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Analysis of Poland's social control system in 1989-2019

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Abstract— **The whole paper is based on the terminological convention of the theory of autonomous systems and information logic along with derivative concepts, derived according to certain rules of defining the theory. Indicated approach allowed to explicate first causes (sufficient and necessary) of social system security. In turn, the use of selected noneractive methods – mainly the analysis of statistical data, provided an evaluation of the dynamics of changes in the power supply track of Poland with the inclusion of structural cause (sociomass) and causal cause (socioenergy) in the indicated time period (from 1989 to 2019), which can be classified as social action from the strategic level. The main conclusions are: the Polish social system is characteristic of the functioning of a dynamic regressive system of social control. The organizers of Poland's social system aim at blocking intensive development and apply methods characteristic for an extensive system of social control.**

Keywords: social cybernetics, securitology, social stem of Poland.

I.   INTRODUCTION

The society organized into a state can be considered as a cybernetic system as it clearly has its substance, which consists of material and energy (causal and building causes), as well as a certain structure (formal cause) and a realized purpose (intentional cause). People should be considered as the material from which this system is formed. And the size of a given society reflects the amount of material, which can be defined by the term of sociological mass or sociomass. As an indicator of the energy accumulated in the system, an example of which is society, it is possible to consider the work that a given society can do or does. In other words, it is the work capacity or performance capacity of the society. In addition, the amount of work performed by a society can be precisely measured, e.g., the amount of production, the number of services performed by a society. The work capacity and the energy processed by society comprise collectively the sociological energy (Kossecki, 1981). On the other hand, the structure of state as a social system is the mutual space-time relations of the system elements, i.e. people, their organization on the basis of a certain

law and applying it somehow. From the point of view of control processes in sociostructure, the most important is the feedback between the management and the executors.

Taking into account the above-mentioned factors of any material object/system and considering them as objects of control in society, it is possible to speak of the control processes of substance, i.e. the object of control, which is the size and quality of the sociological mass of a given society. In turn, in the control processes of structure, the object of control are the space-time relations of the members of society or social groups from which the society is formed. These relations in dynamic terms are described by goals-values, i.e. directions of changes.

The subject of this paper is the social control system of Poland. However, the main aim of this paper is the evaluation of selected pillars of security as necessary and sufficient conditions for the social system of Poland – implied from the cybernetic system pattern – over a period of ten years. On the other hand, the diagnosis of dynamics of changes concerns mainly the energy balance of Poland with the recognition of structural cause (sociomass) and causal cause (socioenergy) in the indicated period of time, which is included in the social activities of the strategic level.

II.   THEORETICAL AND METHODOLOGICAL ASSUMPTIONS

In the axiomatic theory of cognition, a system is a set of elements and relations: $S_x \equiv (O_x, R_x)$. The set of all elementary objects o_i^x is called the substance of system S_x, and the set of all relations r_{ks}^x is the structure of that system.

If there are no feedbacks between elements in a system, then it is an unorganized system. If there are feedbacks between elements in the system, it is an organized system. Meanwhile, cybernetics as the object of its research adopts organized systems, in which there are control processes aimed at the goal specified by the organizer in the control program. In other words, it is a cybernetic system (Kossecki, 2001). For example, a collection of car parts that are not connected in any way is an unorganized system. It is only when these parts are connected together that an organized system can be formed. However, it

is only when a human drives the car for a specific purpose that a cybernetic system is created (Kossecki, 2001).

Another system can be described according to an identical pattern, this time taking as exemplification an elementary object, e.g. a human being. A group of people who are soldiers and do not belong to any troop is an unorganized system. The creation of a compact troop from such a group of soldiers results in the formation of an organized system. However, only the introduction of an organizer (command), who will set goals (tasks) for the troop, will result in the creation of a cybernetic system.

To elaborate the research problem contained in the introduction, it is necessary to use theoretical methods. The method of inference is used: deductive reasoning, which for given sentences of certain seeks consequences, from the cybernetic pattern of autonomous system, and selected noneractive methods – mainly analysis of statistical data. The terminological convention of the theory of autonomous systems and information logic will also be used, along with derivative concepts derived according to certain rules for defining the theory.

