

TO WHAT EXTENT CAN THE PHYSIOECONOMICAL FACTORS BE QUANTITATIVELY MEASURED TO PROVE THEIR INFLUENCE ON THE MECHANICAL RESULTS OF THE AYAL & ZIF'S MATRIX?

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ABSTRACT

The aim of this paper is to improve the Matrix of Ayal & Zif (Ayal & Zif 1979), with specific emphasis on the use of holistic variables able to offer a quantitative background for analyses and incorporating the possibility to explore the effect of physioeconomical hidden barriers on the mechanical functions of this Matrix. The expected finding is a way to draw a new quantitative Matrix for a business development strategy. The qualitative methodology pursued lies in observation-and-analysis of a range of physioeconomical data and econometric phenomena, while the quantitative aspect of research lies in the computing of the economic effect of certain factors and it is pursued thanks to a double meter: the Value meter (seen like a relationship between Volume of Sales and Operational Economical Value) and the Use of Resources during and in respect of the operational Time and in witch exact stage of the operation. The hypothesized relationships between the two complex variables are tested using data from a few different operations in order to offer a sample of the working process and can be further improved and exported on a larger scale, as a future improvement and actual limitation. Moreover, the possible audience is both academics, since the development starts from a theoretical observation: "To what extent can the physioeconomical factors be quantitatively measured to prove their influence on the mechanical results of the Ayal & Zif's Matrix?", but also a business audience since the practical application of the Matrix has been widely used to setup markets development strategies of concentration or differentiation by the industry and its enhancement can offer more realist results.

KEYWORDS: Ayal & Zif Matrix, Physioeconomics, Cultural Resistance, Market Concentration/Diversification

CONTENTS

Cover Page	Title, Author, Abstract, Keywords,	p.1
Contents	Contents, 1. Introduction & Methodology of Research and Work	p.2
Body (development, experimentation, results)	2. The physioeconomical structure in industry's commercial development: state of the art	p.3
	3. The Matrix of Ayal & Zif as qualitative tool of analysis, prevision and setup for concentration or diversification strategies; potential predictability use	p.4
	4. Hypothesis: The innovative intervention on the mechanics and the introduction of complex variables may lead to major improvements and alternative results through the discover of the third curve and the proof of its existence	p.6
	5. Qualitative and Quantitative Experimentation 5.1 Convex or Bankruptcy Curve: Demonstration 5.2 The Innovative Use of Complex Value Variables on the Y Ax through the Physioeconomical Effect of Social and Tribal Instances: Demonstration of an Alternative Strategy 5.3 Inversion of the Curves under Complex Variables Analysis: Demonstration	p.9 p.10 p.11 p.13

Conclusions	6. Conclusions, Limitations and Future Improvements	p.15
References	7. Bibliography, Webliography and Index of Figures	p.16

INTRODUCTION & METHODOLOGY OF WORK: RESEARCH AND SOURCES

The present paper discusses about the use of the Ayal & ZifMatrix or matrix in order to explore the possibility to set it up like a tool of quantitative analysis of the forces influencing and conditioning business performances. The Matrix became popular among industry since its early development thanks to the possibility to understand the two main possibilities offered to a strategy in market penetration: concentration or differentiation of a business in one or several markets. Now, the hypothesis of the present paper is to explore the qualitative possibility of observation of physioeconomical factors influencing the use of resources on a certain stage of a business and the possibility to use complex variables to compute quantitatively them in accord to a Volume or a Value as result of the operation. The paper firstly presents an overlook on the Matrix and then introduces the methodology used and the hypothetical innovation statement, focalizing finally on the effect on the mechanical results by crossing the complex variables related to value with budgeted or needed resources in respect of time progression. The paper introduces a conclusive possibility to see how mechanical curves and their linked strategic decisions maybe be unbinds by classical theories of markets development, offering a different view and it also states a new possible curve to the whole contest as potential result of the data's analysis. It closes with the actual limitations and possible improvements in the quantitative analysis.

The research methodology adopted is based both on qualitative and quantitative data and primary and secondary sources: the qualitative analysis is based on questionnaires and interviews, the quantitative analysis is based on a wide data gathering from different enterprises and of competence of three years, the sources and informations used are going to be primary and secondary. The primary sources used are going to be:

- Interviews, a total of 10, in regard of 3 cases and 5 companies;
- Questionnaires, a total of 210 valid, out of 300 gathered;
- Data gathered from the companies and market analysis

The observation of the phenomenal effect of physioeconomics, the analysis of their effect and the possible set up of a counterstrategy or the strategic re-analysis were leaded by the use of primary sources, while secondary sources were used for the Bibliographic and Webliography research, for the data gathering and for part of the quantitative research. The preliminary and basic **secondary sources'** authors and scholars used are going to be Philip Kotler, Philip Parker, Robert Foegeland Ayal & Zif. The reason for this choice is due to the necessity to investigate the effect of unstudied or unmentioned phenomena of the businesses and to understand how to calculate their effect quantitatively. Primary sources, here, offer the possibilities to businesses to understand, analyze and finally overcome the market resistance, seen like a hidden paraeconomical barrier, and analyze how each aspect of the related society can influence the success. The primary sources are going to be used to find those aspects and be able to understand how a business can use them to create an innovative and even unconventional strategy. That information is important to see to what extent cultural and anthropological aspects, as well as physical, can be used in overcoming barriers in a new market. The secondary sources are going to be both direct and indirect. These types of sources are going to be used to understand what are the main aspect that are ig-

nored or in a market. Thanks to the study of the different elements of phenomena acting on a market, it is possible to show and determine if the use of them can be used to plan a better strategy.

