US$55 billion. This is a ratio of roughly 75 to one; the ratio exceeds 125 for Vietnam. Even in Africa, where ties are strongest and Portugal already exports US$3.7 billion, medium-term potential is nearly three times current sales. These large ratios may reflect competitor scale, entry costs, supply constraints or lack of information about export opportunities.

Table 4 lists the 30 African markets. The largest untapped opportunities are in Morocco, South Africa, Egypt, Algeria and Tunisia.

Table 4: Short-and-Medium Term Untapped Export Opportunities for Portugal in Africa, US $ bn

Country	**Short Term Export Opportunities**	**Medium Term Export Opportunities**	**Exports in 2025**
Algeria	0,66	0,89	0,29
Cabo Verde	0	0,01	0,40
Gambia	0,01	0,04	0,00
Ghana	0,29	0,3	0,02
Benin	0,04	0,17	0,01
Botswana	0,01	0,01	0,00
Seychelles	0,03	0,02	0,00
Côte D'Ivoire	0,28	0,44	0,07
Cameroon	0,01	0	0,31
Mauritius	0,12	0,1	0,02
Namibia	0,09	0,12	0,00
Guinea	0,08	0,08	0,03
Mali	0,02	0,04	0,01
Liberia	0,03	0,02	0,00
Mauritania	0,08	0,08	0,01
Nigeria	0,2	0,37	0,03
Morocco	2,26	2,47	1,24
Mozambique	0,12	0,21	0,19
Madagascar	0,06	0,08	0,00
Niger	0	0,01	0,00
Lesotho	0	0,02	0,00
Kenya	0,07	0,2	0,01
Libya	0,25	0,22	0,04
Senegal	0,18	0,26	0,04
Sierra Leone	0,02	0,02	0,00
Burkina Faso	0,04	0,12	0,01
Togo	0,02	0,04	0,02
Tunisia	0,41	0,42	0,18
South Africa	1,17	1,28	0,29
Egypt	1,3	2,19	0,30
Total	7.85	10.23	3.52

Adding the four largest African markets (Morocco, South Africa, Algeria and Egypt) to the

individual countries of Table 3 results in eight destinations: Algeria, Brazil, China, Egypt, India, Morocco, South Africa, and Vietnam.

From a practical export strategy perspective, Portugal may want for a start to narrow down the number of products to promote to these countries, so as to concentrate on the best opportunities, and not all opportunities. For this, Table 5 lists only the top 3 HS 6-digit products for each country. It can be seen that there are 16 distinct products over 8 countries that offers €8,3 billion in untapped export potential. The recommendation here is that Portugal concentrate on these 16 products to the top eight country markets identified, over the short-term.

The products identified may be well-suited to these markets rather than to advanced EU economies, as per the analysis in section 2 - although more research is advised on this point. Commodities and feedstocks — crude vegetable oils (HS 150710), PVC (HS 390410), aluminium scrap (HS 760200) — face opportunities in Algeria, India and Vietnam, where they are less exposed to the saturated, heavily regulated EU market. Conventional internal-combustion vehicles and gearboxes (HS 870322, 870332, 870840) have a longer usage period in Algeria, Egypt, Morocco, South Africa and Brazil as the EU accelerates its combustion-engine phase-out. And electronic components and intermediates (HS 852990, 854449) fit the hardware-assembly hubs of Vietnam better than those in the EU or USA.

A question that can be asked at this stage is: the DSM method has established potentially significant markets in the Global South for several products per their HS codes, but what evidence is there that Portugal actually has the capacity to supply it?

