CHOSEN PROBLEMS OF FORECASTING SOCIAL PHENOMENA

by Łukasz Donaj

Forecasting is understood as predicting based on specific trustworthy data. Futurology in turn is the science of predicting the future. The purpose of scientific forecasting is to show a vision (model) of the future in the most probable way that the phenomenon under investigation will develop, including the directions and dynamics of its development. In the course of forecasting, we also aim to determine the conditions for the evolution of the analysed phenomenon. A forecast prepared for this purpose must take account of the known relationships, types, and intensity of external influences and internal changes expected in the development of the phenomenon under investigation. Thus, each **forecast** (defined as 'a judgment based on scientific research practices, relating to a specific future, not the future in general; verified empirically; uncertain, yet accepted, or reliable, credible, and plausible') must be sufficiently flexible, multivariate, and open to the dynamics of any changes relevant to the phenomenon[1].

[1] See: K.J. Stryjski, Prognozy i symulacje międzynarodowe, „Studia Międzynarodowe. Zeszyty Naukowe WSSM w Łodzi" 2003, No. 1, p. 1; K.J. Stryjski, Prognozowanie i sy-

One of the tasks that predicting as a science faces is to fulfil its practical function, which involves, among others, determining the degree of prediction accuracy. The degree inherits prediction from laws derived deductively from statistical laws relating to specific facts. The components of accuracy of this inheritance are both the degree of the certainty of the truth and the contents of causal, coexistential, and statistical laws[2].

The forecasting procedure must come from a recognition of the current situation[3]. The diagnosis of this situation should be sufficiently developed to lay down the current phase of its fluctuation and the expected succession of future phases. Scientific prediction performing a practical function requires development diagnosis, also called predictive diagnosis. It involves inquiring about the future development of a given process or phenomenon based on the previous phases of the partial diagnoses (typological, genetic, meaning, and phase) and their findings. Predictive diagnosis is both their result and complement by making inferences mostly from hidden development trends and sometimes also known causal laws (e.g., extrapolation). In both cases, it is probabilistic reasoning that leads to uncertain hypotheses, for even hidden development trends are conditioned by the specific situation of the studied phenomena and processes, and especially the presence of appropriate regulations and interferences that in international relations – as in all kinds of social relations – play an important role[4].

It is worth emphasizing that, though it sounds paradoxical to some, predicting can also refer to past events. Prediction means making inferences about unknown events, based on known events (i.e., those that have already occurred and belong to the past). Unknown events are those that:

---

mulacje międzynarodowe, Łódź 2004, p. 29; B. Guzik, D. Appenzeller, W. Jurek, Prognozowanie i symulacje. Wybrane zagadnienia, Poznań 2004, p. 7.

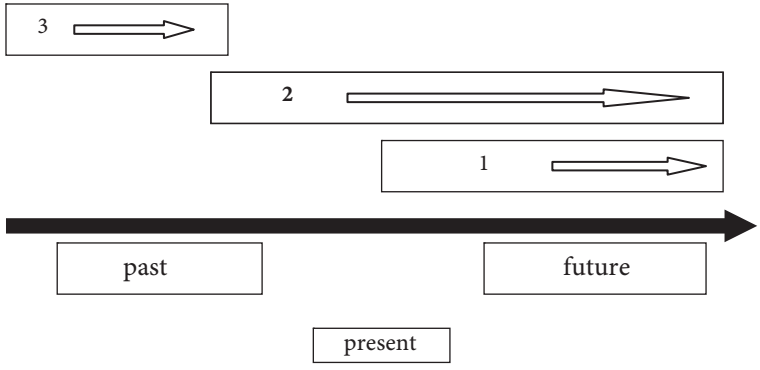
[2] J. Kukułka, Teoria stosunków międzynarodowych, Warszawa 2000, pp. 252–253.

[3] Ibidem, p. 253.

See also: M. Kosman, O pożytku historii dla politologa, „Przegląd Politologiczny" 1998, No. 1–2; Przeszłość odległa i bliska: Marcelemu Kosmanowi w sześćdziesiątą rocznicę urodzin, ed. K. Robakowski, Poznań 2000; M. Kosman, Polityka – historia – politologia, [in:] Na obrzeżach polityki. Część trzecia, ed. M. Kosman, Poznań 2002.

