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POLISH ECONOMY IN 1990–2018: BALANCE OF DEVELOPMENT IN NEW POLITICAL CONDITIONS

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Abstract

Thirty years of Poland's economic development in new political conditions is a good opportunity to study the course of the economic development process. This article presents the results of research that takes into account macroeconomic indicators that synthesize important development categories. These indicators concern the demographic situation (population, natural increase, economic activity and unemployment rate), economy (GDP, inflation, number of business entities, investment outlays, budget deficit) and standard of living of the population (remuneration, housing situation, cars). In the study, a graphic method of time series analysis was applied, i.e. a connected trajectory, allowing a synthetic assessment of development processes in terms of aspects that express the considered features. Presentation of the research results is preceded by a presentation of the causes of transformation and an indication of development factors and conditions, in particular after 1989. The study is general and synthetic and does not take into account the details that had an impact on the situation described by the size of the indicators taken into account.

Key words

economic development, social development, development trajectories, balance of transformation process in Poland.

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1. Introduction

The present reality shows variability and diversity in time (chronology) and space (chorology). Chronology is the domain of history, while chorology is the domain of geography. A domain does not mean exclusivity. Both history and geography today are “spatiotemporal” sciences.

The aim of this study is to describe and evaluate the socio-economic development of Poland after

1989 in terms of the features taken into account, with particular emphasis on the graphical method of time series analysis, i.e. the *connected trajectory*. In other words, it is about the reconstruction of the development process in a relatively long period of time, with special treatment of the applied method. Thus, the study pursues two closely related goals: the methodological and the cognitive one. The cognitive goal is important because the period of development lasting almost 30 years, which can be

called the socio-economic transformation of Poland or the socio-economic development in the new system conditions, probably ended in 2019. The period unexpectedly and brutally ended with the invasion of the SARS CoV-2 virus, the consequences of which are difficult to predict. Probably the hypothesis that the world after the COVID-19 pandemic will not be the same as before will be valid again (although this time in relation to the SARS-CoV-2 virus). What it will be like cannot be reliably presented even by the greatest minds.

As already stated, the aim of this study is to reconstruct the process of Poland's socio-economic development after 1989 in terms of the features taken into account, primarily with the use of the connected trajectory. The time that has elapsed since 1989, i.e. the beginning of systemic changes, is a good opportunity to describe and evaluate the socio-economic development of Poland in the new conditions of functioning of the state, society and economy. This is important especially in a situation where the COVID-19 pandemic will undoubtedly lead to the creation of a completely new, probably difficult and complicated economic and social situation not only in Poland but also in the world. Therefore, in the light of current events, this article is, in a sense, a summary of an important stage in Poland's economic and social development during a groundbreaking period.

The subject of the research was the Polish economy, treated as a whole, in the years 1990–2018 in terms of 12 discussed features. These were: (1) population (persons), (2) natural increase (persons), (3) unemployment rate (%), (4) economic activity (number of employed persons), (5) GDP (PLN), (6) inflation (%), (7) economic entities (number), (8) investment outlays (PLN), (9) financial result of the state budget (PLN), (10) average salary (PLN), (11) housing stock (number of dwellings) and (12) registered cars (number). These are the basic features taken into account in research on the socio-economic development of a country. These features also function in the so-called public space, influencing the public mood, politicians' activity, the behavior of banks and rating agencies, and the decisions taken by authorities. It can be assumed that the first four features characterize the demographic and social situation, the next five – the development of the economy, and the last three – the standard of living of the population.

The conducted research covers the period of 1990–2018. In this context, it should be remembered that at the turn of 1989 and 1990 a fundamental change in the political-economic conditions took place in Poland. Instead of the totalitarian communist system (ironically, called people's democracy),

solutions characteristic of the democratic systems functioning in Western Europe were being gradually introduced. A deep systemic transformation of the state began, encompassing the political, economic and social spheres. The reality of 1989 was that the change of the political system could be implemented relatively quickly, and so it was done. The transformation of the economy took much more time, because the transition of economic activity from operating in the command economy system to functioning in the free market system is a difficult and long-lasting process. On the one hand, there is the inertia of the old system, and on the other hand, there is a need to work out a model of this economy appropriate to the current situation and possibilities, especially to the particular stages of the development process. It takes similarly long to transform the mentality of society, which has to learn to function in a democratic system and in free market economy. Leaving the assessment of political changes as well as social consequences or effects of the transformation to historians, political scientists and sociologists, the present author is particularly interested in economic development and only selected social effects of this development. Generally speaking, this study aims to describe and evaluate the course of development processes in selected, substantive categories of economic development (to a lesser extent – social one), and more specifically, the changes that took place in the period after 1989.

The research was based on Statistics Poland statistical data which seem to take into account the basic categories of development. In addition to the analysis of statistical data, the study applied an infrequently used graphical method of time series analysis called the connected trajectory, which allows the reconstruction of development processes in an original and cognitively valuable way¹. This method allows minimizing the impact of changes that the redenomination of the zloty and inflation had on the data brought by the Statistics Poland to comparability². The conducted research concerns Poland as a whole, with full awareness of the regional diversity of the ongoing transformation and development processes.

There is a wealth of literature describing the transformation process, including the factors and conditions that had led to the changes. Obviously,

¹ A description of this method and the interpretation of connected trajectories can be found, among others, in the following publications: Hingel, 1993; Ormerod, 1993; Parysek, 2002, 2004; Parysek, Mierzejewska, 2012.

² Each point through which the trajectory is drawn is the relation of the state of a given year to the state of the previous year (see: connected trajectory).

in the conditions changing with time, various kinds of assessments had to be made about the causes of the transformation and its course. The presented point of view often depended on the ideological and political orientation of a particular author and the period in which the analysis and evaluation were conducted. This means that we are dealing with subjective rather than objective assessments of the recent past. Over time, this situation worsened so much that it has led to such a level of subjectivism when economic development processes in the same periods were assessed by some authors as a success and by others as a failure. The present author strives to make the most objective assessment of the transformation possible, which, as it seems, should be facilitated by reducing the research to a multifaceted assessment of development processes based only on statistical analysis of data and their graphical interpretation³.

2. Causes of the systemic transformation

The causes of the collapse of the communist system in Poland can be divided into endogenous ones – inherent in the situation that developed in Poland before 1989, and exogenous ones – resulting from the political and economic situation in the world, especially in the communist bloc. Among the endogenous factors, the following deserve special emphasis (Chojnicki et al., 1999): (1) growing dissatisfaction of the society with the low level of consumption, everyday life difficulties, and limited state sovereignty⁴; (2) changes in the awareness and the critical attitude of the society, especially of the working class, towards the allegedly progressive nature of the communist system and its economic and social efficiency, which resulted in the emergence of opposition organizations⁵; (3) growing inefficiency and shortages of the economy based on central planning and operation of state-owned enterprises, the consequences of which included, among others: outdated

and inefficient structure of the economy, a declining level of investment, a constant decrease in national wealth (per capita), as well as growing state debt and a deteriorating condition of the natural and social environment. The exogenous factors include, first of all, the collapse of the USSR's military, political and economic power and the collapse of that state, unfavorable to the communist system and the world effects of the arms race and the global economic situation, especially emerging crises, e.g. the oil crises in 1974 and 1979 and the economic crisis of the early 1980s, revolution in Iran, etc. (Chojnicki, 1990; Chojnicki et al., 1999; Morawski, 2003; Rubini et al., 2011; Winięcki (ed.), 2009). To a greater or lesser extent, all this influenced attempts of the communist authorities to reach an agreement with the then opposition. In this respect, a special role was played by difficult and often interrupted meetings of the government and solidarity sides, with participation of the Catholic Church representatives, e.g. in Magdalenka (September 16, 1988), and the Round Table talks (February 6 – April 5, 1989), which were concluded with a differently interpreted agreement⁶. The latter meetings resulted in the June contract elections (on June 4 and 18, 1989) and an agreement on such systemic solutions as the appointment of the Senate, the contract Sejm, the National Assembly and the office of the President of the Republic of Poland⁷. The "contract" Sejm introduced the necessary amendments to the Constitution and passed a package of 10 economic laws, known as the "Balcerowicz plan", the purpose of which was to build the foundations of a free-market economy. These acts concerned: financial management of (state-owned) enterprises, conducting business activity, taxes, functioning of the banking system (including the role and functioning of the National Bank of Poland – NBP), loans, customs, foreign exchange turnover and other important matters. Another goal of these legal regulations was to lead the country's economy out of a deep crisis and to prepare the legal basis for the transition

³ The difficulties in conducting an analysis of socio-economic development in such a long time frame are evidenced by a lack of studies covering the whole period of 1990–2019.

