

The Decision-Maker Factor – Through the Lens of Sustainable Development Goals

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Abstract. *The decision-maker is increasingly overwhelmed by the weight with which investments are attracted, by the accumulated debts and by the lack of specific models that ensure an overview and predictability. It is a major problem of the decision-maker and the applied research which, although they have addressed the issue of sustainable development through dedicated institutions, a vast legislative framework and many research studies, have not made concrete steps forward, at the same time as the quality of life has deteriorated. The state of geo-economic tension is growing among the great powers of the world and represents the most urgent problem of the present. The world is heading towards a great divergence, after a period of globalization that has profoundly modified global economic policy. The reconfiguration of relations of deeply integrated countries is full of risks, so that trade and investment relations between many of the world's powers have become difficult. For these reasons, it is complicated, but not impossible, to make collective progress on many of the global challenges these days, especially since Industry 4.0 has made a brutal debut in human history, and unexpected events have diverted attention in another direction, under the impact of the recent health crisis, ongoing military conflicts and global political tensions. Moreover, investments are closely linked to the decision-making factor, which causes long-term projects to have no continuity, and the maintenance of current infrastructure to be affected after each electoral process. In this situation, the question arises in which direction is the concept of sustainable development heading, given the current international context? In such a context, it is hard to believe that the development process of countries could continue as before. However, to answer this question, the authors made an incursion into the history of the last hundred years in Romania, through its evolutionary perspective, in close connection with the decision-making factor. Also, because the current moments seem to replicate the previous crisis, the authors took into account the evolutionary analysis of foreign investments, at a global level, in order to conclude on the future evolutionary trend of these sustainable developments.*

Keywords: sustainable development, gross fixed capital formation, the decision-making factor.

Introduction

According to Stoian Marian (2002), “investments constitute the material support for promoting technical and scientific progress [...], investments are a link between generations, both by creating new jobs for the younger generation and by inheriting fixed capital that it receives from previous generations”. For investments to be sustainable, they need to be allocated to projects that generate positive social and environmental effects. The Brundtland Report was criticized on the grounds that it “promoted a business strategy for global development, with an ambiguous and

insubstantial concept, with a public relations slogan attached” (O’Riordan, 1993); (Turner, R. K., 1993). With all the seriousness with which the 17 sustainable development goals of the 2030 Agenda have been approached, through paragraph 79, states are only "encouraged to carry out periodic and inclusive analyses of progress at national and subnational levels" to make them available to the HLPF (High-level Political Forum on Sustainable Development), as a basis for periodic reviews, given that paragraph 84 of the 2030 Agenda stipulates that reviews are voluntary. It is difficult to understand, however, how the degree of achievement of these goals can be monitored, given the optional nature of periodic reviews. This aspect may also justify the lack of interest of decision-makers in the sustainable approach, especially if we consider the fact that the sustainable development goals and indicators lack the formulations characteristic of some fundamental notions of sustainable development. Significant, critical terms such as “anti-corruption,” “civil liberties,” “free speech,” “freedom of the press,” “independent judiciary,” “separation of powers,” “free and fair elections,” and “civil society” are absent. In other words, the basic freedoms that underpin and advance human development are missing from the equation for the Sustainable Development Goals. In spite of all these shortcomings, "a major obstacle to sustainable development is corruption" (European Parliament, 2020). This is an obstacle to development in general and sustainable development in particular, sabotaging trust in governments, contributing to the perpetuation of economic and political instability and undermining the legitimacy of states. “Illicit money flows deprive developing countries of precious resources and empower corrupt elites” (European Parliament, 2020). Currently, there is the “reformist” position based on eco-innovation, in which companies produce and consumers buy eco-efficient products, and the “revolutionary” position that supports the abolition of capitalism and promotes localism, and to overcome this dichotomy, a “reconfiguration” based on new conceptual frameworks is necessary (Geels, 2015). The political year 2024 was marked by the rise of nationalist and radical parties in Europe (France, Germany, Italy, Austria, the Netherlands and Belgium) and the outcome of the elections in the United States of America could amplify this phenomenon, characterized by isolationist, conservative and migration-limiting policies. There are already visible signs that in other European countries, far-right parties have gained ground, reaching positions in governments (Portugal, Croatia, Slovakia). Moreover, military conflicts and the entire geo-political context indicate that the "revolutionary" position could increasingly "contaminate" the The decision-maker factor and fears and uncertainties could be on the rise. In such a context, current economic systems could undergo changes, and the agenda of many investments could be re-prioritized, both from the perspective of governments and investors. Thus, the Sustainable Development Goals become the object of an agenda carefully calibrated to avoid upsetting dictators, kleptocrats and the worst human rights offenders of this century. (Smith și Gladstein, 2018).

In this context in which the level of predictability is extremely low, under the influence of the needs of the social factor – current and future, the decision-maker plays a determining role since it is responsible for policies, theories and economic models. Could the political factor continue the approach of sustainable developments, appropriate to the current context, which would ensure the preservation of current well-being simultaneously with the sustainable development of new capacities? What is the direction in which the concept of sustainable development is heading?

To answer this question, the current study took into account the particular evolution of Romania in the last century, characterized by economic systems guided by decision-makers with

different political orientations and the analysis of the close causal link between foreign direct investment and gross national income during the last global economic crisis.

Premises and findings

In what follows, the authors have made an incursion into the history of the last hundred years in Romania, through its evolutionary perspective, in close connection with the decisive factor. Romania's geographical position, at the confluence of great empires, determined that the transformation of the Romanian economy from a traditional, predominantly agrarian economy, into a modern and industrialized economy was conditioned by the political factor - as a decision-maker factor and by the way in which it understood to react to the historical events that followed each other over time. Romania's development depended on the economic systems and the administrative, educational and cultural models that it chose to adopt at the national level. Opening up to foreign capital, in conditions in which domestic capital was never sufficient, the development of the appropriate legal and fiscal framework, as a consequence of the economic systems it went through, depended, in particular, on the political factor, as a decision-maker factor and influenced the economic and social progress of the Romanian economy, in general. The political factor was a determining factor that indicated the direction and meaning of economic development, that stimulated, restrained or ensured the achievement of sustainable development objectives.

Throughout the interwar period, there was a capitalist economic system. The structure of social capital varied, being directly influenced by the political doctrines of the decision-makers and by the general economic context marked by the economic recovery after World War I and the Great Depression of 1929-1933. Thus, despite all the resistance of the liberals to the entry of foreign capital, through the well-known motto "through ourselves" and the promotion of local capital, labor and private Romanian initiatives, the peasant policy of "open doors" to foreign capital gained ground. Thus, the insufficiency of local capital determined that foreign investments entered Romania, either through direct investments or through capital in kind, through more efficient machinery, innovative technologies and even qualified foreign employees in this regard. These investments targeted strategic sectors (manufacturing, oil processing, banking, etc.), attracted by the country's cheap labor force and natural and energy resources. Thus, in 1938, foreign investors held approximately 70% of the capital of joint-stock companies in industry, over 39% in banking, an overwhelming proportion in insurance and transport (around 80%), the share of foreign capital in the total share capital of joint-stock companies being 62%. (Zaman Ghe. and Georgescu G., 2019)

Although over 500 banks were active, only 10 banks with foreign capital held over 30% of total banking assets, holding, together with 11 other banks with Romanian capital, over 64% of total banking assets at the time. (Axenciuc V., 2000). Only three insurance companies had local capital (Asigurarea românească, Vulturul and Naționala), the rest being under German, Italian, English or French control. Foreign capital contributed to Romania's economic development in the interwar period, but the country's growth rate was not constant. Depending on the domestic and international economic context, favorable or unfavorable, the capitalization of profits alternated with the withdrawal of capital, loans and investments to the countries of origin, which led to the alteration of the state of the national economy and even the suspension, in 1932, of the payments that Romania owed, as a result of its external public debt. If the annual average of dividend and interest transfers was 56%, the annual average of capital withdrawals and loan repayments

exceeded 60%, during the Great Depression and afterwards, so that external transfers amounted to 18.6% of Romania's GDP in 1938-1939. (Axenciuc V., 2000).