[4] J. Kukułka, Teoria…., p. 253.

– Occur at a later time compared to the time of the prediction (1);
– Occur earlier than the prediction and continue in time (2);
– Occur at an earlier time compared to the time of the prediction and end before the time of the prediction (3).



Own work

As noted by Kukułka, when it comes to oscillating between what is beneficial or detrimental to the nations and states (in explaining international processes), it is very important to distinguish spontaneous processes as part of the implementation of development rights in international relations from conscious and organized processes. Among the former, three groups can be distinguished according to their significance: positive, negative, and ambivalent. For Kukułka, in the course of identifying these spontaneous groups the most urgent task was to capture negative processes, starting with the most destructive[5]. This approach is justified, but we cannot be limited to only predicting negative phenomena.

Activities undertaken as part of explaining and understanding social reality constitute the essential elements of knowledge about social phenomena. Another element of the same process is the power to predict. The ability to predict accurately is considered (not only in the social sciences) to be a fundamental feature of scientific thinking. As in Frankfort-Nach-

[5] Ibidem, p. 249. See also: M. Sułek, Metody i techniki badań stosunków międzynarodowych, Warszawa 2004.

mias and Nachmias, "the expectation that scientific knowledge should lead to accurate predictions, is based upon the argument that if it is known that X causes Y, and that X is present, then the prediction that Y will occur can be made. The source of this thesis is the assumption that both laws in general and probabilistic generalisations are recognizable and true – the causes that determine the effect have occured". However, the prediction may be inaccurate if the laws or generalisations are not true or causes (preconditions) have been misinterpreted[6].

In the social sciences, theories are formulated primarily in terms of cause and effect, or as mentioned above: If X occurs, then consequently the result will be Y[7]. For Shively, a theory should meet three conditions to be good and effective:

1. *Simplicity*. A theory should provide as simple a vision of the world as possible. It should use no more than a few independent variables. A theory of thirty variables forming intricate combinations is not an effective tool to explain why we vote for certain people. Such a theory would be almost as chaotic and difficult as the reality that it is to explain.
2. *The accuracy of predictions*. A theory should allow making accurate forecasts. A simple and comprehensive theory that provides forecasts no way different from guessing is not a useful tool.
3. *Importance*. A theory should concern meaningful phenomena. However, what is important is defined differently for the purposes of technical research and theory-oriented research[8].

Although it seems too categorical, it is a fact that too often we admit failure, discovering that usually we owe it to simple trend explorations or lack of ability to read patterns of the past[9].

Since, according to ontology, there is an order in the world, namely all the events taking place around us are connected, then ones deter-

[6] K.J. Stryjski, Prognozowanie…, op.cit., p. 9.

[7] W.P. Shively, Sztuka prowadzenia badań politycznych, Poznań 2001, p. 30.

[8] Ibidem, p. 31–32.

[9] A. Sepkowski, Teoria a przewidywanie w polityce, [in:] Czym jest teoria w politologii?, ed. Z. Blok, Warszawa 2011, p. 180.

mine others. In these types of (cause effect) relationships, events are nonsimultaneous. This means that it will take some time for the cause event to make the effect event happen. By accepting this view, you have to agree with the popular statement that *the flap of butterfly wings in Shanghai will to some extent contribute to future tornadoes in Florida*. Another issue is quantitative in nature, namely the degree of influence that the flap has on what later happens to the residents of Florida. The mere presence of links, relevant to a greater or lesser extent, is not sufficient to construct forecasts of a given event. We have to know them first and pick up the major reasons behind it, plus patterns that govern the links. In other words, we can learn about certain events (states or processes) and relationships that characterize them (the world is knowable, but not known). We can thus gain some knowledge about how to make forecasting judgments)[10].

As rightly noted by Stryjski, forecasting social phenomena can in many ways be difficult. The reason is that it is the nature of these phenomena to be closely and multilaterally linked with physical, biological, and other social phenomena. Thus, making judgements about the future course of social phenomena, which, unlike physical phenomena based on "strong" science, are dependent on a large number of factors with varying degrees of stability is a complex task. It should also be added that it is rarely possible to carry out experiments in a social phenomenon. All this makes the basis for predicting the future course of social phenomena weak – in this case, the forecast itself is a social phenomenon that together with others may influence forecasting in various ways[11].

