

SOCIAL SCIENCES

THE FEITORIA PRIME MARKET MODEL: A CASE STUDY OF BILATERAL TRADE OPPORTUNITIES PORTUGAL - POLAND**José Manuel Macedo Botelho**

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Abstract. The paper aims to present the strategic management model for economic development, the Feitoria Prime Market Model (FPM). The FPM identifies new markets and new products for enterprises to export their products. FPM is based in the comparative advantage concept of Ricardo (1817) and incorporates economic and political dimensions in order to avoid unstable economies. The study present a particular case, Portugal-Poland, that has the objective to find bilateral trade opportunities. The methodology presented below is configured confronting the potential trade to effectively verified among the countries and uses a trade database 2012-16 period from the UN COMTRADE free database.

Keywords: Feitoria Prime Market Model, Comparative Advantages, Index of Complementarity (IC), Index of Effectiveness Commerce (EC).

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Introduction

The instability of the global economy and the governance of countries, led to take a qualitatively different approach to economic development and find new more effective strategic management model that incorporate these dimensions. Basically, strategic management refers to a systematic effort to establish organizational purposes, objectives, policies, and to develop the strategies which will be used to achieve the organizational purposes (*Steiner, 1979*). Recently, strategic management has been emphasized by policy makers and public managers at all levels of government (*Bryson & Edwards, 2017*).

The theories of international trade consolidate the idea that there are gains when different regions are related: a developed export sector is capable of having high impacts on the generation of jobs and income, as well as on the distribution of wealth in the population; on the import side, it is possible to generate welfare gains when a greater variety of products are available to be consumed; with regard to international relations in the financial system and in the flow of labor, it facilitates the entry of valuable productive resources into the country. As Galvão (2000) explains, international trade ceased to be a simple possibility of exporting productive surpluses; nowadays it has an important role for growth and for the improvement of economic well-being.

In 1989 the democratic transition in Poland began and changed the foreign policy of the country that depended entirely on the Soviet Union. The commercial relations between Portugal and Poland increased significantly since Poland integrated the European Union in 2004. In 2001 the bilateral trade between Portugal and Poland was around 415 million € and in 2016 was around 1.304,8 million €, representing an increase of 314%.

In 2016 Portugal exported 573 products to Poland (of a total of 1.252 products). In 2016, compared to 2012, the exports from Portugal to Poland had growth 7,5% to 575,6 million € (more than the exports to the World: 2,2%). The 24 larger products in value represent 60,5% of total products exported (table 1).

Table 1

Top 24 larger products in value exported from Portugal to Poland

Product	Portugal's exports to Poland		CAGR ₁₂₋₁₆	Accumulated Value ₂₀₁₆
	Value in 2012	Value in 2016		
TOTAL - All products	401 484	575 594	7.5%	0.0%
4703 - Chemical wood pulp, soda or sulphate (excluding dissolving grades)	26 396	59 507	17.7%	10.3%
8480 - Moulding boxes for metal foundry; mould bases; moulding patterns; moulds for metal (other than ...	18 545	41 497	17.5%	17.5%
8708 - Parts and accessories for tractors, motor vehicles for the transport of ten or more persons, ...	22 768	37 723	10.6%	24.1%
2204 - Wine of fresh grapes, incl. fortified wines; grape must, partly fermented and of an actual ...	11 378	19 128	10.9%	27.4%
6403 - Footwear with outer soles of rubber, plastics, leather or composition leather and uppers of ...	1 886	17 516	56.2%	30.5%
8544 - Insulated "incl. enamelled or anodised" wire, cable "incl. coaxial cable" and other insulated ...	35 719	16 437	-14.4%	33.3%
4011 - New pneumatic tyres, of rubber	23 313	16 036	-7.2%	36.1%
8527 - Reception apparatus for radio-broadcasting, whether or not combined, in the same housing, with ...	27 725	13 820	-13.0%	38.5%
8712 - Bicycles and other cycles, incl. delivery tricycles, not motorised	869	11 682	68.2%	40.5%
3004 - Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic uses, put ...	3 148	10 715	27.8%	42.4%
0805 - Citrus fruit, fresh or dried	4 659	10 086	16.7%	44.2%
5903 - Textile fabrics impregnated, coated, covered or laminated with plastics (excluding tyre cord ...	3 620	8 714	19.2%	45.7%
8516 - Electric instantaneous or storage water heaters and immersion heaters; electric space-heating ...	717	8 460	63.8%	47.1%
4802 - Uncoated paper and paperboard, of a kind used for writing, printing or other graphic purposes, ...	10 385	7 760	-5.7%	48.5%
9401 - Seats, whether or not convertible into beds, and parts thereof, n.e.s. (excluding medical, ...	2 550	7 462	24.0%	49.8%
1509 - Olive oil and its fractions obtained from the fruit of the olive tree solely by mechanical ...	656	7 088	61.0%	51.0%
8536 - Electrical apparatus for switching or protecting electrical circuits, or for making connections ...	5 726	7 085	4.4%	52.2%
3920 - Plates, sheets, film, foil and strip, of non-cellular plastics, not reinforced, laminated, ...	6 005	6 891	2.8%	53.4%
8409 - Parts suitable for use solely or principally with internal combustion piston engine of heading ...	13 153	6 883	-12.1%	54.6%
7210 - Flat-rolled products of iron or non-alloy steel, of a width \geq 600 mm, hot-rolled or cold-rolled ...	3 165	6 850	16.7%	55.8%
3926 - Articles of plastics and articles of other materials of heading 3901 to 3914, n.e.s.	4 574	6 821	8.3%	57.0%
5801 - Woven pile fabrics and chenille fabrics (excluding terry towelling and similar woven terry ...	830	6 684	51.8%	58.2%
4504 - Agglomerated cork, with or without a binding substance, and articles of agglomerated cork (excluding ...	5 801	6 663	2.8%	59.3%
0703 - Onions, shallots, garlic, leeks and other alliaceous vegetables, fresh or chilled	1 466	6 595	35.1%	60.5%