Table 5: Top HS 6-digit products and short-term untapped export value for Portugal in Most Promising Global South markets

Country	**Top HS Codes & Untapped Value**	**Description of HS Codes**
Algeria	1. HS150710 (€69.91 Mn) 2. HS040210 (€64.47 Mn) 3. HS870322 (€59.22 Mn)	1. Vegetable oils. 2. Dairy produce. 3. Vehicles: with only spark-ignition internal combustion reciprocating piston engine, cylinder capacity over 1000 but not over 1500cc.
Brazil	1. HS870840 (€299.39 Mn) 2. HS903289 (€129.64 Mn) 3. HS870899 (€116.10 Mn)	1. Vehicle parts. 2. Regulating or controlling instruments. 3. Vehicle parts and accessories.
China	1. HS852990 (€2,0 Bn) 2. HS870840 (€1,2 Bn) 3. HS470329 (€1,1 Bn)	1. Reception and transmission apparatus. 2. Vehicle parts: gear boxes and parts thereof. 3. Wood pulp.
Egypt	1. HS870322 (€114.5 Mn) 2. HS390120 (€95.65 Mn) 3. HS440711 (€86.73 Mn)	1. Vehicles: with only spark-ignition. 2. Ethylene polymers. 3. Wood: coniferous species, of pine.
India	1. HS150710 (€629.67 Mn) 2. HS390410 (€342.09 Mn) 3. HS760200 (€332.89 Mn)	1. Vegetable oils. 2. Vinyl chloride: poly(vinyl chloride), not mixed with any other substances, in primary forms. 3. Aluminium: waste and scrap.
Morocco	1. HS870332 (€117.18 Mn) 2. HS870899 (€102.07 Mn) 3. HS870829 (€87.13 Mn)	1. Vehicles: with only compression-ignition internal combustion piston engine (diesel or semi-diesel), cylinder capacity over 1500 but not over 2500cc. 2. Vehicle parts and accessories. 3. Vehicles: parts and accessories, of bodies, other than safety seat belts.
South Africa	1. HS870322 (€194.58 Mn) 2. HS870899 (€57.15 Mn) 3. HS870829 (€53.81 Mn)	1. Vehicles: with only spark-ignition internal combustion reciprocating piston engine, cylinder capacity over 1000 but not over 1500cc. 2. Vehicle parts and accessories 3. Vehicles: parts and accessories.
Vietnam	1. HS852990 (€640.07 Mn) 2. HS392690 (€252.75 Mn) 3. HS854449 (€168.10 Mn)	1. Reception and transmission apparatus. 2. Plastics: other articles n.e.c. in chapter 39. 3. Insulated electric conductors.

We use two metrics to evaluate the extent to which Portugal is competitive and has capability in production and export of a particular product. The first is the Revealed Comparative

Advantage (RCA_{tw}) of Balassa (1965). The second is the Revealed Trade Advantage (RTA_{tw}) of Vollrath (1991).

The RCA_{tw} metric evaluates whether the home country displays a revealed comparative advantage and relative export strength in a specific product. It is calculated as follows:

$$\text{RCA} = \frac{X_{ic}/X_{it}}{X_{wc}/X_{wt}} \tag{27}$$

Where X_{ic} is country i's exports of product c, X_{it} is country i's total exports, X_{wc} is world exports of product c, and X_{wt} is total world exports.

If $\text{RCA} \geq 1$ it indicates that the home country is an efficient globally competitive exporter of the good. If $0.7 \leq \text{RCA} < 1$ the products is suitable for export development strategies on the extensive margin.

The RTA_{tw} of Vollrath (1991) was introduced to account for both export and import patterns, correcting for the one-sidedness of the standard RCA. It can be formulated as:

$$RTA_{ij} = RCA_{ij} - RMA_{ij} \tag{28}$$

where RCA_{ij} is RCA as defined and RMA_{ij} is Revealed Import Advantage, which measures a country's import specialization by calculating:

$$RMA_{ij} = \frac{M_{ij}/M_i}{M_{wj}/M_w} \tag{29}$$

With M_{ij} a country i's imports of product j, M_i its total merchandise imports, M_{wj} world imports of product j, and M_w total world imports.

At the global aggregate level, total world exports equal total world imports ($X_w \approx M_w$), and for any specific product category (such as an HS 6-digit subheading), world exports equal world imports ($X_{wj} \approx M_{wj}$).

