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CUPRINS

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AGRICULTURAL POLICY DEVELOPMENT IN MOLDOVA OVER ONE DECADE: RECENT ESTIMATES AND AN OUTLOOK TOWARDS EU ACCESSION

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ABSTRACT

Public support for the agricultural sector of Moldova represents an essential priority of the bodies entitled to the development and implementation of public policies in the field of agriculture. Given the accelerated attempts to join the European Union, an alignment of the Moldovan agricultural policy to the EU's Common Agricultural Policy (CAP) and broader EU green infrastructure with Green Deal and Farm to Fork, are receiving an increasing attention. In order to support the policy makers and the experts with input for the EU legal approximation and future EU accession negotiations, this article presents recent estimates of public support for the agricultural sector of the Moldova using the OECD methodology. More specifically, the Producer Support Estimate (PSE) results are presented for eleven products covering the period 2007-2018. Despite increasing budgetary support of agricultural producers from the Government of Moldova, PSE for most commodities is negative. Given the relatively low relevance of trade interventions, the calculated price differentials hint at non-policy-related barriers to price transmission between the border and the farm gate. Potential reasons are discussed, and policy recommendations are developed. Furthermore, the structure of public policies for agriculture and rural areas, approximated by the General Services Support Estimate (GSSE), are presented. The comparison with the current CAP reveals that the structure of instruments differs substantially. Funding for the current Moldovan agricultural policy is heavily concentrated on investment support and the inspection and control system. Although the CAP might be further reformed until Moldova joins the EU, environmental and rural development policy objectives will remain paramount within the EU, and the relevant ministries should start to develop suitable joint strategies.

Keywords: agricultural policy, producer support estimate, general services support estimate, Moldova, EU accession, EU's common agricultural policy

Sprijinul public pentru sectorul agricol în Republica Moldova reprezintă o prioritate esenţială a instituţiilor abilitate cu elaborarea şi implementarea politicilor publice în domeniul agriculturii. Având în vedere încercările accelerate de aderare la Uniunea Europeană, va primi o atenţie din ce în ce mai mare alinierea politicii agricole a Moldovei la Politica Agricolă Comună (PAC) a UE şi o infrastructură ecologică mai largă a UE marcată în Pactul Verde European şi Strategia de la fermă la furculiţă. Pentru a sprijini factorii de decizie politici şi experţii cu contribuţii pentru apropierea juridică la UE şi viitoarele negocieri de aderare la UE, acest articol prezintă estimări recente ale sprijinului public pentru sectorul agricol al Moldovei folosind metodologia OCDE. Mai precis, rezultatele Estimarea Sprijinului Producătorului (PSE) vor fi prezentate pentru unsprezece produse care acoperă perioada 2007-2018. În pofida creşterii sprijinului bugetar al producătorilor agricoli din partea Guvernului Moldovei, PSE pentru majoritatea mărfurilor este negativ. Având în vedere relevanţa relativ scăzută a intervenţiilor comerciale, diferenţele de preţ calculate sugerează bariere nelegate de politici în calea transmiterii preţurilor la hotar şi de producător. Motivele potenţiale sunt discutate şi sunt elaborate recomandări de politici. De asemenea, este prezentată structura politicilor publice pentru agricultură şi zonele rurale, aproximată prin Estimarea Sprijinului Serviciilor Generale (GSSE). Comparaţia cu PAC actuală arată că structura instrumentelor diferă substanţial. Finanţarea politicii agricole actuale a Moldovei este concentrată în mare măsură pe sprijinirea investiţiilor şi pe sistemul de inspecţie şi control. Deşi PAC ar putea fi reformată în continuare până la aderarea Moldovei la UE, obiectivele politicii de mediu şi dezvoltare rurală vor rămâne primordiale în cadrul UE, iar ministerele competente ar trebui să înceapă să elaboreze strategii comune adecvate.

Cuvinte cheie: Politică agricolă, estimarea sprijinului pentru producători, estimarea sprijinului pentru servicii generale, Moldova, aderarea la UE, politica agricolă comună a UE

Государственная поддержка сельскохозяйственного сектора Молдовы является одним из основных приоритетов органов, уполномоченных на разработку и реализацию государственной политики в области сельского хозяйства. Учитывая ускорение попыток присоединения к Европейскому союзу, все большее внимание уделяется согласованию сельскохозяйственной политики Молдовы с Единой сельскохозяйственной политикой ЕС (ЕСП) и более широкой зеленой инфраструктурой ЕС – «Зеленым соглашением» и Стратегией «От фермы к столу». В целях поддержки политиков и экспертов, внесших свой вклад в правовое сближение с ЕС и будущие переговоры о вступлении в ЕС, в этой статье представлены последние оценки государственной поддержки сельскохозяйственного сектора Молдовы с использованием методологии ОЭСР. В частности, результаты оценки поддержки производителей (PSE) представлены для одиннадцати продуктов за период 2007–2018 гг. Несмотря на усиление бюджетной поддержки сельхозпроизводителей со стороны правительства Молдовы, PSE по большинству товаров отрицательный. Учитывая относительно низкую значимость торговых вмешательств, рассчитанные различия в ценах указывают на не связанные с политикой барьеры для передачи цен между границей и воротами фермы. В статье обсуждаются возможные причины и представлены рекомендации по совершенствованию политики в данной сфере. Кроме того, представлена структура государственной политики для сельского хозяйства и сельских районов, аппроксимированная оценкой поддержки общих служб (GSSE). Сравнение с действующей ЕСП показывает, что структура инструментов существенно отличается. Финансирование текущей сельскохозяйственной политики Молдовы в значительной степени сосредоточено на поддержке инвестиций и системе инспекции и контроля. Хотя ЕСП может быть подвергнут дальнейшему реформированию до присоединения Молдовы к ЕС, цели политики в области окружающей среды и развития сельских районов останутся первостепенными в рамках ЕС. Исходя из этого, соответствующие министерства должны начать разработку необходимых совместных стратегий.

Ключевые слова: сельскохозяйственная политика, оценка поддержки производителей, оценка поддержки общих служб, Молдова, вступление в ЕС, единая сельскохозяйственная политика ЕС

INTRODUCTION

With more than 1.5 million people, i.e., 57 % of the total population, living in rural areas, Moldova belongs to the less urbanized countries of Europe (National Bureau of Statistics, 2022). The agricultural sector contributes 11% of the Gross Value Added (GVA)[1], employs 21% of the total labor force (2020), and, thus, still represents an important economic activity. However, the ratio between GVA and the agricultural labor force points to low agricultural sector productivity. In the medium term, the sector might face particular adjustment requirements to benefit from EU integration. Agricultural policy will be challenged to align closer to the EU's Common Agricultural Policy (CAP). In particular, labor productivity will have to increase by either further reducing agricultural employment or increasing the value of agricultural products. Agricultural policies can play an influential role in both processes.

This contribution aims at describing the development of the agricultural policy of Moldova over the most recent decade in a consistent way. Furthermore, it compares the typology of policy instruments between Moldova and the CAP. More specifically, key indicators of the OECD-family of support estimates will be used. We rely on the Producer Support Estimate (PSE) for direct support to agricultural producers. For quasi-public goods for the agricultural sector in general, we use the General Services Support Estimate (GSSE).

The methodological foundation to quantify agricultural policies dates back to studies by Josling (Josling, 1973) and Krueger et al. (Krueger et al. 1988) and was later expanded and further developed by OECD. The application of the PSE methodology by OECD (OECD, 2016) provides a standardized quantitative method of measurement of support to the agricultural sector. Similar initiatives are the Monitoring and Analysing Food and Agricultural Policies (MAFAP) programme by FAO (MAFAP 2015) and a World Bank-initiated project coordinated by Anderson (Anderson et al., 2008, Anderson et al., 2009, Anderson and Nelgen, 2009) with a focus on a broader set of countries including several developing countries. The quantitative effects of agricultural policy in Moldova and other selected CIS countries using Nominal Protection Rate (NPR) coefficients were explored by Volk (Volk et al. 2015) in their report on the CIS trade potential. NPR is a simplified methodology used to ensure comparability between CIS countries. At the same time, in 2015, the first attempt to expand the approach by calculating PSE and other OECD coefficients for 2006 – 2014 was made by Shik (Shik 2015, Shik et al., 2016) and Lucasenco (Lucasenco, 2017). This contribution builds upon these studies and covers more recent years.

[1] See Annex 1 for abbreviations

THE POLICY FRAMEWORK

Moldovan government's agricultural policy objectives are expressed in the most recent strategy - "National Strategy for Agriculture and Rural Development for 2014-2020" (GRM, 2014), the new sectoral Strategy still being in the process of development. Starting in 2017, all subsidies for agricultural producers have been merged under the National Fund for Development of Agriculture and Rural Environment (NFDARE). The NFDARE is characterized by three priorities that reflect the objectives of Moldova's agricultural policy: "Increasing the competitiveness of the agri-food sector through restructuring and modernization" (Priority I), "Management of sustainable development of natural resources" (Priority II), and "Increasing investments in physical infrastructure and rural services" (Priority III). Under these priorities, five measures provide a further structure:

- ***Measure 1:*** *Investments in agricultural holdings for restructuring and harmonization to European Union standards*
- ***Measure 2:*** *Investments in processing and marketing of agricultural products*
- ***Measure 3:*** *Preparation for the implementation of actions related to the environment and rural area*
- ***Measure 4:*** *Improvement and development of rural infrastructure*
- ***Measure 5:*** *Consultancy and training services (GRM, 2017).*

The total monetary amount spent in the form of subsidies to agricultural producers and processors varies from year to year. In 2018, it amounted to 968 million Moldovan Lei (MDL) (ca. 49 million Euros), which accounts for ca. 68 % of the ministry's budget line. The relative importance of the different measures changes from year to year; some measures have been longer in place than others. Almost all instruments represent investment support and will be distributed after the investment takes place. Thus, support is only accessible to farms that have sufficient financial means or access to credit markets.

Additionally, during the period covered by this analysis, funds of the Ministry of Agriculture have been allocated to research in the agricultural sector, the extension service (in the period 2013-2016), plant and animal disease control and food safety, as well as animal identification and traceability system. All of these expenditures are not part of the NFDARE.

The implementation of the different support programs has been delegated to the Agency of Interventions and Payments in Agriculture (AIPA) since 2010. The agency's primary functions relate to ensuring the correct and legal implementation of the management of the funds allocated to support agricultural producers, examining the applications and materials submitted by the applicants and their eligibility, as well as operating the internal control system (GRM, 2010).

DATA SOURCES AND METHODS

The OECD support estimates aim at establishing an objective and consistent measure of policy-induced incentives and transfers. The observed market conditions are compared with a benchmark or non-policy situation. In particular, distortions directly related to policy instruments such as tariffs or non-tariff trade barriers could be approximated by comparing producers' output prices with a hypothetical non-distorted price level. The ratio of both values is known as Nominal Protection Rate (NPR). Similarly, a comparison of input prices could quantify distortions in input markets. Suppose the difference between market and reference prices is positive. In that case, policy causes benefits to producers in output markets. If negative – policy leads to implicit taxation of the farmers via outputs (Shik, 2015).

Besides the price-related distortions, the methodology aims at classifying all budgetary transfers flowing into the agricultural sector. Payments are classified as whether they are linked to current or historical production levels, area farmed or animals kept, and whether they require production. All those payments favoring individual producers are added to the price support and form the so-called Producer Support Estimate (PSE). All payments serving public-good type support such as rural infrastructure, education and training, or public food safety are categorized as General Services Support Estimate (GSSE).

The structure of policy instruments, directly and indirectly, affecting the agricultural sector of Moldova is closer to other European transition countries than the classical developing countries of the 1980s. State trading monopolies, dual exchange rates, or other measures drawing resources from the agricultural sector to subsidize urban consumers and non-agricultural sectors are largely absent. In particular, besides an average tariff rate of 11.2% for agricultural products in general (International Trade Administration, 2022) and import quotas for selected products (sugar), no other border measures were notified at the World Trade Organization (WTO, 2007-2018).[2] Although the level of direct budgetary transfers to agricultural producers is much lower than the European Union, the OECD methodology is appropriate to quantify the size of political support to agriculture.

The share of the 11 selected products (wheat, sunflower, maize, pork, poultry, milk, grapes, beef, eggs, potatoes, and sugar beet) in the total value of production varies between 65% in 2015 to 92% in 2012, with an average value of 80% during the analyzed period (see Table 1). As sugar beets and fresh milk are not internationally traded, conversions of prices into traded commodities (i.e., white sugar, butter and skimmed milk powder) have been applied. For the EU, OECD data cover 21 agricultural commodities, which account for 74% of the total value of production. Obviously, any direct comparison of monetary values will suffer from price, quantity, and coverage differences. Therefore, the comparison will be limited to the structural characteristics of the various measures and their variability over time.

Reference prices have been derived from Moldovan external trade statistics conditional upon Moldova's net trade status. As shown in Table 1, Moldova has been a net exporter of wheat, maize, sunflower seeds, white sugar, and grapes for almost all years. Concerning potatoes, beef, pork, and poultry, the country has been predominantly a net importer. The net trade position changes more frequently for dairy products, such as butter and skimmed milk powder. Unit values represent an average price at the border. For net exports, export unit values (i.e., an approximation of free-on-board (fob)-prices), and for net imported commodities, import unit values (i.e., an approximation of cost, insurance, freight (cif)-prices) have been calculated. Weighted averages have been calculated for more differentiated products such as beef, pork, poultry, and dairy products. This approach deviates from OECD, which uses international reference prices for specific qualities at particular locations (e.g., Gulf of Mexico, Rouen, Black Sea). However, varying locations would increase the uncertainty due to missing information on transport costs and quality differences between Moldovan and international markets. A further deviation from the OECD methodology is the treatment of reference prices that exceed domestic prices for net exported commodities. If no policy instruments hamper exports, OECD assigns the negative price difference to zero.

The main sources of information related to farm-gate prices, production, and output are Annual reports and the database of the National Bureau of Statistics. Reports of the Agency of Intervention and Payments in Agriculture, of the Ministry of Finance on budget execution, and UN Comtrade database (UCD, 2020) represent other information sources.

[2] https://notifications.wto.org/en/status-by-member/moldova-republic-of

[3] Average exchange rate: 1 EUR = 17,9 MDl (2007 - 2018)

Table 1:
Major commodities covered by analysis (2007-2018)

Commodity	Share in GVA 2018	Net exporter in … years	Net importer in … years	Average farm gate price (MDL/t)	Average reference price (MDL/t)
Wheat	8.9	12	0	1,987[3] (461)	2,621 (678)
Maize	14.5	10	2	2,238 (458)	2,493 (553)
Sunflower	12.2	12	0	4,675(1,368)	6,159(1,439)
White sugar	1.4	10	2	4,049 (989)	4,382 (875)
Potatoes	2.9	1	11	2,240 (336)	2,808 (917)
Grapes	1.3	12	0	3,420 (914)	6,154 (1,732)
Milk	1.5			4,685 (941)	2,616 (2,188)
Butter		6	6		54,640 (3,596)
Skimmed milk powder (SMP)		5	7		35,107 (2,310)
Beef	6.9	2	10	37,991(10,645)	46,728 (8,295)
Pork	11.0	0	12	32,144 (4,594)	30,839 (11,991)
Poultry	7.0	0	12	29,694 (3,145)	14,217 (3,681)
Eggs	2.0	2	10	15,322 (2,464)	5,815 (8,981)

Source: National Bureau of Statistics (2020), UN Comtrade (2020)
Note: Standard deviations in parentheses.

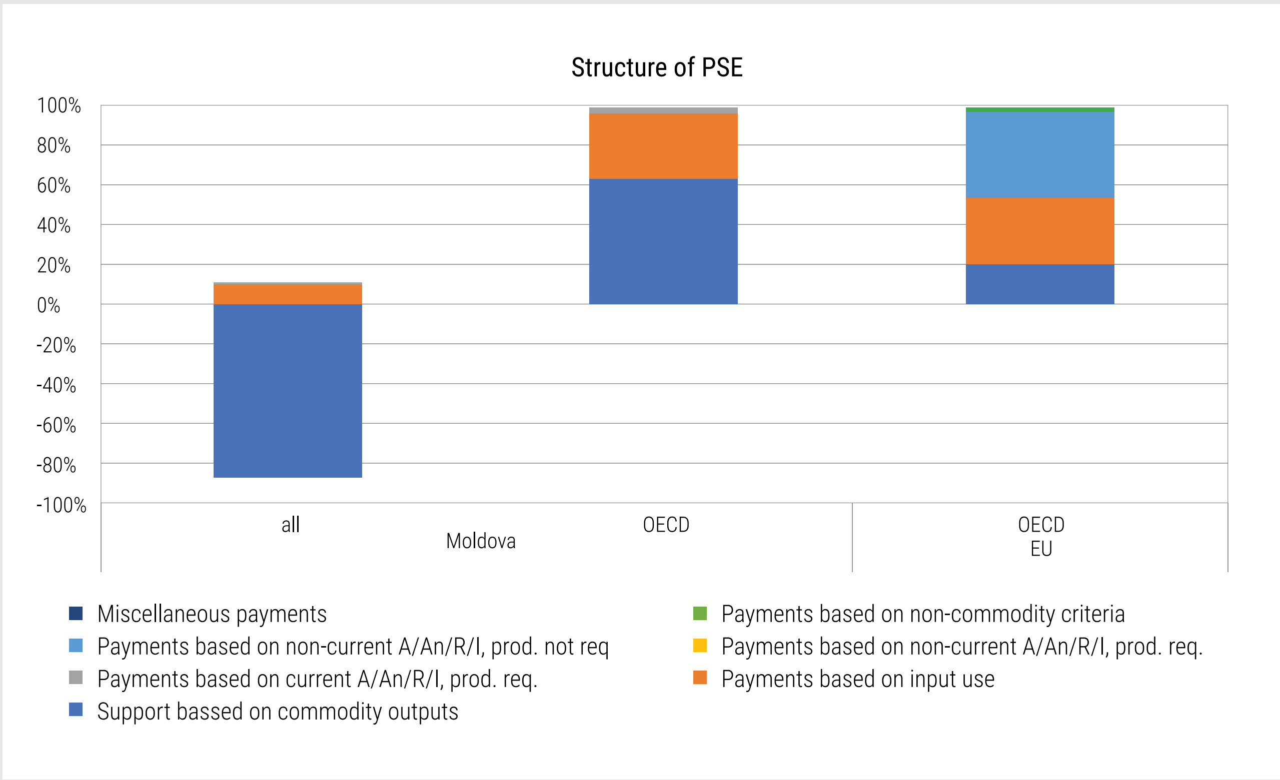
THE RESULTS OF RESEARCH AND DISCUSSIONS

The following results present two different PSE estimates for Moldova. The first, called 'all', includes all prices. The second, called 'OECD', neglects negative price differences between domestic and reference prices for net exported commodities. The data for the EU is directly taken from the OECD. Similarly, the classification of transfers follows the OECD approach.