Throughout the interwar period, Romania depended on the imports necessary for the modernization of the economy and the recovery after the first great world war. However, the structure of imports varied over time, from finished products to raw materials and semi-finished products, reaching the point in 1938 that imports were used to cover the domestic demand for manufactured products, given that domestic production covered only 80% of consumption needs.

If between 1920-1926, exports focused on agricultural products, starting with 1927, industrial products with a low degree of processing (wood and oil) gained ground, reaching a share of over 62% of total exports recorded at the end of 1939. However, the gains obtained from oil exploitation were not directed towards the technological development and modernization of the country, so that, in 1938, agriculture continued to have an extensive character, and the degree of industrialization of Romania remained relatively low (Madgearu V., 1940).

In the two decades between the two great world wars, railway infrastructure did not make significant progress, while road infrastructure gained ground through the development of the national road network, by approximately 33%, and the doubling of county roads (Table 1).

At the end of 1938, only 565 localities were supplied with electricity (over 40% in Transylvania) and just over 4 million inhabitants (24.5%) benefited from electric lighting. The installed power increased from year to year, reaching in 1938 three times higher than in 1925, standing at over 500 thousand kw. (Institutul Central de Statistică, 1939-1940).

Overall, the country's difficult general situation in the interwar period was also accentuated by the fact that, although Romania should have received war reparations from Germany (approximately 269 billion marks) and from Austria, Hungary and Bulgaria, Romania recovered only up to 15% of the total amounts due. Moreover, through the Clearing Agreement that was signed on March 23, 1939, between the Governments of Romania and Germany, on March 23, 1939, Romania lost over 1 billion German imperial marks.

The gaps in the decision-maker factor in the interwar period were visible in the country's overall results. Even though the total GDP increased from year to year (with a few small exceptions), the GDP per capita was permanently below the pre-war level.

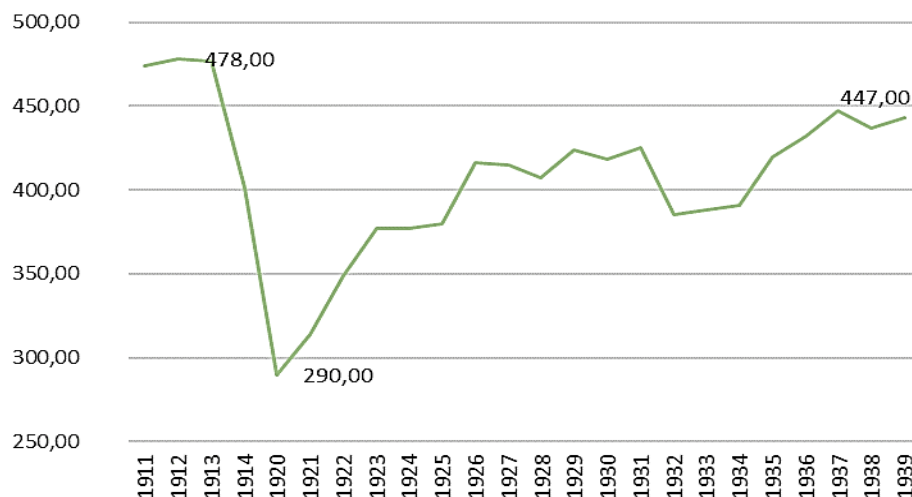


Figure 1. Evolution of GDP/capita – 1911-1939 (lei)

Source: Own collection based on data from Table II.6 page 49 (Axenciuc V., 2012).

Despite all the technological, economic, educational, institutional, legislative and infrastructural progress recorded, the valorization of natural and human resources was not sufficient (Axenciuc V., 2012) as a result of the lack of a global political and economic vision and a common effort to establish and achieve objectives. The presence of foreign capital, even if it was beneficial, also imposed certain limits, the interest of foreign shareholders prevailing countless times over national ones.

Thus, in the interwar period, under the impact of the effects of the economic and agrarian crisis, Romania was forced to find “on-spot” economic levers that would ensure both the coverage of war damages and the economic modernization of the country, in the context of political tensions, a highly corrupt economic environment, during which “Romania’s natural wealth and cheap labor represented the main factors of interest and profitability for foreign investors” (Madgearu V., 1940).

Although the capitalist economic system continued until 1948, it cannot be said that the activity during World War II had any beneficial impact on Romania. The decision-maker factor at that time, characterized by the lack of Parliament and the abundance of ministerial decisions and decree-laws, affected the entire Romanian economy.

In the post-war period, the Ribbentrop-Molotov Pact and the Vienna Dictate caused Romania to reduce the country's surface area, by ceding Northern Transylvania, Bessarabia, Northern Bukovina, Herța Land, and the Quadrilateral to Hungary, the Soviet Union, and Bulgaria. Administratively, Romania lost one region, 13 counties, and 32 urban communes (with their rural communes and villages). Later, after the conquest of Romania by the Soviet army and the declaration of the Romanian People's Republic on December 30, 1947, institutional and economic transformations began, by building a socialist economic system under Soviet occupation. After 1960, Romania began to claim its independence from the USSR. With the 1965 Constitution, the new name of the country became the Socialist Republic of Romania and other transformations began, by building the Romanian socialist economic system.