Source: COMTRADE. Feitoria Prime Market Model.

Unity: thousand EUR.

CAGR: Compound annual growth rate.

In 2016 Poland exported 550 products to Portugal (of a total of 1.254 products) and in 2016 (face to 2012), the exports from Poland to Portugal had growth 10,6% to 729,2 million € (more than the export growth to the World: 4,9%). The 16 larger products in value represent 61,2% of total products exported (table 2).

Table 2

Top 16 larger products in value exported from Poland to Portugal

Product	Poland's exports to Portugal		CAGR ₂₀₁₂₋₂₀₁₆	Accumulated Value ₂₀₁₆
	Value in 2012	Value in 2016		
TOTAL - All products	440 889	729 207	10.6%	0.0%
9401 - Seats, whether or not convertible into beds, and parts thereof, n.e.s. (excluding medical, ...	57 359	89 952	9.4%	12.3%
8528 - Monitors and projectors, not incorporating television reception apparatus; reception apparatus ...	56 890	67 099	3.4%	21.5%
8708 - Parts and accessories for tractors, motor vehicles for the transport of ten or more persons, ...	21 745	64 504	24.3%	30.4%
8703 - Motor cars and other motor vehicles principally designed for the transport of persons, incl. ...	498	38 583	138.7%	35.7%
2402 - Cigars, cheroots, cigarillos and cigarettes of tobacco or of tobacco substitutes	3 117	25 968	52.8%	39.2%
8526 - Radar apparatus, radio navigational aid apparatus and radio remote control apparatus	8	22 225	388.4%	42.3%
8418 - Refrigerators, freezers and other refrigerating or freezing equipment, electric or other; heat ...	8 322	19 322	18.3%	44.9%
0201 - Meat of bovine animals, fresh or chilled	6 284	17 002	22.0%	47.3%
0207 - Meat and edible offal of fowls of the species Gallus domesticus, ducks, geese, turkeys and ...	6 891	16 092	18.5%	49.5%
8450 - Household or laundry-type washing machines, incl. machines which both wash and dry; parts thereof	11 175	15 040	6.1%	51.5%
8471 - Automatic data-processing machines and units thereof; magnetic or optical readers, machines ...	10 334	14 342	6.8%	53.5%
3815 - Reaction initiators, reaction accelerators and catalytic preparations, n.e.s. (excluding rubber ...	66	13 529	190.0%	55.4%
4205 - Articles of leather or composition leather (excluding saddlery and harness bags; cases and ...	1 414	11 586	52.3%	56.9%
7217 - Wire of iron or non-alloy steel, in coils (excluding bars and rods)	7 457	11 564	9.2%	58.5%
9403 - Furniture and parts thereof, n.e.s. (excluding seats and medical, surgical, dental or veterinary ...	16 953	10 330	-9.4%	59.9%
1001 - Wheat and meslin	1 836	9 474	38.8%	61.2%

Source: COMTRADE, Feitoria Prime Market Model.