STRUCTURE AND LEVEL OF PSE

Figure 1 presents a comparison of the structure of the PSE over the period 2007-2018. In Moldova, the major components of the PSE are the market price support (MPS) and the different farm investment subsidies classified here as payments based on input use. Independent of the way of calculating MPS, the transfers from the government budget to farms account for a smaller share. The EU's PSE is much more complex and reflects the various instruments in place. The decoupled direct payment occupies the largest share (43%). Still existing output-based support and transfers requiring production account for 20% each. Payments based on input use are relatively less important in the current CAP (14%).

Figure 1:
Comparison of the structure of PSE between Moldova and the EU



Source: Own computation based on National Bureau of Statistics (2020), UN Comtrade (2020); OECD (2022)

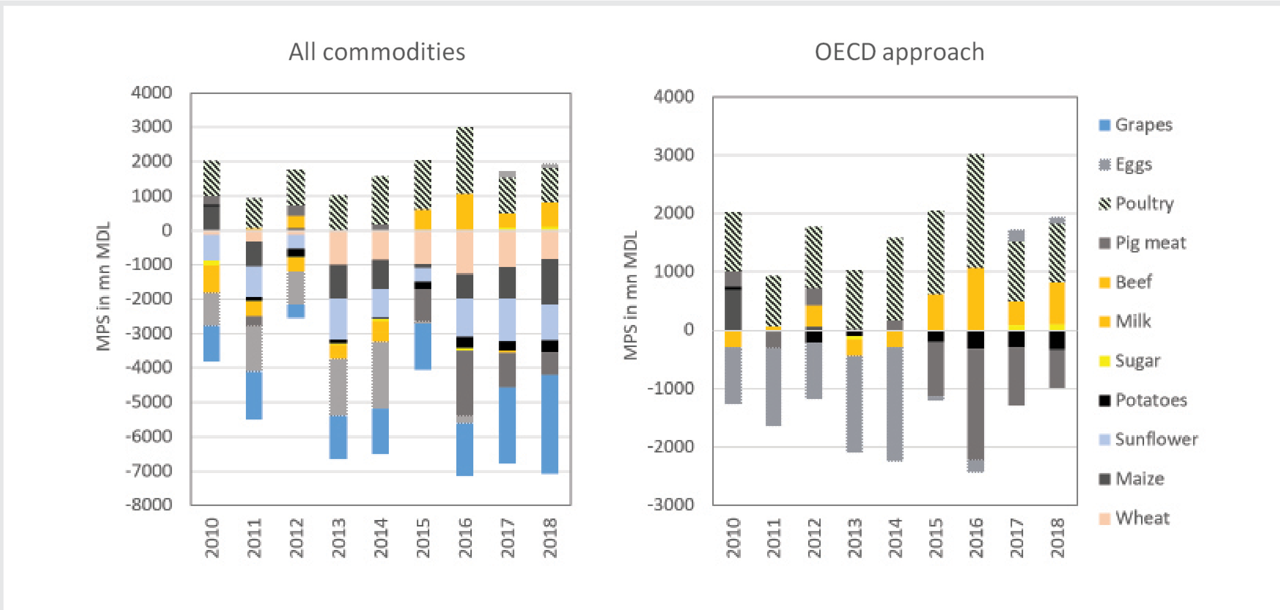
As measured by the PSE, the level of support is substantially lower in Moldova compared to the EU. Considering all commodities, the percentage PSE, expressed in relation to the value of the agricultural production, amounts to -13.5% on average. Neglecting the net exported commodities results in a percentage PSE of 6.2%. On average, budgetary support alone accounts for 2.3% of the total value of agricultural production. For the EU, the percentage PSE has been 23.2% over the period 2007-18. Furthermore, the PSE is much more volatile for Moldova than for the EU. This is driven by two factors: changes in the MPS and changing budgetary transfers. The latter varies between 242 mill. MDL[4] (2012) and 954 mill. MDL[5] (2018). The coefficient of variation is almost six times higher for Moldova (0.38) compared to the EU (0.06), which is only one indication of a more unstable agricultural policy environment in Moldova in the past.

A closer look at commodity-level is required to understand the strong differences within the MPS for Moldova. Figure 2 displays the MPS by commodities and years for all commodities (left panel) and only net imported commodities (right panel). Obviously, wheat, sunflower seeds and grapes which have been net exports in all years are missing in the right panel. Price differences seem to have increased in both directions over time. Thus, the data suggest that domestic producer prices for, in particular, poultry and dairy products exceeded the reference border prices and prices for wheat, pork, grapes, and eggs have been lower than border reference prices. In the case of grapes, producer prices are lower than Turkish farm gate prices and export prices are only half or even less than half of the export prices of South Africa and Chile. A closer look at the tariff rate schedule underlines the conclusion for poultry meat, where import tariff rates range between 15% and 20% + 100 EUR/ton. Despite tariffs and import quotas for sugar, MPS for this commodity was negative in two years when Moldova was a net sugar importer. This observation suggests that other supply chain actors than farmers benefit from border protection. However, the estimate for eggs has to be interpreted with caution as values before 2015 most likely include eggs for incubation. UN Comtrade data differentiate trade in eggs at a six-digit level only from 2015 onwards. In the case of beef, the switching sign of MPS from negative to positive in 2015, 2016, and 2018 is surprising. As Moldova was a net beef exporter for most of all years, this result indicates either segmentation of markets or a strong competitive advantage of Moldovan beef besides price.

[4] Equivalent to 15.13 million Euro at the 2012 exchange rate
[5] Equivalent to 48.2 million Euro at the 2018 exchange rate

One common non-policy-driven reason for price differences relates to different qualities traded domestically and internationally. For instance, in the case of poultry, more than 90% of imports took place in the category of Poultry cuts and offal, frozen (020714). Thus, the positive MPS might partially also reflect a segmentation in imports of relatively cheap parts and domestic production of higher quality/ fresh poultry meat. Although quality differences might explain some part of the price wedge, the year-to-year variation also hints at other impediments to price transmission between the farm gate and border. Anecdotal evidence suggests a limited competition and existence of market power within the supply chain post-farm gate. Further research is needed to understand the underlying reasons.

Figure 2:
MPS by commodities and years



Source: Own computation based on National Bureau of Statistics (2020), UN Comtrade (2020)

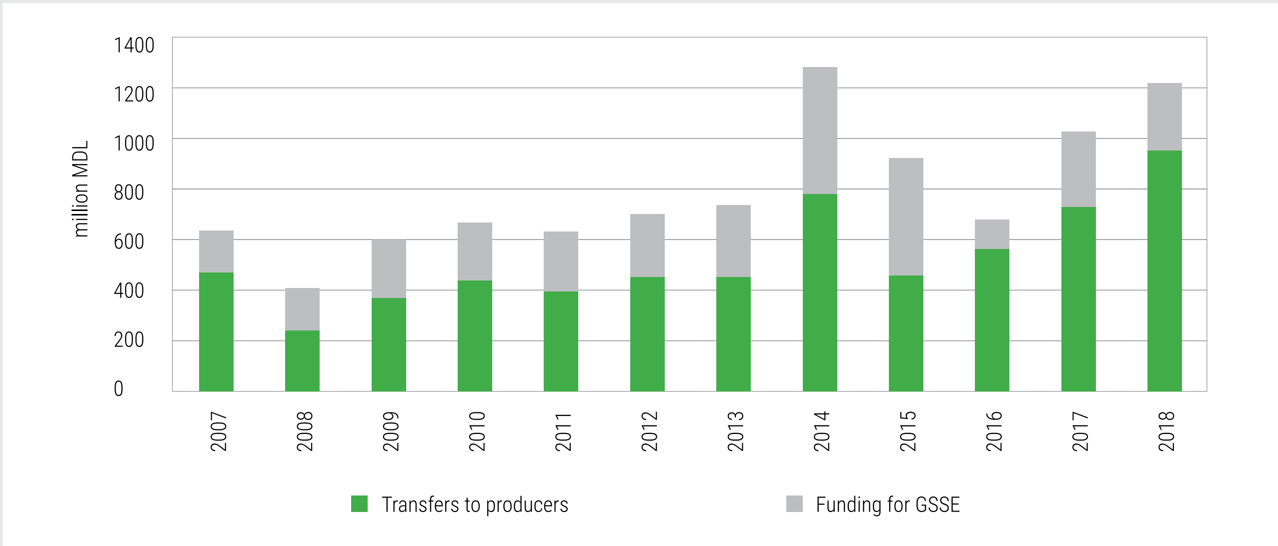
If producer prices below border prices are transmitted to consumer markets, negative market price support in recent years would imply lower costs of consumers' diets. Furthermore, comparatively low producer prices represent a potentially higher competitiveness of Moldovan agricultural producers on export markets.

In the case of the EU, MPS during the period analyzed here has been still high for beef and veal and poultry meat. For six commodities (durum wheat, oats, soybeans, sunflower, rapeseed, and tomatoes) MPS was or has been assigned to zero in all years.

CLASSIFICATION OF BUDGETARY SUPPORT

As mentioned above, the transfers from the Ministry's budget can be categorized in transfers to individual farms and funding for quasi-public goods. Whereas the first type of budgetary expenditures is part of the PSE, the second type constitutes the GSSE. Figure 3 illustrates the funding allocation and development over time. A remarkable increase of expenditures took place in 2014, but was not maintained continuously in the following years. Except in 2015, the majority of funds have been allocated to farm-specific transfers. In 2016 and 2018, less than a quarter of the funding was allocated to GSSE-categories. However, this share is always higher compared to the EU countries where only between 13% and 18% of the budgetary transfers are categorized as GSSE.

Figure 3:
Classification of budgetary support

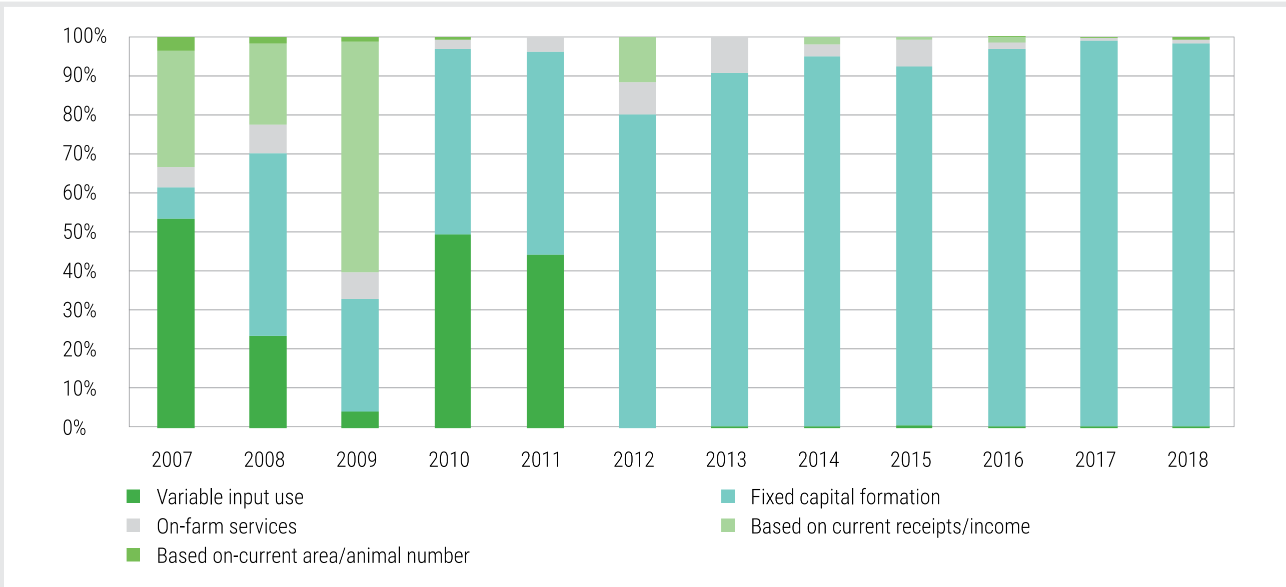


Source: calculations based on Agency for Intervention and Payments in Agriculture (2010-2018), World Trade Organization (2007-2018), Ministry of Finance of the Republic of Moldova (2007- 2018) and Parliament of the Republic of Moldova (2009)

BUDGETARY TRANSFERS TO PRODUCERS

Having a closer look into the specific measures representing direct transfers to farms (see Figure 4), the financially most important measures focus on stimulating investments for the purchase of agricultural machinery and equipment, production of vegetables and fruits on protected land, establishment, modernization and deforestation of perennial plantations, and procurement of irrigation equipment. These measures have been classified according to the OECD approach as support to fixed capital formation (B2). Coupled support (C), either based on income or on area, and support of variable input use (B1) have been important before 2011. But with the exception of payments for organic agriculture and energy subsidies for irrigation, they have been phased out in recent years.

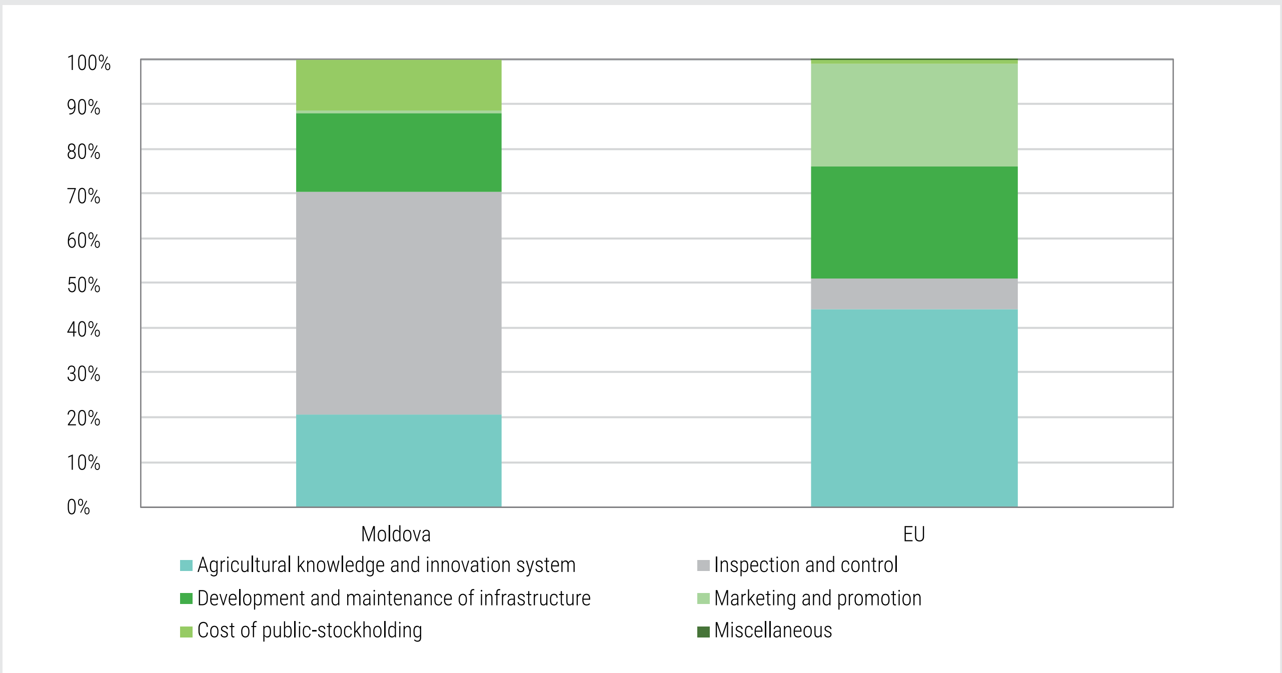
Figure 4:
Breakdown of budgetary transfers to producers by implementation criteria (in %)



Source: calculations based on Agency for Intervention and Payments in Agriculture (2010-2018), World Trade Organization (2007-2018), Ministry of Finance of the Republic of Moldova (2007- 2018) and Parliament of the Republic of Moldova (2008)

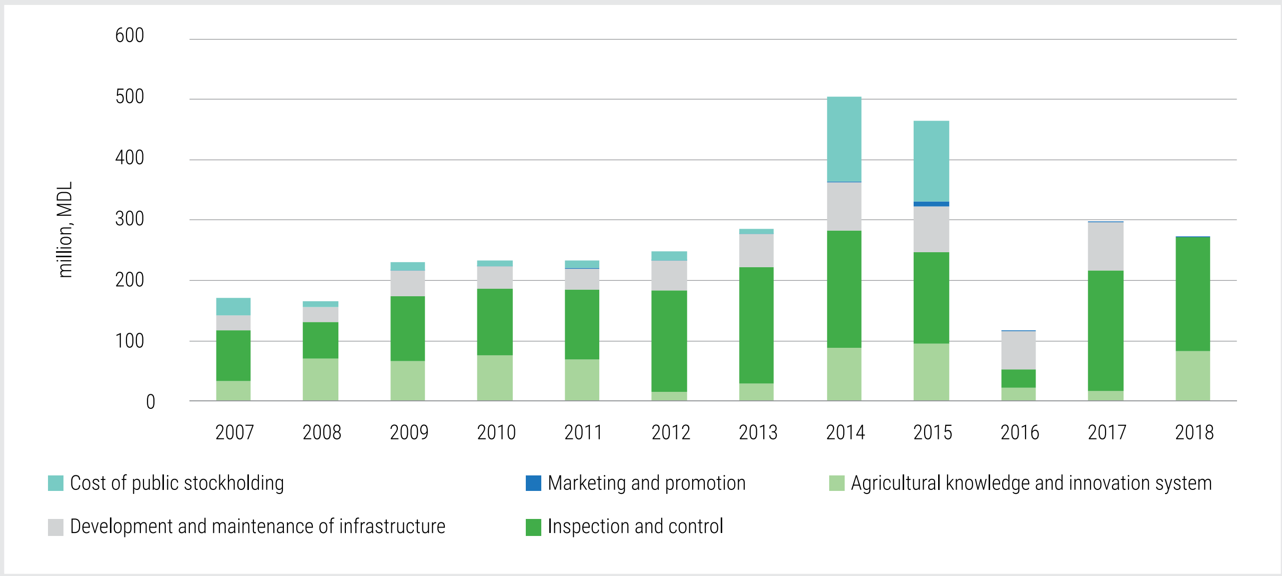
Support for general services (GSSE) shows structural differences between Moldova and the EU (see Figure 5). While the share of measures classified as Agricultural knowledge and information system is twice as large in the EU, the Moldovan expenditures exhibit a strong focus on the Inspection and control category, accounting for almost half of the quasi-public goods expenditures. The majority of this position serves as financing of measures of plant and animal disease control and protection, securing food safety and quality, as well as plant testing. The funding for the animal identification and traceability system, a prerequisite for access to EU markets and funding, either didn't receive any funding since 2014 or it has been submerged under a different heading (see Figure 6). Funding for the development and maintenance of infrastructure and public stockholding has been declining during the analysis period. Obviously, strict compliance with the EU's food safety standards is a prerequisite for market access and an important field of public action to increase Moldovan agriculture's competitiveness in markets of higher-income countries. However, the administration of the inspection and control system should be designed efficiently with minimized risks of corruption. Here we assume that these imperfections are absent and that improving food safety standards and meeting export market requirements is beneficial for the sector in general. Activities related to marketing and promotion are left for producers' concern and receive low support from the budget. Generally, we have to conclude that also GSSE-type expenditures exhibit a relatively high variability over the period analyzed here.