⁴ This was reflected in subsequent social upheavals and protests (Poznań: 1956, the Baltic Coast: 1970, Ursus and Radom: 1976, and the whole country, especially large urban and industrial centers, in 1980–1981), which weakened the regime and forced implementation of specific reforms.

⁵ Organizations such as Komitet Obrony Robotników (KOR) [Eng.: the Workers' Defense Committee] and Niezależny i Samorządny Związek Zawodowy "Solidarność" [Eng.: the Independent Self-Governing Trade Union "Solidarity"] were established at that time.

⁶ From seizing power from the communists (W. Frasyniuk), through separation based on an agreement between the parties (L. Miller), to an agreement between the communists and the opposition on the communists' terms (W. Czarzasty).

⁷ The aforementioned meetings of the communist government with the opposition are differently assessed, depending on political views and party sympathies. Thus, there are opinions such as the success of the opposition, but also betrayal or collusion of part of the Solidarity elite with communists, and recently, expressed in the media by the once prominent activists of the Polish United Workers' Party (now SLD), coming to some arrangement between the authorities and the opposition or a mutual agreement of the sides, as already mentioned.

from a centrally planned economy to a free-market economy. The primary aim was to curb inflation, limit the budget deficit, reduce the state debt, support the banking system, and overcome the crisis and enter the path of economic growth⁸. As for the social transformation, apart from the changes in the society's mentality shaped in the rejected system (*homo sovieticus*), the revival of the structures of civil society is worth emphasizing (first, at the level of municipalities) and the freedom of association in order to defend workers' interests as well as to conduct political, economic and social activity⁹. This is the assessment of the present author, more or less different from other authors' assessment (Gomułka, 2014; Kieżun, 2012; Kołodko, 1999a, 1999b, 2000, 2007; Kowalik, 2001, 2007; Kowalski, 2009; Poznański, 2001a, 2001b; Woźniak, 2011)¹⁰.

3. Factors and conditions of development

It is generally assumed that both the initial situation and the transformation process were shaped by many different factors, and that a near-truth assessment of the past may be made after many years, probably only by the second generation (Kołodko, 1999, 2007, 2009; Kowalski, 2009). Therefore, in a situation where it is difficult to identify specific factors and determinants of development, and even more difficult to determine their impact on development, in this study, factors and determinants are treated both generally and jointly, as favorable, or not, circumstances, both endogenous and exogenous (Parysek, 2018).

As written above, in 1990 the Polish economy found itself in a state of deep collapse which was, on the one hand, a result of an inefficient, prescriptive

model of its functioning, and on the other hand – a result of political changes in Europe, especially in the bloc of the so-called socialist community, and the general political and economic situation in the world. In general, it can be assumed that the primary tasks of the transformation process included: (1) regaining a permanent macroeconomic equilibrium, (2) possibly full liberalization of prices and foreign trade, including the elimination of shortages and queues in front of shops, and (3) restoring the economy's development capacity with prospective striving to eliminate the civilization gap that had existed for many years between Poland and the countries of Western Europe (Gomułka, 2014). The literature also contains records of other priority tasks, to a lesser extent referring to the Balcerowicz plan (Kołodko, 1999, 2000, 2007; Kowalik, 2011). In more detail, the primary directions of remedial actions aimed to fight hyperinflation, increasing unemployment, decreasing industrial production, problems in international trade, growing poverty, poor environmental condition, but most of all it they aimed to create the foundations of a market economy. Many state-owned enterprises were unable to adapt to the new systemic conditions and collapsed. It had a particularly hard effect state agricultural farms (in Polish: PGR). Moreover, globalization gaining in importance and the competitiveness of economies of other countries having a strong impact, especially in the conditions of serious state debt, were not conducive to the processes of economic transformation. Dissolution of the Council for Mutual Economic Assistance (CMEA) also had a negative impact on the economy, despite generally negative assessments of the functioning of this structure. The collapse of the Soviet market, with which the Polish economy was closely related, was also not without significance. The dissolution of the Warsaw Pact, a serious consumer of the production of the Polish arms industry, was among factors that also contributed to the collapse of this market. One thing is certain, in the situation of 1990, it was difficult to indicate such development factors, apart from direct foreign investments, which could ensure the fastest possible way out of this difficult situation. Undeniably, in the period after 1989, despite numerous difficulties and adversities, the dynamics of the Polish economy was gaining systematic momentum, which, unfortunately, was not accompanied by a marked improvement in the inhabitants' living conditions¹¹. In deliberations on development, as

⁸ Both the Balcerowicz plan and the entire transformation process are assessed differently today. The implementation of the aforementioned plan, however, created foundations for the transition to a free-market economy and contributed to curbing inflation, but it was very burdensome for the general public, caused an increase in unemployment and resulted in not always sensible liquidation of state-owned enterprises and sale of national assets (cf. Gomułka, 2014; Kieżun, 2012; Kołodko, 1999, 2000, 2007; Kowalik, 2001, 2007; Kowalski, 2009; Poznański, 2001a, 2001b; Wilczyński, 2007; Woźniak, 2011). Economists also attempt to classify the assessments of both the Balcerowicz plan and the transformation process (Rolski, 2013; Zagóra-Joniasto, 2017).

⁹ Poviats and voivodeships self-governments were established only after coming into force of the relevant acts of June 5, 1998.

¹⁰ Numerical data and appropriate graphs are included in the publication by Kołodko (2007).

¹¹ The author of this text presents the view that the transformation of the state, economy and society is still under way, although different progress has been achieved in each of these segments. The *continuum* of transformation, but also the cor-

well as factors and determinants of economic development, it seems that the hypothesis should be postulated that, despite different political orientation and adopting its own development concepts, each government after 1990 aimed at economic revival and improvement in living conditions of the population. The lack of a long-term policy of socio-economic development, resulting from changes in governments in Poland after 1989, is undoubtedly one of the reasons for the described state of affairs (Tab. 1). Therefore, the economic development of 1990–2019 is a product of more or less successful moves in the economic and social sphere. Despite this, the political instability manifested in the changes of political parties in power, and hence the directions and priorities of economic and social policy, certainly did not help to overcome the existing difficulties and enter the path of stable, sustainable and relatively fast development¹². Each new government after 1989 tried to implement its own vision of development, which, given the high degree of politicization of economic decisions as well as the failure to perceive, or tolerance for, pathologies that always accompany periods of revolutionary changes, could not bring the results expected by Poles. Continuity in the implementation of economic policy is one of the conditions for achieving economic success, assuming that a good model has been chosen and that the authorities' actions are understood at least, or even better, accepted and supported by the public. The complete politicization of not only exercising power at all levels, but also of the economy, social changes and public life is, unfortunately, an obstacle to such actions. This is not good for the state or the economy, but above all for the society, which expects a greater share in consumption of effects of the expected development. Unfortunately, there is no indication that this situation will change in the near future. Moreover, it is more likely that the political dispute will be aggravated even more, obviously to the detriment of the state, society and the economy.