The subject of analysis concerns probabilistic systems, i.e. systems which subsequent states can be predicted, on the basis of knowledge of previous states, with probability significantly different from 1. Moreover, material objects will be taken into consideration, to which, apart from their location in time and space, it is possible to assign mass m and energy E:

$$e_n(x_1, x_2, x_3, t, m, E) \quad (1)$$

and material-activity relations (feedbacks) between objects that occur if there is a flow of mass and energy (interaction) – otherwise they are also referred to by the term dynamic relations. Probabilistic systems consisting of people as elementary objects and relations between them in the convention of this paper are social systems. Such an approach is argued by the fact that the human organism performs the functions of an autonomous system. There is an interaction with the environment, absorption of information and energy from the environment, processing and storing them and maintaining in functional equilibrium (homeostasis). Therefore, it is possible to consider society as an autonomous supersystem constructed from people as its autonomous subsystems. Poland from 1989 to 2019 will also be considered as a social system.

III. PILLARS OF SECURITY OF THE SOCIAL CONTROL SYSTEM

Considering the system, where people constitute the elements and active relations constitute the relations between them, and comparing Aristotle's first causes with the elements of social control system identified by Józef Kossecki, the following general list of security pillars can be obtained: the substance of society, i.e. the sociosubstance, and the structure of society, i. e. the sociostructure (Świniarski, 1997). These are the two most general factors of security, where the sociosubstance consists of socioenergy and sociomass (a set of

elements), and the sociostructure expresses the form of a given substance – the set of relations and including socioculture. Security pillars are introduced to avoid subjective views and to make system/process evaluations as objective as possible. They include quantitative criteria of security according to the supply (energy-material) criterion and the information criterion. As a condition of security of a social system taking into account the information criterion, it is possible to accept the postulate of maximization of the probability of a strict correspondence between the decisions of the managerial center and the actions of executors. As a condition of security of a social system taking into account the power supply criterion (energy-material criterion), it is possible to accept the postulate of achieving or maintaining a certain value of the total power of system.

Considering the autonomous system as an energy converter, the concept of system power can be used. The total system power is greater, the higher the quality of material a and the greater the quantity of material c. Introducing the proportionality factor, which is called unit power v, the total system power is expressed by the equation (Mazur, 1966):

$$P = v \cdot a \cdot c \quad (2)$$

Taking into account the above equation for the total power of system, it can be concluded that the control of sociosubstance element of the system can take place by changing the product a·c – quantity of material multiplied by its quality – in this case it is a dynamic extensive control process, or by increasing the unit power v – it is a dynamic intensive control process.

Simplifying the equation for the total power of the system, the relation can be written as follows (Kossecki, 2015):

$$P = c_a \cdot v \quad (3)$$

Change in the magnitude of the total power of society as an autonomous system can be expressed as increments of both expressions using the basic differential calculus equation (Kossecki, 2015):

$$\Delta P = \Delta c_a \cdot v + c_a \cdot \Delta v + \Delta c_a \cdot \Delta v \quad (4)$$

Transforming the above expression by dividing by the product $c_a \cdot v$ and then substituting in the denominator the left-hand side instead of this product P, then the equation will take the following form (Kossecki, 2015):

$$\frac{\Delta P}{P} = \frac{\Delta c_a}{c_a} + \frac{\Delta v}{v} + \frac{\Delta c_a}{c_a} \cdot \frac{\Delta v}{v} \quad (5)$$

Thus, the relative increase in the total power of society processed per unit time $\frac{\Delta P}{P}$ is a combination of two elements: $\frac{\Delta c_a}{c_a}$ and $\frac{\Delta v}{v}$. The first element describes the extensive growth that occurs when the first term of these elements is larger (Kossecki 2015):

$$\frac{\Delta c_a}{c_a} > \frac{\Delta v}{v} \quad (6)$$

It is associated with a relative increase in the working population and requires the constant creation of a large number of new jobs, not necessarily with high labor productivity. Extensive growth is possible when there is a high saturation of the labor force in the labor market. It is convenient for managers because they do not have to be specially educated to exercise power, and they can disregard the needs of working masses, treating people objectively in order to force obedience. The extensive system is also convenient for the broad working masses because it provides them with jobs and does not require continuous education to increase productivity. Society, on the other hand, does not attach much importance to the production processes, processing and transmission of information, which allows management to use blockages in these processes (e.g., censorship, withholding information, obstructing access to diagnostic knowledge) (Kossecki, 2015).