In the post-war period, after the establishment of Soviet domination, the Romanian economic potential was affected by the activity of the Romanian-Soviet joint-stock companies (SOVROMs), through which, between 1945-1956, control was exercised over the entire economy and war reparations were covered. After 1948, by adopting the law “for the nationalization of industrial, banking, insurance, mining and transport enterprises”, foreign capital was transformed into state capital in all economic sectors at that time. Thus, the investments made with effort by the private sector, in the over 8,000 nationalized companies, were transformed into state enterprises, in less than a year. According to this legislative act, the transfer to state ownership was conceived as a form of expropriation, through which the owners should have been compensated through a special Fund, established under the administration of the Ministry of Finance. However, this system did not work, especially since the rights that were established (often tainted by the inclusion of fictitious liabilities that diminished the value of the net assets taken over by the state) concerned the final decisions of three magistrates, without appeal. In fact, some of the enterprises did not have time to be nationalized, because they were taken over directly by the Red Army, under the direct coordination of the Soviet government, in favor of the USSR. With the establishment of the communist regime, the forest fund was taken over as state property, this transfer being also provided for in Art. 6 of the Romanian Constitution of 1948, “the riches of any kind of subsoil, mining deposits, forests, waters, sources of natural energy, railways, roads, water and air communication routes, post, telegraph, telephone and radio belong to the State, as common goods of the people”. In 1949, forced collectivization began, through the

expropriation of an area of over 1.5 million hectares (including the agricultural properties of ethnic Germans in Transylvania), the model of the sovkoms in industry being replicated in the agricultural field through the CAPs and IASs (the Romanian version of the kolkhozes and sovkhozes in the USSR). The process of socialist transformation of Romanian agriculture was achieved through several legislative acts, with countless abuses on the part of the decision-making factor, through state institutions. During this period of time, the state of the Romanian economy was also affected by the payment of huge war reparations to the USSR, in the amount of 300 million dollars (expressed in 1938 prices), to which were added another 750 million dollars representing various restitutions, reunifications, other rights, as well as the maintenance of Soviet troops.

After 1960, when Romania claimed its independence from the USSR, the implementation of the Romanian socialist economic system began, which aimed to accelerate economic growth. Thus, Romania resorted to loans from the IMF, IBRD, a series of bilateral government credits as well as foreign capital, in order to establish enterprises, even companies with mixed capital – Romanian and foreign – either headquartered in Romania or with their registered office outside the country, and to equip them with the necessary equipment and technologies, most of the equipment being purchased from imports. This approach to economic development contributed to the diversification of capital (national, state and foreign) which, even if it no longer corresponded to the ratio from the interwar period, contributed to the commercial expansion of Romanian markets. In addition, the Romanian banking system also expanded beyond the country's borders, through the establishment of mixed banks with Romanian capital participation by the Romanian Bank for Foreign Trade, between 1975 and 1980, many of these banks still being active today. In fact, Romania also participated in the budget of some international financial organizations from which our country was to receive loans with preferential interest rates. The fact that the decision-maker factor of that period recognized the insufficiency of domestic state capital and also appealed to foreign capital was gratifying for Western society, the country's opening being welcome for many developed countries and for the trade relations that were forged in this regard. However, the economic approach was not adequate, given the fact that most investments were directed towards the accumulation of fixed capital, without ensuring adequate and efficient administration and with a lot of errors at the macroeconomic level.

Compared to 1950, at the end of 1989, fixed assets were 16 times higher (Table 2), their growth in industry alone being over 41 times (the share being over 47% of the total). The excessive accumulation of fixed capital (fixed assets, in the socialist sense) was achieved at the expense of the increase in the trade balance deficit and without much concern for efficiency and economic, social and financial balance.

The losses were also deepened by the fact that the productivity of many machines was below the projected one, with many production capacities having delays in putting into operation. Moreover, the lack of infrastructure, the rigidity of the regulation mechanisms and the non-optimized processes amplified the negative impact on the Romanian economy during this period. Even if the decision-making factor in the centralized economy had a certain global vision that aimed at economic development and the inclusion of the social factor in the labor market, the lack of adequate economic theories and models that could provide a perspective on the direction in which the Romanian economy was heading accentuated the economic decline. Among the few models that were developed during that period, a valuable econometric model should be highlighted, through which it was demonstrated that “the accumulation of fixed funds above the optimal rate of 29% affects the efficiency of accumulation over time” (Dobrescu E., 1976). This

aspect was also confirmed in the 1980s, when, as a result of external shocks generated by a new oil crisis, the inflation of the US dollar, the increase in interest rates on international loans and other political and economic interests, Romania had to face an unprecedented external balance of payments crisis. Romania's economic evolution was positive, as long as the fixed assets efficiency ratio (ratio between net national income and fixed assets) was low, after which the economic decline was evident.

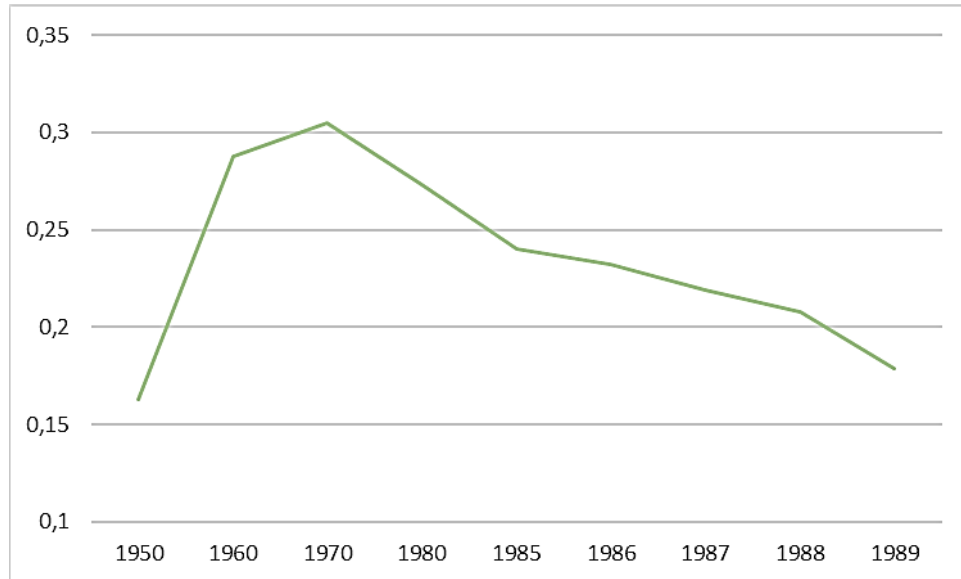


Figure 2. Fixed capital efficiency. Evolution 1950-1989

Source: Own processing based on data taken from Table 7 on page 17 (Zaman Ghe. and Georgescu G., 2019).

By the end of the ninth decade of the 20th century, Romania was already in economic decline, an aspect that can also be deduced from the evolution of the gross domestic product (Table 3), as it was calculated, through purchasing power parity, expressed in 1990 dollars (Axenciuc V., 2012).

The low level of utilization of production capacities (below 80%), the quantitative increase in production at the expense of quality, high energy consumption and reduced energy capacity, the insufficiency of raw materials and the decline of sales markets have altered the state of the Romanian economy.

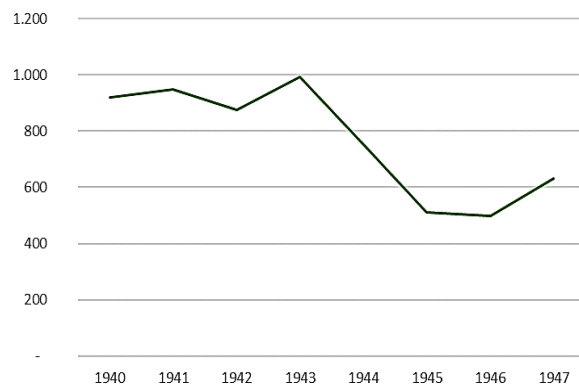


Figure 4. GDP evolution 1940-1947

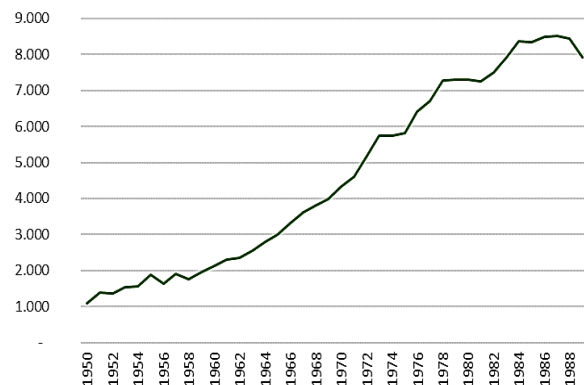


Figure 5. GDP evolution 1950-1989

Source: Own processing based on data from Table 3.