Figure 5:
Structure of GSSE



Source: calculations based on Agency for Intervention and Payments in Agriculture (2010-2018), World Trade Organization (2007-2018), Ministry of Finance of the Republic of Moldova (2007- 2018) and Parliament of the Republic of Moldova (2008)

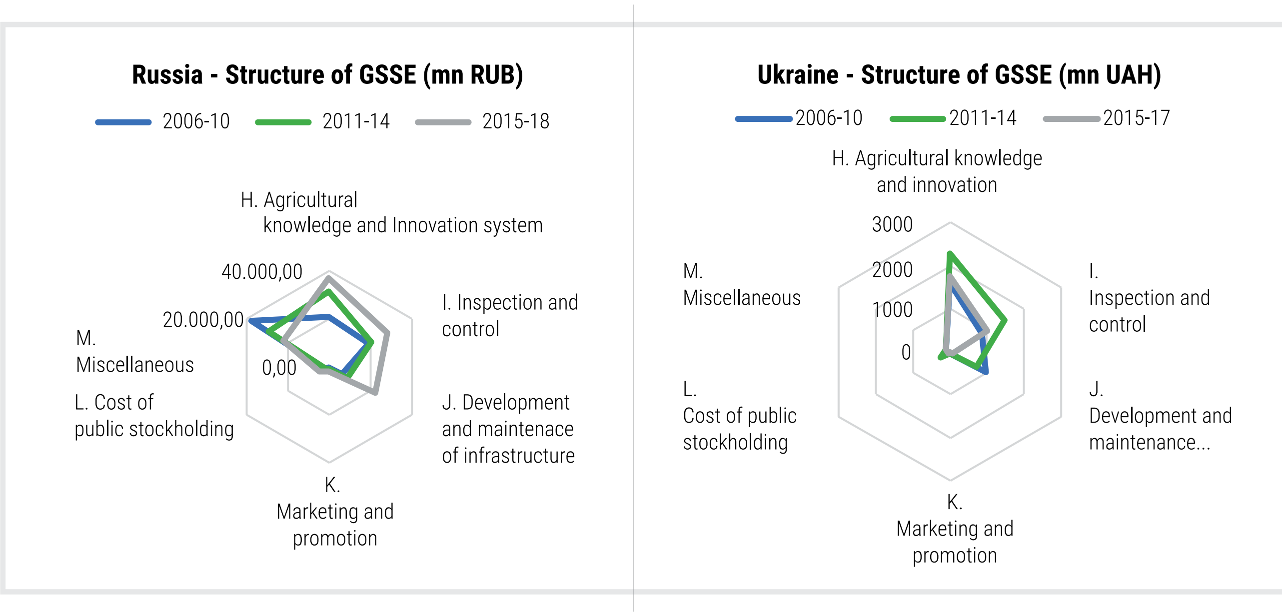
Figure 6:
Development of GSSE-type expenditures for Moldova

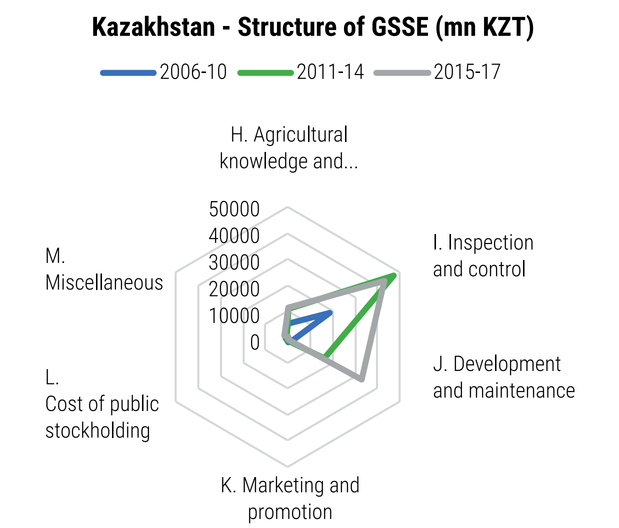


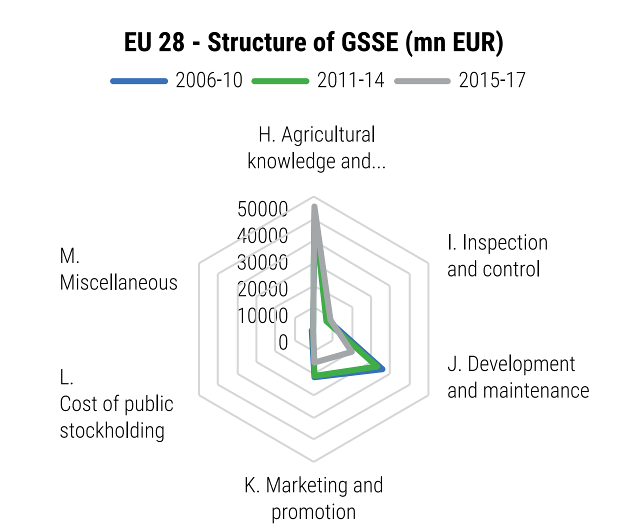
Source: calculations based on Agency for Intervention and Payments in Agriculture (2010-2018), World Trade Organization (2007-2018), Ministry of Finance of the Republic of Moldova (2007- 2018) and Parliament of the Republic of Moldova (2008)

In Moldova, the share of GSSE in budgetary support in recent years is 25% (2017 – 2018). Although not directly comparable, this share is below the share of GSSE in Total Support Estimate for other countries, such as Brazil (38%, 2017-2019), Canada (30%, 2017-2019), Australia (55%, 2017-2019), or South Africa (27%, 2017-2019). On the other side, it is 13% in Israel, 10.3% for the EU, and 4.7% in Norway (OECD, 2020). One possible reason for the emphasis of GSSE on inspection and control might be the country's proximity to the EU market and policy focus to harmonize with the EU in food safety. But there is also a transitional character to develop a sound system that ensures the availability of safe products for consumers and foreign tourists. We are observing a similar emphasis in Kazakhstan, while Russia and Ukraine put a relatively higher priority on expenditures for knowledge and information systems and infrastructure investments. Compared to the EU, budget allocation for these purposes also seems more volatile in Russia, Ukraine, and Kazakhstan. For none of the countries, a clear tendency to increase GSSE-type support is visible.

Figure 7:
GSSE structure in Russia, Ukraine, Kazakhstan and EU-28







Source: OECD PSE database (2022)

CONCLUSIONS AND RECOMMENDATIONS

The agricultural sector of the Moldova is constantly changing, being subject to transformations as a result of the influence of both endogenous and exogenous factors. An accelerating integration into the EU might increase the pressure to adapt at the level of farms and the level of policy development at the same time. During 2010 – 2018, the vast majority of the allocated subsidies have been intended for investments for the purchase of agricultural equipment, the development of post-harvest infrastructure, and the establishment of multi-annual plantations. All these sub-measures are in line with the current state policy in the field of agriculture, which is focused on enhancing the competitiveness of the sector, but rather focused on the development of the crop sector. At the same time, only a small amount is earmarked for the livestock sector. Moreover, small farmers are less supported in accessing state subsidies, as the current model of post-investment granting of subsidies requires the presence of financial means for investment, which, in many cases, small farmers do not have at the moment of investment is done.

The estimates of output-related supported revealed for several commodities a relatively large and time-varying gap between farm gate and border reference prices. The Producer Support Estimate indicator is low or negative throughout the study period, especially for the cereal crops. During 2007 – 2018, mostly negative MPS values have been identified for wheat, maize, sunflower, potatoes, and grapes. Fluctuating values have been identified for sugar, milk, beef, pork, and eggs and only the poultry subsector has shown high levels of support. The negative results for the analyzed crops are assumed to be explained by the existence of a strong segment on the market, that of intermediaries, low bargaining power of farmers as well as other drivers of market segmentation which prevent a convergence of producer and border prices.

In particular, all cases where trade measures are absent and the gap is negative deserve a more detailed analysis. Although, low prices could help increase Moldovan farmers' competitiveness on foreign markets, the sector might probably gain more if more emphasis is placed on improving the quality of products, a greater transparency of supply chains and further investments in hard and soft infrastructure. Agricultural and economic policy could help the farming sector relatively efficiently by eliminating or reducing market power of post-farm gate actors in the supply chain. Additionally, enabling farmers' negotiating positions by establishing market information systems and extension could complement anti-trust actions.

Moldova faces two larger export destinations with rather heterogeneous requirements. The member states of the Eurasian Economic Union (EAEU) are still far from a harmonized food quality system, while EU markets are driven by supermarkets with their own requirements on top of EU food safety regulation. Furthermore, the Russian market has been subject to short-notice trade barriers in the past and might be inaccessible in coming years depending on the further state of the aggression against Ukraine.

Thus, a diversified export strategy is important to reduce uncertainties, but is costlier at the same time. Support for specialized services, for instance via farmers' associations or cooperatives, could help farmers to better understand requirements. Export market information and support for adaptation of food quality requirements of major export markets play a key role here. Similarly, a diversified structure of import origins or substitution of imports by own competitive production represent goals to increase the food system's resilience.

Obviously, budgetary monitoring does not allow any assessment of the quality of general services. From a welfare economic perspective, public policies which aim at eliminating information asymmetries between producers and consumers, improve human capital of farmers or eliminate external effects and improve the functioning of markets should be pursued (Rausser and Goodhue, 2002). However, real world context might prevent the realization of welfare gains of these policies. The following paragraph discusses some aspects which should be taken into account in an evaluation of the inspection and control system.

Against the background of comparatively high levels of perceived corruption in Moldova, inspection and control services might act as a two-edged sword. Excessive inspections might cause unnecessary costs for producers, disturb them from daily work and even be a source of corruption. Although food safety inspections and compliance with standards are crucial conditions for gaining access to export markets, their reliability might suffer in a corruption-prone environment. Unfortunately, it is challenging to quantify the extent of corrupt practices at a sectoral level. Evidence from international rankings and surveys among non-farm businesses indicate potential risks associated with a non-transparent inspection system. National-level data for Moldova indicate a comparatively high spread of corrupt activities and perceptions of it. According to the Corruption Perceptions Index (CPI) published annually by Transparency International, Moldova ranks 120th out of 180 countries. Its score of 32 is well below other Central and Eastern European countries such as Poland (58), Latvia, Czech Republic or Georgia (all 56) or Romania and Hungary (both 44) (CPI, 2019). More than 20% of firm managers in agribusiness asked in the Business Environment and Enterprise Survey 2013 report corruption as biggest obstacle (Herzfeld et al. 2018). Thus, any efforts to reduce corruption will help to strengthen the reliability of Moldova's public authorities in the field of food safety and veterinary controls and, most likely, will help farmers in increasing transparency of administrative procedures and decisions.

Farm extension service will support the competitiveness at farm and sectoral level. Adaptation of food quality requirements of major export markets, introducing of new production technologies, quality upgrading, increasing value added on the farm by on-farm processing, and similar actions will increase farms' position in the market. A reallocation of government budget from subsidies to an improved extension service is in particular recommended for farms who cannot hire private professional consultation and in areas where external effects are high. How to allocate responsibilities; establish incentive-compatible service fees and other questions would require a more detailed analysis of successful examples in other countries. However, an increased competitiveness and a stronger competition have certain consequences for structural change. Less competitive farms will be forced to adjust or exit the sector. Social and regional policies (e.g. pensions, training for jobs outside of agriculture, vitalization of off-farm rural economy) are crucial in accompanying this process.

Given the recent occurrences of adverse weather events, in particular harsh winters and drought, agricultural policy should strengthen farmers' capabilities of risk management. This policy field yields high synergies with farm extension service. But as weather events might have strong impacts at a regional scale, i.e. several neighboring farms will be affected at the same time, risk management cannot be exclusively delegated to farm managers. Instruments to secure the liquidity of farms might be necessary in addition.

Further EU integration and increasing incomes of Moldovan consumers might allow a diversification of supply channels. Wealthier consumers might stimulate the demand for locally or organically produced food. The development of short value chains would contribute to the development of the agricultural sector but might require more cooperation between producers. Similarly, it is likely that contract farming will gain in importance. While demanding specific product characteristics, processors might provide the necessary technological transfer, production advice, and appropriate inputs. Support for enhanced cooperation between producers and across stages of the value chain requires long-term continuous engagement.

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ANNEX 1. LIST OF ABBREVIATIONS

CAP – Common Agricultural Policy

EAEU – Eurasian Economic Union

EU – European Union

GSSE – General Services Support Estimate

GVA – Gross Value Added

MPS – Market Price Support

NFDARE – National Fund for Development of Agriculture and Rural Environment

NPR – Nominal Protection Rate

OECD – Organisation for Economic Co-operation and Development

PSE – Producer Support Estimate

WTO – World Trade Organization

THE FIRST AND SECOND DEMOGRAPHIC DIVIDENDS IN MOLDOVA

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ABSTRACT

Moldova is going through a phase of intense demographic changes and is facing two major challenges: population decline and ageing, which significantly influence economic growth opportunities. The economic burden increase on the working-age population is one of the main concerns associated with demographic ageing. In this context, studying the impact of demographic changes on economic dynamics is of interest to academia and policymakers. Relatively new theoretical approaches −the first and the second demographic dividend concepts and the “economic life cycle” theory were used. The papers of foreign and domestic scientists acted as the theoretical information base of the study.

This article presents the results of a study evaluating the demographic dividend for Moldova based on National Transfer Accounts and the demographic forecast for 2022-2040. The scientific papers of foreign and Moldovan researchers were used as the theoretical and informational basis for this study. To determine the demographic dividends, the methodology proposed by Mason and Lee was used; the calculations of demographic coefficients, the assessment of the age structure and its dynamics, and the formation of demographic dividends were carried out. The results of the study showed that Moldova still needs to catch the first demographic dividend. In the next two decades, the number of producers will decrease faster than the number of consumers. Favourable market changes in the demographic structure are practically exhausted, and Moldova is entering a period of depopulation. The evolution of the demographic dividend in Moldova is in line with regional trends. However, with an active policy to increase the population’s economic activity and improve living standards, there is an opportunity to reap the benefits created by the second demographic dividend. In addition, it is necessary to diversify the investment opportunities for savings, which would contribute to the accumulation of assets and indirectly increase the fixed capital.

Keywords: economic life-cycle, first demographic dividend, second demographic dividend

Moldova trece printr-o fază de schimbări demografice intense confruntându-se cu două provocări majore: scăderea și îmbătrânirea populației, având un impact semnificativ asupra oportunităților de creștere economică. Creșterea poverii economice asupra populației în vârstă de muncă este una dintre principalele preocupări asociate cu creșterea ponderii vârstnicilor în totalul populației. În acest context, studiul privind estimarea impactului schimbărilor demografice asupra dinamicii economice prezintă un interes deosebit atât pentru mediul academic, cât și pentru dezvoltatorii de politici.

Acest articol prezintă rezultatele unui studiu de evaluare a dividendului demografic pentru Moldova pe baza Conturilor Naționale de Transferuri și a previziunilor demografice pentru anii 2022-2040. Lucrările fundamentale ale oamenilor de știință străini și autohtoni au servit ca bază teoretică și informațională pentru acest studiu. Pentru a evalua acest impact, a fost utilizată o abordare teoretică relativ nouă, bazată pe conceptele primului și celui de-al doilea dividend demografic, care, la rândul lor, se bazează pe teoria „ciclului economic de viață”. Pentru determinarea dividendului demografic s-a folosit metodologia propusă de Mason și Lee; s-au efectuat calculele coeficienților demografici de estimare a structurii populației pe vârstă, a dinamicii acesteia, precum și a formării dividendelor demografice.

Rezultatele studiului au arătat că Moldova a ratat primul dividend demografic. În următoarele două decenii, numărul producătorilor va scădea mai repede decât numărul consumatorilor. Schimbările favorabile în structura demografică sunt practic epuizate, iar Moldova intră într-o perioadă de depopulare. Utilizarea ”ferestrei demografice” în Moldova corespunde tendințelor la nivel regional. Cu toate acestea, o politică activă de creștere a activității economice a populației și de îmbunătățire a nivelului de trai, ar oferi posibilitatea de a beneficia de cel de-al doilea dividend demografic. În plus, este necesară diversificarea oportunităților de investiții pentru economii, ceea ce ar contribui la acumularea de active și la creșterea indirectă a capitalului fix.

Cuvinte cheie: ciclul economic de viață, primul dividend demografic, al doilea dividend demografic

Молдова проходит через фазу интенсивных демографических изменений и сталкивается с двумя основными проблемами: сокращением и старением населения, оказывающими существенное влияние на возможности экономического роста. Увеличение экономической нагрузки на трудоспособное население, – одно из главных опасений, связанных с увеличением доли пожилых в общей численности населения. В этом контексте изучение влияния демографических изменений на экономическую динамику актуально как для академической среды, так и для политиков. В качестве теоретической и информационной базы исследования выступили фундаментальные труды зарубежных и отечественных ученых. Для оценки этого воздействия был использован относительно новый теоретический подход, основанный на идее первого и второго демографического дивиденда, который, в свою очередь, основан на идее «экономического жизненного цикла».

В данной статье представлены результаты исследования по оценке демографического дивиденда для Молдовы на основе национальных трансфертных счетов и демографического прогноза на 2022-2040 годы. Теоретической и информационной основой данного исследования послужили фундаментальные труды зарубежных и молдавских ученых. Для определения демографических дивидендов использовалась методология, предложенная Мейсоном и Ли, а также были проведены расчеты демографических коэффициентов, используемых при оценке возрастной структуры, ее динамики и формирования демографических дивидендов.

Результаты исследования показали, что Молдова уже упустила первый демографический дивиденд. В ближайшие два десятилетия количество производителей будет уменьшаться быстрее, чем количество потребителей. Благоприятные конъюнктурные изменения демографической структуры практически исчерпаны и Молдова вступает в период депопуляции. Эволюция демографических дивидендов в Молдове соответствует региональным тенденциям. Однако, при проведении активной политики по повышению экономической активности населения и повышению уровня жизни существует возможность получения выгод, создаваемых вторым демографическим дивидендом. Кроме того, необходимо диверсифицировать возможности инвестирования сбережений, что способствовало бы накоплению активов и косвенно увеличило бы основной капитал.

Ключевые слова: экономический жизненный цикл, первый демографический дивиденд, второй демографический дивиденд

INTRODUCTION

The demographic situation in Moldova is changing rapidly. The population shrinks due to the natural decrease and high emigration rates, especially among working-age people. The forecasts show that the demographic decline will continue in the following decades. Moldova's population was 2.6 million at the beginning of 2022 and could drop to 2 million in 2040 (Gagauz et al., 2021). The deepening of demographic ageing accompanies population decline. During 2014 and 2021, the proportion of people aged 0–14 in the total population fluctuated around 18%, while the share of those over 65 increased from 10.9% to 14.9%. This trend will intensify over the next two decades (the small number of births will not be able to compensate for the decline of the population). Consequently, by 2040, children will represent only 1/8 of the population, while the share of older people will increase to 24.4%.