Intensive development is when the second of the indicated elements is greater (Kossecki, 2015):

$$\frac{\Delta c_a}{c_a} < \frac{\Delta v}{v} \ (7)$$

Therefore, it occurs when the supply of labor on the labor market is low and extensive growth is not possible or its costs are too high. Intensive growth involves the necessity of increasing labour productivity and requires the implementation of innovations (new inventions, new methods of work and production organization). The management using this method has to take into account the needs of broad masses of society, because the human potential – especially highly qualified – is limited. Essential for the intensive system is the efficiency of information production processes (scientific and research activities), but also their processing, dissemination and practical implementation (Kossecki, 2015).

Accordingly, on the basis of statistical data, the following part of this paper will present an analysis of the social system in Poland, distinguishing the energy track.

IV. EVOLUTION OF POLAND'S SOCIOMASS CONTROL IN 1989-2019

The year 1989 marked a change in the system of social control operating in the People's Republic of Poland, which was referred to as "systemic transformation." The intensive system of social control began to introduce strong economic incentives to society. However, the data in Table 1 show that from 1988 onwards the baby boom cohorts began to reach working age (an increase in births in 1969-1983). Thus, the labour supply began to increase, which created favorable conditions for the effective functioning of a dynamic extensive system of social control. Nevertheless, the Polish authorities, implementing the Balcerowicz Plan, tried to introduce methods of social control typical of an intensive system, at the same time liquidating numerous branches of industry. For this reason, high unemployment had to be created and maintained: in 1994 the number of unemployed in Poland was 2.72 million, and in 1995 – 2.83 million. In general, as a result of this policy in 1966, 2.5 to 4 million people in Poland lived below the subsistence level and 18.1 million people lived in subjective poverty (Kossecki, 2015).

TABLE 1 POPULATION OF THE 1969-2002 AGE GROUPS, AS OF DECEMBER 31, 2002.

Age groups	Population [in thousands]	Age groups	Population [in thousands]
1969	480,1	1986	615,1
1970	500,4	1987	584,6
1971	512,2	1988	571,5
1972	534,6	1989	556,2
1973	550,9	1990	549,8
1974	573,7	1991	535,6
1975	593,8	1992	505,4
1976	613,3	1993	483,5
1977	609,1	1994	464,3
1978	618,2	1995	438,9
1979	634,7	1996	427,2
1980	644,7	1997	407,5
1981	634,4	1998	391,9
1982	665,1	1999	380,8
1983	692,8	2000	376,5
1984	678,9	2001	362,5
1985	659,7	2002	352,6

Source: Kossecki 2015, p. 300

Until 2001 an increasing number of baby boomers were entering working age, while the baby boomers born during the inter-war period were entering retirement age in much smaller numbers. These were conditions conducive to the efficient functioning of an extensive system of social control, but the Polish authorities applied methods of control typical for an intensive system, which resulted in the maintenance of high unemployment (Kossecki, 2015).

Since 1983, the birth rate in Poland has been declining steadily, and from 2001, fewer and fewer people have entered working age. The conditions for functioning of an intensive social control system appear, but it is hampered by the entry into retirement age of the baby boom cohorts born during the Second World War.

Since 2010, the baby boomers born after the Second World War have begun to enter retirement age. This is a favorable situation for the functioning of a dynamic intensive social control system (Kossecki, 2014).

The number of births in Poland after the political transformation has declined significantly (Tables 1 and 2). In 2003, the number of births in Poland was 351.1 and this is the lowest figure since the Second World War – it is less than half of the number of births in 1955, in which 724,000 children were born, while in 2019 – 375,000 children were born.

TABLE 2. POPULATION OF THE 2000-202019 AGE GROUPS, AS OF DECEMBER 31, 2019.