In 1982, Romania defaulted on its debt, and the external debt was paid off by reducing imports (some of which were vital for domestic production, others for the population), increasing exports, and the forced repayment of foreign loans (even though the negotiated maturities were between 15 and 20 years). This led to a worsening of economic conditions and the general standard of living of the population, ultimately leading to the events of December 1989 and the change of regime.

To save resources, before 1989, Romania launched the waste recycling initiative, through the famous slogan of the 3 Rs - recycling, reuse and reconditioning - and the circular economy initiative, by establishing a constellation of enterprises, conditioned among themselves, that used the residues resulting from certain industries and processes as resources in other industries and processes (for example, the famous greenhouses from Işalnița that used the residual heat from the power plant of the same name, located in its vicinity; the alumina production plant in Tulcea, which supplied the water resulting from the process as a heat agent for heating homes in the municipality; etc.). Although, at that time, the communist recycling program was not very well received by the population, due to the excessive collection standards, the waste of natural resources was reduced, both by reintroducing waste into the economic circuit, as resources, and by manufacturing durable goods with a much longer lifespan than today. Even though the phrase “sustainable development” did not exist in the literature of the time, its principles were applied at a practical level. Obviously, the situation could be improved, given the high degree of pollution caused by industries, but, from this point of view, Romania was not very far from the countries in Europe that were at the same stage of industrialization.

The post-December period is marked by economic and social transformations as a result of the transition from a centralized socialist economic system to a capitalist economic system, after in 1989, the communist regimes in Eastern Europe began to fall one by one, the actions being allowed by the lack of reaction and silence of the USSR. Perestroika ended the Cold War and the “iron curtain” installed almost half a century ago fell, a metaphor widely used after Winston Churchill’s speech in the United States on March 5, 1946, when he stated that “from Szczecin, on the Baltic Sea, to Trieste, on the Adriatic Sea, an iron curtain has descended across the continent”. This political change did not change either the surface area of the country or the administrative-territorial organization. The decision-maker factor, through the institutions of the Romanian state, had at its disposal an instrument of support for emergency situations (SURE) totaling 100 billion euros. This form of financial assistance was based on loans that, even if taken under advantageous conditions, increased the public debt and put pressure on the shoulders of future generations. As is known, the moment of December 22, 1989 found Romania without debts, but with a dysfunctional economic system that left its mark on the evolution of the entire post-December economy, so that, currently, Romania's public debt has reached alarming levels. The situation in which the Romanian economy found itself determined that, starting with 1990, finding sources of financing, regardless of their nature, was a permanent concern of the decision-making factor. As a result, most of the legislative measures that were adopted were oriented towards attracting investments, without much concern for creating an adequate control system that would ensure a certain balance between foreign and domestic capital, or that would protect the strategic branches of the national economy. The first laws adopted by the decision-making factor after 1989 envisaged the privatization of state assets and the formation of private capital – through foreign or domestic contributions – in a similar way to the peasant doctrine of the “open gates” of the interwar period, even if, politically, a party of socialist origin continues to be at the helm of the country. These laws envisaged “mass privatization”, through the free distribution of

30% of the state-owned share capital, and the restitution of agricultural land to former owners. The remaining 70% was transferred to the State Property Fund with the aim of privatizing Romanian enterprises, through the sale of shares to individuals and legal entities (Romanian or foreign). Later, other normative acts were adopted to accelerate the privatization process, regulate the foreign investment regime and promote direct investments in Romania, but, at a certain point, the legislative thicket and the errors in the approach to privatization (as a result of the changes in government and the leadership of the ministries) led to the sale of some enterprises for "one leu" and the restitution of land to the population that did not have the necessary means of production. Thus, many enterprises ended up being sold as scrap metal, instead of being refurbished and made more efficient, and the land under them transformed into large real estate investments. In agriculture, the restitution also led to the non-cultivation of land and its sale to foreigners. Overall, with all the privatization programs carried out, the positive effects on the Romanian economy were not expected, and this aspect is confirmed by the low level of investments in the Romanian economy. Compared to the high level of communist investments, net investments made after 1989 in construction, installation and assembly works, for the purchase of machinery, means of transport, new fixed assets or for the development, modernization, reconstruction of existing ones were very low. The extremely limited sources of financing determined the orientation of the privatization process of companies with state capital towards foreign individuals and legal entities, especially after 2000, when the prospects of accession to the European Union made Romania a much more attractive destination. This openness to foreign investments led to the gradual change in the capital structure of the Romanian economy, reaching the point that in 2020 the share of foreign capital represented almost 50%, compared to that of domestic capital, slightly lower by about 10 percent, and of state capital, reduced to approximately 10%. In terms of economic activities, over 80% of foreign direct investments were in the manufacturing industry, construction and real estate transactions, trade, financial intermediation and insurance, and the electricity, gas and water network. The presence of foreign capital in the extractive industry, IT and agriculture is not to be neglected.

According to NBR reports (2003-2023), foreign direct investments were not evenly distributed (oriented mainly towards the Bucharest-Ilfov Region) and suffered contractions between 2008-2015 (Figure 6) when reinvested FDI profit had an unfavorable evolution, exactly the period in which Romania needed more financing to mitigate the effects of the global financial crisis, the resilience capacity of the Romanian economy being greatly diminished under these conditions.

According to Napoleon Pop and Valeriu Ioan-Franc (2018), "after 25 years of market economy, the formula for optimal state involvement in regulating the economy has not yet been established, so that the private sector is efficient with healthy companies and continuous, developing activity". According to the authors, poor management of insolvencies, the draining of natural resources through low royalties, the perception of foreign companies being given an advantage, to the detriment of national ones, are visible certainties.

Thus, in 2020 the legislation regarding the sale of agricultural land was amended, the new provisions being adopted with the declared objective of increasing the degree of land use and consolidating the Romanian land market for agricultural activities, and not for speculative-investment purposes. The new regulations envisage the expansion of the categories of preemptors and the tightening of the conditions that certain categories of preemptors must meet, the temporary and indirect prohibition of the alienation of agricultural land, procedural changes and much higher fines. The expected effect of these changes will be to restrict the access of foreign citizens to the

Romanian land market, which contravenes the imposed accession conditions, although they do not limit reciprocity and access of Romanians to the acquisition of land in the EU.