Demographic dividends show the influence of changes in the population's age structure on economic growth. The first demographic dividend results from the increase in the working-age population and ends when the proportion of working-age people shrinks as a consequence of the population ageing. Population ageing brings opportunities and opens a window for a second demographic dividend. Persons gather assets (wealth) during the active period of life to ensure consumption at old ages. In turn, accumulated assets can have a positive effect on economic growth. To evaluate the impact of demographic changes on the Moldovan economy, the two demographic dividends have been analysed.

In Moldova, the demographic dividends have been studied by Lupușor, Popa, and Prohnițchi (Lupușor et al., 2017). However, several recent changes have occurred in the national statistical system. A new methodology was used to calculate the GDP, which led to changes in the statistical data of the national output. The demographic statistic was adjusted to the results of the 2014 census. In addition, since 2014, the concept of the usually resident population began to be used to estimate other demographic indicators.

This paper aims to update the calculations of demographic dividends for Moldova taking into account the recent statistical adjustments and, hence, formulate relevant policy recommendations.

LITERATURE REVIEW

Shifts in the population's age structure create changes in the ratio between producers and consumers. During the demographic transition, fertility and mortality rates decline, and the labour force temporarily grows more rapidly than the population dependent on it, freeing up resources for investment in economic development and family welfare (Lee & Mason, 2006). Consequently, the demographic change first led to a demographic" dividend" − an opportunity for growth of output per capita.

The first demographic dividend period is quite long, lasting five decades or more. Still, eventually, lower fertility reduces the growth rate of the labour force, while continuous improvements in old-age mortality speed up the growth of the elderly population (Lee & Mason, 2006). As a result, per capita income grows slower, and the first demographic dividend becomes negative.

The same demographic forces that produce an end to the first dividend may lead to a second demographic dividend. A critical economic challenge for ageing populations is to provide consumption for older persons who typically have substantially reduced labour income (Mason, 2005). One way to meet this challenge is to increase savings and accumulate assets or physical capital, consequently improving economic growth prospects.

The first dividend yields a transitory bonus, and the second transforms that bonus into more significant assets and sustainable development. These outcomes are not automatic but depend on the implementation of effective policies. Thus, the dividend period is a "window of opportunity" rather than a guarantee of improved living standards (Lee & Mason, 2006). Realising the first demographic dividend depends on the ability of the economy to create jobs for the growing working-age population, the quality of state institutions, the level of financial market development, the state's macroeconomic policy, education policy, and other factors. Thus, the productivity of young workers depends on the policy of providing work opportunities for young parents; the productivity of older workers depends on their level of health, tax incentives, the structure of the pension system, and the state's pension policy in general.

Although the demographic dividends are sequential, they overlap. Initially, the first demographic dividend occurs and lasts for a long time. The second demographic dividend begins when the effects of the first demographic dividend are exhausted.,

Based on Asian countries' analysis, the concept of "the third demographic dividend" or "the silver demographic dividend" was developed. The "third demographic dividend" is generated by the use of the unexploited work capacity of elderly people who have a satisfactory state of health (Ogawa et al., 2021). Mason, Lee, Abrigo, and Lee (Mason et al., 2017) estimated demographic dividends for 166 countries. Mason (Mason, 2005) analysed demographic transition and demographic dividends for both: developed and developing states.

In the article, the analysis of demographic dividends is carried out starting from the concept of the "economic life cycle" (Ando & Modigliani, 1963). Typically, young and older people are less productive and consume less than they produce; as a result, the life-cycle deficit appears (Mason, 2005). Working-age adults usually present an opposite model: they generate surpluses in the life cycle, being more productive and consuming less. The surpluses generated by adults are used, directly or indirectly (through some institutions), to finance the deficits of others: children and the elderly. In practice, the life cycle consists of two profiles: producers, who obtain labour income (including the earnings of self-employed workers), and consumers.

Consumption includes both private and public consumption. Generally, a person is either a net consumer – children or the older person whose labour income is less than consumption, or a net producer – an adult of working age whose labour income exceeds consumption. National Transfer Accounts (NTA) quantify the economic life cycle and allows estimating the labour income and consumption specific to people of each age group. The surplus or deficit of a particular age group is determined by subtracting consumption from the labour income of that age group (UN, 2013).

DATA SOURCES AND METHODS

The demographic dividends have been calculated using the methodology proposed by Mason, Lee, Abrigo, and Lee (Mason et al., 2017) and Mason (Mason, 2005).

The information on population by age group for the 2014-2021 period was retrieved from the National Bureau of Statistics (NBS). The population projection for 2022-2040 of the Centre for Demographic Research (CDR) of the National Institute for Economic Research was used. The demographic dividend calculations are based on the low scenario as the most possible (Gagauz, 2020:90).

The data on labour income and consumption expenses specific to each age group was calculated by Prohnițchi V. in a project aimed at estimating NTA (Prohnițchi, 2020). The base year for estimation was 2018.

Two terms have been used to make calculations: workers/producers and consumers. The effective number of workers in the year ***t***, noted by ***L(t),*** is calculated as follows:

$$L(t) = \sum_{x=0}^{\omega} \bar{y}_l(x) P(x,t) \ \textbf{(1)}$$

$$\bar{y}_l(x)=y_l(x,b)/\, y_l(30\text{-}49,b) \ \textbf{(2)}$$

Where:

- ***ω*** - the maximum number of lived years;
- ***P(x,t)*** - population of age group x in the year *t*;
- ***ȳl(x)*** - labour income of population from age group *x*;
- ***yl(x,b)*** - labor income of population from age group ***x***, for a base year ***b***;
- *yl (30-49,b)* - average labour income of 30–49 years aged population in the base year ***b***.

The same approach has been used to estimate the effective number of consumers for year ***t***, noted by ***N(t)***:

$$N(t) = \sum_{x=0}^{\omega} \bar{c}(x) P(x,t) \ \textbf{(3)}$$

$$\bar{c}(x)=c(x,b)/c(30\text{-}49,b) \ \textbf{(4)}$$

Where:

- ***c ̄(x)*** - consumption of population from age group ***x***;
- ***c(x,b)*** - consumption of population from age group ***x***, for a base year ***b***;
- ***c(30-49,b)*** - average consumption of 30 - 49 years aged population in the base year ***b***.

The support ratio for year ***t***, noted by ***SR(t)***, is estimated by dividing effective workers and consumers in year ***t***:

THE GROWTH RATE OF THE SUPPORT RATIO REPRESENTS THE FIRST DEMOGRAPHIC DIVIDEND.

Additional calculations are needed to determine the second demographic dividend. There will be added two new indicators: the number of effective years of labour and the number of effective years of consumption over the remaining lifetime. For a cohort aged *z* in year ***t***, the number of effective years of work in the remaining lifetime, denoted by ***WL(z,t)***, and the number of effective years of consumption in the remaining lifetime, denoted by ***WN(z, t)***, are calculated according to the following formulas:

$$WL(z,t) = \sum_{x=z+1}^{w} D(x-z)L(x,t+x-z) \textbf{ (6)}$$

$$WN(z,t) = \sum_{x=z+1}^{w} D(x-z)N(x,t+x-z) \textbf{ (7)}$$

Where $D(x\text{-}z)$ is a discount factor, calculated according to the following formula:

$$D(x\text{-}z)=[(1+\rho)/(1+r)]^{x-z} \textbf{ (8)}$$

where ρ is the productivity's growth rate, and r is the discount rate. Both the growth rate of productivity and the discount rate are assumed to be constant. The productivity growth rate was set at 3%. This assumption was based on the fact that GDP increased on average by 3% between 2010 and 2021. We believe that this trend will be maintained in the long term, and the dynamics of GDP are close to the evolution of productivity. The discount rate was set at 5%. This assumption is based on the fact that the National Bank of Moldova has an inflation target of 5%. Between 2010 and 2021, the inflation rate fluctuated around 5%. Also, in the long term, we anticipate that the price level will increase with rates close to 5% despite the "jump" of inflation in 2022 and 2023. The National Bank of Moldova forecasts that inflation will reach 29.5% in 2022 and 15.7% in 2023 (NBM, 2022). It should be noted that inflation reflects how the prices of goods rise, which allows us to assess the future value of money. As a result, the inflation rate can be considered a discount rate.

Further, the longitudinal support rate for people aged 45 and over is calculated. Thus, in the year t, the rate of longitudinal support for people aged 45 and over, denoted by LSR 45 (t), is determined according to the following formula:

$$LSR45(t) = \frac{\sum_{z=45}^{\omega} WL(z,t)}{\sum_{z=45}^{\omega} WN(z,t)} \textbf{ (9)}$$

The LSR is calculated for the remaining lifetime to compare the expected period of labour with the expected consumption period specific to a particular age cohort. The LSR depends on the amount people at each age consume and produce through their labour and how long people live (Mason, et al., 2017:9). Other things equal, the LSR will be lower if people live longer (Mason et al., 2017:9).

The LSR for people aged 45 and over is relevant in analysing how the consumption needs of retired persons are covered. The longitudinal support ratio for young adults is sufficiently high that they produce more over their expected remaining lifetime than they consume (Mason et al., 2017:27-28). Depending on the particular characteristics of each country, a critical shift occurs when people reach their 40s or, less frequently, their 50s (Mason et al., 2017:28). At this point, and their future labour income is no longer sufficient to support their prospective consumption (Mason et al., 2017:28). Thus, the inflection point is somewhere between 40 and 50 years. For this reason, the longitudinal support rate is used for people 45 years old and over.

The next step is calculating the present value of future income and consumption. The following formulas have been used:

$$PVY_l(z,t)= y_l(30\text{-}49,t)WL(z,t) \textbf{ (10)}$$

$$PVC(z,t)= c(30\text{-}49,t)WN(z,t) \textbf{ (11)}$$

$$y_l(30\text{-}49,t)= y_l(30\text{-}49,b)(1+\rho)^{t-b} \textbf{ (12)}$$

$$c(30\text{-}49,t)= c(30\text{-}49,b)(1+\rho)^{t-b} \textbf{ (13)}$$

Where:

- $PVYl(z,t)$ – present value of the future labour income for the age cohort z in the year t;
- $PVC(z,t)$ – present value of the future consumption for the age cohort z in the year t;
- $yl\ (30\text{-}49,b)$ – average labour income of 30 - 49 years aged population in the base year b;
- $c\ (30\text{-}49,t)$ – average consumption of 30 - 49 years aged population in the base year b.

The wealth of the population of age z in the year t, noted by $W(z, t)$, is calculated as the difference between the present value of consumption and the current value of labour income:

$$W(z,t)= PVC(z,t)-PVY_l(z,t)=c(30\text{-}49,t)WN(z,t)-y_i(30\text{-}49,t)WL(z,t) \quad \textbf{(14)}$$

The wealth determined according to formula 14 represents that part of consumption that is not covered by labour income and must be financed from other sources. Pension wealth, denoted by ***W***45, is the difference between the present value of consumption and the present value of labour income for people aged 45 and over. Pension wealth is used to show the value of assets needed to cover older people's consumption. Pension wealth is calculated according to the following relationship:

$$W45(t) = \sum_{z=45}^{\omega} W(z,t) = \sum_{z=45}^{\omega}[PVC(z,t) - PVY_l(z,t)] \quad \textbf{(15)}$$

The pension wealth includes not only pension income, which can be paid from private funds or public sources, but also the value of assets held, as well as earnings from net private transfers or other net transfers from the government. Pension wealth is a broad concept that encompasses the value of assets held and net transfers from the public sector and families for people aged 45 and over.

We adopt the hypothesis that the rate of capital growth (***gr[K]***) is close to the rate of change in pension wealth (***gr[W45]***):

$$gr[K] \approx gr[W45] \quad \textbf{(16)}$$

The above-mentioned assumption can be found in the study of Mason, Lee, Abrigo, and Lee (2017). Mason (2005) argues that if the share of wealth transferred to other generations remains constant over time, capital stock and the increase in wealth are equal.

Finally, it is necessary to represent the relationship between production per worker (***Y/L***) and capital per labour income (***K/Yl***). Mason (2005) argued that there is a directly proportional relationship between the rate of growth of production per worker (***gr[Y/L]***) and the rate of growth of capital per labour income (***gr[K/Yl]***):

$$gr\left[\frac{Y}{L}\right] \sim gr\left[\frac{K}{Y_l}\right] \quad \textbf{(17)}$$

In turn, the total income from work for a year ***t (Yl (t)***) is calculated according to the following relation:

$$Y_l(x,t)=y_l(30\text{-}49,b)(1+\rho)^{t-b}L(x,t) \quad \textbf{(18)}$$

$$Y_l(t) = \sum_{x=0}^{\omega} Y_l(x,t) \quad \textbf{(19)}$$

Some changes are made in formula 17. Thus, a coefficient of 0.5 is introduced before the ratio between capital and labour income (***K/Yl***). This approach was used by Mason (2005) and by Mason, Lee, Abrigo, and Lee (2017). Also, the capital stock is replaced by pensioners' wealth, and consequently, we have the following formula:

$$gr\left[\frac{Y(t)}{L(t)}\right] = 0.5gr\left[\frac{W45(t)}{Y_l(t)}\right] \quad \textbf{(20)}$$

Based on the last mathematical relationships, the second demographic dividend is calculated and represents half of the ratio's growth rate between pensioners' wealth and income from work.

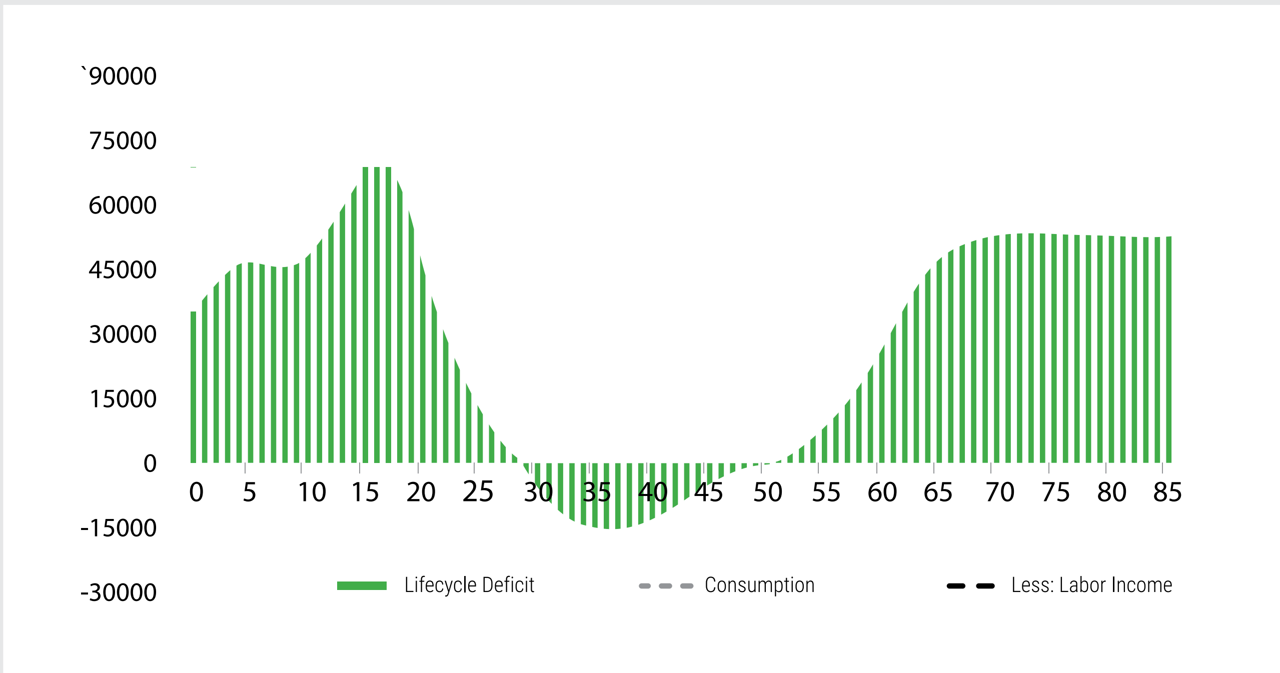
MAIN RESULTS

According to the NTA analysis, young people until 15 years do not earn labour income in Moldova. Labour income increases between the ages of 15-34, while the highest is obtained at the age of 34. After 34 years, labour income starts to decrease.

Consumption increases rapidly from birth, peaks at the age of 20, and then declines slower until the end of life. As a result, people between 29 and 50 years have a life cycle surplus, which means that labour income is higher than consumption only for 21 years of life (Figure 1). The highest surplus is achieved at the age of 38 years and is estimated at 15,293 thousand MDL (≈ 809 USD) per person. The highest deficit, worth 69 thousand MDL (≈ 3650 USD), is registered at the age of 16 years.

Figure 1:

Consumption, labour income, and life-cycle deficit per capita, MDL



Source: NTA

The life-cycle deficit is financed by public and private transfers and asset reallocations. In Moldova, at early ages, up to 19 years, the deficit is mainly financed by private transfers (60.3%) and public transfers (26.1%). At early ages, the life-cycle deficit is primarly determined by the consumption of education services. At older ages, after the life-cycle surplus ends, the deficit is mainly financed by public transfers (55.9%) and by asset reallocations (34.1%).

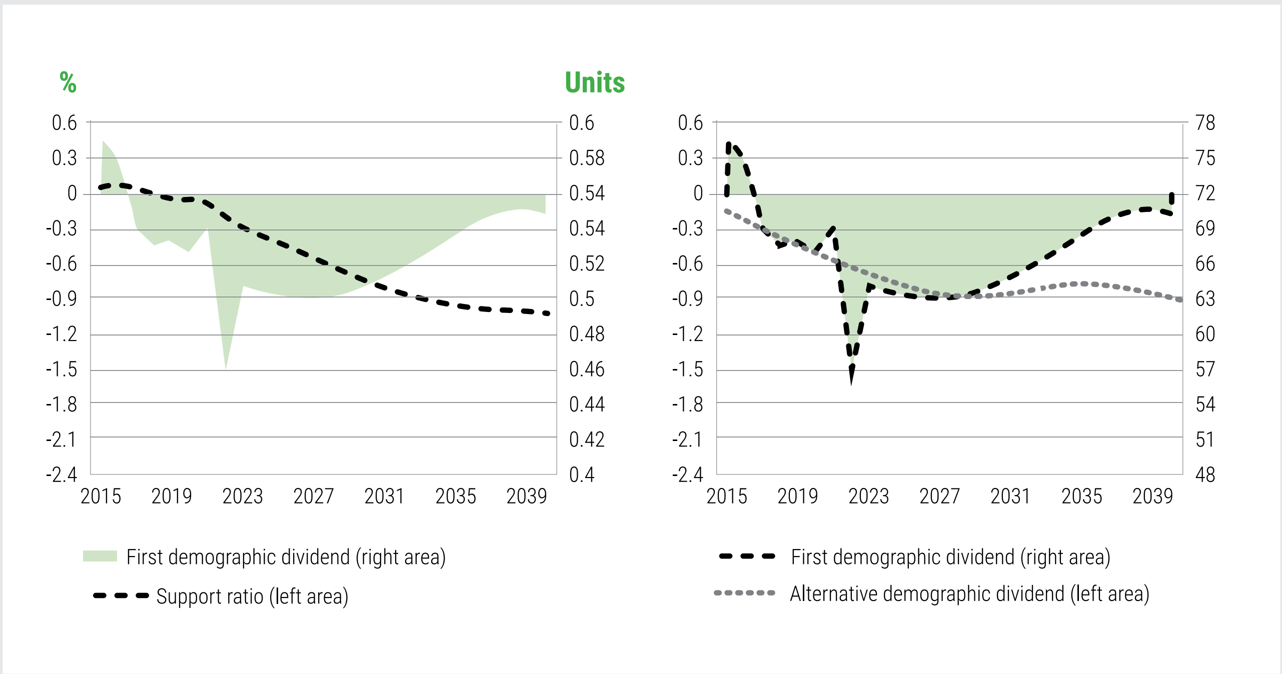
Also, based on the author's calculations, it was found that the ratio between effective workers and consumers reached the maximum level of about 0.565 in 2016-Since then, the support ratio decreased and will reach a 0.491 value in 2040. The decrease in support ratio indicates that the number of effective workers reduces faster than the number of effective consumers. This trend will be reflected in the evolution of the first demographic dividend. Since 2017, the indicator has had negative values. The minimum value will be reached in 2027 (-0.88%), and from 2028 the negative values of the dividend will decrease (Figure 2).

