

A Brief Account on Hysteresis in Marketing - Perceptions, Implications and Future Developments

30 Gennaio 2019

Andreea-Daniel Moraru, Ionut Antohi

Contributo selezionato da Filodiritto tra quelli pubblicati nei Proceedings “2nd International e-conference - Enterprises in the Global Economy 2017”

Per acquistare i Proceedings clicca qui:

http://www.filodirittoeditore.com/index.php?route=product/product&path=67&product_id=148

Contribution selected by Filodiritto among those published in the Proceedings “2nd International e-conference - Enterprises in the Global Economy 2017”

To buy the Proceedings click here:

http://www.filodirittoeditore.com/index.php?route=product/product&path=67&product_id=148

MORARU Andreea-Daniela [1] ANTOHI Ionut [2]

[1]Ovidius” University of Constanta, Faculty of Economic Sciences (ROMANIA)

[2]I.I.Cuza University of Iasi (ROMANIA)

Emails: amoraru@univ-ovidius.ro, antohi_ionut@yahoo.co.uk

Abstract

In a rudimentary approach, hysteresis denotes the effects that persist after the causes that determined them have been removed. It was introduced in the 19th Century in the study of magnetism, and subsequently, it entered other fields such as ferroelectricity, biology, chemistry, and last but not least, social sciences. Its entry to economics is not at all surprising and here it found an extremely fertile soil for its implementation and future development.

Hysteresis has been acknowledged by the economic theory as having the potential to diminish the distance that separates economic modelling from reality and has provided elevated explanations for the evolutions of economic phenomena. In this paper, we contemplate the liaison between hysteresis and marketing and present the results of a qualitative study aimed at revealing the opinions and perceptions of a sample of economists on the existence of such connection. Further, we refer to the possible implications and future developments on the use of hysteresis in marketing.

Introduction

The history of the hysteresis phenomenon can be traced back to the 19th Century when the physicist James Alfred Ewing [1] observed the effects of temporary exposure of ferric metals to magnetic fields. While conducting his research, it became clear that the subsequent states of the metals were described better by referring to their past states. He then introduced the new term “hysteresis” to describe irreversibility.

Although some attempts were made to persuade him to renounce at the term, he insisted on using it arguing that it was a generic phenomenon and that it would be observed in other fields as well. Indeed, soon after the term entered the fields of ferroelectricity, biology, chemistry, and social sciences. In social sciences, hysteresis proved its efficiency in describing the evolution of organizations and individual behaviour.

Its entry to economics is not at all surprising and here it found an extremely fertile soil for its implementation and future development. In a rudimentary approach, hysteresis denotes the effects that linger after the causes that determined them have been removed. It allows the advancement of explanations regarding the functioning of a dynamic system whenever the current state can be understood in a more detailed manner by reference to its past. The characterization of present phenomena using exclusively current values of the variables may be incomplete compared to the characterization provided by the use of hysteresis.

The concept is quite easy to understand and accept at an intuitive level, and its inclusion in the economic research is nothing but a natural consequence of the system’s evolution and of the increasing need for its understanding. However, its actual implementation and its inclusion in economic modelling are far less intuitive and raise numerous issues.

Consequently, hysteresis has not yet been incorporated in orthodox economic models.

The present paper is a personal approach, naturally perfectible, orientated toward the investigation of the opinions of a sample of economists regarding the connection between hysteresis and marketing.

A Brief Note on Hysteresis and its Development within Economic Research

Although the term itself was introduced as late as 1881, the concept has a far greater history. Leibniz formulated the antithesis hysteresis – equations of state in the 17th Century arguing the theories of Descartes and Newton. Leibniz argued that the force of an object should be defined exclusively based on mass and present velocity and that the previous motion history is irrelevant. He, therefore, anticipated the issues raised by hysteresis in social sciences [2]. Descartes had proposed temporal hysteresis, while Newton had proposed space hysteresis; Leibniz rejected both arguing that for ontological reasons the past itself cannot have a greater influence on the present than that determined by the traces of the past in the present [2].