THE PHYSIOECONOMICAL STRUCTURE IN INDUSTRY'S COMMERCIAL DEVELOPMENT: STATE OF THE ART

Analyzing the relevant factors influencing export operations and penetration on foreign markets it seems like that the classical investigation dismissed the study and the weight of the physioeconomical effects. Those effects were variously studied by scholars, from the conventional or unconventional schools (see a brief on Physioeconomical Theories and Development: Scaini, 2011, 2012, 2013). Physioeconomical aspects are related to the links between industry and market, seen like a complex environment. In fact, the society in its anthropological and cultural elements influences both business performances and economics of a certain environment (Badot, Bucci, Cova 1993; Bucci 2006; Venkatesh & Penaloza 2006). All those aspects could be defined "paraeconomics" to enlighten the typology of influence that they have on the economical society and business, even without considering the physical ones, but only the cultural ones. Those aspects are:

- Physical and Climatic Environment (Montesquieu 1721; Fogel 1993),
- Religion and related issues (Weber 1904, 1906; Parker 1997, 2000; Rice, Al Mossawi, 2002),
- Behavioral economics seen like a cultural issue (Fabris, 2008; Hitman & Ward, 2007),
- Anthropology and Traditions (Cova, 2003; Cova, Giordano, Pallera 2007; Bucci, 2006; Cova, Kozinets, Shankar 2007; Locke et al, 2001).

Physioeconomics may influence the success of a business and actively influence the sales function, moving the balance of the enterprise's strategic asset toward more prudent approaches to market, or toward more courageous. For such reasons, they must be taken in good and constant consideration by market strategists and they are fully entitled of empirical and practical observation, basically being influencer of micro environment (Kotler, 2012¹⁴; Collesei, 2000; Vescovi, 2008). From the other hand, in a multinational and global environment in which most of physical barriers tend to fall (Hennessey, 2004; Valdani e Bertoli, 2006), they are replaced by hidden cultural ones, so that they can:

- Generate phenomena of modern tribalism (Cova, 2006; Cova et al., 2007; Badot et al., 1993),
- be even replaced by some other physical barrier that can influence the institutional changing of markets (Fogel, 1993),
- Influence the economical behavior of single players that acting like rational actors may bypass basic rules of cognitive rationality and act in an irrational but predictable way (Ariely, 2008).

To what extent such barriers may have influenced the business and the economic development of entire nations was object of qualitative speculation since 18th century and lately the quantitative observations (Parker 1997, 2000; Foegel 1964, 1994) proofed the influence of some factor like climatic ones, religious and anthropological. The finding, even though without touching in depth the consistency of such barriers, can be inscribed in the well-known mathematical Matrix based on Cartesian axes, known as Matrix of Ayal & Zif, suggesting an analytical system of choice of business develop for

industry. International marketing strategies should never bend themselves to some outdated—and senseless—retail marketing concept like “retail pops-up where it’s cool” (Crisci 2014) just because it is unpredictable or risky to prevent and study the behavior analysis of market’s actors. Strategy must bypass itself and its traditional normative limits to enter tactically into the research of fundamental components of anthropology of the retail system (Scaini 2011, 2013; one very interesting hint even though not strictly related to this topic in Kotler, Jain & Maessincee 2002; Venkatesh & Penalosa 2006). All marketing operations (from penetration to retail) are actually influenced by physioeconomics, whom, even latent, can influence the marketing strategies in a different measure and upon atypical ways. Those intervene and influence the product (Pellicelli, 2010⁷), the distribution, the PoP (and its visual merchandising choices), the communication and advertising. Due to this, mathematical well known and effective tools of analysis must be used and adapted to enhance their strict objective efficiency (Thompson, 2001; Johnson & Scholes, 1997⁶), since it was eroded by paraeconomical factors, barely analyzed and hardly searchable under quantitative perspective. All of mentioned physioeconomics, from which this paper takes its reasons and that apparently may look like barely economical, reflect themselves in a powerful way on tactics adopted by enterprises, up to the point to mark the line splitting success and failure in the market strategies (Scaini 2013) and splitting reactions from the markets when stimulated externally, stimulation that can be economical or monetary. For all those reasons, it is useful to act on this Matrix, merging it with physioeconomics and introducing some innovation.

THE MATRIX OF AYAL & ZIF AS A TOOL OF ANALYSIS, PREVISION AND SETUP FOR CONCENTRATION OR DIVERSIFICATION STRATEGIES: POTENTIAL PREDICTABILITY USE

One among many useful tools for qualitative analysis of diversification/concentration strategies for an enterprise aiming to enter new markets is the Ayal & Zif Matrix (Ayal & Zif 1979; Scott 1986). This tool is good to analyze some penetrative performance and to define which is the market structure is found and, consequentially, which is the right strategy to perform, then. The sales function of this Matrix derives from two Cartesian axes and it takes form of curves showing the typology of penetrative actions (this function, acting together with a number of other factors and criteria of analysis, may show the potential development of a certain action on a market and suggest the best future corporate strategy).

Observation is pursued evaluating the total amount of resources used in a certain operation in respect of the obtained result and it offers two possibilities:

- $V \geq NR$ causes a penetration curve (“Concave”),
- $V \leq NR$ causes a resistance curve (“S”).

In such situation, it is commonly stated that NR = Budgeted or Needed Resources and V = Volume of Sales.

In the traditional Matrix, in case of strong resistance from the side of market, and consequential low operative profitability, it is found an “S” curve. In case of weak resistance and strong operative turnover it is found a “C” or concave curve. At its starting stage (Pellicelli, 2010⁷; Scott, 1986) this Matrix was presented and introduced into the business like a tool of definition and choice between strategies of concentration or differentiation, and it was lightly intended like a predictive tool. In fact, if used for quantitative observation, it can’t predict, and it could only if used for qualitative observation. Indeed, one among the main reasons why this Matrix should be further investigated lies in the fact that it could be easily adapted to show other possible reactions and could be a hint for further numerical and quantitative analyses aiming to understand of the origin of the function created on the Cartesian plan and the hidden forces in action. This represents a point of continuity

and develop with the actual state of the research. “To what extent both actual parameters can be considered exhaustive for the expected result, and to what extent they can be improved to make a quantitative Matrix that can take into the count also physioeconomics entering into the dynamic reactions between company and markets?” The question is not tautological, neither self-limited, since the degeneration of the original basic Matrix passed through the mathematical incapability to understand how much the unconsidered causes may have influenced the expansion policies, making it just a sampling Matrix for potential strategies. This paper wants to offer the possibility to setup one functional Matrix of sales based on complex parameters and set up on dynamic analyses (based on the temporal development) that can enhance both: the quantitative analysis and the qualitative predictability and consequentially generated different curves able to improve and enhance the corporate strategic setting. The following figure shows the original Matrix with the classic situations:

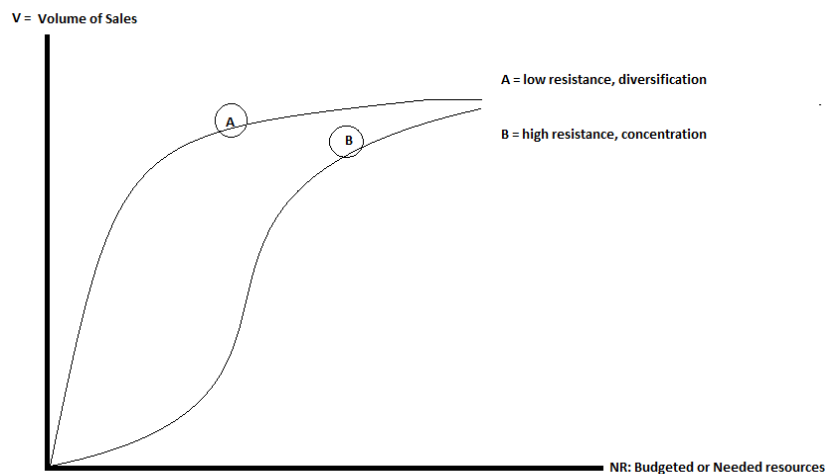


Figure 1: Matrix of Ayal & Zif

Following the figure, upon a certain “high” use of resources (defined by “some” form of resistance on the market) the result is a low-and-slow growth of the sales: despite in case of a low resistance the result is a high-and-fast growth of the volume of the sales, in both case till to a certain moment-and-level of saturation of the market, determined by several factors, such as competitors, lead time, cycle of life). In the original Matrix it is assumed that both function may reach the same value-point and the same resistance but in different moments. The observation of the Matrix, together with some other parameter leads to the definition of the strategy: concentration or differentiation on the international markets. As an answer to one of the two initial questions, “To what extent the Ayal & Zif Matrix keep in count of the physioeconomics making a quantitative Matrix?” it is necessary to search two specific aspects concerning the mechanics of this Matrix, for which it is assumed that:

- The innovative introduction of complex or articulated variables could accept quantitative observations;
- The introduction of the concept that of “research of the causes” influencing the curves in adopting the one or the other aspect and the measurement of the physioeconomical interferences in quantitative way.

HYPOTHESIS: THE INNOVATIVE INTERVENTION ON THE MECHANICS AND THE INTRODUCTION OF COMPLEX VARIABLES MAY LEAD TO MAJOR IMPROVEMENTS AND ALTERNATIVE RESULTS THROUGH THE DISCOVER OF THE THIRD CURVE AND THE PROOF OF ITS EXISTENCE

Matrix's mechanic must be revisited under an econometric spotlight, linking both axes with measurable values.

- On the "X", where it is placed the value referred to "budgeted or needed resources" the value itself can be enhanced transforming it in a complex and dynamic parameter such as "X=budgeted or needed resource/time", where the need of resources is strictly related to scheduled and planned stages of the operation and linked to the right moment in a budget allocation, in respect of its environmental condition.

The suggested strict relation with time is not new at all, and mostly implied, but even though used and considered, it is:

- Still underestimated
- Used retrospectively and not useful to predict a future possible scenario
- Linked mechanically and not realistically to the second "Y" ax

In fact, the use of resources is not always constant even though it must be always, at least generally, planned as suggested by a few scholars in mathematical way and as a mean of quantitative measurement, and mostly can be referred to Kutschner & Schmid (2010). Anyway, linking this complex parameter to the "Y" ax's value makes possible to investigate and understand the strength and the typology of resistance, if economical or physioeconomical, and state their action range of time. Moreover, the full relative parameter on X ($X=NR/t$) implies a non-regular and non-constant curve curve, and it is a new finding. The curve can be very irregularly abnormal, or alternative un-linked to strategies and modifying the final approach to them.

In this case we could say that $t = (R^* \times f_{rm} \times LT)$, where t is the time concept adopted equal to the average budgeted resources (R^*) multiplied per the fraction of investment in that unit of time (f_{rm}) – for example month- multiplied per length of time unit (LT)

The advantage of applying some temporal dynamisms and average length of the single periods to the Matrix applied to values, is that it allows to prove an evolution of the function during the time that is much more irregular than linear, but more reliable and realistic and to show how hidden forces are constant. Moreover, it produces the possibility to have different curves, in fact, some use of resources is strongly localized on a certain stage of time, like spot-operations, influencing in anomalous way the curve and creating inconstant curves. Present paper is intended to prove the existence of new and abnormal or inconstant curves: some can generally relies to the main well-known two, some can't, accordingly to the following example.