Unity: thousand EUR.

CAGR: Compound annual growth rate.

Methodological aspects

The comparative advantage concept, proposed by Ricardo (1817), is one of the most used models both in the classical and neoclassical theories. According to Ricardo's theory, a country will benefit if it specializes in the production of goods whose manufacture is intensive in its abundant resources. Thus, in developing countries where the reserve labor force is very large owing to open or disguised unemployment (Myrdal, 1956; Prebisch, 1959), best results can be achieved by specializing in the production of labor-intensive goods.

Vaillant & Ons (2003), Xavier et al. (2008) and Xavier (2009), use the comparative advantage of the exporter and comparative disadvantage of the importer crossed, through the so-called Index of Complementarity (IC) in conjugation with the Index of Effectiveness Commerce (EC), with the aim of confronting the potential trade of two regions against what was actually observed in a given period.

To identify trade potentials is used the Index of Complementary (IC). The indicator analyzes crossover between supply and demand for the products under study, taking in account the world context, that is, the comparative advantages of the exporter and the comparative disadvantages of the importer (Vaillant & Ons, 2003). The indicator is as follows:

$$IC_{ij}^s = \left(\frac{\sum_s X_{iW}^s}{\sum_s X_{WW}^s} \right) \cdot \left(\frac{\sum_s M_{jW}^s}{\sum_s M_{WW}^s} \right) = \frac{X_{iW}^s}{\sum_s X_{iW}^s} \cdot \frac{M_{jW}^s}{\sum_s M_{jW}^s} \cdot \frac{\sum_s X_{iW}^s \cdot \sum_s M_{jW}^s}{\left(\sum_s M_{WW}^s \right)^2} \tag{1}$$

where: i , exporting region; j , importing region; W , all regions of the world; s , sector considered in the analysis; X_{iW}^s , exports, for each sector s , from i to the world; $\sum_s X_{iW}^s$, total exports from i to the world; M_{jW}^s , imports, for each sector s , from j of the world; $\sum_s M_{jW}^s$, total imports from j of the world; M_{WW}^s , total world imports, for each sector s ; $\sum_s M_{WW}^s$, total world imports.

When $IC > 1$, there is complementarity between the two; below this value, there isn't trade potential between i and j .

In order to compare the results of complementarity to the trade actually carried out between two partners, the Index of Effectiveness Commerce (EC) is used.

$$EC_{ij}^s = \left(\frac{\frac{X_{ij}^s}{\sum_s X_{ij}^s}}{\frac{X_{iW}^s}{\sum_s X_{iW}^s}} \right) \cdot \left(\frac{\frac{M_{ji}^s}{\sum_s M_{ji}^s}}{\frac{M_{jW}^s}{\sum_s M_{jW}^s}} \right) = \frac{\left(\frac{X_{ij}^s}{\sum_s X_{ij}^s} \right)^2}{\frac{X_{iW}^s}{\sum_s X_{iW}^s} \cdot \frac{M_{jW}^s}{\sum_s M_{jW}^s}} \quad (2)$$

where: i , exporting region; j , importing region; W , all regions of the world; s , sector considered in the analysis; X_{ij}^s , exports, for each sector s , from i to j ; $\sum_s X_{ij}^s$, total exports from i to j ; M_{ji}^s , imports, for each sector s , of j from i ; $\sum_s M_{ji}^s$, total imports of j from i ; X_{iW}^s , exports, for each sector s , from i to the world; $\sum_s X_{iW}^s$, total exports from i to world; M_{jW}^s , imports, for each sector s , of j from the world; $\sum_s M_{jW}^s$, total imports of j from the world.

According Xavier (2009): i) for a given sector s , if the value of EC is greater (smaller) than the unity, then the effective trade from i to j would be beyond (below) the average expectations and ii) for a given sector s , if the value of EC is equal to the unity, then the effective trade from i to j would only reflect the average expectations.

The main use of this index is the comparison with the Index of Complementarity (IC). For a given sector s , is expected that the result of $EC > 1$ is compatible with the existence of complementary between regions i and j ($IC > 1$). On the other hand, it is also expected that, for given sector s , the result of $EC < 1$ is compatible with the non existence of complementarity between i and j ($IC < 1$).