Age groups	Population [in thousands]	Age groups	Population [in thousands]
2000	378,3	2011	388,0
2001	368,2	2012	386,0
2002	353,8	2013	370,0
2003	351,1	2014	375,0
2004	356,1	2015	369,0
2005	364,4	2016	382,3
2006	374,0	2017	402,0
2007	388,0	2018	388,0
2008	414,0	2019	375,0
2009	417,0	2020	355,3
2010	413,0		

Source: stat.gov.pl

Moreover, the net reproduction rate in 1989 reached 1.0 for the first time in the period under study (exactly 0.982) – narrowed reproduction. This regressive trend continues to this day, because in 2019 the net reproduction rate was 0.68. It means that the Polish society reproduces only 68% and it is a narrow reproduction (there is no replacement of generations) (Kossecki, 2015).

TABLE 3. POPULATION FORECAST ACCORDING TO CSO (IN THOUSANDS).

Year	Pre-working age	Working age	Post-working age	Total
2020	6 732,90	22 787,60	8 617,30	38 137,80
2030	5 931,40	21 504,10	9 749,50	37 185,10
2040	5 262,10	19 536,10	10 869,90	35 668,20
2050	4 963,40	16 582,70	12 404,50	33 950,60

Source: stat.gov.pl

At the end of this part of the paper it is worthwhile to take a look at the population forecast according to the Central Statistical Office (CSO) until 2050. The data in Table 6 clearly shows that in 2050 the size of the Polish population will amount to 33,950.6 thousand people. 4,963.4 thousand people will be at pre-working age – 14.6% of the entire Polish population, 16,582.7 thousand at working age – 48.8%, and 12,404.5 thousand at post-working age – 36.5%.

The downward trend in the number of births in Poland has continued uninterruptedly since 1984 until today, which in combination with the huge emigration (according to the Central Statistical Office at the end of 2014, about 2320,000 of our country's inhabitants temporarily stayed outside Poland's borders) and the entry of more and more people into the post-working age, must consequently cause the collapse of, among others, the social benefits system. This also means the consistent extinction of the nation, which in the language of social cybernetics is referred to as a dynamic-regressive process of controlling the sociosubstance.

V.   THE EVOLUTION OF POLAND'S SOCIAL CONTROL SYSTEM IN 1989-2019

In 1989, the political transformation took place and after the elections of June 4, 1989 the structure of stimuli acting on society was changed. Economic incentives began to dominate in the system of social control instead of vital ones, but the role of standards and legal incentives did not decrease. The transformation enabled a change in the ownership structure of the economy, and the media and education markets developed. At the same time, the role of bureaucracy in the system of social control became stronger. However, the growing role of this bureaucracy significantly hinders the development of a free market economy. Moreover, it interferes with the dominant ethical and vital motivations in Polish society (Kossecki, 2015).

At the same time, after 1988 the baby boomers began to reach working age, which took place after 1969 and lasted until 1983. Therefore, the conditions for a dynamic and extensive control system appeared. However, the authorities of that time sought to intensify development and the dominance of standards and economic incentives. Using these incentives, the unemployment rate remained high, reaching 2.72 million in 1994, 2.83 million in February 1995, and 3.18 million in 2003. As a result of such policies, in 1996 between 2.5 and 4.0 million people lived below the subsistence level, while 18.1 million lived in subjective poverty (Kossecki, 2015).

As can be seen from the data in Table 4, there was a decline in gross domestic product in 1990-1991. This indicates the

operation of a regressive system of social control, which is characteristic for information and economic warfare. Such a system is characterized by a depletion of global affluence and welfare – the socioenergy of the state, although with respect to individual citizens as individual affluence and welfare is not necessarily the case. Nevertheless, the period 1991-1993 also marked a decline in employment. In the following years 1992-1995, there was a dynamic and intensive control system, as in the period 1996-2002, but the growth rate was decreasing. After 1997, there was a decline in employment that continued until 2004.

TABLE 4. GROWTH RATE OF THE NUMBER OF EMPLOYED AND GROSS DOMESTIC PRODUCT (IN CONSTANT PRICES) IN 1990-2003.