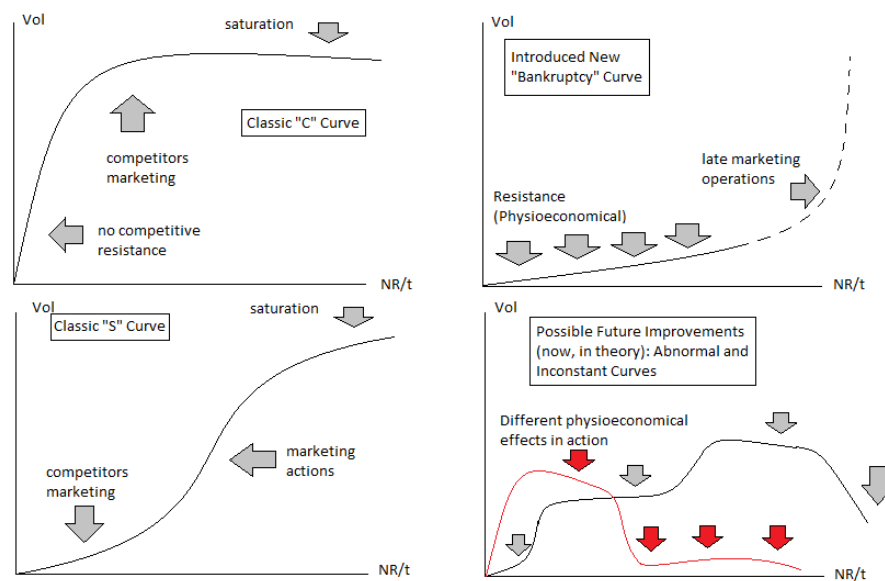


Figure 2: Possible Curves in the Matrix of Ayal & Zif

It is hypothesized that the commercial or economical resistance can be more regular and predictable than a physioeconomical one and can be managed in a more predictable way, being independent from unexplored, unexpected environmental factors. In fact, the research shows how irregular a curve results when it is set dynamically linked to physioeconomics and how instead some market related issues (fairs, trading season, and competitors' counteractions) can be set up in advance. Although, it is quite normal or simpler the allocation of needed resources in a constant way, even though following Thompson (2001), sometimes it is needed not just to manage the right operation, but in the correct way, and it is the case of physioeconomics in action. All this, in order to make the operations both efficient and effective. Under this new light, the physioeconomical resistance as well as every paraeconomical hidden force in action, could result strong not just due to a low use of resources, but due to a misuse of the evolution dynamisms of the operation, lack of prediction and deep investigation.

- On the "Y" ax, where it is traditionally placed the economic value, such variable must be adapted to the pertinence of the circumstance. Actually, in this paper, it is supposed that it is possible to refer both to the function of sales (volume of sales) or the function of value (value of sales). For an instance, for those products with a high added value such as luxury goods, technology at the initial stage of cycle of life. This is the variable that is functional to the company's strategy and that can be easier to recognize and manipulate depending on needs and that can be representative of turnover, net or gross profitability, the Value/Volume ratio (Val/Vol).

Accordingly to the present paper, to face a strong resistance and of an origin that is not strictly economical or financial (like the resistance on price), but of a cultural or physioeconomical origin, it is advisable to invert the way how the "Y" ax of the Matrix is used, focalizing on unitary value, better than on volume of sales and its consequent turnover. In practice, it is better to work on limited quantities but with a unitary high added value, or not selling "more" (it something stimulating the physioeconomical resistance), but selling "at more", or not just selling but earning (Andreani & Rossi 2007). The add-on of complex parameters can influence the whole structure generating functional Matrixes (or curves) that,

in the general overlook, are close to the ones already known, but instead in the single stages or in the micro periods can result altered. Some curve (as shown in the example under Figure 3, below), could show:

- abnormal development,
- different or even opposite if considering volume or value,
- altered course if resources are linked with time.

The importance of the complex variables lies right in their ability to allow a deeper vision of the strategic development, linked to a typology of curve, so that reading the curve under a different light, strategy itself will result influenced. The main interesting innovation linked to the analysis of physioeconomical resistance research is connected to the presence of a third specific potential curve: it is a “convex” one, representing the operational “bankruptcy”. For an instance, in the case with the utilization of resources is pursued in a wrong way (without any correct evaluation of the physioeconomics in action, whom are hidden and of a difficult investigation), the risk is to incur in this third condition, otherwise of a difficult spot. Such circumstantial curve should not be just spotted, but expected and calculated numerically.

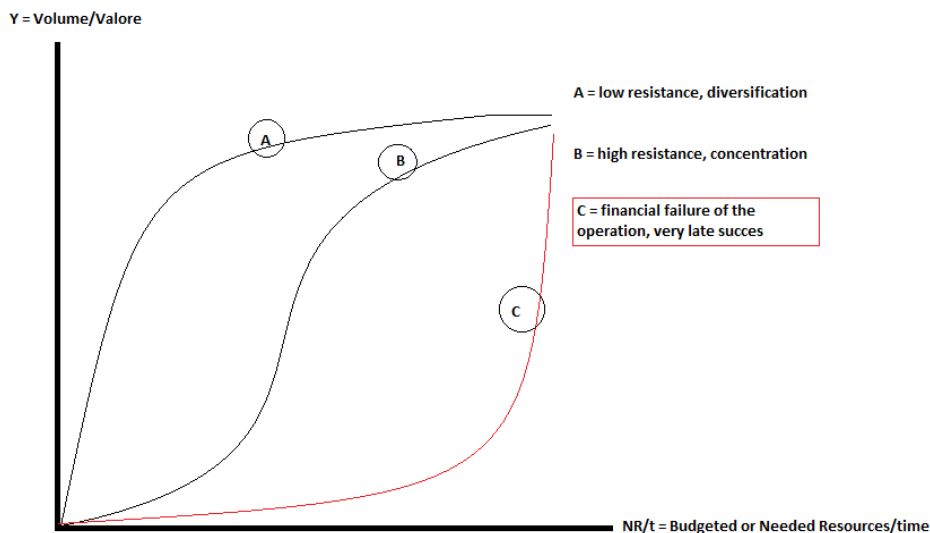


Figure 3: Matrix of Ayal & Ziff with Modified Mechanic and Third Curve

The change introduced in the single variables, seen as first improvement to introduce the qualitative analysis into the quantitative one, and limited to the general mechanical structure, led to a new curve, defined like “Convex Curve or Bankruptcy”.

This curve derives its failure aspect from:

- A slow or too late success under a Value and/or Volume analysis (for an instance, late up pricing caused by a too low penetration price or by a too slow penetration; or because of a too small volume of sale, despite of its value). In this case the complex variable “Y” allows a double interpretation, based alternatively on the volume and value of profitability of sales;
- Some too heavy use of resources. This could be based on a wrong promotion focalized on price (for an instance, promotion on the single unit price), or it could be for a long-lasting stage (period of time), so that it obstacles the

correct positioning. It could also happen due to a wrong evaluation of the promotional mix (for an instance based on price better than on other promotional means like communication or ignoring that the product itself is linked to specific physioeconomics, Scaini 2013).

This is an “operational failure curve” because the operation itself could require more resources than budgeted and more than ones generated by product/market. The very first reason why such curve is hardly spotted is due to the management of budget in respect of time, whatever it is to sustain the operation of penetration or to cover the need to furnish of resources to the company. For this reason it is necessary to set up the “X” variable with a strict link with time. In this case, it is necessary a deeper analysis. A predictive analysis could be started only after an evaluation off-line of all possible results, evaluated in the respect of the market acceptance in accordance with time. Such response should not be evaluated in terms of mere mechanical “economical reaction to a marketing tactic”, but in the respect of physioeconomical barriers potentially in action on the market. To do that it is needed an observation-analysis-action based system, in order to setup some counter-tactic adequate to the possible market’s responses with budget allocations not just correct, but exact as per time stage.