However, there are alternative approaches related to the demographic dividend. According to one of the approaches, the demographic dividend occurs when the share of the working-age population (economically productive people) is higher than the share of the non-working-age population: children and the elderly (the dependent population). From a statistical point of view, the dividend appears when economically productive people represent 55% or more of the population. Gagauz and Tabac (2017) used this approach and showed that the share of the working-age population in Moldova will be higher than 55% by 2040.

However, between 2015 and 2029, the indicator will decrease from 71.2 to 63.1%. In addition, after 2030, the share of the productive population will fluctuate slightly between 63% and 64%. As a result, it can be concluded that population dynamics will have a favourable impact on economic development, although this influence will diminish over time. The calculation of the demographic dividend by combining demographic and economic indicators has some advantages in comparison with the strictly demographic estimation of the dividend. The estimation based on a mix of economic and demographic variables allows for analysing of the effects of public policies. Thus, the increase in the retirement age will lead to a rise in the number of effective workers. This change will be captured in the dividend calculated by mixing demographic and economic variables but will not be found in the approach that relied only on demographic indicators.

Figure 2:

Demographic dividends, % and support ratio, units



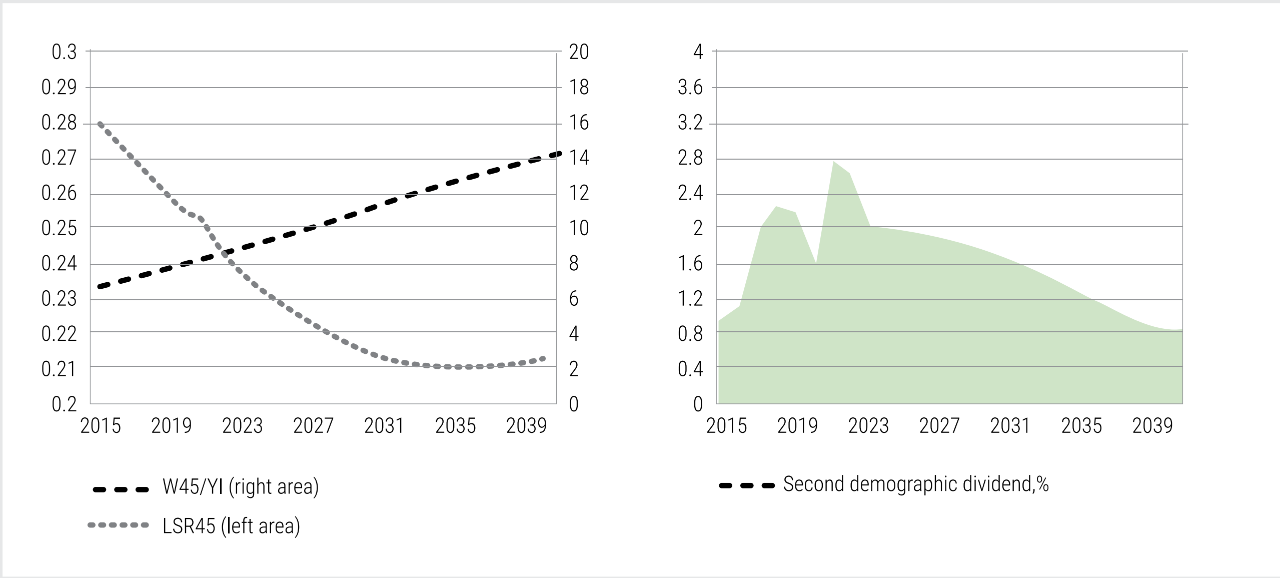
Source: calculated based on CDR and NBS data

Population ageing could provide opportunities for economic growth. The second demographic dividend determines the positive influence. The increase in pension wealth is one of the fundamental factors that lead to the emergence of the second demographic dividend. In turn, the demand for pension wealth is determined by the longitudinal support rate. In 2015, the longitudinal support rate was 0.27. This fact means that for persons aged 45 years and over, only 27 years out of 100 years of consumption are covered by labour income, and the remaining 73 years should be covered from other sources: transfers from the state or from young generations, or the assets accumulated during the life. Between 2015 and 2039, the longitudinal support rate will decrease from 0.27 to 0.24 (Figure 3). This evolution shows that in 2039 the labour income of the elderly will cover a smaller part of their consumption compared to 2015. Thus, only 24 years out of 100 years of consumption will be covered by labour income, while in the remaining 76 years, consumption should be covered by other sources.

An increase in pension wealth will accompany the decrease in the longitudinal support ratio. Between 2015 and 2039, pension wealth relative to labour income will increase from 6.5 to 14.4. Hence, the economy will benefit from the second demographic dividend. It reached a maximum level of around 2.7% in 2020. Afterwards, the second dividend will decrease; however, it will be higher than 0.9% during the 2015-2039 period (Figure 3).

Figure 3:

Longitudinal support ratio (LSR 45), pension wealth (W45) and second demographic dividend



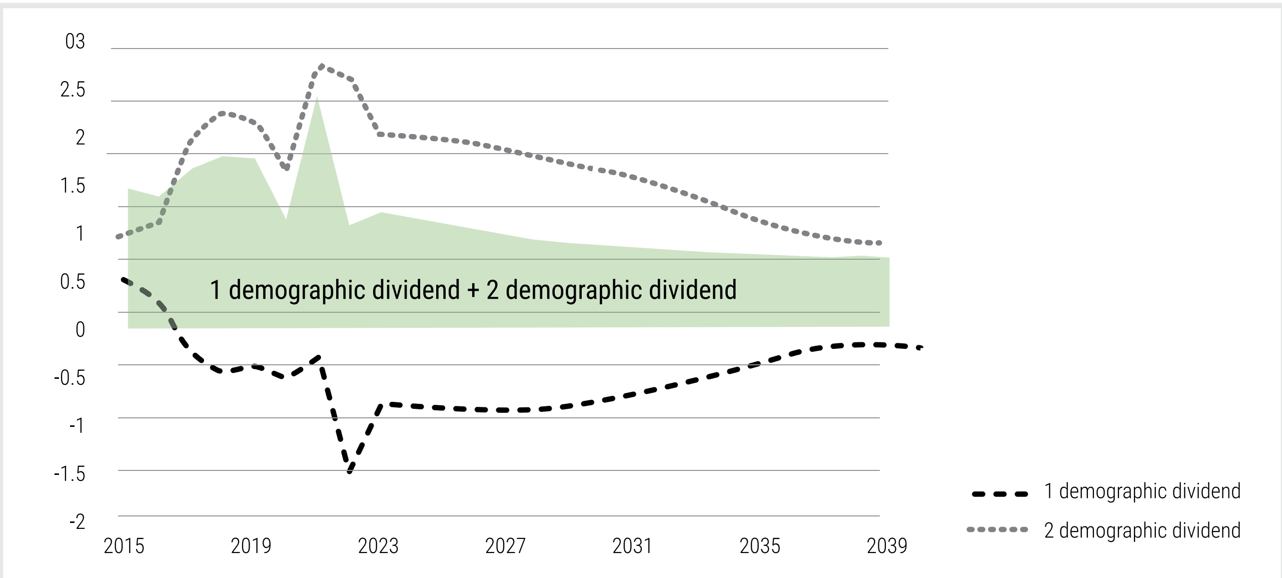
Source: calculated based on CDR and NBS data

In the graphic representation of demographic dividends for Moldova, some fluctuations can be distinguished (prominent extremes in 2022). Despite these oscillations, the trends are very well observed. In specialised literature, the figures for demographic dividends are not smooth, but there are discernible long-term trends (Mason et al. 2017). In fact, analysing demographic dividends is more essential to detect long-term trends.

The analysis of the cumulative effect of both dividends shows that Moldova will have a net positive result. The negative impact associated with the first demographic dividend is outweighed by the positive influence of the second dividend (Figure 4). If the cumulative value of the first demographic dividend is -12.94% (annual average of -0.52%) between 2015 and 2039, the second demographic dividend will amount to 41.09% (annual average of 1 .64%). Consequently, the net aggregate dividend will be 28.14%, representing an annual average of around 1.13%. Thus, the cumulative effect of demographic dividends, on average, will contribute to the increase of GDP per capita by 1.13% per year (considering that all inhabitants of a country are consumers) between 2015 and 2039. In the same period, the total contribution of both dividends to the increase in GDP per capita will exceed slightly 28%.

Figure 4:

Longitudinal support ratio (LSR 45), pension wealth (W45) and second demographic dividend



Source: calculated based on CDR and NBS data

The evolutions of the demographic dividends in Moldova correspond to regional trends. The first demographic dividend records negative values in Europe since 2015. However, the harmful effect associated with the first demographic dividend is overcomed by the positive influence related to the second demographic dividend (Figure 5).

Figure 5:

Demographic dividends in Europe, 2015-2045 annual average, %

Source: Mason, A., Lee, R., Abrigo, M., Lee, S. Support Ratios and Demographic Dividends: Estimates for the World. p. 45.
Calculated based on CDR and NBS data
Note: simulations for Moldova are presented for 2015-2039

Moldova has lost the advantage offered by the first demographic dividend. However, it is an "open window" for the opportunities generated by the second demographic dividend. In the case of efficient public policies, Moldova could reduce the negative influence associated with the loss of the first demographic dividend and strengthen the advantages related to the second demographic dividend.

DISCUSSIONS

The results show that Moldova has already missed the first demographic dividend. Once again it is confirmed that entering the stage of the "window of opportunity" does not guarantee that the state will automatically receive economic dividends. For the demographic dividend, obtaining appropriate socio-economic conditions is needed. The increase in the proportion of the working-age population in Moldova coincided with economic decline, political instability, and reduced occupational opportunities. Thus, the "demographic bonus" implementation in Moldova had a crisis character (Barsukov, 2019). The lack of jobs led to mass emigration of the population, especially working-age people. The country's population has decreased by about one million in the last two decades due to emigration (Gagauz et al., 2021). The Moldovan citizens contributed to the development of the economies of other countries, and the demographic dividend was partially returned through migrants' remittances.

The situation is still difficult, and there are no prerequisites for the fullest use of available labour resources. A recent study shows that the low level of labour incomes of the population and the high level of life cycle deficit in Moldova is primarily due to the low level of employment and unfavourable ratio between the working and non-working people. The size of the economic life cycle deficit (LCD) in 2019 amounted to 67.6 billion lei, 59.1% of total labour income and 32.1% of real GDP (Gagauz &Prohnițchi, 2022).

In the next two decades, the number of producers will decrease faster than that of consumers, although, after 2027, the negative dynamics are expected to moderate. On the other hand, the second demographic dividend can be a window of opportunity. Moreover, because the adverse effects associated with the loss of the first demographic dividend will be outweighed by the positive influences related to the second demographic dividend, the net result will be positive. These evolutions will create opportunities for economic growth.

CONCLUSIONS

To encourage economic growth, public policies should address the influences determined by demographic dividends. It is necessary to facilitate entry to the labour market of young persons. For example, expanding the nursery network would increase the enrolment of children (under three years) in preschool education. As a result, the effective duration of maternity/paternity leaves could reduce, and these actions could allow parents to return or enter to labour market more quickly. In addition, it would extend the possibilities of keeping people with retirement age at work if the elderly want to continue their activity and their health is satisfactory. These measures would increase the labour income of older people and reduce the gap between consumption and labour income. At the same time, the period during which adults are net producers would be extended, and the number of net producers would increase, consequently reducing the effects associated with the loss of the advantages offered by the first demographic dividend. To increase the opportunities generated by the second demographic dividend, it is necessary to diversify the investment opportunities, which would favour the accumulation of assets and, implicitly, would increase the capital stock.

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INFERTILITY IN MOLDOVA: EVIDENCE FROM THE GENERATIONS AND GENDER SURVEY

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ABSTRACT

Statistical analysis on the topic of infertility issues in Moldova will improve understanding of infertility causes and treatment-seeking.

Data for this research come from the Generations and Gender Survey (GGS), which was conducted in 2020 in Moldova. The GGS covers topics related to fertility behavior, intention to have children, infertility disease and treatment, and other issues. Statistical analysis includes crosstabulations, and bivariate and multivariate logistic regressions. Approximately 12% of the sampled population ages 15-49 have had trouble conceiving in 12 months, and about 9% of the population indicates they are either definitely or probably not able have a/another baby. Reports of infertility are highest among women aged 40 and over, and secondary infertility appears to be more prevalent than primary infertility. Most individuals reporting infertility have no diagnosed cause for their infertility and almost three-quarters of the population who said they are definitely or probably not able to have a baby have done "nothing" to treat their infertility. Results indicate that individuals in the sample favor delayed and/or spaced childbearing, which may result in fertility challenges as they attempt to achieve their desired fertility later in life. The high prevalence of undiagnosed infertility may be the result of a lack of interest in having more children, or lack of information or access to infertility services. This research also revealed an absence of treatment-seeking behavior which may also be due to social, physical or financial barriers.

Keywords: Infertility, desired fertility, Moldova

Studiul privind infertilitatea în Moldova va îmbunătăţi înţelegerea cauzelor infertilităţii şi identificarea tratamentului. Datele pentru această cercetare provin din studiul Generaţii şi Gen (GGS), care a fost realizat în Moldova în anul 2020. GGS acoperă subiecte legate de comportamentul de fertilitate, intenţia de a avea copii, boala şi tratamentul infertilităţii şi alte probleme. Analiza statistică include tabele încrucişate şi regresii logistice bivariate şi multivariate. Aproximativ 12% din populaţia eşantionată cu vârsta cuprinsă între 15 şi 49 de ani a avut dificultăţi în a concepe în 12 luni, iar aproximativ 9% din populaţie indică că fie sigur, fie probabil nu poate avea un/alt copil. Raportările de infertilitate sunt cele mai mari în rândul femeilor cu vârsta de 40 de ani şi peste, iar infertilitatea secundară pare să fie mai răspândită decât infertilitatea primară. Majoritatea persoanelor care raportează infertilitate nu au o cauză diagnosticată pentru infertilitatea lor şi aproape trei sferturi din populaţie care a declarat că cu siguranţă sau probabil nu pot avea un copil nu au făcut „nimic" pentru a-şi trata infertilitatea. Rezultatele indică faptul că indivizii din eşantion preferă naşterea întârziată şi/sau distanţată, ceea ce poate duce la provocări de fertilitate în timp ce încearcă să-şi atingă fertilitatea dorită mai târziu în viaţă. Prevalenţa ridicată a infertilităţii nediagnosticate poate fi rezultatul lipsei de interes pentru a avea mai mulţi copii, al lipsei de informaţii sau al accesului la serviciile de infertilitate. Această cercetare a evidenţiat, de asemenea, o absenţă a comportamentului de căutare a tratamentului, care se poate datora şi barierelor sociale, fizice sau financiare.

Cuvinte cheie: Infertilitate, fertilitate dorită, Moldova

Исследование проблем бесплодия в Молдове улучшит понимание причин бесплодия и обращения за лечением. Работа основывается на данных исследования «Поколения и гендер» (GGS), проведенного в Молдове в 2020 году. GGS охватывает темы, связанные с поведением в отношении фертильности, намерением иметь детей, бесплодием и его лечением, а также другие вопросы. Статистический анализ включает перекрестные таблицы, а также двумерную и многомерную логистическую регрессию. Согласно результатам, около 12% опрошенного населения в возрасте от 15 до 49 лет имели проблемы с зачатием в течение 12 месяцев, и около 9% населения указали на то, что они либо определенно, либо, вероятно, не могут иметь/еще одного ребенка. Сообщений о бесплодии больше всего среди женщин в возрасте 40 лет и старше, а вторичное бесплодие, по-видимому, более распространено, чем первичное. Большинство людей, сообщающих о бесплодии, не имеют диагностированной причины, и почти три четверти населения, заявили, что они определенно или, вероятно, не могут иметь ребенка, «ничего» не делали для лечения бесплодия. Результаты показывают, что опрошенные предпочитают отсроченное и/или интервальное деторождение, что может привести к проблемам, поскольку они пытаются достичь желаемой рождаемости в более позднем возрасте. Высокая распространенность не выявленного бесплодия может быть результатом отсутствия заинтересованности в рождении большего числа детей, отсутствия информации или доступа к услугам по лечению бесплодия. Это исследование также выявило

отсутствие обращений за лечением, что также может быть связано с социальными, физическими или финансовыми барьерами

Ключевые слова: бесплодие, желаемая рождаемость, Молдова.

INTRODUCTION

Infertility is a growing challenge in the world especially in the Eastern Europe and Central Asia (EECA) region, where low fertility and the decline in population in some countries has become a serious concern. Moldova, as part of the EECA region, faces serious demographic challenges such as shrinking population, low fertility, out-migration and ageing. The issue of infertility in Moldova is not only a concern for the demographic future of the country but is also an issue of reproductive health and rights as men and women are not able to achieve their desired fertility.

Currently, there is a lack of research on the actual short-term and long-term impact of infertility determinants, prevention and treatment in Moldova. Statistical analysis on the topic of infertility will improve understanding of the infertility burden as a major public health concern, infertility causes and to what extent infertility should be a factor of concern for policy makers.

LITERATURE REVIEW

Maternal age at first birth in Moldova has been increasing steadily since the mid-1990s (Gagauz et al., 2016). The country is currently going through the second phase of the demographic transition, characterized by a decrease infertility among younger women (due to an increase in the mean age of first birth) and an increase in childbearing at older ages (Grigoras & Gagauz 2022). The 2005 Demographic and Health Survey (DHS) report showed a steady decline in age-specific fertility rates among the youngest age groups from 1990 to 2005 and increases in age-specific fertility rates among the 25-29 and 30-34 age groups from 1995 to 2005 (NCPM and ORC Macro, 2006). Compared to other countries in the EECA region, the demographic transition in Moldova has been slow (Grigoras 2019). Population decline is projected to continue at a fast pace for the following decades before eventually stabilizing in the final stage of the fertility transition.