When $EC > 1$ and $IC < 1$, it means that, exceeding average expectations in an environment of non-complementarity between i and j would indicate that the sector s showed

a trade surplus. On the other hand, if $EC < 1$ and $IC > 1$ there is complementarity between i and j but the sector s should demonstrate better commercial performance, which was not observed. So the sectors with opportunities to exploit are when $IC > 1$ and $EC < 1$, that is, those sectors that do not take advantage of the complementarity existing between i and j , being the identification of these opportunities the main objective of this article.

The Feitoria Prime Market Model incorporates seven dimensions: the Ease of Doing Business¹, the World Governance Indicator², the Credit Rating³, the comparative advantage concept, the size (amount of trade), the dynamism (given by growth of trade, express by CAGR - Compound Annual Growth Rate) and the Free Commerce (free merchandise of any kind of embargo - political, religious, etc).

Based on UN COMTRADE free database, it was possible to implement an analysis of the general characteristics of export products from Portugal to Poland and vice-versa. The database refers to 2012-16 period and it was used the Harmonized System⁴ (HS four-digit code). The structure of HS therefore comprises 97 chapters which, in turn, can be disaggregated into 1,254 four-digit level - for example, Chapter 01 can be disaggregated into six subsectors, which are characterized in codes from 0101 to 0106, Chapter 02 can be disaggregated into ten subsectors, which are characterized in codes from 0201 to 0210.

Results

The confrontation of the Index of Complementarity (IC) and the Index of Effectiveness Commerce (EC) indicates under exploit sectors in trade relations between Portugal and Poland. The evaluation of the existing potential is given by Index of Complementarity (IC), if $IC > 1$, the two regions studied would be complementary, that is, the two regions have potential to trade relations and then the Index of Effectiveness Commerce (EC) indicates the

¹ The Ease of Doing Business: Economies are ranked on their ease of doing business, from 1–190. A high ease of doing business ranking means the regulatory environment is more conducive to the starting and operation of a local firm. The rankings are determined by sorting the aggregate distance to frontier scores on 10 topics, each consisting of several indicators, giving equal weight to each topic. The rankings for all economies are benchmarked to June 2017. In Doing Business 2018, Poland is the 27th country and Portugal the 29th

² The Worldwide Governance Indicators (WGI) project reports aggregate and individual governance indicators for over 200 countries and territories over the period 1996–2016, for six dimensions of governance: Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, Control of Corruption. Portugal position: 29th, 26th, 31th, 50th, 32th and 41th, respectively. Poland position: 57th, 78th, 56th, 43th, 54th and 50th, respectively.

³ Standard& Poors: For S&P, a bond is considered investment grade if its credit rating is BBB- or higher. Bonds rated BB+ and below are considered to be speculative grade, sometimes also referred to as "junk" bonds. Actually, Portugal has "BBB+" and Poland "BBB-".

⁴ Harmonized Commodity Description and Coding Systems (HS) is an international nomenclature for the classification of products. It allows participating countries to classify traded goods on a common basis for customs purposes. At the international level, the Harmonized System (HS) for classifying goods is a six-digit code system. The HS comprises approximately 5,300 article/product descriptions that appear as headings and subheadings, arranged in 99 chapters, grouped in 21 sections. The six digits can be broken down into three parts. The first two digits (HS-2) identify the chapter the goods are classified in, e.g. 09 = Coffee, Tea, Maté and Spices. The next two digits (HS-4) identify groupings within that chapter, e.g. 09.02 = Tea, whether or not flavoured. The next two digits (HS-6) are even more specific, e.g. 09.02.10 Green tea (not fermented)... Up to the HS-6 digit level, all countries classify products in the same way (a few exceptions exist where some countries apply old versions of the HS).

effectiveness of trade: first the potential sectors are selected, i.e., those with index $IC > 1$, and then, among the potential sectors, those with $EC < 1$ are taken, i.e., those that would not have effective trade.

Export Opportunities from Portugal to Poland

Based in Feitoria Prime Market Model there are 126 export opportunities (table 3, where is shown only the TOP10) sorted by value of Poland imports from World (largest to smallest) and they are complemented with the imports dynamism (the average growth rate in medium term, 2012-2016, and short term, 2015-2016).