Should one consider ontological hysteresis to be impossible one cannot contest the existence of epistemological hysteresis. Even taking into account that the past can influence the present only by the effects of the past that follow up to the present, characterizing and describing present phenomena exclusively by using the current values of variables may prove incomplete as compared to the description and characterization provided by hysteresis, that is, bringing into attention the previous values of the variables.

Hysteresis may be therefore used to describe the functioning of systems for which ahistorical approaches are not a viable option. Such systems have a long-term memory and may be considered as “historical” [3].

Hysteresis is used in explaining the functioning of dynamic systems when the current state of the system may be better understood by reference to its past. It is, therefore, reasonable to consider that the assessment of a certain system to display hysteresis depends not only on the system characteristics but also on the

individual assessment of the relevance of the previous states.

The intuitive nature of hysteresis facilitated its entry into various fields, including economics. Its introduction in economics is rather natural, considering that the neoclassic in their attempt to build the economic science embraced methods, equations, and metaphors from physics [4].

The economic science makes use of hysteresis to describe the persistent influence of past economic events, and taking into account the memory effects in the functioning of economic systems is considered a great progress in the economic theory and is credited with the potential to reduce the disagreement between modelling and reality [5].

The term entered the economic vocabulary rather recently. Before 1970's, it was only seldom used. Schumpeter, Samuelson, Georgescu-Roegen or Phelps used it occasionally. The notion was however present in the works of Haavelmo (1970) [6] and von Weizsäcker (1971) [7] or in works dedicated to consumption, such as those of Duesenberry (1948) [8] or Modigliani (1949) [9]. Brown (1952) [10] also noticed in cases of both income increase and decrease, a lack of promptitude of consumer reactions which he attributed to an inertia he labelled as "hysteresis".

Probably the best-known approach, which consecrated hysteresis, is that of Georgescu-Roegen (1971) [11]. Although he dedicated previous works to hysteresis [12], in *The Entropy Law and the economic process*, he described a general framework for applying hysteresis to social sciences and especially to the theory of consumer behaviour. After the 1970's, hysteresis became a very sought-after topic, especially in two fields – unemployment and international commerce, following the ground-breaking works of Phelps (1972) [13] and Kemp and Wan (1974) [14].

The concept initially introduced in physics was translated to economics where it was used successfully to explain economic phenomena from other areas than the ones already mentioned, such as foreign investments, capital formation or marketing [15].

But although the relevance of using hysteresis at economic systems level has been acknowledged, it hasn't been formally incorporated in economic models [16]. However, the present setting of the world economy offers a generous framework for further development and study of hysteresis in different areas of economic research.

In marketing, there have been several works dedicated to hysteresis. To our knowledge, the first approach to hysteresis in marketing is that of Little (1979) [17], who noticed a possible hysteretic relationship between sales and advertising. Further notable contributions on hysteresis in marketing include those of Dekimpe and Hanssens (1995, 1999, 2005) [18, 19,20] and Hanssens and Ouyang (2001) [21].

The Research Methodology and Results

An interview-based qualitative research was conducted during March-April 2017, on a sample of ten economists.

The research objectives included:

- To reveal what economic research field do the respondents associate mainly with hysteresis;
- To identify possible uses of hysteresis in marketing;
- To assess the importance and opportunity of including hysteresis in marketing research.

The authors conducted the interviews using an interview guide. The introductory section focused on the respondent's economic education (bachelor, master's degree, PhD, post- doctoral), their work experience in the field, and their interest in scientific research.

Subsequently, the interview was concentrated on the degree of familiarity with the notion of hysteresis and

its application to economic systems. The authors then delivered a presentation of the notion of hysteresis and of the main landmarks for its use within the economic sciences.

The research results revealed that the respondents who had been previously involved in scientific research activities were familiar with the notion of hysteresis. They mainly associated hysteresis with unemployment, but also with consumer behaviour and marketing.