Among others, the prediction of social phenomena (in a global sense) is hindered (limited) by:

1. *Qualitative character of social science laws* (formulated at a high degree of generality);

[10] Z. Sarjusz-Wolski, Skutki przelotu motyla nad Szanghajem, „Unia@Polska. Niezależny magazyn europejski" 2005, No. 7–8.

[11] K.J. Stryjski, Prognozowanie…, op.cit., pp. 30–31.

2. *Oedipus effect* – predicting triggers action that accelerates the predicted effect;
3. *Syndromatic nature of social phenomena* – phenomena that we study occur in certain wholes, often heterogeneous. Man and his behaviour as the object of study is a bio-psycho-socio-cultural being, so his behaviour is guided by genes, brain, and education (culture). The premise of predictions have to be laws of different nature such as anthropology, psychology, sociology, and philosophy;
4. *Evolving nature of social reality* – the reality we live in is changing radically. The demands of history require that new general knowledge be complemented by new information about new epochs. Therefore, general knowledge has little relevance, in itself it must be saturated with new information. Consequently, in order to continue to predict, new concrete historical knowledge must be taken into account[12].

The latter problem is very much like *panta rhei* 'everything flows,' the phrase uttered in antiquity by Heraclitus of Ephesus. You cannot enter twice into the same river. The only constant phenomenon in the world is change. The environment in which people live, businesses operate, and regional and government policy is conducted changes. All these changes make the conditions under which decisions, especially strategic one, are taken increasingly unpredictable and complex. The dynamics of change are increasing and consequently, the degree of difficulty in adapting to them. The desire to learn about future phenomena and explore potential opportunities constantly accompanies man's professional and personal life. To satisfy the desire, people are still trying to develop effective methods of studying the future in order to best prepare for an unknown future[13].

Sepkowski indicates that few experts in forecasting would bow to Lech Zacher, for whom it is necessary to take account of irrational and acciden-

[12] Based on material provided by Mr Solak on forecasting, in possession of the Author. See also: M. Karwat, Syndromatyczny charakter przedmiotu nauki o polityce, [in:] Demokratyczna Polska w globalizującym się świecie – I Ogólnopolski Kongres Politologii, Warszawa 22–24.09.2009, ed. K.A. Wojtaszczyk, A. Mirska, Warszawa 2009.

[13] K. Borodako, Foresight w zarządzaniu strategicznym, Warszawa 2009, p. 7.

tal elements, catastrophes, accidents, failure to perceive linearity, continuity of phenomena, and processes in time, because this is one of the most serious barriers to the exploration of the future. According to the theorist, this is not easy, but we can manage, using chaos theory, catastrophe theory, or fuzzy logic, which definitely requires interdisciplinary studies and close co-operation between specialists, on an assumption of openness to other sciences, which is possible only in institutions exclusively engaged in prediction, which has repeatedly been stressed by the "Poland in 21st Century" Forecast Committee[14].

It should be mentioned here that the future can be predicted in a scientific way, when we use proven methods and scientific tools; in a rational way, when we rely on experiment, without the use of scientific methods; or sometimes an irrational way of recognition, when we rely on fortune-telling, prophecy, or intuition, and such recognition may not necessarily be false more often than rational[15]. As a side note, there is a problem of interest to not only theorists. It is assumed that the action is rational if it is based on a rational knowledge. There are, however, *substantive rationality* and *methodological rationality*. The action will be substantively reasonable when it is effective, and methodologically rational, when it has a real knowledge base. As Witold Morawski asks, "Why substantive rationality, effectiveness, is to be based solely on science, not on other types of beliefs?" This contradiction will sooner or later call for a correction of the existing paradigm of knowledge and its understanding. Science deals mainly with