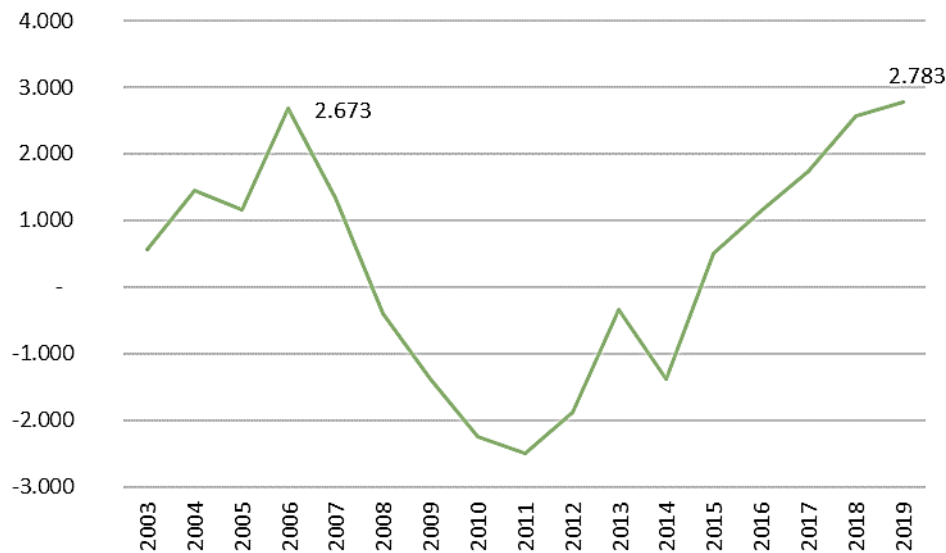


Figure 6. Evolution of reinvested FDI profit 2003-2019 (million euros)

Source: Own processing based on data manually taken from the NBR reports on Foreign Direct Investments from the period 2003-2019.

At the end of 2023, the length of the public road network totaled 86,388 km, of which 17,677 km (20.4%) were national roads, 35,046 km (40.6%) were county roads and 33,665 km (39.0%) were communal roads, compared to 108,291 km at the end of 1936 (INS, 2020). At the end of 2024, Romania reached 1,275 km of motorways and expressways and 622 km under construction. Given that road infrastructure facilitates investment access and limits migration, it can be said that the lack of motorways in the Moldovan area and in the southern counties of the country represents a defining restriction for business, so these destinations have been permanently abandoned in favor of others (especially those with easy access routes). The railway network has decreased from 11,410 km in 1936 to 10,615 km in 2022, although the end of communism had left Romania with 11,881 km of railways - 3,328 km of electrified railways (Direcția Generală de Statistică, 1987). In 2021, the installed power reached 19,582 MW.

However, Romania's economic situation could have been different in the three decades that passed after 1989, if the decision-maker factor had been managed with continuity, without synopses and errors generated by its political orientation. But, as in the interwar period, after 1989, Romania continued to be attractive for its natural resources and cheap labor. The history of the interwar economy almost replicated itself, when the investment of funds obtained from privatization and the exploitation of natural resources came into question. Romania, instead of modernizing, directed these amounts towards consumption. The lack of vigilance of the decision-maker factor made possible the emergence of the last inflationary wave in the period 1990-2000, which seriously altered the lives of millions of Romanians. According to Mircea Ciumara and Constantin Ciutacu (2004), the causes of the price increase resulted from "the abandonment of the management of public assets (whose immense wealth can be estimated, in 1989, at about 275 billion US dollars) in a wave of waste and embezzlement from the state's assets both at the governmental and corporate levels. The same lack of vigilance of the decision-maker has also left its mark on the environment, on the sustainable management of the forest and land resources.

In such a context, Romania has become a country with high catastrophic risks, ranking 87th out of 171 in the top countries with the highest risks of natural disasters, according to the World Risk Report (2020).

Given the global concerns regarding sustainable development, Romania has also adhered to the principles contained in the 2030 Agenda by adopting the phrase “sustainable development” in all legislation that has been adopted in recent years. Thus, from a theoretical point of view, the entire specialized literature abounds in the terminology of sustainable development, but, from a practical point of view, these principles are very little visible, especially if we consider the evolution of macroeconomic indicators, the situation of the social factor, the environmental elements and the recent health crisis that have demonstrated that the Romanian economy is neither resilient nor sustainable. After 1989, no economic strategy was outlined at the national level, and the chaotic nature of the adopted economic measures and the legislative deadlock (the economy functioned through government decisions, rather than through laws adopted by Parliament) affected both the business environment and sustainable economic development (Vasile and Zaman, 2005), viewed as a whole, through the three pillars - economic, social and environmental. For these reasons, the development of the National Recovery and Resilience Plan - PNRR (Guvernul României, 2021) was the first "major national strategy" to be formulated in the last thirty years, as a necessity to document and justify the amount of 29.2 billion euros that was to be received from the European Union, as a source of financing for the post-pandemic economic recovery.

Summarizing the above, Romania was under the economic pattern imposed by the decision-maker political factor, an aspect that influenced the way of attracting financing sources for the modernization and development of the country. Romania's development, as a whole, involved considerable efforts for access to financing sources, and sustainable development assumed the capacity of the decision-maker factor to maintain these sources for as long as possible.

Globally, with the emphasis on the globalization phenomenon, the structure of financing sources underwent changes. Since the 1980s, foreign loans have no longer been an alternative for financing investments, with capital being allowed to circulate freely in the world, becoming the engine of global economic growth. Thus, Foreign Direct Investments (FDI) gained momentum and represented an extremely advantageous option for states to develop, because, together with the financing source, they brought know-how and new technologies and specialized the local workforce. However, the current uncertain international geopolitical context implies a reconfiguration of the relations of deeply integrated countries. Along with this, a series of risks arise, including the withdrawal/reorientation of FDI.

From the above, it can be seen that Romania has also benefited from the benefits of FDI, especially in the last three decades, under the conditions assumed by the decision-maker political factor. Because the current moments seem to replicate the previous crisis, the authors considered the evolutionary analysis of foreign investments, globally, to conclude on the future evolutionary trend of these sustainable developments. In an attempt to understand the direction in which the concept of sustainable development, in general, and the Romanian one, in particular, is heading, in the context of the current state of geo-economic tension, an analysis of the link between Foreign Direct Investment (FDI) and Gross National Income (GNI) was carried out, for the 7 macro-regions at the global level, during the most recent global financial crisis.

The GNI indicator was chosen because it continues to be used internationally to quantify the prosperity of world economies and the living standards of nations. At the European level,

GNI is an important macroeconomic indicator, following the European Commission's decision to use it to establish contribution rates to the community budget and to assess the VAT contribution of each member state.

Methodology

Given the small number of variables used (GNI - Gross national income and FDI - Foreign Direct Investments), this analysis represents an exploratory research.

Based on these considerations, the current analysis aimed to highlight the close causal link that exists between foreign direct investment and gross national income, in order to emphasize the fact that this fact constitutes an element of vulnerability, in addition to the benefits that have been described above. In the absence of other sources of financing and appropriate measures on the part of the decision-maker, the use of FDI as a predominant source of financing for local developments constitutes a major risk since there are major discrepancies between the interest of FDI and the interest of sustainable development that the host country has, which can be accentuated by a tense geo-political context.