The respondents who had not been previously engaged in research activities were only little familiar with the notion of hysteresis and associated it mainly with unemployment.

Asked about the presence of hysteresis in marketing, the respondents referred to:

- temporary or permanent changes of the market position of companies after structural management changes, economic downturns or globalization challenges;
- changes in consumer behaviour after deploying different marketing tools (advertising informing about a new product, promotional tools determining a temporary increase in sales);
- consumers' reluctance to change their consumption patterns when new products are introduced, or when the products they consume or the organization producing/selling them have their image deteriorated;
- consumers' reluctance to adopt technological changes;
- the effects of uninspired management decisions leading to a loss of market share; the actions of the competitors could transform a temporary loss of market share into a permanent one;
- ceasing opportunities could bring permanent advantages (the temporary absence of a competitor product from the market could determine customers to shift their interest to other products).

Interestingly, the respondents inferred that it would take more than the effect of only one factor to determine a considerable change in market response, but rather a combination of factors.

When asked to give their opinion on the opportunity and difficulty of including hysteresis in marketing research models, the respondents assessed that this endeavour would be: useful, innovative, or difficult to implement.

Conclusions

In a more rugged approach, hysteresis evokes the effects that persist after the causes that produced them were removed. Its importance and the easiness to understand it at an intuitive level justifies its presence in various fields of research, including economics. It explains the functioning of dynamic systems when it is duly considered that the present state of the system can be better understood by reference to its past. It is, therefore, appropriate to state that including hysteresis in research represents a step forward in understanding economic phenomena, and the complexity of the concept together with the present favourable setting for empirical testing may open up new research opportunities.

In marketing, hysteresis is mostly visible and intuitively perceived in relation to consumer behaviour, to temporary or permanent changes of consumption patterns determined by the deployment of specific marketing tools.

The present research focused on the opinions of a sample of economists with regard to the presence of the hysteresis phenomenon in marketing and the opportunity and/or the issues raised by its inclusion in the dedicated research. Their answers referred mostly to temporary or permanent changes in consumer behaviour following the deployment of different marketing tools, but also to the effect of managerial decisions on the market position of the company.