QUALITATIVE AND QUANTITATIVE EXPERIMENTATION

A qualitative observation was pursued by the means of questionnaires and interviews to understand the opinion of market actors about the events occurred and occurring in the target market. Suggestion of present paper is to use this kind of observation to recon and predict potential issues. The use of marketing’s proper and improper tools, such as market researches, focus groups, Likert scale, questionnaires and interviews may open to analysts certain hints on incoming events. Even though those tools are not objective, neither quantifiable and consequently hardly useful to allocate a budget and to predict the results, they allow anyway to predict if and how the market will require a concentration strategy or will warrant with an immediate financial revenue and a low budget, to put into practice similar operations in other market following a differentiation strategy, as proofed in the present paper, in fact, among the others, this paper states the innovative idea that one of the main problem lies in the observation of the possible physioeconomics in action linked to the operation.

A quantitative observation was pursued using primary data gathered from a number of companies, crossed with some secondary data observed in the target market (Russian Federation and Ukraine, in present case) and recollected into three main examples. This observation observe data of operations already pursued or still in process in form of simulation and it is another actual limitation for future improvements. The following cases and figures are intended to show the results of these commercial operations and show how adopting the two introduced innovations is supported both by qualitative analysis and quantitative one, as well as how the need of adopting criteria of measurement of the physioeconomical resistance through complex variables is sustainable and not without critical foundations.

- Figure4: The effect of climatic instances on resistance for the export of lamb and sheep goods toward Russia (climatic effect, cfr Fogel 1993)
- Figure5: effect of “Ukraine’s Crisis” on the export of lamb and sheep leather goods and furs toward Russian federation (cultural effect, cfr Parker 1997, 2000)

- Figure 6: effect of social tribal instances on the export of shoes toward Russian federation (Fabris 2008; Hitman & Ward 2007).

5.1 The Convex Or Bankruptcy Curve: Demonstration

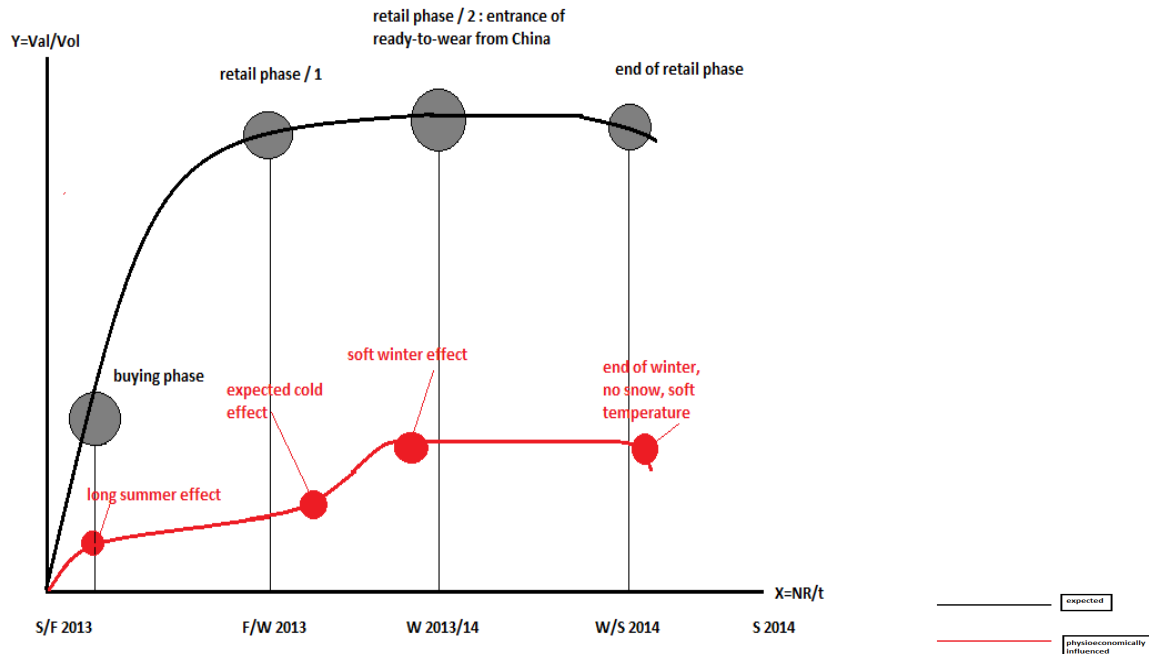


Figure 4: The Effect of Climatic Instances on Resistance for the Export of Lamb and Sheep Goods toward Russia

In this first case, obtained through gathering data from three companies working with very similar products (two lamb and goat skin, one also with lamb furs), the two observations produced an inverted result if using complex variables. The black line represents the expected course for the season fall/winter 2013/2014, while the red line represents the real course. The quantitative observation is based on business data analyzed on complex variables and the qualitative on interviews and questionnaires and should have drastically changed the strategy of the exporting companies, if the analysis were executed in advance (using it like a lightly predictive tool): probably those companies would not have set up the whole strategy following the traditional Matrix. Actually, the Ayal & Zif's traditional curve was passively influenced by some unexpected physioeconomics such as climate. Even though it was not hard to predict long and cold winter on the Russian market, it did not happen, with a little snow and a warmer average temperature, moreover no phenomenological analysis was pursued or committed in advance. This kind of situation marked orders rather low from buyers (in fact, they preferred to wait for the lowering of temperature causing or pushing down to a "convex curve", forcing companies to increase the resources needed to resist and keep on the market, as can be seen in the appendix detailed graph). Actually, the considered exporting companies faced the need of higher promotional costs, travels, shows and -in the majority of cases- started a deleterious and even wrong down-pricing strategy, even though certainly of some necessity. This tactic was made necessary by the approaching of the entry-point of "ready-to-wear" producers from China and Turkey (being some economical issue, it is much easier to predict than paraeconomical ones). Those companies can traditionally warrant similar-style products (like copies, even though not fakes) at a much cheaper price. All of that caused a "curve of physioeconomical resistance"

or “convex” hardly predictable due to its originality, but surely predictable if analyzed due to its potential, as proved by some interviews¹. If such trend was previewed probably the company can draw a different planning, with a different budget allocation and resulting in a different curve, that is indeed a very anomaly: it is a “S” curve (resistance) much closer to a “Bankruptcy” curve, despite its form, requiring something much different than a mere concentration on the market, but a strong differentiation of markets, because the weather forecasting can’t be influenced.