Panel data were used for the 7 global macro-regions for the period 2009-2017, a period for which complete statistical data were found, the data being taken from the website <https://databank.worldbank.org/home.aspx>. For the present econometric model, β is expected to be positive, since economic theory recognizes the positive impact of foreign direct investment on the evolution of gross national income. The Eviews10 application was used to estimate the parameters.

According to the statistical data for 2017, Figure 7 highlights the distribution of gross national income across the seven macro-regions. The highest level of gross national income was recorded by countries located in the Pacific and East Asia, while countries in sub-Saharan Africa ranked last.

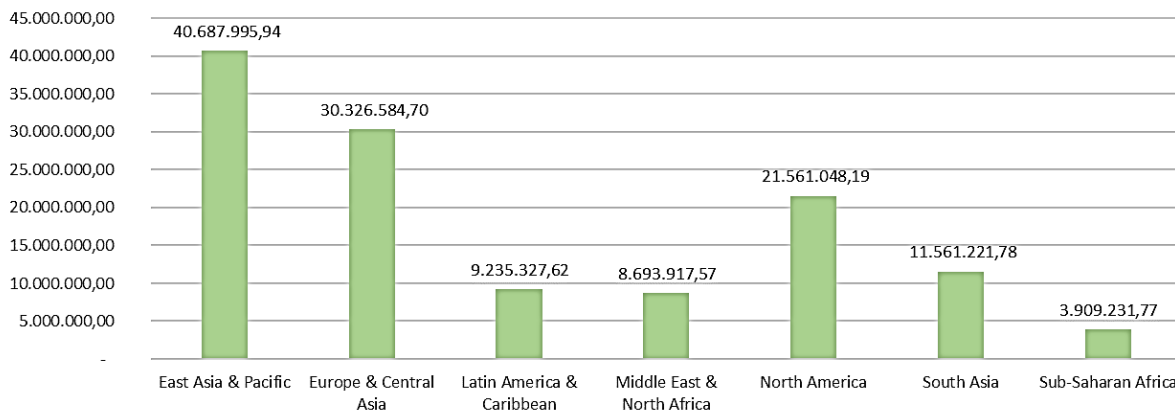


Figure 7. GNI by region (PPP, \$ million), as of 31.12.2017

Source: Own processing based on data taken from WorldBank (<https://databank.worldbank.org/home.aspx>).

At the end of 2017, as highlighted in Figure 8, it is noted that foreign direct investment followed the evolution of gross national income, with one exception relating to the countries in the Pacific and East Asia, which are outpaced by the countries in Europe and Central Asia.

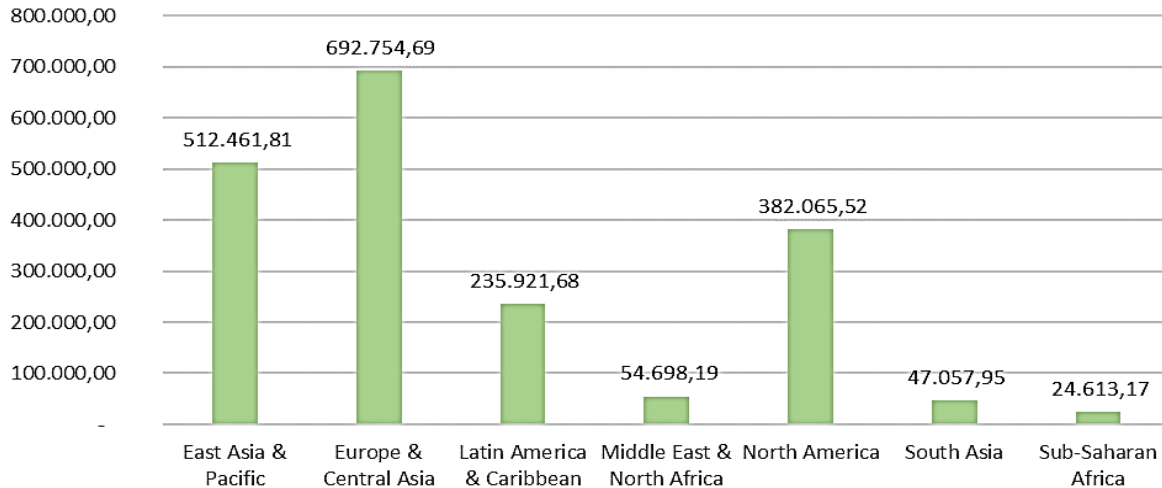


Figure 8. FDI by region (\$ million), as of 31.12.2017

Source: Own processing based on data taken from WorldBank (<https://databank.worldbank.org/home.aspx>).

To choose an appropriate econometric model, graphs were constructed to highlight the link between the two variables - gross national income and foreign direct investment - based on the data in Table 4. From the analysis performed, it was found that the point clouds were located around straight lines, which confirms the existence of a linear link between the variables.

Table 4. VNB (GNI) and ISD (FDI) per regions, 2017 (million \$)

Regiune	VNB (GNI) 2017	ISD (FDI) 2017
East Asia & Pacific	40.687.995,94	512.461,81
Europe & Central Asia	30.326.584,70	692.754,69
Latin America & Caribbean	9.235.327,62	235.921,68
Middle East & North Africa	8.693.917,57	54.698,19
North America	21.561.048,19	382.065,52
South Asia	11.561.221,78	47.057,95
Sub-Saharan Africa	3.909.231,77	24.613,17

Source: Own processing based on data taken from WorldBank (<https://databank.worldbank.org/home.aspx>).

The parameters α and β were determined, starting from the statistical data in Table 5 and Table 6.

Table 5. VNB (GNI) per regions, 2009-2017 (million \$)

GNI (milioane USD)	2009	2010	2011	2012	2013	2014	2015
East_Asia_Pacific	22784581	24911426	26950703	29116896	31317780	33617054	35696747
Europe_Central_Asia	21881482	22887867	24486920	25224305	26212713	27004070	27532921
Latin_America_Caribbean	7036555	7540627	8131902	8539841	8937951	9229644	8797812
Middle_East_North_Africa	5886677	6216082	6536278	6921545	7229925	7568454	7889224
North_America	15781143	16464884	17237045	18113520	18706841	19653796	20267249
South_Asia	6204128	6736312	7241210	7769939	8376616	9129500	9911593
Sub_Saharan_Africa	2469726	2635900	2846940	3023634	3195802	3487609	3659068

Source: Own processing based on data taken from WorldBank (<https://databank.worldbank.org/home.aspx>).

Table 6. ISD (FDI) per regions, 2009-2017 (million \$)

FDI (milioane USD)	2009	2010	2011	2012	2013	2014	2015	2016	2017
East_Asia_Pacific	28773 0	49696 9	56058 6	51773 0	59085 1	63200 2	61647 7	530862	51246 2
Europe_Central_Asia	58608 8	69236 9	99984 1	88297 5	70116 2	50882 1	81134 1	100748 4	69275 5
Latin_America_Caribbean	15734 0	22813 2	28241 6	28747 9	35357 2	26852 8	26675 1	252523	23592 2
Middle_East_North_Africa	83844	87567	62347	63269	61052	52340	50902	55813	54698
North_America	18194 4	29397 5	30155 7	29977 0	35523 4	31595 3	57058 6	528996	38206 6
South_Asia	39495	31699	40646	27781	33525	40308	49667	50844	47058
Sub_Saharan_Africa	36662	32938	42876	39653	41504	42680	45634	31809	24613

Source: Own processing based on data taken from WorldBank (<https://databank.worldbank.org/home.aspx>).