Poland's membership in the structures of the European Union is certainly conducive to economic development, which is primarily related to the availability of the so-called aid funds, which are an important source of supporting and strengthening economic

rection of its directions is noted and described in more detail by G.W. Kołodko (2007, 2009, 2010a, 2010b).

¹² Looking at the matter in general, it can be concluded that the same intentions of those in power may lead to the adoption of different models, different priorities and different development concepts, which on the one hand leads to a distortion and, on the other hand, to a change in the currently implemented development concept, and consequently to slowing down its pace (pace of development).

cooperation in view of a lack of domestic capital¹³. The establishment of national (also regional) priorities for spending EU funds and their rational use is a completely different problem, although certain priorities and specific obligations in this matter are set and imposed by the European Union (Płowiec, 2004). As results from ministerial documents (the Ministry of Regional Development and the Ministry of Investment and Development), during the period of membership in the EU, a substantial stream of aid funds has come to Poland. In the years 2004–2006, it was the amount of €14 billion, in the years 2007–2013 – €67.5 billion, and for the years 2014–2020 the amount is assumed to be €82.5 billion. Foreign direct investment was undoubtedly a major factor in Poland's economic development after 1989. It also contributed to solving important, current problems of the transformation period, especially unemployment, caused both by the collapse of many companies in the centrally planned economy and by the necessity to restructure and modernize it.

The crisis that started in 2008 was unfavorable to the Polish economic transformation and development, which is obvious in the situation of increasingly strong international economic and financial ties and progressing globalization. Still, the Polish economy has not been severely affected by this crisis, and the reasons for this situation are a source of dispute, not only among politicians, which may be understandable in the conditions of a fierce political struggle, but also among economists. Nevertheless, there was a slight weakening in the dynamics of the GDP growth and foreign investment as well as an increase in the unemployment rate (Tab. 3). In any case, compared to the situation of other European countries, including EU members, the economic situation of Poland was relatively good. Taking into account the financial situation of the country, its geopolitical situation, armed conflicts and international terrorism were and are still significant. Political tensions and threats to the country's security have led to an increase in defense expenditure. The Polish armed forces required modernization and development, which as a process is still under implementation. The state's defense policy is a separate issue, which, like the economic policy, does not show continuity with the changes of governments. Fortunately, there have been no terrorist attacks in the country yet, but the existing threat forces the authorities to take costly preventive measures.

¹³ It is difficult to imagine a situation in which the current government in power would not strive for the highest possible level of EU support.

Tab. 1. Governments of the Republic of Poland after 1989

Prime Minister	Period of performing the function	Government coalition parties	Political orientation
Tadeusz Mazowiecki	September 24, 1989 – November 25, 1990	“Solidarność”, PZPR, ZSL, UD	The effect of the “Round Table” agreement (us and them)
Krzysztof Bielecki	January 12, 1991 – December 5, 1991	KLD, ZChN, PC, SD	Christian–Democratic
Jan Olszewski	December 23, 1991 – July 10, 1992	PC, ZChN, PSL, PL	Christian–Peasant
Hanna Suchocka	July 11, 1992 – October 18, 1993	UD, KLD, ZChN, PChD, PPPP, PSL, PL	Democratic–Christian–Peasant
Waldemar Pawlak	October 26, 1993 – March 1, 1995	SLD, PSL	Left-wing–Peasant
Józef Oleksy	March 6, 1995 – January 26, 1996	SLD, PSL	Left-wing–Peasant
Włodzimierz Cimoszewicz	February 7, 1996 – October 17, 1997	SLD, PSL	Left-wing–Peasant
Jerzy Buzek	October 31, 1997– October 19, 2001	AWS, UW	Christian–Democratic
Leszek Miller	October 19, 2001 – May 2, 2004	SLD, PSL, UP	Left-wing–Peasant
Marek Belka	May 2, 2004 – May 19, 2004; June 11, 2004 – October 19, 2005	SLD, UP SLD	Left-wing Left-wing
Kazimierz Marcinkiewicz	October 31, 2005 – July 10, 2006	PIS, Samoobrona, LPR	Christian–Conservative
Jarosław Kaczyński	July 14, 2006 – November 5, 2007	PIS, Samoobrona, LPR	Christian–Conservative
Donald Tusk	November 16, 2007 – November 18, 2011 November 18, 2011 – September 11, 2014	PO, PSL PO, PSL	Liberal–Peasant
Ewa Kopacz	September 22, 2014 – November 16, 2015	PO, PSL	Liberal– Peasant
Beata Szydło	November 16, 2015 – December 11, 2017	PIS, Solidarna Polska	Christian–Conservative
Mateusz Morawiecki	December 11, 2017 –	PIS, Solidarna Polska	Christian–Conservative

Source: own study.

Apart from the internal political situation uncondusive to development, it is necessary to point out, if only briefly, other situations and processes which are certainly uncondusive to economic and social development. Thus, the decline in the demographic dynamics and the ensuing aging of the population is a serious problem. The situation in this respect is worsened by the emigration of young, often well-educated Poles, causing an imbalance in the labor market, which results in the need to employ immigrants, not only from neighboring countries (Ukraine, Belarus) but also from distant ones (the Philippines, Vietnam, China, India). The number of both emigrants and immigrants is estimated at around 2.5 million people for each of these categories.

Persistent income polarization is not favorable to development, especially social development, although positive changes in this respect should be noticed. An apartment is still an unattainable good for an average citizen, mainly due to the relation between the price of the apartment and the income

of the population (specifically, salaries and living costs). Despite the assurance of successive governments, the health service, which is struggling with the problems most experienced by the inhabitants, especially the poorest ones, cannot get out of the crisis¹⁴.

Moreover, the spread of both poverty and social pathologies as well as the difficulties in solving them is a serious problem. Development, especially at the local level, is not helped by the budget deficit and the increasing debt of local governments. On the one hand, this makes it difficult to solve the basic problems, especially in the field of technical and social infrastructure, and on the other hand, it severely limits the possibilities of making own investments and using EU funds (the so-called own contribution). There are probably more factors but also limitations to development. At this point, the Author has

¹⁴ Fighting the COVID-19 pandemic is a completely new and unexpected challenge.

limited himself to signaling what seems to be the most significant.

4. General characteristics of Poland's socio-economic development in 1990–2019 in selected development categories

4.1. Introduction

As written above, Polish literature concerning the Polish transformation is extremely rich and diverse. Unfortunately, works on the analysis of economic and social development since 1990 cover different periods. There are few papers trying to analyze economic development in general, based on data that are usually considered as basic. Moreover, publications often refer to ongoing transformation plans and projects, which sometimes leads to, probably unintentionally, taking into account the political context. This primarily applies to those authors who, at a certain time, were associated to a varying degree with the structures of the changing power (Zagora-Jonsza, 2017). Despite these reservations, there are publications which describe the economic development of Poland after 1989 in various generic cross-sections¹⁵. It should be emphasized once again that tables and figures, prepared on the basis of data from the Statistics Poland, are an important component of this study. Thanks to using them, it will be possible to conduct a more detailed analysis of development processes than it would seem from the presented text.

4.2. Demographic situation

Although the Statistics Poland quotes the population of Poland as of the end of each year, it is impossible to precisely determine the number of inhabitants, mainly due to the lack of reliable information on international migrations¹⁶. Statistical data for 1990–2018 indicate a fairly stable number of the country's inhabitants, oscillating around 38 million people

¹⁵ Misala, Bukowski 2003; Chojnicki et al., 1999; Parysek 1997, 1999; Bałtowski, Miszewski 2006; Kolodko 2000, 2007, 2010a, 2010b; Kowalski 2009; Woźniak 2011; Bał-Woźniak, Woźniak 2011; Gomułka 2014; of course, there are more publications of a similar nature; there are also foreign publications devoted to the Polish transformation, at least partially (e.g. Slay 1994; Hare, Turley 2013).