Letting $S_{wj} = \frac{X_{wj}}{X_w} \approx \frac{M_{wj}}{M_w}$ represent product j's share in global trade, the formula simplifies to:

$$RTA_{ij} = \frac{1}{S_{wj}} \left(\frac{X_{ij}}{X_i} - \frac{M_{ij}}{M_i} \right) \tag{30}$$

From the above follows that

$$RTA_{ij} > 0 \iff \frac{X_{ij}}{X_i} > \frac{M_{ij}}{M_i} \iff \frac{X_{ij}}{M_{ij}} > \frac{X_i}{M_i}$$

If $RTA > 0$ it means that product j accounts for a larger share of the country's export basket than of its import basket, relative to the world benchmark. It thus measures relative trade specialisation.

When RTA is very small but RCA is large, a country's import intensity in that product category almost matches its export intensity. This pattern is typically a hallmark of re-exporting or logistics transit[3], or assembly hubs that import sub-components and re-export slightly modified variants under the same HS 6 subheading, and of generally low domestic value-added participation in that product.

Moreover, a $RTA_{ij} > 0 \iff \frac{X_{ij}}{M_{ij}} > \frac{X_i}{M_i}$, indicates that a sector's export-to-import performance outperforms the national average. If an industry generates significantly more exports per euro of imports than the rest of the domestic economy, that relative surplus is typically generated by local productive factors (capital and labour) rather than general import

[3]A pure re-export hub tends to record nearly identical export and import intensities ($RCA \approx RMA$), yielding an $RTA \approx 0$, or an $RTA < 0$ if domestic consumption is sizable.

consumption. Thus, a positive RTA is tentative evidence of domestic production capacity; consider in this regard the converse case that if a country lacks domestic production capacity for product j, it must satisfy domestic demand entirely through imports ($M_{ij} > 0$), while exporting zero or negligible amounts ($X_{ij} \approx 0$). This would result in an $RMA > 0$ alongside an $RCA \approx 0$, which would driving $RTA < 0$.

Table 6 lists the top 16 HS codes in the top 8 destinations, as well as the Revealed Comparative Advantage (RCA) and Revealed Trade Advantage (RTA) of the product, weighted over the past six years (tw).

Table 6: Revealed Comparative Advantage (RCA_{tw}) and Revealed Trade Advantage (RTA_{tw}) of 16 Major Portuguese Export Products for Identified Global South Markets

HS 6-digit code	**Product description**	RCA_{tw}	RTA_{tw}
150710	Vegetable oils	2,78	2,66
040210	Dairy produce	1,72	1,18
870322	Spark-ignition vehicles, 1,000–1,500 cc	5,59	4,33
870840	Vehicle gearboxes and parts	1,51	0,25
903289	Regulating or controlling instruments	1,32	1
870899	Vehicle parts and accessories	3,15	0,07
470329	Wood pulp	12,58	12,4
852990	Reception and transmission apparatus	1,94	0,39
390410	PVC (polyvinyl chloride), primary forms	2,69	1,92
760200	Aluminium waste and scrap	1,67	1,33
870332	Diesel/semi-diesel vehicles, 1,500–2,500 cc	3,7	0,58
870829	Vehicle body parts/accessories	2,8	1,89
392690	Other articles of plastics	1,19	0,03
854449	Insulated electric conductors	4,35	3,11
390120	Ethylene polymers	1,1	0,2
440711	Wood: coniferous species, of pine	1,07	0,7

As is clear from Table 6, in all of the products identified as holding export opportunity to a particular country in the Global South (see table 5) the RCA ≥ 1 and the RTA > 0. There is no case where the RTA is very small with a large RCA, thus suggesting that in these goods Portugal is not a re-exporter mainly, or having low domestic participation in value added. Moreover, as was argued, a $RTA > 0$, as is the case in Table 6 for Portugal in these products, is a much stronger probabilistic indicator of domestic productive and export

capacity than $RTA < 0$.