Year	Employment growth in the national economy (%)	Gross domestic product growth (%)
1990	2,7	13,1
1991	- 5,9	- 7,0
1992	- 4,2	2,6
1993	- 2,4	3,8
1994	1,0	5,3
1995	1,9	7,0
1996	2,3	5,9
1997	2,4	6,8
1998	- 0,3	4,8
1999	- 1,6	4,1
2000	- 2,8	4,0
2001	- 3,3	1,0
2002	- 2,0	1,4
2003	- 0,8	3,8

Source: stat.gov.pl

The data in Table 5 shows that after 2004, there was an increase in employment in the national economy. From 2005 to 2009, the employment growth in the national economy was in the range of 0.63-4.17% and at the same time the GDP growth was in the range of 1.6-6.8%. In 2009 there was a decrease in employment and a simultaneous decrease in GDP. Interesting is the year 2010, when there was a decrease in employment by 1.82%, but the value of gross domestic product changed by 3.7%, which indicates the functioning of a dynamic intensive control system in that year.

TABLE 5. GROWTH RATE OF THE NUMBER OF EMPLOYED AND GROSS DOMESTIC PRODUCT (IN CONSTANT PRICES) IN 2004-201 9.

Year	Employment growth in the national economy (%)	Gross domestic product growth (%)
2004	-1,27	5,3
2005	0,63	3,6
2006	1,34	6,1
2007	2,55	6,8
2008	4,17	5,1
2009	1,93	1,6
2010	-1,82	3,7
2011	2,36	4,8
2012	0,89	1,8
2013	-0,43	1,7
2014	0,51	3,8
2015	2,24	4,6
2016	1,83	3,3
2017	2,70	4,8
2018	2,00	5,1
2019	1,8	4,0
2020	-1,8	-2,7

Source: stat.gov.pl

After 2010, the baby boomers began to enter retirement age, which was associated with the increase in births after the Second World War. On the other hand, the baby boomers began to enter working age. These conditions are conducive to the functioning of an intensive system of social control. However, the organizers of the social system of Poland do not use this opportunity and it seems that since 2015 they begin to intensively supply the system with sociomass coming from outside (emigration of population). This allows to maintain a dynamic extensive control system and at the same time to increase GDP. This choice of method of controlling the population is convenient for the authorities, because they do not need to be specially educated to exercise power, they can also disregard the needs of the working masses, treating people objectively in order to force obedience. The extensive system is also convenient for the broad working masses because it provides them with jobs and does not require constant education to increase productivity. In turn, the society does not attach much importance to the production processes, processing and transmission of information, which allows the management to

use blockages in these processes (e.g. censorship, withholding information, hindering access to diagnostic knowledge). At the same time, information dependence on external systems, i.e., science, media, culture, deepens and hinders wage growth.

VI. CONCLUSIONS

The post-1989 period in Poland, in particular, points to the exceptionally large scale and scope of the liquidation of previously built plants as well as the negative demographic trends that continue to this day. However, the achievements and qualitative changes in Polish industry after 1989 are not questioned, but it should be emphasized that the social costs of transformation, especially in industry, were not only huge, but also excessive (Karpiński and Paradyż, 2015). Unemployment increased to a very high level, which caused pauperization of a large part of the population (impoverishment) – as a result of plant liquidations after 1989 a total of over 1.7 million people lost their jobs. In addition, a dangerous demographic phenomenon occurred, i.e., decline in the birth rate, narrow reproduction (lack of replacement of generations), emigration.

In general, it can be stated that the processes occurring in the energy track of the Polish social system after 1989 were much closer to the pathological form of transformation, and the regress and exceptionally large scale of the collapse of industrial enterprises cannot be identified with the so-called normal, natural deindustrialization. Therefore, the effects caused in the Polish social system are characteristic of the functioning of a dynamic regressive system of social control (especially from 2020). The current socio-economic conditions are conducive to the functioning of an intensive system of social control. However, the organizers of Poland's social system aim at blocking intensive development and apply methods characteristic for an extensive system of social control.

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