5.2 The Innovative Use Of Complex Value Variables on the Y Axis through the Physioeconomical Effect of Social and Tribal Instances: Demonstration of an Alternative Strategy

In the same market, through the same mix of companies it was experimented a second physioeconomical instance in action, close to tribalism, which is the embargo of the next year (2014) versus Russian federation and in the case of the Ukraine’s crisis. If such crisis was called to block or heavily delay the consumption index of most goods pointing on European imported ones (Bottelli, 2014), indeed it gave an input to the demand of those products characterized by strong awareness and recognition (mainly brand and Style), totemic vectors of a social membership of groups with highly recognition (Cova 2006; Hitmann & Ward 2007).

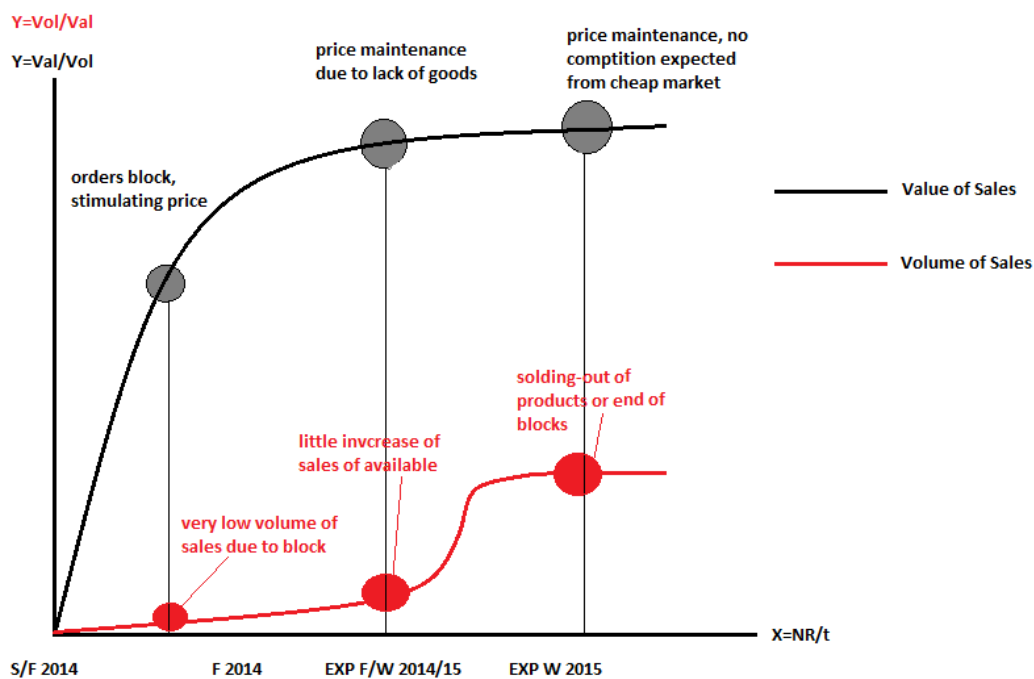


Figure 5: The effect of the “Ukraine’s crisis” on the export of lamb and sheep leather garments and furs toward Russia

This emblematic case, observed and analyzed basing on companies data crossed with some primary source², proofs that the irrational predictability (Ariely, 2008) of behavioral action under physioeconomical instances and under condition of uncertainty (Kahneman & Tversky 1979; Tversky & Kahneman 1974) suggests to setup the axis’ values and

¹Interviews 2a and 3a in appendix.

²In appendix, questionnaires and interviews 5b, 6b, 7b, 8b.

consequentially to rethink the diversification or concentration strategies. The much unexpected Ukraine's crisis caused the embargo of exportations of a wide range of goods toward the Russian Federation. Such block heavily stroke companies like the tanneries and leather and fur clothes producers considered. In this case, setting up the classic value "Volume of Sales" on the "Y" it'd result in a strong resistance, caused mainly by the impossibility to access the market and refurbish it, with the consequent need of concentration. It is what happened to company 1 and 2 in the mix³. Anyway, rethinking the axis's values, with complex variables and reading the curve basing not on Volume but Value, the result and linked strategy resulted reversed⁴. It was initially done only by company 3 and with delay by company 4. In fact, now the value of the very few products already stocked in the market was highly and suddenly increased, when physioeconomical instances related to the tribal structure of the society made them recognizable (Style, Brand). It is the good old Offer-and-Demand stimulated by specific social conditions acting on micro economic structure and altering consequentially the macroeconomic, like the need of heterorecognition (Hitmann & Ward 2007). This course is predicted to be maintained basically constant, but not able to bypass a certain level of value (price) in relation to the volume simply due to three factors:

- Impossibility to reach the same peak-price of competition with premium goods (marketing reason);
- The unavailability of goods due to expected enlargement of the block (retail reason);
- The feared devaluation of the Ruble (29% in about six month, monetary reason).

The physioeconomical instance linked to tribalism could also drive the market segment (price/recognition) to a scission: up pricing toward brand, Premium and Superpremium goods and down pricing toward Chinese and Turk competitors' goods, unaffected by embargo. Such scission can barely touch both products and goods under observation and analysis, since those are already present in the market and should be out of stock before the end of block of exportations, making themselves the origin of a turnover of a different origin, not based anymore on the volume of sales but based on their financial value, linked to profit and not turnover⁵. Some among the most interesting aspects, is to observe the way how an advanced detection and analysis of the hidden causes of resistance on the market may offer alternate solutions, unconventional. If in the first case companies were been able to predict the course of the previous year (it was known the case of a possible warm winter, by weather forecasters), the strong resistance could have been bypassed by diversification just in time. If, on the other hand, the resistance were been observed but only the reason and the final observation of the next year (resistance on the volume and non-resistance on the values because of physioeconomics) anticipated, it could have been possible to notice the "mechanical anomaly". Such anomaly is the possibility of diversification despite the high resistance of year 2013 thanks to the predictablenonresistance of the 2014 (note that this is acting not on Volume of sales, but on the complex variable, value/volume). As a final add on, it appears like necessary to identify a new entry market for the large volumes non deliverable to the Russian Federation and a consequent need of diversification operation, despite of the mechanical rules of the traditional Matrix showing a strong.