The model variables are as follows:

y_{it} – the GNI value of countries in region i , at time t ;

x_i – the value of foreign investments for countries in region i , at time t ;

u_{it} – the deviation variable, specific to countries in region i , at time t ;

α, β – the coefficients (parameters) of the model.

The regression equation is as follows:

$$GNI_{it} = \alpha_i + \beta_i \cdot FDI_{it} + u_{it}, \text{ unde } i = 1, 2, \dots, n \text{ și } t = 1, 2, \dots, t. \text{ (Ecuatia 1)}$$

The aim was to obtain those estimates that would lead to a degree of determination (of the effect by the cause) as high as possible (R^2), the deviations between the empirical values of the effect variable y and the values of the same variable obtained based on the model and positioned on the line ($\hat{y}$, adjusted, theoretical values), to be as small as possible, and the estimates obtained for the parameters to be as precise as possible, to tend towards the true values of the parameters, as the sample grows.

It should be noted that the two-variable model is not very common, because a phenomenon cannot be explained only by the influence of a single determining factor because there are other more or less important factors/causes that influence the dependent variable, the determining factor being able to manifest itself differently depending on the degree of stability of the other factors.

We checked the stationarity of the data. The results are presented in Table 7 (for GNI) and Table 8 (for FDI).

Table 7. Stationarity tests for gross national income, by region

Group unit root test: Summary

Serii: GNI_East_Asia_Pacific, GNI_Europe_Central_Asia,
GNI_Latin_America_Caribbean, GNI_Middle_East_North_Africa,
GNI_North_America, GNI_South_Asia,
GNI_Sub_Saharan_Africa

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GNI series in level

Method	Exogenous variables					
	No exogenous		Individual effects		Individual linear effects and trends	
	Statistic	Prob.	Statistic	Prob.	Statistic	Prob.
Null: Unit root (assumes common unit root process)						
Levin, Lin & Chu t*	22.5604	1.0000	6.0586	1.0000	-3.4169	0.0003
Breitung t-stat	–	–	–	–	2.0298	0.9788
Null: Unit root (assumes individual unit root process)						
Im, Pesaran and Shin W-stat	–	–	4.7551	1.0000	0.4409	0.6704
ADF - Fisher Chi-square	0.1053	1.0000	5.4209	0.9790	10.0483	0.7586
PP - Fisher Chi-square	0.0363	1.0000	13.5484	0.4839	4.6149	0.9905

GNI series in first difference

Method	Exogenous variables					
	No exogenous		Individual effects		Individual linear effects and trends	
	Statistic	Prob.	Statistic	Prob.	Statistic	Prob.
Null: Unit root (assumes common unit root process)						
Levin, Lin & Chu t*	1.9641	0.97520	-1.9903	0.0233	-3.8480	0.0001
Breitung t-stat	–	–	–	–	0.7225	0.7650
Null: Unit root (assumes individual unit root process)						
Im, Pesaran and Shin W-stat	–	–	-0.5806	0.2808	0.0325	0.5130
ADF - Fisher Chi-square	8.2781	0.8743	19.2802	0.1545	14.7372	0.3964
PP - Fisher Chi-square	7.6336	0.9075	19.2719	0.1548	25.7223	0.0281

Double-differentiated GNI series

	No exogenous	
	Statistic	Prob.
Null: Unit root (assumes common unit root process)		
Levin, Lin & Chu t*	-6.5915	0.0000

Null: Unit root (assumes individual unit root process)

ADF - Fisher Chi-square	62.7273	0.0000
PP - Fisher Chi-square	67.6342	0.0000

Source: Own processing in Eviews10, based on data from Table 5 and Table 6.

Table 8. Stationarity tests for foreign direct investment, by region

Group unit root test: Summary

Serii: FDI_East_Asia_Pacific, FDI_Europe_Central_Asia,
FDI_Latin_America_Caribbean, FDI_Middle_East_North_Africa,
FDI_North_America, FDI_South_Asia,
FDI_Sub_Saharan_Africa

Seriile FDI în nivel

Method	Exogenous variables			
	No exogenous		Individual effects	
	Statistic	Prob.	Statistic	Prob.
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-0.8420	0.1999	-5.6262	0.0000
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	–	–	-2.3551	0.0093
ADF - Fisher Chi-square	9.8353	0.7741	30.7881	0.0059
PP - Fisher Chi-square	13.5569	0.4832	30.9181	0.0057

Source: Own processing in Eviews10, based on data from Table 5 and Table 6.

The stationarity check of the data showed that the GNI series are non-stationary (Table 7), integrated by order 2, symbolically, I(2), and the FDI series are stationary, in the individual fixed effects model (Table 8).

Subsequently, the econometric model was estimated, without the use of fixed/random effects techniques, both in the cross-sectional dimension and in the temporal dimension, and the results are those in Table 9.

Table 9. Homogeneous panel model of the links between gross national income (GNI) and foreign direct investment (FDI), by region

Dependent Variable: d(GNI?,2)

Method: Pooled EGLS (Period SUR)

Sample (adjusted): 2011 2017

Included observations: 7 after adjustments

Cross-sections included: 7

Total pool (balanced) observations: 49

Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3724.5248	1745.2748	2.1341	0.0381
FDI?	0.1044	0.0040	25.9144	0.0000
Weighted Statistics				
Root MSE	0.9960	R-squared		0.9325
Mean dependent var	1.7109	Adjusted R-squared		0.9311
S.D. dependent var	5.6255	S.E. of regression		1.0169
Sum squared resid	48.6051	F-statistic		649.3813
Durbin-Watson stat	1.9442	Prob(F-statistic)		0.0000

Source: Own processing in Eviews10, based on data from Table 5 and Table 6.

The apparently unrelated regression (SUR) method, also known as multivariate regression or Arnold Zellner's method proposed in 1962 (or apparently independent regression equations), was used, which estimates the parameters of the system, accounting for heteroskedasticity and contemporaneous correlation in the errors in the equations. The estimates of the cross-equation covariance matrix are based on the estimates of the parameters of the untaxed system. The SUR model can be seen either as a simplification of the general linear model, where certain coefficients in the Beta matrix are restricted to be equal to zero, or as a generalization of the general linear model in which the regressors on the right-hand side can be different in each equation. The SUR model can be further generalized to the simultaneous equations model, where the regressors on the right-hand side can also be the endogenous variables.

The data used in the model are samples because it is almost impossible to work with populations. In these circumstances, various causes/situations may occur that may lead to parameter estimates that may contradict concrete aspects of the economy, or economic theories and implicitly the results are questionable. In this context, it is necessary to carry out certain checks, and checking the sign of the parameters may confirm/reject those already stated in economic theory/practice. For the present econometric model, β is expected to be positive, because in economic theory it is stated that foreign direct investment has a positive impact on the evolution of gross national income.