¹⁶ It is assumed that there are currently about 2.5 million immigrants in Poland, mainly from Ukraine, but also from other countries, and that a significant number of Poles staying abroad are still counted as residents of Poland, and that emigration and immigration are certainly do not balance each other.

(Tab. 2). During this period, the lowest number of the population was recorded in 1990 (38,073,000), and the highest one in 1998 (38,667,000). However, the trajectory shows that there is no clear trend in Poland's demographic development, although on a microscale (slight changes), it shows turbulence in this respect. There are two loops of changes, albeit small, in the number of people, which results from many various factors that are difficult to clearly identify without detailed research (Fig. 1). This situation is also documented by the year-to-year dynamics of changes in the number of the population, with greater changes in the years 1994–1996 and 2009–2011 (Tab. 3). The natural increase is at an unsatisfactory level, as in the analyzed period it dropped from 157,400 people in 1990 to -26,000 people in 2018.

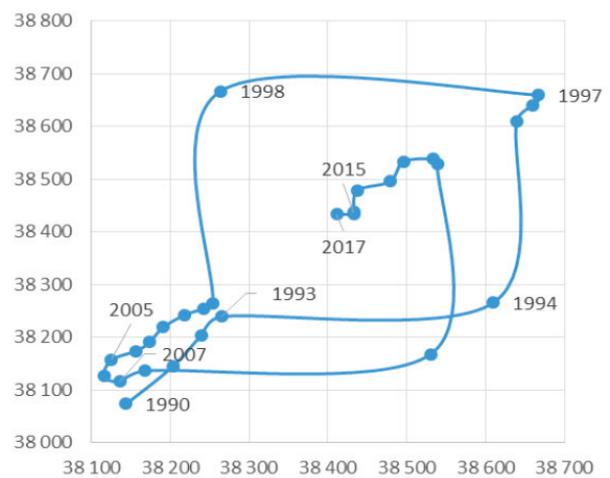


Fig. 1. Number of the population – connected trajectory
Source: Own study based on the data of Statistics Poland.

As in the case of the population number, the natural increase trajectory is also looped, yet only since 1998. Until then, there was a gradual decline in natural increase (Fig. 2). Until 1999, the dynamics of natural increase (year-to-year) shows a relative stability, disturbed by changes in the years 1999–2001 which are difficult to explain, followed by a period of relative stability, lasting until 2013, and ending with a clear differentiation of dynamics (Tab. 3). The reasons for this state of affairs are, on the one hand, a low number of births (including the lowest fertility rate in Europe, 1.3), and, on the other hand, a high mortality rate¹⁷. This trend was marked in 2012 and, in various proportions (births:deaths), persisted until 2019 (see Tables 2 and 3 and Fig. 1 and 2).

¹⁷ The highest fertility rate is characteristic of countries open to immigrants, i.e. France, Great Britain, Ireland, Belgium, the Netherlands and Scandinavian countries (data for Germany are not available or are unreliable).

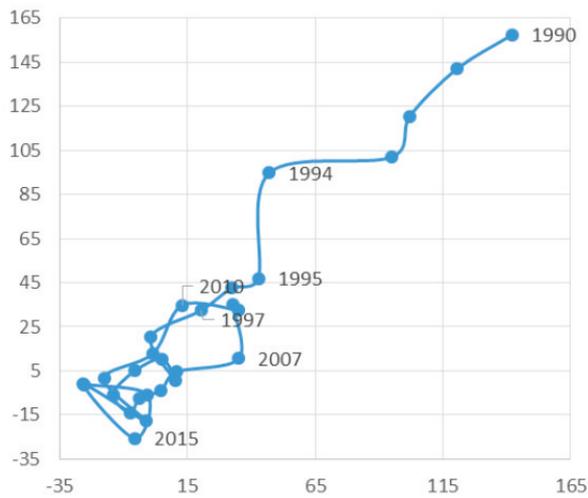


Fig. 2. Natural increase – connected trajectory

Source: Own study based on the data of Statistics Poland.

Both professional activity and unemployment remain related to the population size and natural increase, as well as to the migration movement, difficult to define reliably, especially the economic emigration of Poles, and the condition of the economy. The situation primarily results from the terrible state of the economy inherited from the old system in 1990, as well as from the course of the transformation in the first years, called the shock or painful transformation for the population¹⁸. Although in the first years of the transformation the unemployment rate was not high, it should be remembered that in the years before 1990, such a category as unemployment did not officially appear in the statistics. For example, in 1988 there were only 5,000 jobseekers for 430,000 job vacancies (Parysek, 1993). In subsequent years of the transformation, the unemployment rate showed cyclical changes in terms of nature (Tab. 2 and 3). Fluctuations in the unemployment rate are reflected in the trajectory, which shows three complete loops in the years 1990–2017, indicating clear non-linearity in the process of changes (Fig. 3). As in the case of changes in the size of the population and in the natural increase, the trajectory indicates great complexity of the causes of the situation, and thus the complexity of the transformation process. This situation is also confirmed by an analysis of the dynamics of changes in the year-to-year unemployment rate (Tab. 3). The level of unemployment should

¹⁸ We will not learn the truth about the mistakes made in the first years of the transformation soon, because the interpretation of the taken economic decisions and their effects, especially after 2005, was part of a political conflict. However, representatives of the scientific community should not be part of it.

be collated with the population's professional activity, which, similarly to the unemployment rate, shows periodic fluctuations. It is characteristic that in 2018 the situation in this respect returned to the initial state from 1990, i.e. to 16.5 million economically active people¹⁹. These are the two years in which the number of economically active people reached the highest level. The lowest level (13.6 million) was recorded for 2004 (Tab. 2). The trajectory of changes in the economic activity of the development of entrepreneurship (the number of business entities) generally indicates a decline in economic activity until 2003 and a renewed increase in subsequent years (Fig. 4). Thus, the reversal of the decline in economic

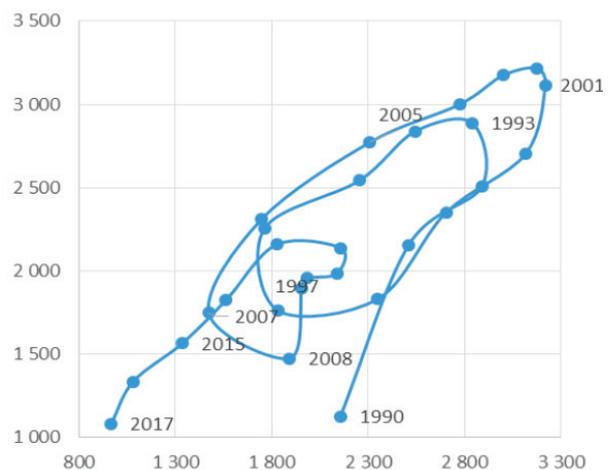


Fig. 3. Unemployment rate – a connected trajectory

Source: Own study based on the data of Statistics Poland.

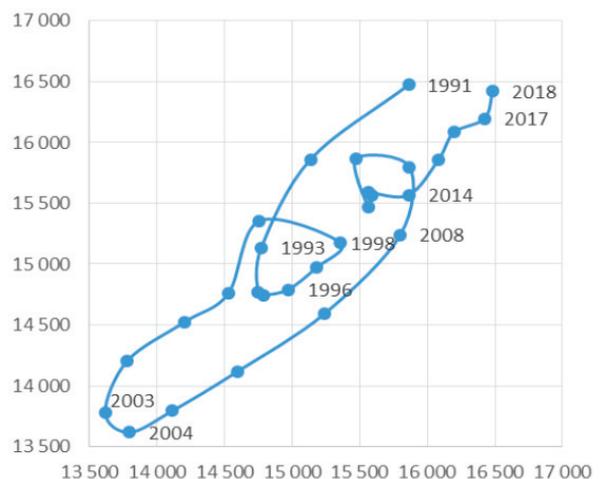


Fig. 4. Professional activity – connected trajectory

Source: Own study based on the data of Statistics Poland.