5.3 Inversion of the Curves under Complex Variables Analysis: Demonstration

3 Interview 8b (concerning companies 1 and indirectly 2). Interviews 5b and 7b are to be taken valid in general for the whole bucket.

4 Interviews 6b (concerning company 4).

5 It is important to report that this possibility stands only for those companies having their own distribution, not all the considered companies are in the same situation.

In the sixth figure, 3rd example, the Matrix shows the anomaly of the course in respect of the previsions of sales of shoes in Russian federation, with a much needed correction of the analysis and interpretation of the Matrix itself and consequent rethinking of the company's export strategies.

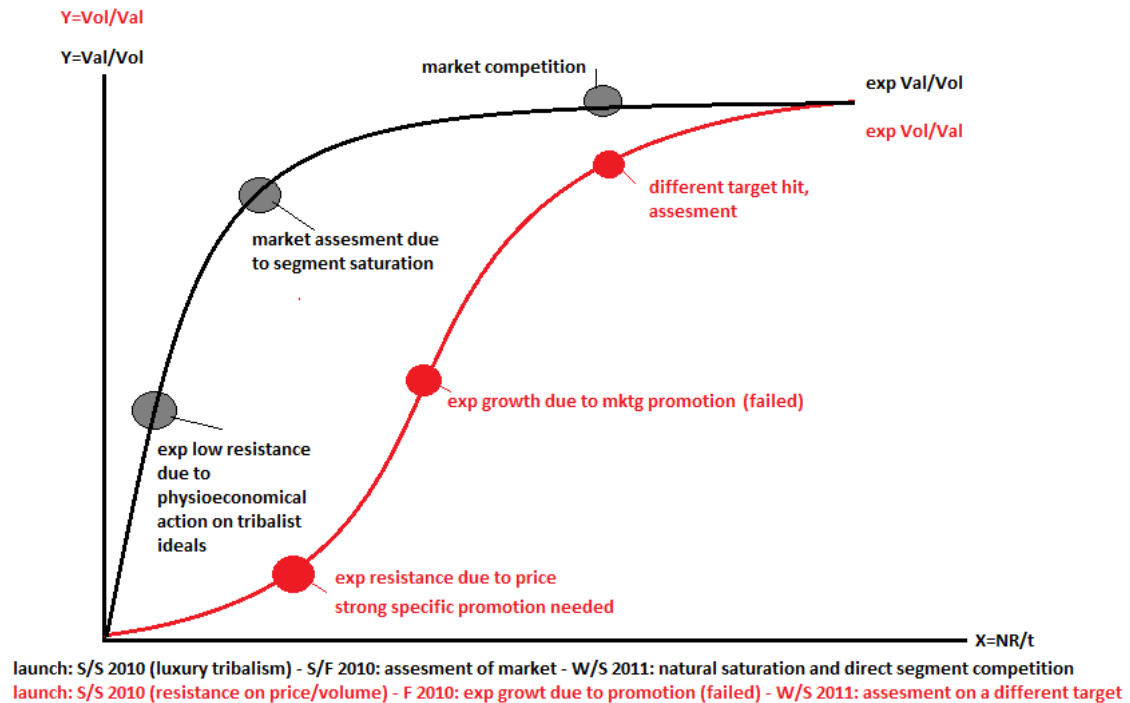


Figure6: The effect of social tribal instances on the export of shoes toward Russian Federation

This figure reports the double situation of a shoemaking company on the Russian market owner of two similar brands, launched contextually in different segments and with different strategies.

The operation related to first brand (Red Label) was pursued and analyzed setting the “Y” value to Volume of sales and due to a hard acceptance by the market of strong volumes of product at a price that is rather high in comparison with the preferred distribution channel, has resulted heavily hindered and requiring a constant increasing need of resource, barely supported by results of sales and consuming the margin of profit. This company faced the pressure of the market's resistance with a higher budget to keep on, spending for:

- Participation to fairs and show for local market (useless to sustain profitability in foreign markets);
- Advertising and communication campaigning for this market, that due the high cultural contextualization of the market itself were useless abroad (but for spilling over markets), increasing the use of resources (it resulted then being like a physioeconomics key factor)
- Adaptation of the product to a specific local taste of the middle class, with a strong cost effect (again, in this case the resistance factor was physioeconomical), and this in a critical moment for the company that was searching for a new market (RFA) to supply the contraction of the orders in other traditional markets.

Instead, the operation pursued for the second brand (marked in black, it is the Black Label Brand) was set and analyzed in order to switch both variables on both axes, and mainly focalizing on the value. In this case the strategies were revised accordingly to result and it was realized that the curve resulted inverted, despite the similarity of brands and volume's results. The curve changed from "S-resistance" to "C-concave" since the product was offered in much limited volumes and were distributed following parameters not dissimilar from massige ones, so the price was pre-set to a high margin of profit and high prices. It is interesting to note that a selected product with a higher price should meet a stronger resistance than a lower priced one, instead, this company met the opposite situation. Among the whole detected and analyzed data to understand the complementarity but noncompetitively of the two operations, it is remarkable that:

- Style: very similar, quiet aggressive, sensual, colorful, with decorations (golden decoration and dark colors for the black label, sewed and embroidered in shining colors for the red label)
- Price: aligned (even too much, making up a bit of confusion)
- Target: "Red Label" woman 35/45; "Black Label" woman 25/35
- Brand: naming and image aligned, coherent, similar