[14] A. Sepkowski, Człowiek a przyszłość, Toruń 2005, p. 67. See also: conversation with Prof. Michał Tempczyk, Chaotyczna harmonia świata. O teorii chaosu, demonie Laplace'a, kobiecie jako układzie niestabilnym i Bogu, który nie gra w kości, conducted by P. Mizerskiego, „Niezbędnik Inteligenta", suplement to „Polityka" No.11/19.03.2005; I. Ekeland, Chaos, Katowice 1999; J. Gleick, Chaos, Poznań 1996; I. Stewart, Czy Bóg gra w kości, Warszawa 1994; M. Tempczyk, Teoria chaosu a filozofia, Warszawa 1998; P. Halpern, Na tropach przeznaczenia. Z dziejów przewidywania przyszłości, Warszawa 2004; P. Janeczko, Wybrane zagadnienia teorii katastrof, Warszawa 2005; H. Piech, Rozmytość w grach strategicznych, Częstochowa 2006; H. Piech, Wnioskowanie na bazie strategii rozmytych, Częstochowa 2005; P.D. Straffin, Teoria gier, Warszawa 2004; Modelowanie matematyczne i symulacje komputerowe w naukach społecznych, ed. K. Winkowska-Nowak, A. Nowak, A. Rychwalska, Warszawa 2007.

[15] A. Sepkowski, Człowiek a …, op.cit., p. 65.

discovering the rules that govern the world around us, the truth about it and about us[16].

Given the aforementioned syndromatic nature of the study of politics, it is appropriate for a political scientist to have in his instrumentarium research methods from various fields[17], to be open to interdisciplinarity, and not to be afraid of methods leading to a seemingly impractical scenario such as *alternative history*. Only then will a forecaster be able to increase his certainty of being prepared for the unknown. This matches Kaku's opinion that predicting the future is a task beyond one man. The scope of human knowledge is simply too broad. In fact, most forecasts were incorrect, because they reflected only the individual point of view of its creators[18].

As indicated by Sarjusz-Wolski, the mechanism to predict the future is to know and match past events, relevant to the object of forecasting, and the regularities between them (type and strength of the cause and effect relationships), and to draw conclusions about the occurrence (or nonoccurence) of particular future events. The mechanism of prediction can be illustrated by the following simple example. Let us say that we have reached a deep wide river and want to cross it dry-shod, but there is no bridge. We know, however, that a boat would allow us to do it (regularity: if boat, then boating on the water). By serendipity, we have just discovered one in the nearby bushes (cognition of reality). Based on these premises, we can already predict that soon we should be on the other side. However, if our information about the boat was not complete, that is, if, for example, we did not know that it was leaking and taking on water, most likely our predictions would prove incorrect. As a result, we would "end up" somewhere else than expected[19].

---

[16] W. Pawnik, Prognozologia stosowana czyli krótka historia foresightu w Polsce, „Unia@Polska. Niezależny magazyn europejski" 2005, No. 7/8 (122–123).

[17] See also: Cz. Mojsiewicz, Politologia w Polsce na etapie transformacji, [in:] Od polityki do politologii, ed. Cz. Mojsiewicz, Toruń 2005; A. Chodubski, O metodologicznym podejściu do przewidywania w polityce, [in:] Przyszłość i polityka. Nadzieje i strachy zbiorowe przełomu tysiącleci, ed. E. Ponczek, A. Sepkowski, Toruń 2008.

[18] M. Kaku, Wizje. Czyli jak nauka zmieni świat w XXI wieku, Warszawa 2010, p. 9.

[19] Z. Sarjusz-Wolski, Skutki przelotu…, op.cit.

Predicting social phenomena or their development shows (see evolving nature of social reality) that the problem is not only the boat. The problem is also that we do not know if the opposite bank of the river exists.

Abstract

Forecasting is understood as predicting based on specific trustworthy data. Futurology in turn is the science of predicting the future. In the course of forecasting, we also aim to determine the conditions for the evolution of the analysed phenomenon. A forecast prepared for this purpose must take account of the known relationships, types, and intensity of external influences and internal changes expected in the development of the phenomenon under investigation. Forecasting social phenomena can in many ways be difficult. The reason is that it is the nature of these phenomena to be closely and multilaterally linked with physical, biological, and other social phenomena. Thus, making judgements about the future course of social phenomena, which, unlike physical phenomena based on "strong" science, are dependent on a large number of factors with varying degrees of stability is a complex task. The aim of the publication is an analysis of selected issues that affect predicting social phenomena, hence the paper discusses issues such as qualitative character of social science laws; Oedipus effect; syndromatic nature of social phenomena; evolving nature of social reality; substantive rationality and methodological rationality etc.