¹⁹ The number of employed people is the measure of professional activity of the population.

activity in 2003 and a renewed growth are characteristic of the changes taking place in this respect. The dynamics of changes in the number of economically active people shows three culminations of growth: in the years 1992–1997, 2002–2007 and since 2010 a gradual increase, with variable year-to-year dynamics. In the years 1991–1994, 1999–2003 and in 2010 and 2013, there was a negative growth rate in the number of economically active people (Tab. 2).

4.3. Economic development

Gross Domestic Product (GDP) is a certain synthetic measure of the level of economic development. In the years 1990–2018, gross domestic product showed a steady, monotonic growth – specifically, from PLN 59.1 billion in 1990 to PLN 1,989.3 billion in 2017²⁰. However, the trajectory points to the loop that characterized the GDP growth process in 1990–1994, i.e. in the first period of transformation. However, since 1994, the increase in the GDP value has shown a monotonic course, which indicates a certain stabilization of economic development (Tab. 2, Fig. 5). The dynamics of the year-to-year GDP growth, apart from the difficult to explain surge in the years 1993–1995, generally shows an even pace (Tab. 3). Overall, this situation seems to indicate the lack of major perturbations in the process of economic development, as measured by GDP, or at least their blurring by various processes that were not included in the conducted research.

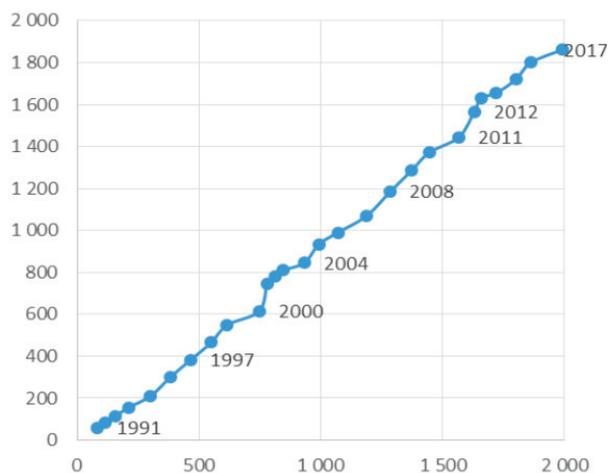


Fig. 5. Gross domestic product (GDP) – connected trajectory

Source: Own study based on the data of Statistics Poland.

²⁰ The zloty redenomination in 1995 was taken into consideration in the GDP value; GDP values are expressed in prices of a given year, i.e. including inflation.

The price index of goods and services (inflation) decreased systematically, though not monotonically. Hyperinflation recorded in 1990 at the level of 685.8% (the inflation rate of 585.8%) fell to 101.6% (the inflation rate of 1.6%) in 2017. This high level of increase in the prices of goods and services in the first years of transformation, called hyperinflation, began to take average values since 1997, and since 2002, low values, with slight increases in the period until 2018 (Tab. 2). The trajectory of changes shows a dynamic, but gradually weakening, decline in inflation until 1998, followed by a disturbance of the falling trend in this process (Fig. 6). In the period up to 2018, there is a year-to-year change in the level of inflation, with a zero level in 2014, deflation in 2015 (99.1%) and 2016 (99.4%) and a slight increase again in the following years. The year-to-year dynamics steadily decreased until 1993, gradually stabilizing over time, at the level of 101–102% (Tab. 2 and 3). Based on the results of the conducted research, one can ascertain a progressing process of price stabilization in which the economic crisis of 2008–2011 was not clearly marked.

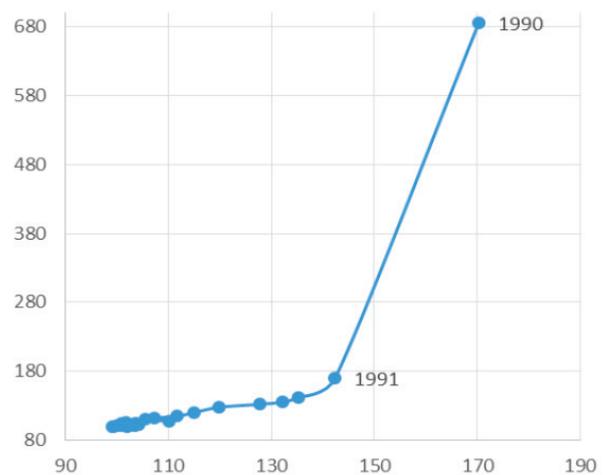


Fig. 6. Inflation rate – connected trajectory

Source: Own study based on the data of Statistics Poland.

Privatization of the economy was one of its most important changes, whose result, but also a measure with all the weaknesses of this indicator, may be the number of economic entities. The number of economic entities increased from 1,205,500 in 1990 to 4,365,400 in 2018. The increase was monotonic, and statistically documented disturbances to this monotony were slight. The course of this process is documented by both statistical data and the trajectory (Tables 2 and 3, Fig. 7).

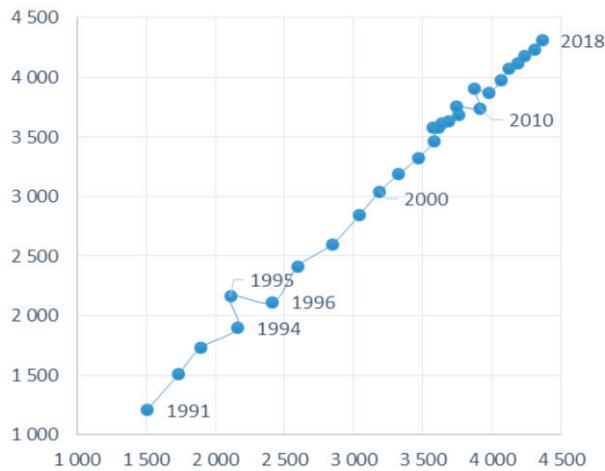


Fig. 7. Economic entities – connected trajectory
Source: Own study based on the data of Statistics Poland.

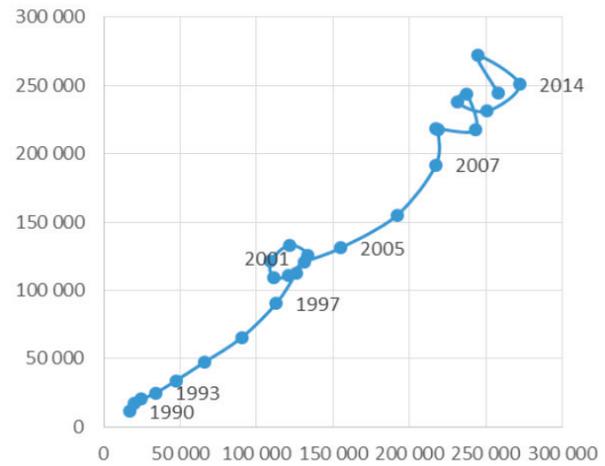


Fig. 8. Investment outlays – connected trajectory
Source: Own study based on the data of Statistics Poland.

Undoubtedly, investments were of decisive importance for the entire economic transformation and for the socio-economic development during the research period. While in 1990 they amounted to a total of PLN 11.6 billion, in 2017 this was already the amount of 267 billion zloty. Also in this case, the increase in investment outlays was monotonic, with a greater forward leap in 2006–2008, stability in 2008–2010, another significant increase in 2011–2015 and a slight weakening in investment in 2016 and 2017 (Tab. 2). Taking into account the fact that the total amount of outlays includes all the outlays incurred in subsequent years, regardless of their source, also in this case it is difficult to point to a specific cause of the disturbance in the monotonicity of growth in 2010–2017. In principle, the trajectory of the investment process shows a monotonic increase in which, however, there are two periods of disturbance of this process. The first one is the “loop” of 1998–2004 and the disruptions after 2009 (Fig. 8). On the other hand, the dynamics of investment outlays shows gradually decreasing irregularities. In the years 2000–2002, 2009–2010, 2011–2013 and 2015–2016 there was a decrease (below 100%) in the dynamics of outlays (Tab. 3).