The whole set of operations was supported by a specific style meeting the taste of specific niches proving a high pro-capita profitability, so it was unnecessary to increase to use of resources for the specific segment and market. The observations led to the conclusion that strategy should not had been focalized on concentration in one market due to the high resistance on large volumes, but on the research of physioeconomics in act in order to obtain a concave curve bringing profit and coverage, so let the company can differentiate on other markets. This kind of interpretation must have been pursued together with a different Y's axis value inscription, more focalized on value better than volume and with a different X' axis value inscription, noticing when such needed resources will be even needed in witch amount, as per a better management. Actually, as it is proofed by the Black Label example, the resistance and the consequent higher resource amount is localized much later and only after market has been penetrated with success, unlike what was happening with the Red Label, where the resistances started influencing the strategies much earlier, due to a misinterpretation of the tactical actions, based on the attempt to get the same final score with large quantities. It is remarkable the fact that the company expected a much higher resistance on the Black Label due to the price⁶. Basing on a qualitative observation, it can be added that the strategy of both Labels could have been oriented toward differentiation of markets, unlike the traditional mechanic, and accordingly with the paper's suggested innovation, due to:

- Advanced search and interpretation of the market's physioeconomics (not limited to a merely strict marketing analysis)
- Understanding of the specificities of some of the environment influencing the target, better than trying to fix "non influent" anthropological problems (distinction vs wearability)
- Understanding of the right target's figurative language to set up right promotions in the right moment (Thompson 2001) managing to move the flow cash to make a concave curve.

⁶See the interviews numbered "9c" and "10c" in the appendix.

CONCLUSIONS, LIMITATIONS AND FUTURE IMPROVEMENTS

This paper offers an innovative enhancement both qualitative and quantitative of the classic Matrix of Ayal & Zif. In short, the technical findings and innovation introduced can be shown as following:

- It has been found both theoretically and practically one new mechanical complex curve (defined “bankruptcy curve or convex”);
- Complex variables were set up and proofed that they are useful to execute a deeper analysis;
- A new innovative and more specifically quantitative use of the traditional matrix has been introduced and proofed;
- Introduction of a new mechanical, who supports now two new functional and linear equations, derivate from the Matrix.

The original hypothesis was:

- Need to make qualitative physioeconomical observations of the resistance. The observed result is “how such observation, following an in-depth analysis, hacks quantitatively on the measurement of the budgeted or needed resources in a certain stage of time”;
- Need to make the mechanic of the Matrix more quantitative. The observed result is “how the utilization of qualitative and quantitative data may influence the mechanics of the matrix, creating 1. Alternative curves 2. Alterate or Anomal curves 3. One new curves”;
- Need to use complex and quantitatively useful variables. The observed result is “the possibility to create mathematical formulation of the result (linear functional equations), in addition to detailed mechanical curves potentially predictive”.

Analyzing the actual mechanical structure, the paper suggests to insert the innovative system of complex variables on both axis to allow a better quantitative performance and as a base for future improvements. Such variable are:

- $Y = \text{Val}/\text{Vol}$, the relation between Value of Sales and Volume, splitting the analysis of result based only on Volume of Sales, since there may be not any direct connection with profit, and focalizing on the profit itself to reverse the result and the strategy, if needed;
- $X = \text{NR}/t$, the budgeted or used resources for an operation in relation to time, so that it can be precisely evaluated when such resources are needed acting on the operation and when they are necessary and if the operation is finally auto financed by resources auto generated by the operation itself.

Both quantitative changing influences the mechanics of the matrix creating a new convex curve (bankruptcy curve) and, potentially, an “S” curve reverted (that must be researched in future improvements). To act quantitatively a bucket of data were used, data taken form the real reports of real operations in real conditions. The second statement has a qualitative aspect, it is the anticipated observation of the physioeconomicsacting on the resistance. Since some commercial form of resistance can be predict and bypassed thanks to marketing, there are still a number of hidden form of resistance linked to

physioeconomics and unconventional that are often underestimated. Those must be analyzed in depth being linked with several types of resistance often connected with historical and environmental contingency. The qualitative observation, applied to a matrix able to interpret the data under a quantitative spot of light, can lead to a final definition stating that:

1. The result of a Marketing operation $rM = f(t; a)$ is equal to the mutual function of time (t), seen like $\mathbf{t} = (\mathbf{R}^* \mathbf{x} f_{rm} \mathbf{x} \mathbf{LT})$, with ambience or strategic environment (a), just like in the Ayal & Zif Matrix it is: $rM = f\left[\frac{nr}{t=(\mathbf{R}^* \mathbf{x} f_{rm} \mathbf{x} \mathbf{LT})}, \frac{Val}{Vol}\right]$,

Where the function of sales (result of a Marketing operation) resulting from it is the mutual function of the needed or budgeted resources in time (that determinates the resistance **Res**) with the relationship between **Value** and **Volume** obtained in the market (determining the economic result **RisE**), and expressible in extended way as

$$rM = f\left\{\left[\frac{nr}{t=(\mathbf{R}^* \mathbf{x} f_{rm} \mathbf{x} \mathbf{LT})}\right] = Res; \left[\left(\frac{Val}{Vol}\right)\right] = RisE\right\} \text{ and in short:}$$

$$rM = f(Res; RisE)$$

Inevitably the observation of the physioeconomics and paraeconomics acting as resistance must be improved making it not merely qualitative and based of systems of observation that are subjective, but based on real data useful for a quantitative analysis, to be used also (and specifically) for a predictive analysis. Finally, analyzing the curves resulting from the Matrix, the paper proofs with evidence the possibility that the strategic matrix resulting could be partially revisable considering both more associations of value's variables on "Y" and different resistance (from mere physioeconomics to more comprehensive paraeconomics) and a need of resource recollected in the proper stage of on "X", through a direct link with a Gantt Chart. In the end, the strategies mechanically resulting from the curves will change in a directly proportional way with the utilization of more articulated values and variables on the axes, so more strategic options may be explored. Since that paper proves that the new variables put under discussion not the curves themselves but the mechanism to linked result, it is indeed needed to understand in depth and experiment quantitatively "to what extent the strategies result mechanically linked to the curves also in case of use of complex variables on the axes and the results may be measurable". As further limitations and possible improvements, it is notable that the analysis was pursued systematically:

- only in a short range of time
- only in one market
- only in one business sector (light or textile industry)
- on already happened events and the best predictive experimentations were leaded on an operation-in-progress

Future improvements should definitively work on improvement of quantitative analysis of data and links with curves.

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