Also referred to as the postponement of fertility, the second demographic transition is typically brought about by women's increased educational attainment, rising labor market participation and wider availability of effective contraceptive methods (Grigoras 2019; Beaujouan 2020). In Moldova, gendered roles in the family, where men's roles are concentrated around professional advancement and women's roles are focused on children and household tasks, are widely accepted (Gagauz et al., 2016). Women have acquired equal opportunities in education and labor participation but have not obtained equal responsibilities in families. They continue to perform all or most of the household tasks, and fertility reduction or delayed fertility has therefore become one strategy for women to seek professional or social self-fulfillment (Gagauz et al., 2016).

Research suggests that as the delay in first birth increases, the likelihood of becoming spontaneously pregnant declines, and the number of children at older ages becomes smaller (Beaujouan and Toulemon 2021; Vander Borght and Wyns 2018). Infertility generally increases with female age as higher fertility at older ages is often accompanied by an increase in the number of unsuccessful attempts to have children (Beaujouan 2020; Kuohung and Hornstein 2022). Though both epidemiological and clinical definitions of infertility also exist, UNFPA and the International Union for the Scientific Study of Population provide a more demographic-centric definition of infertility as "the inability to bear any children, either due to the inability to conceive or the inability to carry a pregnancy to a live birth" (Sloggett, 2015). The timing of unprotected sexual intercourse, female age, and reproductive health (both male and female) are all factors related to the likelihood of achieving a pregnancy (Vander Borght and Wyns 2018).

Globally, infertility affects between 8 and 12% of reproductive couples (Inhorn and Patrizio 2015). According to model-based estimates from 277 demographic and reproductive health surveys, in 2010, approximately 1.9% of child-seeking women ages 20-44 who were exposed to pregnancy were unable to have a first birth (primary infertility) (Mascarenhas et al., 2012). The proportion of all child-seeking women exposed to pregnancy who are unable to have an additional child after a previous birth, (secondary infertility) was even higher, at approximately 10.5%, with the EECA region having the highest prevalence of secondary infertility relative to other regions (18.0%) (Mascarenhas et al., 2012). While the prevalence of primary infertility is higher among younger women, secondary infertility increases dramatically with age (Mascarenhas et al., 2012). In Moldova, primary infertility affects about 2.5% of the population and secondary infertility is experienced by about 3.8% of the population (Gagauz et al., 2016). However, when infertility is examined among child-seeking women, the figures are much higher; over 3% for primary infertility and over 13% for secondary infertility (Mascarenhas et al., 2012). Though much of this literature review focuses on female infertility, it is important to note that male infertility is a chronic reproductive health condition for millions of men, contributing to over half of all cases of childlessness (Inhorn and Patrizio 2015).

While causes of infertility vary based on local demographics, and uncertain causal relationships make determining the actual cause of infertility difficult, some of the main causes for both sexes include hypogonadotrophic hypogonadism, hyperprolactinemia, cystic fibrosis, coital problems and other systemic diseases (Deshpande and Gupta 2019; Kuhoung and Hornstein 2022; Vander Borght and Wyns 2018). Among females, ovulatory disorders, endometriosis, tubal blockage, pelvic adhesions and uterine fibroids are among the most common causes of infertility and among males, testicular deficiencies and semen decline are commonly cited (Vander Borght and Wyns 2018; Walker and Tobler 2022). One study found 28% of infertility cases to be unexplained (Kuhoung and Hornstein 2022).

With a total fertility rate (TFR) below replacement level, at around 1.6 to 1.65 children per women, population decline has become a huge concern for the government of Moldova (Gagauz et al., 2016). With more and more women choosing to delay childbearing, the issue of infertility is also one of reproductive rights. This research aims to help describe and contextualize the issue of infertility, including causes and treatment-seeking behaviors in Moldova so policy makers and program managers can meet the needs of child-seeking men and women in the country.

DATA SOURCES AND METHODS

To understand the demographic trends and strengthen the demographic resilience of the country, the Government of Moldova supported the Generation and Gender Programme. Under this program, the most comprehensive demographic Generations and Gender Survey (GGS) was conducted in 2020. The GGS covers more than 10,000 respondents ages 15-79 and collected evidence about fertility behavior, in-tention to have children, unmet need for contraception and use of contraception, reproductive rights, infertility disease and treatment, health issues, and other issues.

The main infertility variable of interest for this research was FER04d, which asked respondents "was there ever a time when you were trying to get pregnant but did not conceive within at least 12 months?" One bias of this variable is that it was asked of all respondents, regardless of whether they have ever had sex or are at risk of pregnancy. To mitigate this bias, all individuals who never had sex were removed from this indicator and the infertility analysis was limited to respondents aged 15-49. A secondary variable measuring infertility, FER05, was also examined. FER05 asked respondents "as far as you know, is it physically possible for you, yourself, to have a/another baby?" An additional outcome variable of interest was a constructed binary variable for "not met" fertility, where 1 is coded when total number of living children is less than ideal number of children, and 0 is coded when total number of living children is equal to or greater than ideal number of children.

Post stratification weights were applied based on age, gender and region of residence. Statistical analysis includes crosstabulations, and bivariate and multivariate logistic regressions. Results of the logistic regressions are presented as odds ratios. All analyses were performed in StataSE 15.

Table 1 summarizes the demographic characteristics of the surveyed population of reproductive age (15-49)[1], including sex, age, area of residence, educational attainment, type of employment and household income. About half of the population surveyed is female (49.6%) and the smallest age group are those ages 15-19 (9.6%). Most of the population has achieved at least secondary education, with about 19% having achieved a bachelor's degree or higher. Almost half of the population is employed, about 15% are homemakers and 10% on parental/family leave. Just under half of the surveyed population of reproductive age has a net household income of 1,000-10,000 lei, the second-lowest income bracket. Under 6% have a net household income less than 1,000 lei, and almost a quarter have a net household income of greater than 30,000 lei (the highest income bracket).

[1] All analysis is presented with survey weights.

Table 1:
Demographic Characteristics among Total Population of Reproductive Age (15-49) (N=4,405)

	n	%
Sex		
Male	2,222	50.4
Female	2,183	49.6
Age		
15-19	423	9.6
20-24	503	11.4
25-29	688	15.6
30-34	873	19.8
35-39	743	16.9
40-44	630	14.3
45-49	545	12.4
Area of residence		
Rural	2,616	59.4
Urban	1,789	40.6
Education		
None/Early education	25	0.6
Primary	121	2.7
Secondary	1,389	31.5
General/High school	705	16.0
Vocational	769	17.5
Specialized college/Technical	552	12.5
University/Bachelor's	703	16.0
Master's	132	3.0
Doctorate/Postdoc	9	0.2
Employment		
In school/training	460	10.5
Employed	1,932	43.9
Homemaker/Helping family	664	15.1
Unemployed	648	14.7
Retired	17	0.4
Military/Civic service	3	0.1
Parental/Family leave	444	10.1
Disabled	122	2.8
Other	105	2.4
Don't Know	4	0.1
No response	6	0.1
Net household income		
<1,000 lei	220	5.8
1,000-10,000 lei	1,845	48.6
10,000-20,000 lei	531	14.0
20,000-30,000 lei	277	7.3
>30,000 lei	926	24.4

Table 2 summarizes variables related to relationship status. About two-thirds of the surveyed population have a partner, with 84.3% of those living with their partner and 74.9% being married. Most of the surveyed population had sex for the first time from age 15-19 (67.6%), followed by ages 20-24 (31.1%). Just under two-thirds of the population are sexually active (63.1%), having had sex in the last four weeks. Almost half of the population intend to have another child (definitely (35.9%) or probably yes (21.7%)), but only 38% plan to have another child in the next three years (definitely (16.4%) or probably yes (21.6%)) (not shown in table).

Table 2:

Relationship Status (N=4,405)

	N	%
Respondent has partner		
Yes	3,063	69.5
No	1,332	30.3
No response	10	0.2
Living with partner (N=3,145)		
Yes	2,650	84.3
No	495	15.7
No response	0	0.0
Married to partner (N=3,145)		
Yes	2,356	74.9
No	788	25.1
No response	2	0.0
Age at first sex		
<10	40	0.9
10-14	135	3.1
15-19	2,976	67.6
20-24	578	13.1
25-29	69	1.6
30-34	20	0.2
>34	4	0.1
Don’t know	373	8.5
No response	220	5.0
Average age at first sex: 17.8		
Had sex in last four weeks		
Yes	2,725	63.1
No	1,452	33.6
Don’t know	19	0.5
No response	120	2.8
Intend to have a child		
Definitely not	707	17.5
Probably not	397	9.8
Unsure	522	12.9
Probably yes	875	21.7
Definitely yes	1,452	35.9
Don’t know	73	1.8
No response	16	0.4

MAIN RESULTS

INFERTILITY ANALYSIS

To examine the issue of infertility, the variable FER04d was used. This variable asked respondents if there was ever a time when they tried to get pregnant but did not conceive within 12 months. One bias with this variable is that it was asked of all respondents, regardless of whether they have ever had sex or are at risk of pregnancy. For this analysis, individuals who have not had sex were removed from this indicator.

Table 3 shows the proportion of the population who have experienced problems conceiving. Overall, 11.6% of respondents aged 15-49 have tried to become pregnant but did not conceive within 12 months. Women were more likely to report problems conceiving than men, 12.9% compared to 10.3%. Those age 35-39 and 40-44 had the highest reported problems conceiving. Urban residents were more likely to report problems conceiving than rural residents. Individuals with higher education reported difficulty conceiving more than those with lower levels of education, as did people with higher incomes compared to those with lower incomes. Those who want four or more children had the highest proportion of problems conceiving of all desired family sizes, which aligns with them spending more of their lives trying to conceive to reach their desired family size. People with one child were the most likely to report difficulty conceiving compared to people at other parities.

Table 3:

Percent of Demographic Groups who have experienced problems conceiving (has tried to become pregnant but did not conceive within 12 months)

Entire population age 15-49 (N=4,125)				
	% Yes	% No	% Unsure	n
Total	**11.6**	**88.1**	**0.3**	**4,125**
Sex				
Male	10.3	89.1	0.5	2,109
Female	12.9	87.0	0.1	2,016
Age				
15-19	0.9	98.3	0.9	231
20-24	4.1	95.7	0.3	472
25-29	10.4	88.9	0.7	667
30-34	12.8	86.9	0.3	865
35-39	17.3	82.4	0.4	731
40-44	15.2	84.9	0.0	622
45-49	10.4	89.4	0.2	536
Area of residence				
Rural	10.0	89.9	0.1	2,432
Urban	13.9	85.4	0.7	1,693
Education				
None/Early education	5.4	84.5	10.1	17
Primary	8.9	91.2	0.0	86
Secondary	10.4	89.4	0.2	1,242
General/High school	9.4	90.2	0.4	663
Vocational	13.3	86.7	0.0	751
Specialized college/Technical	10.1	89.8	0.2	535
University/Bachelor's	13.9	85.5	0.6	691
Doctorate/Postdoc	44.5	55.5	0.0	8

Entire population age 15-49 (N=4,125)				
	% Yes	% No	% Unsure	n
Employment				
In school/training	0.8	98.5	0.7	279
Employed	12.9	86.8	0.4	1,895
Homemaker/Helping family	12.6	87.1	0.3	642
Unemployed	10.2	89.6	0.3	636
Retired	29.0	71.0	0.0	17
Military/Civic service	0.0	100.0	0.0	3
Parental/Family leave	12.2	87.8	0.0	441
Disabled	14.1	85.9	0.0	108
Other	13.6	86.4	0.0	95
Don't Know	0.0	100.0	0.0	4
Net household income				
<1,000 lei	7.2	92.8	0.0	203
1,000-10,000 lei	10.7	88.9	0.4	1,727
10,000-20,000 lei	10.8	89.2	0.0	493
20,000-30,000 lei	11.9	88.1	0.0	266
>30,000 lei	15.6	84.1	0.3	891
Age at first sex				
<10	5.5	94.5	0.0	40
10-14	9.1	90.0	1.0	135
15-19	11.5	88.4	0.1	2,979
20-24	14.2	85.6	0.2	579
25-29	15.5	84.5	0.0	69
30-34	0.0	91.9	8.1	10
>34	33.3	66.7	0.0	4
Don't know	16.7	81.3	2.0	89
No Response	5.7	92.1	2.2	221
Ideal Family Size				
0	6.3	93.7	0.0	14
1	10.7	88.8	0.5	197
2	10.2	89.4	0.4	1,861
3	12.7	87.1	0.2	1,396
4	12.1	87.9	0.0	357
>4	18.3	81.1	0.6	210
Don't know	8.1	91.9	0.0	78
No Response	8.2	78.5	13.4	10
Total number of children				
0	10.9	88.4	0.7	1,160
1	16.4	83.3	0.3	840
2	10.7	89.2	0.1	1,343
3	9.7	90.3	0.0	543
4	7.7	92.3	0.0	163
>4	7.1	91.3	1.7	77

Table 4 shows the results of bivariate logistic regressions of infertility (tried to conceive for 12 months without becoming pregnant) and each demographic characteristic (Model 1) and multivariate logistic regression (Model 2). Results are presented as odds ratios.

Compared to males, females are 1.28 the odds of reporting infertility in Model 1 and 1.42 in Model 2 (which controls for other characteristics). Age is also significantly associated with infertility, with each year older contributing to a 3% increase in the odds of reporting infertility (4% with controls). Compared to rural residence, respondents living in urban areas are more likely to report infertility (OR=1.47, CI [1.20,1.79]), with even larger odds ratios in Model 2. Looking at education, compared to those with no education, those with a doctorate have higher odds of reporting infertility in both models, but the sample size was very small resulting in wide confidence intervals. Compared to in school/training, every other employment type has a higher odds of reporting infertility. However, the confidence intervals for these odds ratios are extremely wide, and results are no longer statistically significant (except for retired and other) when controlling for other demographic characteristics (like age and income) in the multivariate model. Net household income shows an association with the odds of reporting infertility. Compared to the lowest wealth group (<1,000 lei), those in the 20,000 lei-30,000 lei wealth group and the >30,000 lei wealth group have higher odds of reporting infertility, in Model 1, and all categories are statistically higher than the lowest income group in Model 2. Each year older for sexual debut results in a 3% increase in the odds of reporting infertility, but this relationship was no longer statistically significant when controlling for other demographic characteristics in the multivariate model. Finally, in the bivariate relationship and multivariate model, larger ideal family size is associated with higher odds of experiencing difficulty conceiving and more living children is associated with lower odds of experiencing difficulty conceiving.

Table 4:
Association between problems conceiving and demographic characteristics

Outcome variable: Problems conceiving in 12 months	Model 1 (bivariate logistic regressions)	Model 2 (multivariate logistic regression)
	Odds Ratio	Odds Ratio
Sex		
Male	Ref.	Ref.
Female	1.28 (1.05-1.56)**	1.42 (1.10-1.84)***
Age	1.03 (1.03-1.04)***	1.04 (1.03-1.06)***
Area of residence		
Rural	Ref.	Ref.
Urban	1.47 (1.20-1.79)***	1.61 (1.24-2.08)***
Education		
None/Early education	Ref.	Ref.
Primary	1.51 (0.78-13.02)	1.85 (0.20-17.28)
Secondary	1.82 (0.24-14.00)	1.35 (0.62-11.15)
General/High school	1.63 (0.21-12.65)	1.21 (0.14-10.14)
Vocational	2.38 (0.39-18.37)	1.49 (0.18-12.42)
Specialized college/Technical	1.75 (0.22-13.60)	1.17 (0.14-9.93)
University/Bachelor's	2.53 (0.33-19.51)	1.33 (0.16-11.16)
Master's	3.59 (0.45-28.87)	1.31 (0.14-12.05)
Doctorate/Postdoc	12.5 (1.03-151.05)**	9.51 (0.73-124.62)*
Employment		
In school/training	Ref.	Ref.
Employed	18.69 (4.51-77.43)***	0.68 (0.35-1.31)

Outcome variable: Problems conceiving in 12 months	Model 1 (bivariate logistic regressions)	Model 2 (multivariate logistic regression)
Homemaker/Helping family	18.31 (4.37-76.77)***	0.82 (0.47-1.64)
Unemployed	14.3 (3.38-60.40)***	0.74 (0.37-1.51)
Retired	51.56 (8.78-302.83)***	3.06 (0.88-10.66)*
Military/Civic service	---	---
Parental/Family leave	17.54 (4.16-79.90)***	0.85 (0.41-1.75)
Disabled	20.76 (4.62-93.27)***	0.74 (0.31-1.75)
Other	19.82 (4.23-92.87)***	---
Net household income		
<1,000 lei	Ref.	Ref.
1,000-10,000 lei	1.54 (0.92-2.58)	1.85 (1.02-3.36)**
10,000-20,000 lei	1.55 (0.87-2.75)	1.78 (0.93-3.40)*
20,000-30,000 lei	1.73 (0.94-3.21)*	1.86 (0.93-3.74)*
>30,000 lei	2.37 (1.40-4.01)***	2.58 (1.39-4.80)***
Age at first sex	1.03 (0.99-1.06)*	1.00 (0.96-1.03)
Ideal number of children	1.17 (1.07-1.27)***	1.34 (1.22-1.48)***
Total number of children	0.92 (0.85-0.99)**	0.68 (0.61-0.77)***
***p<0.01 **p<0.05 *p<0.10		

Causes for infertility and fertility treatments were explored to determine the extent to which people reporting infertility are currently diagnosed and seeking treatment. A second question regarding infertility was asked in the survey: "Some people are not physically able to have children. As far as you know, is it physically possible for you, yourself, to have a/another baby?" People who respond that they are definitely or probably not able to have another baby were asked "Have you been diagnosed with anything that might explain your infertility?" All survey respondents were asked if they have used fertility treatment. Results are presented on infertility diagnoses for those who believe they cannot have a/another child, and treatments undertaken are presented for those who believe they cannot have a/another child and those who report trying to conceive unsuccessfully for 12 months. Results can help form guidance on what types of programs and incentives may be most effective.

Table 5 summarizes variables related to problems conceiving and infertility. Among those asked whether they were physically able to have a baby (individuals ages 15-49), 9.3% of the total population reported they were definitely or probably not able to have a baby. Among women under 40 and men, this number was lower, at 6.6% and 5.6%, respectively. The proportion of people definitely or probably not able to have a baby was largest among women aged 40 or older (30.9%). Among people who reported they were definitely or probably not able to have a baby, across all subgroups, most said no cause was found for their infertility. In terms of diagnosed causes, "blocked tubes" closely followed by "uterine fibroids" was the most common cause across the entire population, women under 40 and women 40 and older. "Poor sperm count/quality" was the most common cause among men. Most people reporting infertility have done nothing to treat their infertility (around 70% across all subgroups). "Other medical treatment," "consulted a physician," and "receiving medication" were the three most common reported treatments in all groups.

Looking at those who reported trying to conceive for at least 12 months, the highest subgroup reporting being unable to conceive was women over 40 (14.5%), almost half of all subgroups reported using no type of fertility treatment. Around a quarter of people in each group reported consulting a physician, and over 10% used medication.