Just as the indicators taken into account so far indicated progressing economic development, the financial result of the state budget (balance) shows continuing imbalance in the budget. In fact, only in 1990 there was a surplus of income over expenditure, at the level of 2.4 billion zloty. Since then, there has been a budget deficit which in different years had different values, the largest being 46.1 billion in 2016 and 44.6 billion in 2010, 42.6 billion in 2015, 42.2 billion in 2013 and 41.4 billion in 2004. However, it is positive that in 2018 it decreased to the

level of 10.4 billion zloty, the lowest level since 1999 (Tab. 2). However, in this assessment category it is important to compare the deficit to GDP. Thus, the largest share of the budget deficit in GDP was the years: 1992 (6.0%), 2002 (4.9%), 2003 and 2004 (4.4% each), 2001–2004 (over 4% in each year), 1991 (3.7%) and 2010 (3.1%).

The trajectory of the budget deficit shows an extremely complicated course, which is due to the lack of a clear and unequivocal trend in this respect. There were relatively clear trends only in 1997–2001 – a general increase in the deficit, and after 2015 – a decrease in the deficit (Fig. 9). The dynamics of the budget deficit shows abrupt changes in pace. The improvement in the situation can concern the years 1992–1993, 1996–1997, 2004–2007, 2010–2011, 2013–2014 and after 2015 (Tab. 3). However, the budget deficit will always be a product of the economic situation, and more specifically the balancing of the possibilities and needs, which results both from the economic policy of the state (and its successes or failures) and from the social policy (the possibility of satisfying the range of unmet needs and social expectations).

4.4. Standard of living of the inhabitants

The description and assessment of the changes in the discussed field, which can be taken as the assessment of the living conditions of the population, were clearly defined by the availability of a series of data. One should also keep in mind that the standard of living of the population (of course, also the indicators taken into account) was influenced by such processes as: inflation, redenomination of the zloty, freeing the housing market and an increase in house prices, as well as changes in the consumption

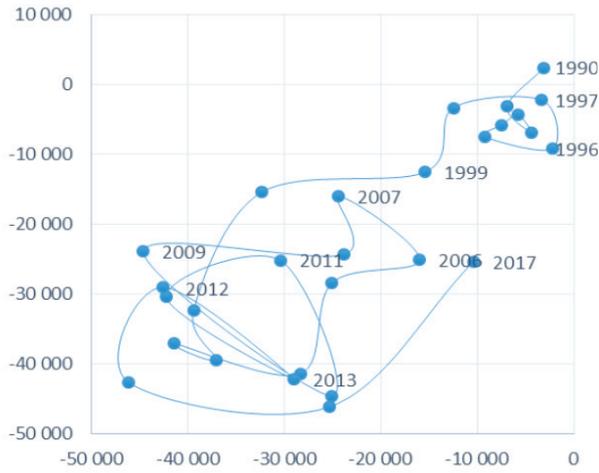


Fig. 9. Financial result of the state budget – connected trajectory

Source: Own study based on the data of Statistics Poland.

structure and a relative decrease in car prices, along with a high demand for this particular good that is of a prestigious character in Polish conditions, which is not justified by the financial situation of the population (Parysek, 2016). However, remuneration is, above all, the main factor shaping the income of the population.

In the period 1990-2018, the average remuneration increased from PLN 102.96 in 1990 to PLN 4,834.76 in 2018 (Tab. 2)²¹. The trajectory of the growth of the average salary takes the form of a straight line, indicating a monotonic increase (Fig. 10). Understandably, after years of gradual and serious decline in the living standard of the inhabitants (until 1990),

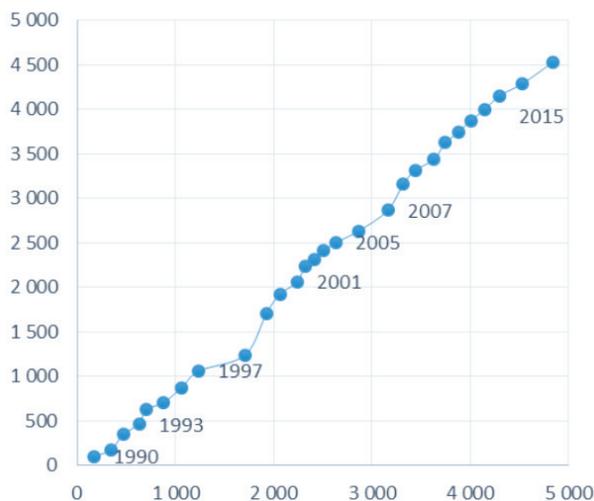


Fig. 10. Average monthly salary – connected trajectory

Source: Own study based on the data of Statistics Poland.

²¹ However, remuneration estimated by Statistics Poland in 1990, after recalculations and corrections, seems to be definitely too low

the increase in remuneration in the first years of the transformation had to show high dynamics, much greater than in later years. Until 2000, the dynamics was generally weakening, and in the following years, it stabilized at the level of 103–110%, changing from year to year (Tab. 2 and 3).

The standard of living may also be demonstrated by the housing situation (specifically, the apartment area). Housing resources in the analyzed period increased from 11,180,000 dwellings in 1990 to 14,615,000 in 2018, with only a slightly higher number of inhabitants (38.4 million in 2018 compared to 38.1 million in 1990). Such a situation generally indicates an improvement in the situation in this respect (Tab. 2). However, one should remember that the statistics include both inhabited and uninhabited dwellings (abandoned due to degradation and uninhabited due to the high cost of purchase or rent). While in 1990 there were 3.4 people per 1 dwelling, in 2018 – these were 2.6 people, and this, despite the above-mentioned reservations, indicates a certain improvement in the standard of living, namely in terms of residence. The trajectory of the increase in housing resources shows a monotonic increase, with a greater increase in the years 2000–2002 (Fig. 11). The dynamics, excluding its slight weakening in 1992–1994 and surge in 2001–2002, indicates a stable situation in this respect. The dynamics oscillates around the level of the indicator being from 100.05% to 100.1% (Tab. 3). Despite these doubts, a certain improvement in the housing situation has probably become a fact.

The number of passenger cars that are registered and probably used by residents (but also by companies) seems to be a much better indicator of the standard of living (wealth of the society). The number of cars increased from 5,261,000 in 1990 to

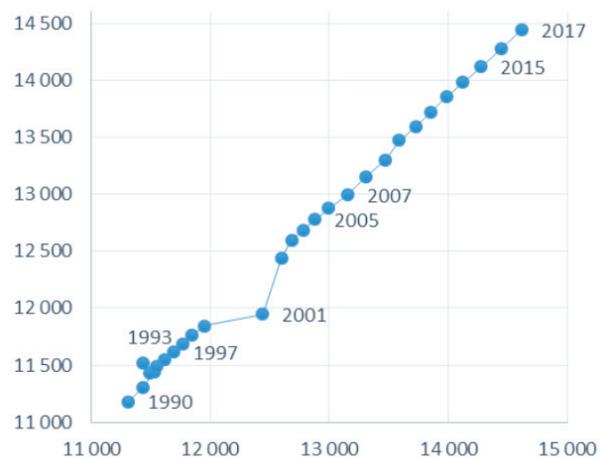


Fig. 11. Housing resources – connected trajectory

Source: Own study based on the data of Statistics Poland.