Table 3

Top 10 Export Opportunities from Portugal to Poland

Number	Code 4d	Product label	DIMENSION	DYNAMISM	
			POLAND Imports from WORLD 2016	WORLD CAGR ₁₂₋₁₆	WORLD CAGR ₁₅₋₁₆
1	8704	Motor vehicles for the transport of goods, incl. chassis with engine and cab	1 378 256	7.00%	4.9%
2	3901	Polymers of ethylene, in primary forms	1 104 658	2.37%	1.4%
3	8481	Taps, cocks, valves and similar appliances for pipes, boiler shells, tanks, vats or the like, ...	980 260	5.39%	0.8%
4	0302	Fish, fresh or chilled (excluding fish fillets and other fish meat of heading 0304)	933 182	15.16%	12.4%
5	3923	Articles for the conveyance or packaging of goods, of plastics; stoppers, lids, caps and other ...	835 758	4.87%	0.4%
6	6204	Women's or girls' suits, ensembles, jackets, blazers, dresses, skirts, divided skirts, trousers, ...	733 495	7.72%	1.2%
7	8501	Electric motors and generators (excluding generating sets)	733 456	9.03%	3.0%
8	4805	Other paper and paperboard, uncoated, in rolls of a width > 36 cm or in square or rectangular ...	695 727	6.00%	1.2%
9	8537	Boards, panels, consoles, desks, cabinets and other bases, equipped with two or more apparatus ...	602 462	15.34%	6.1%
10	6110	Jerseys, pullovers, cardigans, waistcoats and similar articles, knitted or crocheted (excluding ...	580 720	12.23%	4.4%

Source: COMTRADE, Feitoria Prime Market Model

Unity: thousand EUR

CAGR: Compound annual growth rate

Export Opportunities from Poland to Portugal

Based in Feitoria Prime Market Model there are 134 export opportunities (table 4, where is shown only the TOP10) sorted by value of Portugal imports from World (largest to smallest) and they are complemented with the imports dynamism (the average growth rate in medium term, 2012-2016, and short term, 2015-2016).

Table 4

TOP10 Export Opportunities from Poland to Portugal

Number	Code 4d	Product label	SIZE	DYNAMISM	
			2016 PORTUGAL Imports from WORLD	WORLD CAGR ₁₂₋₁₆	WORLD CAGR ₁₅₋₁₆
1	8701	Tractors (other than tractors of heading 8709)	413 864	18.4%	6.0%
2	3907	Polyacetals, other polyethers and epoxide resins, in primary forms; polycarbonates, alkyd resins, ...	383 123	4.1%	2.0%
3	4011	New pneumatic tyres, of rubber	365 779	4.0%	1.5%
4	0305	Fish, fit for human consumption, dried, salted or in brine; smoked fish, fit for human consumption, ...	354 393	2.5%	6.0%
5	8408	Compression-ignition internal combustion piston engine "diesel or semi-diesel engine"	269 085	3.7%	1.9%
6	3920	Plates, sheets, film, foil and strip, of non-cellular plastics, not reinforced, laminated, ...	230 339	4.2%	1.7%
7	2309	Preparations of a kind used in animal feeding	230 103	1.9%	1.6%
8	6109	T-shirts, singlets and other vests, knitted or crocheted	221 168	5.7%	2.5%
9	0901	Coffee, whether or not roasted or decaffeinated; coffee husks and skins; coffee substitutes ...	220 406	0.5%	1.9%
10	3304	Beauty or make-up preparations and preparations for the care of the skin, incl. sunscreen or ...	209 764	5.2%	4.1%

Source: COMTRADE, Feitoria Prime Market Model

Unity: thousand EUR

CAGR: Compound annual growth rate

Conclusions

The commercial relations between Portugal and Poland increased from 415 million €, in 2001, to 1.304,8 million €, in 2016, which represents an increase of more than 300%.

In the period 2012 –2016 the average growth of exports from Portugal to Poland (7,5%) and from Poland to Portugal (10,6%) was higher than the average growth of exports to World (Portugal to World: 2,2% and Poland to World: 4,9%) which means that the bilateral trade among Portugal and Poland had strengthened.

In 2016, 60,5% of the total exports Portugal to Poland were concentrated in 24 products and 61,2% of the total exports Poland to Portugal were concentrated in 16 products.

As concerning bilateral trade opportunities, the FPM finds 126 export opportunities from Portugal to Poland and 134 from Poland to Portugal.

The present study may contribute to economic stability by choosing economies with better economic and political conditions for trading and by formulating policies in order to take advantage of the potential products for trading described. Support to the exports should be mainly focused on the following aspects: Promotion of articulation between state, institutes and enterprises, developing trade agreements; Favorable tax policy for exporting companies; Expansion of the credit for investment in modernization of enterprises; development of transport, communication, energy, water and other infrastructure relevant to business development; Simplification of export formalities; Creation and restructuring of productive centers. Surely that this can't be done in one day but it is really desired to have better conditions to exports.

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