Table 5:
Main causes of infertility and fertility treatments used

	Total Pop 15-49 (N=4,146)		Women <40 (N=1,793)		Women ≥40 (N=746)		Men (N=1,607)	
	n	%	n	%	n	%	n	%
Tried to Conceive for 12 Months without Conceiving								
No	3,633	88.1	1,500	87.5	690	85.6	1,431	89.1
Yes	478	11.6	210	12.3	116	14.5	166	10.3
Unsure/No response	14	0.3	3	0.2	0	0.0	8	0.5
Physically possible to have a baby								
Def. or prob. yes	3,433	82.8	1,557	86.8	377	50.5	1,419	88.3
Def. or prob. not	384	9.3	118	6.6	230	30.9	90	5.6
Unsure/No response	329	7.9	119	6.6	139	18.6	98	6.1
Main cause of infertility (among those who reported definitely or probably not able to have a baby)								
Endometriosis	13	2.9	5	3.7	9	3.8	1	0.8
Adhesions	4	0.8	1	0.8	3	1.3	0	0.0
Blocked tubes	31	6.9	13	10.7	20	8.7	1	1.0
Polycystic Ovary Syndrome	6	1.3	0	0.0	7	3.0	0	0.0
Pelvic Inflam. Disease	10	2.2	3	2.3	7	3.1	1	0.8
No/irregular ovulation	13	2.9	5	4.1	10	4.3	0	0.0
Poor sperm count/quality	8	1.8	1	0.7	1	0.5	5	4.8
Uterine fibroids	24	5.3	9	6.9	19	8.1	0	0.0
No cause was found	221	48.3	56	45.0	106	45.1	55	55.6
None of the above	127	27.7	32	25.8	52	22.2	37	37.2
Fertility treatments used (among those who reported definitely or probably not able to have a baby)								
Medication	17	3.7	4	3.2	10	4.3	3	3.3
Ovulation tracking	5	1.0	3	2.5	2	0.9	0	0.0
IVF/ Micro fertil.	2	0.4	1	0.8	1	0.5	0	0.0
Surgery	1	0.2	1	0.7	0	0.0	0	0.0
Artificial insemination	1	0.2	1	0.7	0	0.0	0	0.0
Consulted a physician	30	6.7	5	4.3	20	8.6	6	5.8
Other medical treatment	34	7.5	8	6.3	17	7.3	9	9.0
Nothing	327	71.7	91	73.7	169	72.0	69	69.3
Don't know	15	3.4	5	3.7	6	2.6	4	4.2
No response	24	5.3	5	3.9	9	3.8	8	8.5
Fertility treatments used (among those who tried to conceive for 12 months)								
Medication	62	12.8	34	15.7	12	10.7	18	11.2
Method for tracking ovulation	8	1.7	6	2.6	3	2.8	1	0.6
IVF/Micro fertil.	5	1.0	3	1.3	3	2.8	0	0.0
Surgery	10	2.1	8	3.6	1	0.9	2	1.4
Artificial insemination	2	0.3	1	0.4	1	0.9	0	0.0

	Total Pop 15-49 (N=4,146)		Women <40 (N=1,793)		Women ≥40 (N=746)		Men (N=1,607)	
	n	%	n	%	n	%	n	%
Consulted a physician	127	26.0	54	25.0	24	21.4	46	28.7
Other medical treatment	35	7.1	13	6.2	15	13.5	9	5.5
Nothing	224	45.9	94	43.8	51	45.3	77	47.9
Don't know	4	0.9	2	0.9	1	0.9	1	0.8
No response	10	2.1	1	0.4	1	0.9	6	4.0

INFERTILITY ANALYSIS

About 65% of all respondents reporting problems conceiving said they probably or definitely want another child, and over half (57.9%) of those reporting problems conceiving definitely or probably want another child in the next three years (data not shown). This section examines desired fertility to try to determine whether different groups are able to achieve their ideal fertility, and whether infertility appears to impact the ability to reach ideal fertility.

Looking at the total population and the total population who have experienced problems conceiving, the population with problems conceiving has the same number children on average as the total population (1.4 children) (**Table 6**). There is a small difference in ideal number of children (2.7 for the total population and 2.9 for those who have experienced infertility). Both groups have about 1.5 children less than their ideal fertility, so experiencing fertility issues does not appear to result in a larger gap between actual and ideal fertility. Among women under the age of 40, total number of children is the same again among those with problems conceiving compared to all women under 40 (1.5). Ideal fertility is slightly higher among these women with problems conceiving (2.8) than the total population (2.7). Women over the age of 40 with difficulty conceiving have fewer children (1.6) compared to all women over 40 (2.3) – the largest gap among any of the subgroups – and both groups have the same ideal number of children (2.8). Lastly, men who have experienced difficulty conceiving have slightly fewer children (1.2) than the total population of men (1.5) and ideal fertility is higher among the group with problems conceiving (2.9) than the total population (2.7). Problems conceiving appears to have the largest impact on achieving ideal fertility among women aged 40 and older and men.

Table 6:
Average total number of children and ideal fertility among different populations

	Average total number of children	Average ideal number of children
Total population age 15-49 (n=4,405)	1.4	2.7
Total population experienced infertility (n=494)	1.4	2.9
Women <40 (n=1,880)	1.5	2.7
Women <40 experienced infertility (n=215)	1.5	2.8
Women ≥40 (n=4,331)	2.3	2.8
Women ≥40 experienced infertility (n=116)	1.6	2.8
Men age 15-49 (n=3,825)	1.5	2.7
Men experienced infertility (n=163)	1.2	2.9

Table 7 shows the percent of different demographic groups who have met or exceeded their fertility. When comparing the total population of each subgroup, the largest proportion of women 40 years or older have met or exceeded their ideal fertility, and the smallest proportion was women younger than 40 years. Comparing the total population to the population reporting problems conceiving within each subgroup, the percent that met

or exceeded ideal fertility among the entire population is almost 20 percentage points higher than those who have experienced trouble conceiving. In all three subgroups, those with problems conceiving are less likely to have met or exceeded their ideal fertility than each subpopulation – the difference is 30 percentage points for women over the age of 40.

Table 7:

Percent of different populations who have met or exceeded their ideal fertility

	% met or exceed ideal fertility
Total population age 15-49 (n=10,036)	41.2
Total population with infertility (n=494)	21.6
Women <40 (n=1,880)	30.5
Women <40 with infertility (n=215)	23.0
Women ≥40 (n=4,331)	60.7
Women ≥40 with infertility (n=116)	29.6
Men (n=3,825)	34.3
Men with infertility (n=163)	17.4

Table 8 shows the results of bivariate logistic regressions of not met ideal fertility and each demographic characteristic (Model 1) and multivariate logistic regression (Model 2). The variable for not met ideal fertility is a binary variable where 1 is "not met" (i.e., total living children is less than ideal number of children). Results in Table 10 therefore show the odds of a respondent having not met their ideal fertility. Note that ideal number of children and total number of children were not included in these regressions because they were used to construct the outcome variable.

Compared to those not reporting infertility, those who said they were unable to conceive with 12 months of trying were more likely to have not met their ideal fertility (OR=1.87, CI [1.49,2.36]). Females were lower odds than males of not meeting their ideal fertility, and each year of age resulted in an individual being less likely to not have met ideal fertility (older people are more likely to have met their ideal number of children). Compared to rural residents, urban residents had 34% greater odds of not meeting ideal fertility, but this relationship was no longer significant after controlling for other demographic characteristics. Compared to respondents with no education, the odds of not meeting ideal fertility were greater among those with primary education, general/high school, university/bachelors, or a master's degree, though the confidence intervals were fairly wide. Compared to those in school/training, every other employment type had lower odds of having not met ideal fertility. Compared to the poorest wealth group (<1,000 lei), those in the higher wealth groups (20,000 lei – 30,000 lei and >30,000 lei) had greater odds of having not met their ideal fertility. Finally, each year older for sexual debut contributed to a 6% decline in the odds of having not met ideal fertility, but this relationship was no longer statistically significant after controlling for other demographic characteristics.

After controlling for other demographic characteristics, the relationship between not met ideal fertility and experiencing trouble conceiving was larger. Females had lower odds of not meeting ideal fertility compared to males (OR=0.43, CI [0.36,0.52]). Age was still significantly associated with meeting ideal family size after controlling for other demographic characteristics – younger people are less likely to have met their ideal family size than older people. Area of residence, primary education, and general/high school were no longer significant after controlling for other demographic characteristics. Compared to respondents with no education, those with university/bachelor's or master's degrees had higher odds of having not met ideal fertility, but again, confidence intervals for these results were wide. After controlling for other demographic characteristics, employment type was still statistically significantly associated with having not met ideal fertility. Compared to being in school/training every other job type, except disabled had lower odds of having not met ideal fertility. Lastly, compared to the poorest wealth group (<1,000 lei), those in the higher wealth groups (20,000 lei – 30,000 lei and >30,000 lei) had greater odds of having not met their ideal fertility. These results seem to indicate that many individuals have not met their ideal fertility because they are younger and may therefore still have more children in the future, and/or they have delayed or foregone childbearing to pursue higher levels of wealth.

Table 8:
Association between not met ideal fertility and demographic characteristics

Outcome variable: Has not met ideal fertility	Model 1 (bivariate logistic regressions)	Model 2 (multivariate logistic regression)
	Odds Ratio	Odds Ratio
Infertility		
Has Not Experienced Trouble Conceiving	Ref.	Ref.
Has Experienced Trouble Conceiving	1.87 (1.49-2.36)***	2.80 (2.10-3.73)***
Sex		
Male	Ref.	Ref.
Female	0.46 (0.40-0.53)***	0.43 (0.36-0.52)***
Age	0.90 (0.89-0.90)***	0.90 (0.89-0.91)***
Area of residence		
Rural	Ref.	Ref.
Urban	1.34 (1.17-1.53)***	1.02 (0.84-1.23)
Education		
None/Early education	Ref.	Ref.
Primary	4.79 (1.72-13.32)***	1.94 (0.51-7.45)
Secondary	1.81 (0.76-4.34)	1.93 (0.60-6.26)
General/High school	2.14 (0.89-5.16)*	2.50 (0.76-8.21)
Vocational	1.45 (0.60-3.49)	2.01 (0.61-6.58)
Specialized college/Technical	1.48 (0.61-3.58)	1.86 (0.56-6.13)
University/Bachelor's	2.10 (0.87-5.07)*	3.18 (0.96-10.51)*
Master's	3.23 (1.24-8.38)**	4.70 (1.33-16.61)**
Doctorate/Postdoc	1.75 (0.37-8.32)	1.94 (0.33-11.52)
Employment		
In school/training	Ref.	Ref.
Employed	0.03 (0.01-0.06)***	0.16 (0.60-0.46)***
Homemaker/Helping family	0.02 (0.01-0.05)***	0.16 (0.57-0.45)***
Unemployed	0.03 (0.01-0.07)***	0.18 (0.06-0.50)***
Retired	0.01 (0.00-0.05)***	0.10 (0.02-0.49)***
Military/Civic service	---	---
Parental/Family leave	0.02 (0.01-0.05)***	0.10 (0.04-0.27)***
Disabled	0.04 (0.01-0.09)***	0.48 (0.15-1.47)
Other	0.05 (0.02-0.14)***	0.29 (0.09-0.89)**
Net household income		
<1,000 lei	Ref.	Ref.
1,000-10,000 lei	1.08 (0.80-1.45)	0.96 (0.66-1.39)
10,000-20,000 lei	1.16 (0.83-1.62)	1.01 (0.67-1.53)
20,000-30,000 lei	1.51 (1.032.23)**	1.70 (1.06-2.73)**
>30,000 lei	1.45 (1.06-2.00)**	1.45 (0.98-2.16)*
Age at first sex	**0.94 (0.91-0.96)*** **	**1.02 (0.99-1.05)**
***p<0.01 **p<0.05 *p<0.10		

PRIMARY VS. SECONDARY INFERTILITY

To get a sense of the prevalence of primary versus secondary infertility in the sample, results were examined among those who have no children compared to those who have at least one child, using both infertility variables. **Table 9** shows the percent of those who have had problems conceiving in 12 months and those who are definitely or probably not able to have a baby among individuals with no children and individuals with at least one child. Proportions for those with problems conceiving are similar across those with and without children. One major limitation using this variable (FER04d) for this particular analysis is that it does not indicate when the problems conceiving occurred, whether before or after the birth of a child. Looking at those who are definitely or probably not able to have a baby, differences are more pronounced between those with and without children. The percent who are definitely or probably not able to have a baby is larger among those with at least one child compared to those with no children.

Table 9 also shows treatment seeking behavior among those with and without children. Doing "nothing" to treat infertility was still the most common response among those with and without children for both infertility variables. However, the proportion of those doing "nothing" to treat infertility was greater among those with at least one child (47.6% of those reporting problems conceiving and 74.4% of those who are definitely or probably not able to have a baby). It is possible that these individuals have achieved their desired fertility and are therefore less likely to seek treatment. Among treatments, "consulted a physician" was the most common treatment among both those with and without children experiencing problems conceiving, and among those with no children who are probably or definitely not able to have a baby. "Other medical treatment" was the most common treatment among those with at least one child who were definitely or probably not able to have another child.

Table 9:

Experience with infertility and fertility treatments used among those with and without children

	No children		At least 1 child	
	n	%	n	%
Problems conceiving (tried to Conceive for 12 months without conceiving)				
No	1,025	88.4	2,608	87.9
Yes	126	10.9	352	11.9
Unsure/No response	9	0.7	5	0.2
Physically possible to have a baby				
Definitely or probably yes	1,176	87.9	2,257	80.4
Definitely or probably not	73	5.4	311	11.1
Unsure/No response	89	6.6	240	8.6
Fertility treatments used (among those who tried to conceive for 12 months)				
Medication	12	10.3	51	13.7
Method for tracking ovulation	3	2.4	6	1.5
In Vitro Fertilization/Micro fertilization	1	0.6	4	1.1
Surgery	3	2.5	7	2.0
Artificial insemination	1	0.6	1	0.2
Consulted a physician	33	28.8	93	25.1
Other medical treatment	10	8.8	24	6.5
Nothing	48	41.2	177	47.6
Don't know	3	2.8	1	0.2
No response	2	2.1	8	2.1
Fertility treatments used (among those who reported definitely or probably not able to have a baby)				

	No children		At least 1 child	
	n	%	n	%
Method for tracking ovulation	1	1.3	4	1.0
In Vitro Fertilization/Micro fertilization	1	1.0	1	0.3
Surgery	0	0.0	1	0.2
Artificial insemination	0	0.0	1	0.2
Consulted a physician	7	10.4	22	5.8
Other medical treatment	5	7.5	29	7.5
Nothing	42	59.7	287	74.4
Don't know	6	9.0	8	2.0
No response	5	6.5	19	5.0

DISCUSSION

Overall, 11.6% of respondents aged 15-49 have tried to become pregnant but did not conceive within 12 months. Individuals reporting infertility are more likely to be female, older, wealthier and living in an urban area. Higher ideal fertility is associated with higher odds of experiencing trouble conceiving, which aligns with these individuals spending more of their lives trying to conceive to reach their desired family size. Unsurprisingly, more living children is associated with lower odds of experiencing difficulty conceiving.

Causes of infertility were only asked of those who reported they were definitely or probably not able to have a baby. About 9.3% of the total population believe they could not have a/another child, and this belief is most prevalent among women in the older age group (40-49). Most of these individuals said no cause was found for their infertility. These results may reflect lack of access/knowledge, or lack of a desire to have more children. Among treatments for infertility, most individuals reported doing “nothing” to treat their infertility, reflecting a lack of treatment-seeking behavior, possibly due to social, physical or financial barriers.

Total number of children and desired fertility were examined to try to determine whether different groups are able to achieve their ideal fertility, and whether infertility appears to impact the ability to reach ideal fertility. Across the sample, the average number of children is 1.4, but the average ideal number of children is 2.7, well above replacement level. Almost half of the population intends to have another child, but only 38% plan to have another child in the next three years, indicating a desire to delay or space childbearing. Among those reporting problems conceiving, about 65% of all respondents reporting problems conceiving said they probably or definitely want another child, and over half (57.9%) definitely or probably want another child in the next three years. Looking at the total population and the total population who have experienced problems conceiving, the population with problems conceiving has the same number children on average as the total population with a small difference in ideal number of children. Across the total population and women under 40, experiencing fertility issues does not appear to result in a larger gap between actual and ideal fertility. However, women over the age of 40 with difficulty conceiving have fewer children compared to all women over 40 – the largest gap among any of the subgroups. Men who have experienced difficulty in conceiving have slightly fewer children than the total population of men and ideal fertility is higher among the group with problems conceiving than the total population of men. These findings suggest that infertility is likely a limiting factor for achieving ideal fertility and that many individuals experiencing infertility do indeed desire a/another child.

“Met fertility,” or the proportion of the population where total living children is greater than or equal to desired fertility was also explored. When comparing the total population of each subgroup, the largest proportion who have met or exceeded their ideal fertility are women 40 years or older, and the smallest proportion are women younger than 40 years. This is likely due to the fact that younger women have had fewer childbearing years and may still have more children in the future. However, when we compare the total population to the population reporting problems conceiving within each subgroup, we see that those with problems conceiving are less likely to have met or exceeded their ideal fertility. The difference is largest for women over the age of 40.

Associations between not met ideal fertility (total living children is less than ideal number of children) and demographic characteristics were also explored. After controlling for other demographic characteristics, individuals reporting problems conceiving are almost three times as likely to not meet their ideal fertility. Females are more likely to have met their ideal fertility compared to males and younger people are less likely to have met their ideal family size than older people. Compared to the poorest wealth group (<1,000 lei), those in the higher wealth groups (20,000 lei – 30,000 lei and >30,000 lei) have greater odds of not meeting their ideal fertility. These results seem to indicate that many individuals have not met their ideal fertility because they are younger and may therefore still have more children in the future, and/or they have delayed or foregone childbearing to pursue higher levels of wealth.

Finally, results were explored among those with and without children to try to better understand secondary versus primary infertility. Looking at those who are definitely or probably not able to have a baby, the percent who are definitely or probably not able to have a baby is larger among those with at least one child compared to those with no children, indicating secondary infertility may be more prevalent in the population. Doing "nothing" to treat infertility was still the most common response among those with and without children for both infertility variables examined. However, the proportion of those doing "nothing" to treat infertility was greater among those with at least one child. It is possible that these individuals have achieved their desired fertility and are therefore less likely to seek treatment.

There are several limitations associated with the data on infertility from the GGS. First, data come directly from respondents themselves and are not triangulated with official medical diagnoses. It is possible that some respondents reporting problems conceiving are not exposed to pregnancy (no or infrequent sex, use of contraception, sterilization or partner's use of contraception or sterilization, etc.). To help reduce the impact of this bias, individuals who had never had sex were removed from the main infertility variable used in this analysis. Diagnoses and treatments may have also been misreported by respondents. It is also possible that social norms and taboos related to the topic of infertility have impacted responses. For example, the finding that problems conceiving is more common among women likely represents women's greater awareness and/or willingness to discuss this topic rather than a higher incidence of infertility among women compared to men. Second, it was not possible to determine timing of relevant events, including experience with problems conceiving, birth of children and sterilization. Information on the timing of these events could have led to richer analysis on secondary infertility and causes and treatments of infertility. Findings presented here would be strengthened by additional qualitative research on decision-making around childbearing and treatment-seeking for infertility.