23,429,000 in 2018. It is almost 4.5 times more than in the base year (Tab. 2). The respective indicators per 1,000 inhabitants were at the level of 130 cars per 1,000 inhabitants in 1990 and 610 cars per 1,000 inhabitants. The latter indicator is one of the highest, not only in Europe but also in the world. The car in Poland has unexpectedly become the most desirable good, which is not justified either by the level of income or by the consumption structure (Parysek, 2016). The trajectory of the increase in the number of cars has a rectilinear course, which indicates the monotonicity of the increase in the number of cars and the undisturbed course of this process and indirectly, the gradual increase in the level of wealth of the country's inhabitants (Fig. 12). However, this does not mean the same dynamics from year to year. Although the pace of growth in the number of passenger cars was gradually decreasing, after a sharp decline until 1993, it oscillated around 105–106%, with a greater increase in 2005–2008. Since 2010, it has leveled off and, with slight fluctuations, remained at the level of 104% (Tab. 3).

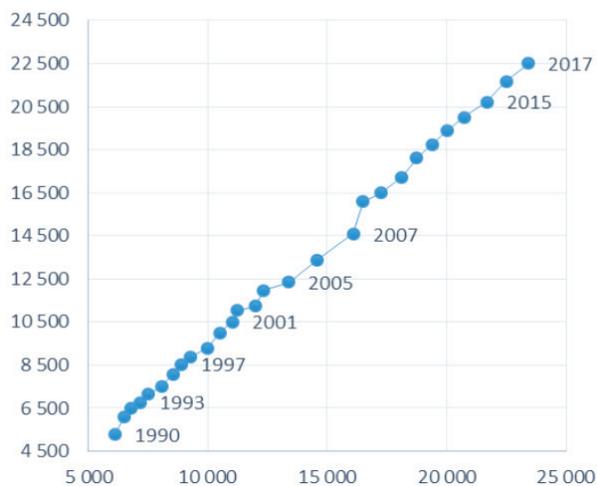


Fig. 12. Passenger cars – connected trajectory
Source: Own study based on the data of Statistics Poland.

5. Economic development and the standard of living of the population

Although the statistical data collected for the years 1990–2018 show a link between economic and social development, which should be the case in healthy economies, they do not provide a basis for determining, and especially dimensioning, the impact of the economy on the standard of living of the inhabitants. However, some conclusions can be drawn from the correlation and regression analysis. The correlation analysis between series of listed features allowed distinguishing two clusters of

correlated features. The first cluster consists of features describing: GDP, investment outlays, economic entities, economic activity, remuneration, housing situation, number of cars and the population size (with relatively high correlation coefficients). This allows for the conclusion that in the analyzed period, economic development, measured in terms of: GDP, investment, entrepreneurship and professional activity, resulted in social development, which was reflected in an increase in salaries, an improvement in the housing situation and progressing individual motorization (the number of passenger cars). Simultaneously, this it allows considering the discussed indicators to be quite good to describe the economic and social situation. The second cluster is also created by quite clearly correlated features (although at a lower level than the above-mentioned ones): population growth, inflation, unemployment and public debt, which generally have a negative impact on economic development, and indirectly also on the standard of living of the population.

By formulating equations in which the explained variables included GDP as a measure of the level of economic development and remuneration as a measure of the standard of living, regression analysis enabled refining the relationships indicated by the calculated correlation coefficients.

In the model aiming to estimate the effect of independent variables on the dependent variable GDP (y), the following variables were considered that describe economic activity (x_1) and capital expenditure (x_3), which theoretically have a positive impact on the level of GDP, and inflation (x_2), unemployment (x_4) and budget deficit (x_5) which have a negative impact on the level of GDP. In the calculation procedure in which variables with a negligible impact on the level of the dependent variable (GDP) were gradually eliminated, the following form of the regression equation was obtained: $y=80,266.4+6.269x_3-6.03x_5$, with the coefficient of determination $R^2=97.42\%$. This means that the gross domestic product (GDP) is mainly affected by investments (x_3), having a positive effect, and by the budget deficit (x_5), having a negative effect. This is only a confirmation of generally accepted regularities, yet obtained as a result of the conducted calculations.

The model aiming to estimate the effect of independent variables on remuneration (dependent variable y) includes variables describing: level of entrepreneurship (x_1) and investment outlays (x_3), which theoretically have a positive impact on the remuneration level, and inflation (x_2), unemployment (x_4) and budget deficit (x_5) having a negative impact on the remuneration level. In the calculation procedure in which, as in the case of the first model (GDP),

variables with a negligible impact on the remuneration level were gradually eliminated, the following form of the regression equation was obtained: $y=80.996+0.0134x_3-0.0207x_5$, with the coefficient of determination $R^2=98.04\%$. This means that investments (x_3) are the basic factor influencing the remuneration level, while the state budget deficit (x_5) has a negative effect. In other words, investments are the main factor of both economic and social development, and the budget deficit is a brake on development – obvious, but now confirmed by research.

6. Conclusions

The results of the conducted research allow formulating the following final conclusions:

The economic transformation of Poland after 1989, just like the political and social transformation, was a serious problem whose solution was determined by many, sometimes complex factors and conditions of an endogenous and exogenous nature.

Assessed on the basis of the discussed indicators, economic development, which is both a component and a result of systemic transformation, generally proceeded without major complications in the years 1990–2018.

The results obtained in the field of economic development concern Poland as a whole, with full awareness of interregional differences in the cross-sections of features taken into account. The same applies to the standard of living, which additionally differs in social cross-sections.

The above-mentioned situation does not mean that in the case of more detailed approaches to the issues of development, it will not be possible to indicate not only some disruptions in the course of the development process, but also errors or shortcomings.

GDP, the number of economic entities, average remuneration, as well as the number of dwellings and passenger cars basically manifest a monotonic uninterrupted growth in the period of 1990–2018. Some disturbances of monotonicity, but generally an improvement in the situation, concern: the natural increase (since 1996), investments (disturbances in 1997–2004 and since 2008), and inflation (since 1998). On the other hand, serious disturbances in development in the years 1990–2018 were shown by: the financial result of the state budget, the number of economically active persons, unemployment and the number of the population, although the latter was slightly changing (see Fig. 1–12).

On the one hand, features relating to economic development, such as GDP, investments, economic entities and professional activity, as well as features

that can be identified with the effects of development, i.e. the average salary and the number of dwellings and passenger cars were correlated. On the other hand, such features as inflation, unemployment and public debt, which do not reflect well on economic development or even hinder this development, as well as the gradually declining birth rate were also correlated.

Investments were the basic factor of economic development in 1990–2018, for which GDP was adopted as a synthetic measure, while the state budget deficit had a detrimental effect in this respect. The same factors shaped the standard of living of the population in a similar way. Therefore, to paraphrase the well-known slogans: investments, investments and once again investments²².

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²² e.g. *learn, learn and learn again* or *work, work and work again*, without citing any authors.

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Tab. 2. Selected indicators of the economic and social development of Poland in the years 1990–2018