5 Concluding Remarks

Portugal's growth model has been export-led since 1960. However, it is now in the doldrums. This paper has argued that it is in the doldrums due to being caught in an European market-concentration trap. Portugal currently exports 78.5% of its exports to Europe and just 11.5% to low- and middle-income countries - down from 37% in 1960. Because the country, a eurozone member, cannot devalue; and moreover is increasingly priced out of high-margin European core supply chains one the one hand by a technology gap and on the other by new EU member states in CEE, further merchandise export growth within Europe has become hard to sustain.

There is however, a solution to escape from this trap, which in this paper is supported by both theoretical and empirical results.

First, as far as theory is concerned, a simple illustrative quality-threshold theoretical model was outlined which explained the nature of the European market-concentration trap. In this model, the combination of non-homothetic preferences and capability-dependent production costs means that high-income European consumers demand high-quality goods matched to the technological frontier of core European economies and refuse lower-quality varieties. Now, when Portugal, an economy with intermediate technological capability, attempts to produce at this high core-level quality, it incurs a quadratic mismatch-cost penalty in unit labour requirements. Because the capability gap exceeds the ratio of baseline efficiency to the mismatch penalty, Portugal finds it difficult to compete on quality against the European core. At the same time, Portugal finds it difficult to sell its lower-quality goods within Europe because it is undercut on unit costs by lower-wage Central and Eastern European

(CEE) producers.

The model suggests that by reorienting exports toward the Global South, Portugal can escape its European trap because the lower representative income in these developing markets generates demand for an intermediate quality level that matches its existing technological capability. For these markets the country's firms can manufacture at their minimum unit cost without triggering the mismatch penalties that exclude them from core European high-quality markets. At this quality tier, domestic producers in the Global South lack the capability and incur mismatch costs that cancel out their low-wage advantage, while core European firms are burdened by high domestic wages that price them out.

Second, as far as empirics are concerned, this paper took a two-fold approach. One was to provide the descriptive historical empirics of Portugal's growth and export dynamics over the past six decades (given that we did not calibrate the model). This offered tentative support for the benchmark model's predictions. Two, a big-data based decision support model (DSM) was used that filters international trade data, significant untapped export potential was confirmed tot exists for Portugal in some countries in the Global South, which we narrow down for practical purposes to a combination of 16 products to 8 markets which offers over the short-term an export potential of €8,3 billion. This potential is principally associated with Asia, although there is also substantial and strategically distinctive opportunities identified in Africa.

The export diversification toward the countries where we identified potential opportunities is not a substitute for technological upgrading and raising the complexity of Portugal's export basket, but is a means of finance. Reorienting exports to markets where Portugal's existing capability is a comparative advantage may generate revenue, scale and firm-level learning to raise capabilities and accelerate the impact of education, labour-market and tax reforms. As Guerra (2024) notes, within-product quality upgrading sets off a virtuous circle, raising demand for skilled labour and wage premia and so the incentive to acquire skills.

Finally, geographic diversification of exports can also serve a strategic purpose for the country: by expanding trade with Africa and Latin America, Portugal can build diversified supply alliances in critical inputs and operationalise its role as a commercial bridge between the Global South and the European single market (Nogueira et al., 2025).

The strategy is not without risks. Global South markets are more volatile, less creditworthy and more institutionally variable than European ones. Competition, particularly from China, is significant, and the applicability of the assumed Southern capability gap ($H_A < H_P$) to China, remains uncertain. Certainly, any window in which Portugal's intermediate capability is an advantage over local producers is closing as the capability gap narrows each year. Diversifying its exports but not achieving technological upgrading would be sub-optimal, and eventually Portugal will be undercut in the Global South just as it has been in Europe. Export diversification is therefore a strategy that buys time - like a brief gale that sweeps a sailing ship out of the doldrums.

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