The resulting regression equation is the following:

$$d(GNI_{it}, 2) = 3724,5248 + 0,1044_i FDI_{it} + u_{it} \quad (\text{Ecuatia 2})$$

It is found that the parameter β is positive, which confirms the hypothesis that, as foreign direct investment increases, the level of gross national income will increase. The coefficient of determination (R2) expresses the weight of the role of the determining factors in the model in relation to the total variation of the effect variable. It is not certain that a high R2 implies a priori that the model is good, but when R2 has a high value, a significant part of the variation from the mean of the endogenous variable can be explained by the model. In the current analysis, R2 is 93.25%, which means that 93.25% of the variation from the mean of GNI can be explained by the model.

The graphical representation can signal situations of possible dependence or independence of deviations. Verification of the existence or non-existence of autocorrelation of errors (deviations or residual values) can be obtained by the DW (Durbin-Watson) test. The dW test can only be applied under certain restrictions: the free parameter; the linear relationship between u_i and the immediately previous level u_{i-1} . If the dW value is close to 2 then the errors are not

autocorrelated, as the dW value approaches 0 or 4, it indicates that the errors may be autocorrelated, in which case the efficiency of the least squares is affected. As can be noted, $dW = 1.944$, therefore it can be appreciated that the errors are not autocorrelated, and the model is good.

Results and discussions

The results confirm economic theory, both in the positive aspects related to the benefits brought by foreign direct investment, and in the negative aspects reflecting the weaknesses of the financing system, when they withdraw.

Although foreign direct investments are considered to be investments that have a stable character, contributing to the consolidation of the economies of the destination countries, it was noted that, during the last financial crisis, they were vulnerable to the financial shocks that occurred globally. A series of mutations were generated between economic regions, states, industries and sectors of activity, with many of the foreign direct investments being oriented towards sectors of activity of national interest, or in strategic areas. This aspect is also confirmed by the model.

The positive impact of investments on the gross national income of the countries is obvious, global growth and most of the developments have been based, in the last almost 40 years, mainly on these investment flows. However, the negative aspects and dangers that arise as a result of the withdrawal of investments to the destination countries, or to other cheaper countries, must also be recognized.

Conclusion

The current global political discussions on trade deficits between macro-regions and/or between certain countries cast uncertainty on foreign direct investment as a primary source of financing for local development and on how the sustainable development process will continue from now on. Global indebtedness and the share of global debt are also significantly higher than they were before the most recent global financial crisis. The current global macroeconomic vulnerability and the volatility of financial markets carry with them major economic risks that have also been recognized by the IMF in its most recently published forecasts, recognizing the slowdown in recent years of both global growth and globalization itself. Or, as we know, the concept of sustainable development has been based on globalization.

For development to be sustainable, appropriate measures must be adopted by the decision-maker to mitigate these negative aspects. The decision-maker is responsible for finding those levers that ensure continuity and resilience for its own development model in the event of unforeseen events, be they natural disasters, or shocks propagated globally, or of military or other origin.

However, if the unforeseen event is even the political reorientation of the decision-maker, the direction of sustainable development becomes completely uncertain.

The skepticism of these conclusions belongs to the authors, as we have expressed in other previous articles, since in the current geopolitical context it is hard to believe that the development process of countries could be continued as before. In particular, the sustainable development of Romania will depend on the current global context and on the way in which the decision-maker will adapt to these far-reaching changes. But, this aspect will be closely followed by the authors for a future analysis on this topic.

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Appendix

Table 1. Road and railway network in Romania – 1922-1939 (km)

Year	National roads	County roads	Communal roads	Railways
1922	10.404	13.502	78.871	
1923	10.864	13.212	80.911	
1924	10.899	13.297	56.583	
1925	11.220	13.101	64.403	
1926				
1927	11.429	13.063	79.584	
1928	11.479	13.199	81.407	11.100
1929	11.477	13.246	81.836	11.130
1930	12.785	14.804	78.514	11.135
1931	13.905			11.221
1932				11.206
1933	13.045			11.206
1934	13.045	32.152	58.025	11.213
1935	13.013	32.232	63.698	11.194
1936	13.850	31.582	62.859	11.241

Year	National roads	County roads	Communal roads	Railways
1937				11.272
1938				11.375
1939				11.410

Source: Manually collected data from the Statistical Yearbook of Romania, 1939-1940.

Table 2. Evolution of fixed capital (fixed fund) billion lei – 1950-1989

	1950	1960	1970	1980	1985	1986	1987	1988	1989
Total fixed assets, of which:	210,1	337,9	713,9	1.880,3	2.797,9	2.992,2	3.182,0	3.359,2	3.526,1
Industry	40,9	92,1	263,9	820,2	1.263,6	1.372,7	1.471,4	1.574,7	1.673,6
Construction	1,4	6,8	19,2	81,3	117,7	128,1	139,1	145,1	146,7
Agriculture	39,2	49,6	89,1	198,5	308,9	332,4	355,8	374,5	384,8
Transport and telecommunications	28,3	37,0	82,6	241,6	368,6	382,8	405,1	417,9	441,3
Communal management, housing	66,8	98,0	158,2	334,8	466,5	486,6	508,8	530,5	549,4
Education, culture, health, social assistance	6,0	11,9	25,4	61,8	73,7	76,4	77,9	80,3	82,0
Other	27,5	42,5	75,5	142,1	198,9	213,2	223,9	236,2	248,3

Source: Taken from Table 6, page 16 (Zaman Ghe. and Georgescu G., 2019).

Table 3. Evolution of gross domestic product, 1940-1989

GDP evolution	GDP (\$mil) ppc	GDP per capita \$ ppc
1940	12.240	920
1941	12.643	947
1942	11.812	876
1943	13.537	992
1944	10.296	752
1945	8.028	510
1946	7.852	497
1947	10.054	633
1948		
1949		
1950	17.870	1.096
1951	22.900	1.391
1952	22.834	1.373
1953	25.727	1.527
1954	26.458	1.550
1955	32.726	1.889
1956	28.470	1.628

GDP evolution	GDP (\$mil) ppc	GDP per capita \$ ppc
1957	33.865	1.899
1958	31.786	1.760
1959	35.845	1.967
1960	39.311	2.136
1961	42.633	2.296
1962	44.149	2.363
1963	48.142	2.559
1964	52.864	2.793
1965	57.228	3.008
1966	63.663	3.326
1967	69.836	3.621
1968	75.074	3.807
1969	79.830	3.980
1970	87.808	4.336
1971	94.320	4.608
1972	106.380	5.148
1973	119.722	5.748
1974	120.837	5.746
1975	123.569	5.816
1976	137.276	6.401
1977	145.523	6.719
1978	158.965	7.274
1979	165.603	7.311
1980	161.973	7.296
1981	162.088	7.252
1982	168.659	7.504
1983	178.911	7.933
1984	189.535	8.378
1985	189.361	8.333
1986	193.747	8.489
1987	195.393	8.518
1988	194.487	8.437
1989	183.123	7.910

Source: Manual data extraction from Table A2, pp. 39-40 (Axenciuc V., 2012).