References

- [1] Ewing, J.A. (1881). On the production of Transient Electric Currents in Iron and Steel Conductors by Twisting them when Magnetised or by Magnetising them when Twisted. Proceedings of the Royal Society of London 33, pp. 117-135. Available at: www.jstor.org
- [2] Elster, J. (1976). A Note on Hysteresis in the Social Sciences. Synthese 33, pp. 371-391.
- [3] Franz, W. (1990). Hysteresis in economic relationships: an overview. Empirical Economics 15, pp. 109 - 125.
- [4] Cross, R. (1995). Metaphors and time reversibility and irreversibility in economic systems. Journal of Economic Methodology 1, pp. 123-134.
- [5] Cross, R., Grinfeld, M., Lamba, H. (2009). Hysteresis and Economics- Taking the economic past into account. IEEE Control Systems Magazine 29 (1), pp. 30-43.
- [6] Haavelmo, T. (1970). Some Observations on Welfare and Economic Growth, Induction, Growth and Trade: Essays in Honour of Sir Roy Harrod, Oxford, pp. 65-75.
- [7] von Weizsäcker, C.C. (1971). Notes on Endogenous Change of Tastes. Journal of Economic Theory, pp. 345-372.
- [8] Duesenberry, J.S., 1948. Income-Consumption Relations and their Implications. In Lloyd Metzler *et al.*, Income, Employment and Public Policy. W.W.Norton & Company, Inc.
- [9] Modigliani, F. (1949). Fluctuations in the Saving-Income Ratio: A Problem in Economic Forecasting, Studies in Income and Wealth (Conference on Research in Income and Wealth), Vol. 11, New York: National Bureau of Economic Research, pp. 371-438.
- [10] Brown, T.M., 1952. Habit Persistence and Lags in Consumer Behaviour, Econometrica, July, 20 (3), pp. 355-371.
- [11] Georgescu-Roegen, N. (1971). The Entropy Law and the economic process. Cambridge: Harvard University Press.
- [12] Georgescu-Roegen, N. (1950). The Theory of Choice and the Constancy of Economic Laws. The Quarterly Journal of Economics 64 (1), pp. 125-138.
- [13] Phelps, E.S. (1972). Inflation Policy and Unemployment Theory, Londra: Macmillan.
- [14] Kemp, M.C., Wan, H. Y., Jr. (1974). Hysteresis of Long-Run Equilibrium from Realistic Adjustment Costs. In Horwich, G., Samuelson, P.A., eds., Trade, Stability and Macroeconomics, New York: Academic Press, pp. 221-242.
- [15] Moraru, A.-D. (2012). Hysteresis in the Field of Economics. An Overview, The 18th International Conference "The Knowledge-Based Organization" Conference Proceedings, Economic, Social and Administrative Approaches to the Knowledge-Based Organization (2), pp. 191-194.
- [16] Cross, R., McNamara, H., Pokrovskii, A. & Kalachev, L. (2010). Hysteresis in the Fundamentals of Macroeconomics, University of Strathclyde, Department of Economics, Working Papers 10-08. Available at: <http://ideas.repec.org>
- [17] Little, J.D.C. (1979). Aggregate Advertising Models: The State of the Art. Operations Research 29, pp. 629-667.
- [18] Dekimpe, M., Hanssens, D.M. (1995). The Persistence of Marketing Effects on Sales. Marketing Science 14 (1), pp. 1-21.
- [19] Dekimpe, M., Hanssens, D.M. (1999). Sustained Spending and Persistent Response: A New Look at Long-term Marketing Profitability. Journal of Marketing Research 36 (4), pp. 397-412.
- [20] Dekimpe, M., Hanssens, D.M. (2005). Persistence Models and Marketing Strategy. Tijdschrift voor

[21] Hanssens, D.M., Ouyang, M. (2001). Hysteresis In Market Response: When Is Marketing Spending An Investment? Review of Marketing Science WP No. 419. Available at:
<https://ssrn.com/abstract=310884>

TAG: *hysteresis, marketing, proceedings, Diritto commerciale, Diritto dell'economia e economia politica*

Avvertenza

La pubblicazione di contributi, approfondimenti, articoli e in genere di tutte le opere dottrinarie e di commento (ivi comprese le news) presenti su Filodiritto è stata concessa (e richiesta) dai rispettivi autori, titolari di tutti i diritti morali e patrimoniali ai sensi della legge sul diritto d'autore e sui diritti connessi (Legge 633/1941). La riproduzione ed ogni altra forma di diffusione al pubblico delle predette opere (anche in parte), in difetto di autorizzazione dell'autore, è punita a norma degli articoli 171, 171-bis, 171-ter, 174-bis e 174-ter della menzionata Legge 633/1941. È consentito scaricare, prendere visione, estrarre copia o stampare i documenti pubblicati su Filodiritto nella sezione Dottrina per ragioni esclusivamente personali, a scopo informativo-culturale e non commerciale, esclusa ogni modifica o alterazione. Sono parimenti consentite le citazioni a titolo di cronaca, studio, critica o recensione, purché accompagnate dal nome dell'autore dell'articolo e dall'indicazione della fonte, ad esempio: Luca Martini, La discrezionalità del sanitario nella qualificazione di reato perseguibile d'ufficio ai fini dell'obbligo di referto ex. art 365 cod. pen., in "Filodiritto" (<https://www.filodiritto.com>), con relativo collegamento ipertestuale. Se l'autore non è altrimenti indicato i diritti sono di Inforomatica S.r.l. e la riproduzione è vietata senza il consenso esplicito della stessa. È sempre gradita la comunicazione del testo, telematico o cartaceo, ove è avvenuta la citazione.