YEAR	Population (in thousand people)	Natural increase (in thousand people)	Unemploy- ment rate (in %)	Economic activity (in thousand people)	Total GDP (PLN billion)	Inflation (in %)	Business entities (in thou- sands)	Investment outlays (in million PLN)	Financial result of the state budget (in million PLN)	Average monthly salary (in PLN)	Housing resources (in thousand dwellings)	Passenger cars (in thousand)
1990	38,073	157.40	6.50	16,474	59.15	685.80	1,205.48	11,581.00	2,439.20	102.96	11,180	5,261
1991	38,144	142.00	11.40	15,861	82.43	170.30	1,504.80	16,883.70	-3,097.30	177.00	11,309	6,112
1992	38,203	120.50	13.70	15,135	114.24	142.40	1,731.66	20,159.70	-6,911.50	348.33	11,437	6,505
1993	38,239	102.00	14.90	14,772	155.78	135.30	1,896.90	24,715.90	-4,342.00	466.05	11,524	6,771
1994	38,265	94.90	16.00	14,747	210.41	132.20	2,163.05	33,865.10	-5,739.80	628.08	11,434	7,153
1995	38,609	47.03	14.90	14,791	301.35	127.80	2,112.70	47,144.70	-7,448.00	702.62	11,491	7,517
1996	38,639	42.71	13.20	14,969	382.55	119.90	2,414.18	65,622.00	-9,167.20	873.00	11,547	8,054
1997	38,660	32.43	10.30	15,177	465.67	114.90	2,599.04	90,437.70	-2,182.60	1,061.93	11,613	8,533
1998	38,667	20.27	7.88	15,356	549.47	111.80	2,844.26	112,813.50	-3,296.60	1,239.49	11,688	8,891
1999	38,263	0.59	10.20	14,757	615.12	107.30	3,041.40	125,954.42	-12,479.00	1,706.74	11,763	9,283
2000	38,254	10.32	11.62	14,526	747.03	110.10	3,186.70	133,160.16	-15,391.00	1,923.81	11,845	9,991
2001	38,242	4.99	13.24	14,207	779.98	105.50	3,325.54	121,362.88	-32,358.30	2,061.85	11,946	10,503
2002	38,219	-5.72	13.52	13,782	810.62	101.90	3,468.22	109,265.86	-39,402.60	2,239.56	12,438	11,029
2003	38,191	-14.16	13.21	13,617	845.93	100.80	3,581.59	110,859.78	-37,043.00	2,314.66	12,596	11,244
2004	38,174	-7.39	19.00	13,795	933.06	103.50	3,576.83	120,466.71	-41,417.00	2,409.69	12,683	11,975
2005	38,157	-3.90	17.60	14,116	990.47	102.10	3,615.62	131,054.93	-28,361.00	2,506.93	12,776	12,339
2006	38,125	4.56	14.80	14,594	1,069.82	101.00	3,636.04	154,880.28	-25,063.00	2,636.81	12,877	13,384
2007	38,116	10.65	11.20	15,241	1,187.61	102.50	3,685.61	191,713.54	-15,956.00	2,866.04	12,994	14,589
2008	38,136	35.10	9.50	15,800	1,286.07	104.20	3,757.09	217,259.71	-24,346.00	3,158.48	13,150	16,080
2009	38,167	32.65	12.10	15,868	1,372.21	103.50	3,742.67	218,580.91	-23,845.00	3,315.38	13,302	16,495
2010	38,530	34.82	12.40	15,473	1,445.30	102.60	3,909.80	217,287.28	-44,591.00	3,435.00	13,470	17,240
2011	38,538	12.92	12.50	15,562	1,566.82	104.30	3,869.90	243,346.19	-25,124.00	3,625.21	13,587	18,125
2012	38,533	1.47	13.40	15,591	1,629.43	103.70	3,975.33	237,627.29	-30,407.00	3,744.38	13,723	18,744
2013	38,496	-17.74	13.40	15,568	1,656.90	100.90	4,070.26	231,155.49	-42,194.00	3,877.43	13,853	19,389
2014	38,479	-1.31	11.40	15,862	1,720.43	100.00	4,119.67	250,776.38	-28,977.00	4,003.99	13,983	20,004

2015	38,437	-25.61	9.70	16,084	1,800.24	99.10	4,184.41	271,839.28	-42,607.00	4,150.86	14,119	20,723
2016	38,433	-5.75	8.20	16,197	1,861.15	99.40	4,237.69	244,429.03	-46,160.00	4,290.52	14,272	21,675
2017	38,434	-0.87	6.60	16,423	1,989.35	102.00	4,309.80	257,966.04	-25,354.00	4,527.89	14,440	22,504
2018	38,411	-26.022	5.80	16,484	.	101.60	4,365.38	.	-10,406.00	4,834.76	14,615	23,429

Source: Own study based on the data of Statistics Poland.

Table 3. Dynamics of economic and social development in Poland in 1990–2018 (year-to-year)

YEAR	Population (in thousand people)	Natural increase (in thousand people)	Unemploy- ment rate (in %)	Economic activity (in thousand people)	Total GDP (billion PLN)	Inflation (in %)	Business entities (in thou- sands)	Investment outlays (in million PLN)	Financial result of the state budget (in million PLN)	Average monthly salary (in PLN)	Housing resources (in thousand dwellings)	Passenger cars (in thousand)
1991/1990	100.19	90.22	175.38	96.28	139.36	24.83	124.83	145.79	-126.98	171.91	101.15	116.18
1992/1991	100.15	84.86	120.18	95.42	138.59	83.62	115.08	119.40	223.15	196.80	101.13	106.43
1993/1992	100.09	84.65	108.76	97.60	136.36	95.01	109.54	122.60	62.82	133.80	100.76	104.09
1994/1993	100.07	93.04	107.38	99.83	135.07	97.71	114.03	137.02	132.19	134.77	99.22	105.78
1995/1994	100.90	49.55	93.13	100.30	143.22	96.67	97.67	139.21	129.76	111.87	100.50	104.15
1996/1995	100.08	90.82	88.59	101.20	126.94	93.82	114.27	139.19	123.08	124.25	100.49	107.06
1997/1996	100.05	75.95	78.03	101.39	121.73	95.83	107.66	137.82	23.81	121.64	100.57	105.89
1998/1997	100.02	62.48	76.50	101.18	118.00	97.30	109.43	124.74	151.04	116.72	100.65	104.18
1999/1998	98.96	2.90	129.44	96.10	111.95	95.97	106.93	111.65	378.54	137.70	100.65	105.36
2000/1999	99.98	1,758.09	113.92	98.43	121.45	102.61	104.78	105.72	123.34	112.72	100.69	107.63
2001/2000	99.97	48.30	113.94	97.80	104.41	95.82	104.36	91.14	210.24	107.18	100.85	105.12
2002/2001	99.94	-114.76	102.11	97.01	103.93	96.59	104.29	90.03	121.77	108.62	104.12	105.28
2003/2002	99.93	247.47	97.71	98.80	104.36	98.92	103.27	101.46	94.01	103.35	101.27	102.01
2004/2003	99.96	52.20	143.83	101.31	110.30	102.68	99.87	108.67	111.81	104.11	100.69	106.56
2005/2004	99.96	52.79	92.63	102.33	106.15	98.65	101.08	108.79	68.48	104.04	100.73	103.09
2006/2005	99.92	-116.81	84.09	103.39	108.01	98.92	100.56	118.18	88.37	105.18	100.79	108.57
2007/2006	99.97	233.59	75.68	104.43	111.01	101.49	101.36	123.78	63.66	108.69	100.91	109.00
2008/2007	100.05	329.67	84.82	103.67	108.29	101.66	101.94	113.33	152.58	110.20	101.21	110.16
2009/2008	100.08	93.02	127.37	100.43	106.70	99.33	99.62	100.61	97.94	104.97	101.16	102.51
2010/2009	100.95	106.66	102.48	97.51	105.33	99.13	104.47	99.41	187.00	103.61	101.26	103.52

2011/2010	100.02	37.09	100.81	100.58	108.41	101.66	98.98	111.99	56.34	105.54	100.87	105.12
2012/2011	99.99	11.37	107.20	100.19	104.00	99.42	102.72	97.65	121.03	103.29	101.00	103.42
2013/2012	99.90	-1,207.35	100.00	99.85	101.69	97.30	102.39	97.28	138.76	103.55	100.95	103.56
2014/2013	99.96	7.37	85.07	101.89	103.83	99.11	101.21	108.49	68.68	103.26	100.94	103.22
2015/2014	99.89	1,959.68	85.09	101.40	104.64	99.10	101.57	108.40	147.04	103.67	100.98	103.70
2016/2015	99.99	22.46	84.54	100.70	103.38	100.30	101.27	89.92	108.34	103.36	101.08	104.61
2017/2016	100.00	15.13	80.49	101.40	106.89	102.62	101.70	105.54	54.93	105.53	101.18	103.82
2018/2017	99.94	2,991.03	87.88	100.37	.	99.61	101.29	.	41.04	106.78	101.21	104.17

Source: Own study based on the data of Statistics Poland.