CONCLUSIONS

Infertility represents an important demographic and reproductive rights issue in Moldova. Many individuals experiencing problems conceiving desire a/another child, but are not seeking treatment. Programs should focus not only on overcoming barriers related to physical and financial access to infertility treatments but also on increasing awareness about infertility and related health concerns and the types of services available to combat these issues. Mass media and education campaigns, as well as counseling by health care providers can help encourage infertile couples and individuals to seek help. In addition, increased fathers' (or partners') involvement at home can help overcome the trade-off between having children and seeking professional or social advancement. Media campaigns that challenge traditional gender roles may help to continue making progress towards a more equitable division of labor within the home, which may in turn help reduce the burden of childbearing in Moldova.

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INCREASE THE IMPACT OF EUROPEAN FUNDS ON ROMANIAN RURAL DEVELOPMENT THROUGH VERNACULAR EXPERTISE

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ABSTRACT

It is well known that the projects financed by the European Union generate effects on the entities that implement them, on the interested factors, but also on the regions where they are implemented. These projects aim to develop the regions and achieve the sustainable development. Taking into account a large number of investments initiated through projects at the level of the European Union, it is necessary to evaluate the impact of these projects, respectively, the analysis of the effects created to control whether or not the proposed objectives are achieved. So, in this article, the authors highlighted the main difficulties faced by rural projects, the impact factors in the implementation of projects financed from European funds, and the ways of increasing the impact of European funds from the perspective of rural development. The relevance of the research consists in identifying the impact factors and problems specific to rural areas in Romania and submitting proposals to increase the impact of European funds (based on the Neamt County case study). The research aims to determine the best ways and solutions to increase the impact of European funds from the perspective of rural development. Therefore, the results of the research, especially of the conducted survey, allowed us to conclude that increasing the impact of European funds on rural development can occur through the implementation and use of vernacular expertise, which is also a new element of the study.

Keywords: European funds, rural development, vernacular expertise

Este bine cunoscut faptul, că proiectele finanţate de Uniunea Europeană generează efecte asupra entităţilor care le implementează, factorilor interesaţi, dar şi asupra regiunilor în care sunt implementate. Prin aceste proiecte se doreşte dezvoltarea regiunilor şi atingerea obiectivului de dezvoltarea durabilă. Reieşind din numărul mare de investiţii, iniţiate prin proiecte la nivelul Uniunii Europene, este necesară evaluarea impactului acestor proiecte, respectiv analiza efectelor create pentru a controla dacă sunt sau nu atinse obiectivele propuse. Astfel, în prezentul articol autorii au scos în evidenţă principalele dificultăţi cu care se confruntă proiectele rurale, factorii de impact în realizarea proiectelor finanţate din fondurile europene, dar şi modalităţile de sporire a impactului fondurilor europene din perspectiva dezvoltării spaţiului rural. Relevanţa cercetării constă în identificarea factorilor de impact şi a problemelor specifice zonelor rurale din Romania şi înaintarea propunerilor de sporire a impactului fondurilor europene (în baza studiului de caz Judeţul Neamţ). Scopul cercetării constă în determinarea modalităţilor şi soluţiilor optimale de sporire a impactului fondurilor europene din perspectiva dezvoltării spaţiului rural. Prin urmare, rezultatele cercetării, în special a sondajului efectuat, ne-au permis să concluzionăm, că sporirea impactului fondurilor europene asupra dezvoltării rurale poate avea loc prin implementarea şi utilizarea expertizei vernaculare, ceea ce constituie şi elementul de noutate al studiului.

Cuvinte cheie: fonduri europene, dezvoltare rurală, expertiza vernaculară

Общеизвестно, что проекты, финансируемые Европейским союзом, оказывают влияние на субъекты, которые их реализуют, на заинтересованные факторы, а также на регионы, где они реализуются. Эти проекты нацелены на развитие регионов и достижение, устойчивого развития. В результате большого количества инвестиций, инициированных в рамках проектов на уровне Европейского Союза, необходимо оценить влияние этих проектов, соответственно, анализ созданных эффектов, чтобы контролировать, достигаются ли предложенные цели. Таким образом, в данной статье авторы выделили основные трудности, с которыми сталкиваются сельские проекты, факторы воздействия при реализации проектов, финансируемых из европейских фондов, а также пути повышения воздействия европейских фондов с точки зрения развития сельских районов. Актуальность исследования заключается в выявлении факторов воздействия и проблем, характерных для сельских районов Румынии, и представлении предложений по увеличению воздействия европейских фондов (на основе примера округа Нямц). Цель исследования состоит в том, чтобы определить наилучшие пути и решения для увеличения влияния европейских фондов с точки зрения развития сельских районов. Таким образом, результаты исследования, особенно проведенного опроса, позволили нам сделать вывод о том, что усиление воздействия европейских фондов на развитие сельских районов может происходить за счет внедрения и использования народной экспертизы, что также является новым элементом исследования.

Ключевые слова: европейские фонды, развитие сельских районов, местная экспертиза

INTRODUCTION

The current interest in global and regional development is determined by the need to address and resolve some new difficulties within the national economic policies generated in the context of the restructuring and reform processes triggered in the central and eastern regions of the European continent. In 2007, the rural development in Romania was characterised by: few investments in education, technologies, development, research and consultancy; poorly developed economic activities; poorly promoted local agri-food products; unsatisfactory and discouraging results of the activity of small and medium-sized farms; lack of information; low involvement of local and regional public administrations due to unqualified and financially unmotivated staff; climate change affecting agriculture; almost non-existent communication with the outside, which is unfavourable for exports. Romania's rural areas were far behind urban areas in terms of access to infrastructure, services and information, as well as a large number of very poor people. Accession and integration into the European Union were expected and desired by the population of Romania. The desire for development and proximity to developed countries made Romanians look optimistically towards the future. The standard of living was very low, and the country was looking for solutions. Since 2007, the European Union's common agricultural policies have proposed various programs and projects on all levels, national, regional and local, to improve Romania's economy and living conditions. In this sense, through the given research, we argue that the analysis of the impact of the projects is strictly necessary to verify if they produce the desired effects and if they contribute appropriately to the fulfilment of the objectives of the European programs and policies. The primary objective of this study is to improve the quality of absorption of European funds in rural areas. The object of the research represents rural areas in Romania, with an emphasis on Neamt county as a rural area. The added value of the study lies in the fundamental evaluation of European funds at international and national levels. The applied value consists in applying impact factors and vernacular expertise to increase the impact on the management of the efficiency of European funds related to rural development. The study results are useful to all beneficiaries of European funding, entrepreneurs and natural persons who wish to attract European funds for development, but also to public and private institutions, intermediate bodies and management authorities.

LITERATURE REVIEW

The theoretical and methodological approaches regarding European funds allocated to rural development have been researched over the years, and as a result, they have been reflected in the works of renowned national and international scholars (Ciobanu, 2022; Bosworth et al. 2020; Gkartzios & Lowe, 2019; Mieczysław & Zwolińska-Ligaj, 2018). In the view of the authors (Mitrică et al., 2020), currently, the rural area of Romania is going through a restructuring process (demographic, economic, social), acquiring new dimensions and characteristics. At the same time, Galluzzo (Galluzzo, 2020) considers that rural development through direct payments and financial subsidies played a significant role in reducing the percentage of emigration from rural areas. We agree with the statements of the respective researchers. Moreover, we believe that the development of rural areas requires a total revival in the context of crises and global changes. That is why, based on the empirical studies of the researchers (Lowe et al., 2019), we consider it opportune to implement vernacular expertise in order to develop rural areas in Romania.

The analysed literature regarding the European funds on rural development is very complex, which is the starting point of the respective research. At the same time, the analysed literature allows us to state that currently, the impact of European funds from the perspective of rural development in Romania continues to be uncertain, which allowed us to identify the research area and select Neamț County as a rural area, which absorbs European funds. Thus, the existing problems at the level of absorption of European funds, capacities and the multitude of existing issues in this field motivated us to conduct additional research on identifying ways to increase the impact of European funds on Romanian rural development.

The concept of rural development is based on the concept of sustainable development and has several fundamental features, referring to: (i) *sustainable rural development*, which implies equitable and balanced economic development, with a high level of social cohesion, inclusion and assuming responsibility for the use of natural resources and environmental protection; (ii) *extensive or integrated rural development*, which refers to the development of the rural environment by expanding the means of communication and information, by expanding activities from the rural environment to the non-agricultural sector and the promotion of extensive agriculture, whose essential coordinate is informational transfer (the concept of extensive agriculture here is different from the traditional one, which is defined as the opposite of intensive agriculture) and (iii) *multisectoral rural development*, which refers to the creation of networks and partnerships between international organizations, national agencies or civil society organizations, with a view to a multisectoral approach (Bleahu, 2005).

RESEARCH METHODOLOGY

Based on the assumption that the rural areas of Neamt County in Romania face a series of common challenges with those of rural areas in the European Union, from lower connectivity and lack of services to fewer employment opportunities, and to identify the problems specific to the rural area of Neamț County, in 2021 we carried out a survey according to the methodology used at the national level when preparing the Eurobarometer report (2021). The survey included six topics, seven questions (Table 1), and 100 respondents from 57 rural localities (villages with commune functions in Neamt County). At the same time, the traditional methods of scientific analysis were applied, such as: analysis and synthesis, induction and deduction.

Table 1:
Thematic areas of the survey for rural regions in Neamt County

	Survey topic areas						
	1. Special attention is given to rural areas in decisions regarding public expenditure		**2. What is important for the development of rural areas?**	**3. Involvement in decisions affecting local areas**	**4. The consequences of the pandemic COVID-19**	**5. Raising awareness of the risks of climate change in rural areas**	**6. Raising awareness of EU actions aimed at addressing environmental issues**
Rural settlements (communes) from Neamt County	**Q1** When the European Union takes decisions on public spending, the specific needs of rural areas are taken into account. Do you agree or oppose this EU action? (%)	**Q2** In your opinion, when the EU invests in rural areas in Romania, who should decide how the investment money is spent? (%)	**Q3** What specific needs of rural areas in Romania do you consider to require the most attention? (%)	**Q4** To what extent do you agree that you can influence the decisions that affect the rural area of Neamt County(%)?	**Q5** After all current COVID-19 restrictions end, how likely are you to deploy? The following activities compared to the period before the pandemic? (%)	**Q6** Which of the following, if any, is a problem in your local area/ rural areas of Neamt County? (%)	**Q7** Are you aware of EU actions aimed at addressing these environmental issues in your local areas/ rural areas of Neamt County? (%)

Source: developed by the authors based on the Eurobarometer methodology

For the empirical analysis of vernacular expertise, we analysed the sources of knowledge of actors, who use vernacular expertise in their project realisation activity, and professional experts, who develop, test and disseminate vernacular expertise in the consultation process of project realisation by interviewing 65 people (Table 2) for six days regarding the perception of the expertise of rural practitioners.

Table 2:
Interviews

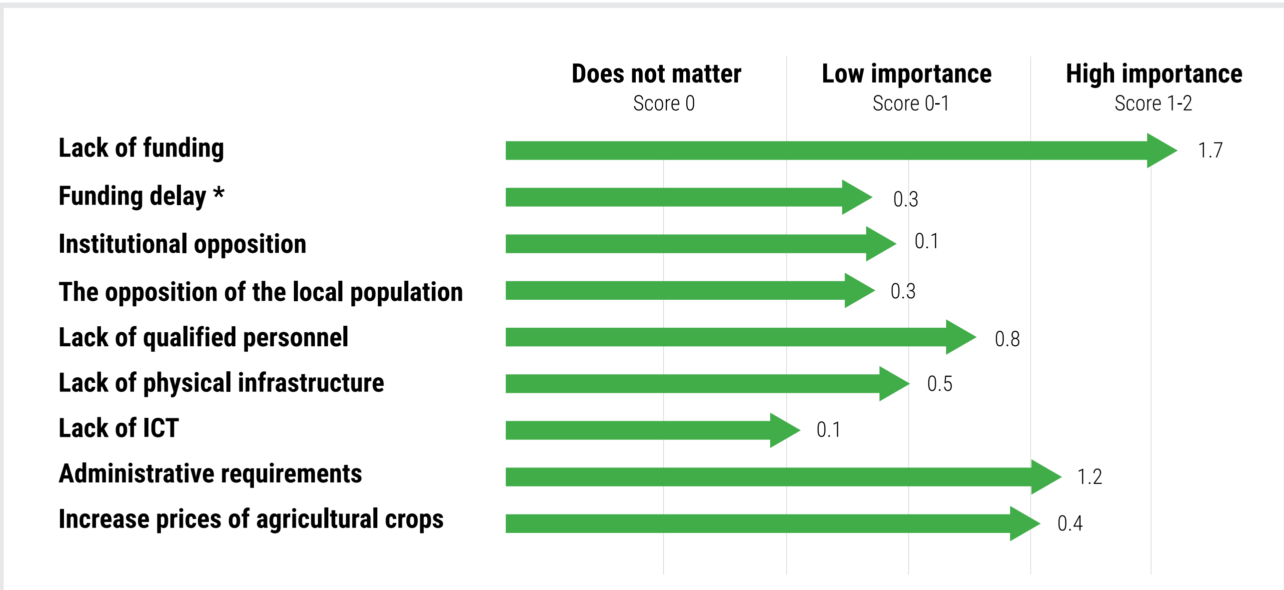
Areas of expertise	Agriculture	Ecological agriculture	Trade in agricultural products	Rural tourism	Agritourism	Environmental science	Regenerative energy	Financial management	Rural business	Logistics
Experts	x	x	x	x	x	x	x	x	x	x
Beneficiaries of funded projects	x	x		x	x	x	x	x		x

Source: data from case study interviews

MAIN RESULTS AND DISCUSSIONS

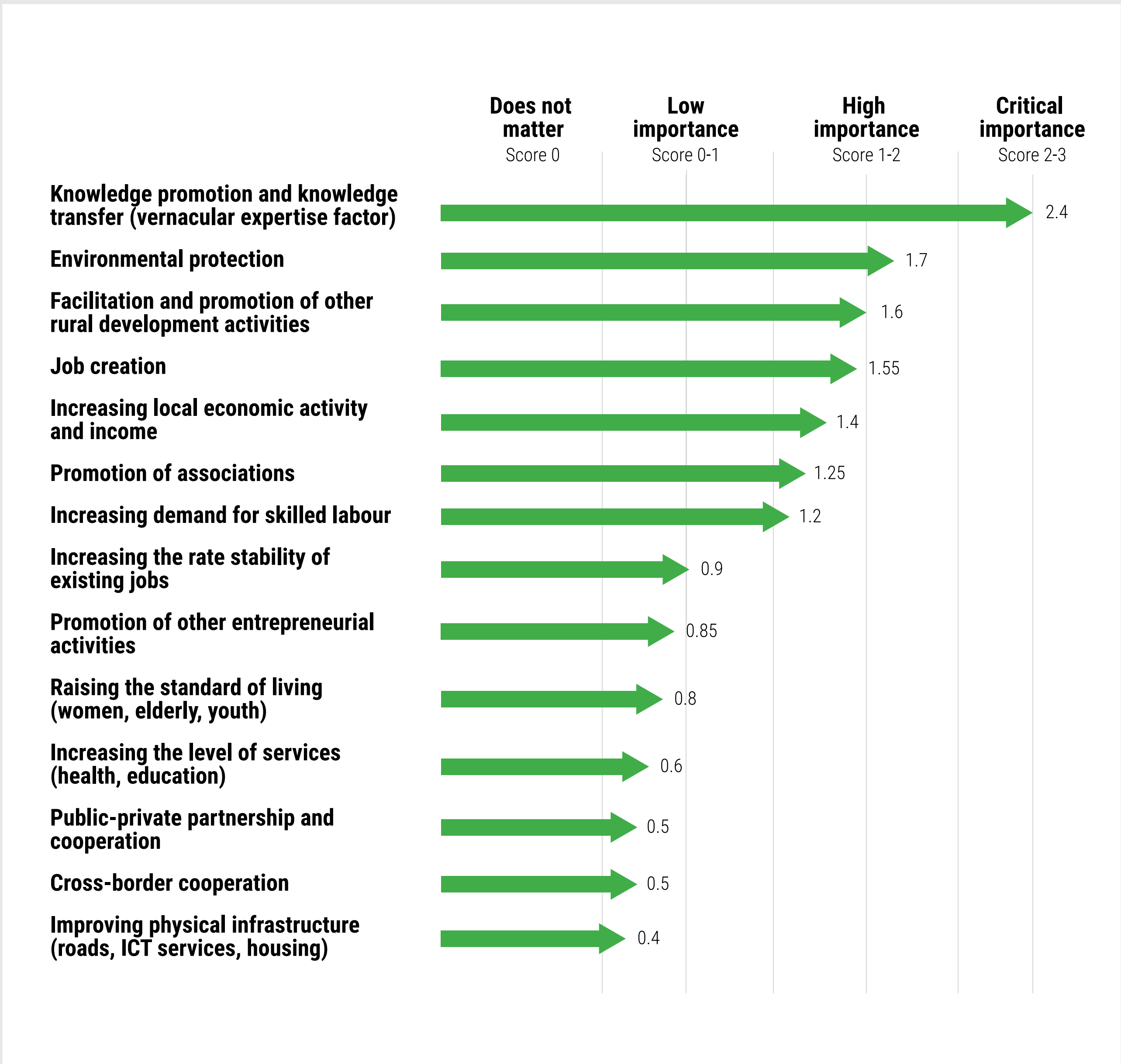
The purpose of researching the impact of funds on rural development is to identify the key factors that facilitate the success of projects in rural areas at the stage of project development, noting that rural projects face general difficulties, such as, for example, in their initial stages, problems related to bureaucracy, difficulty in finding qualified staff at the levels required for implementation, including for specific technical functions, general management and administration tasks, delay in funding, widespread mistrust among local communities, sometimes opposition from certain actors, especially local government, and specific difficulties, related to the site characteristics of the projects in the process of realisation, the solution of which requires specific expertise (Fig.1).

Figure 1:
The main difficulties faced by rural projects (frequency of cases, %)



Source: Calculated based on the Survey

Figure 2:
Impact factors in the implementation of projects financed from European funds



Source: Calculated based on the Survey

At the same time, in the implementation report of the Large Infrastructure Operational Program (POIM), there were identified significant problems of a sectoral or horizontal nature encountered in the process of preparing projects on the priority axes related to the environmental, risk and energy sectors, as well as in the project implementation process (Tab.3). The solution of these problems requires the identification and application of the necessary measures to eliminate or reduce the negative impact and to recover the identified gaps (Raport, 2020).

Table 3:
Sectoral or horizontal problems encountered in the preparation process, implementation and management of POIM projects

Problems in the project preparation process		Problems in project implementation and management	
Problems	Remedial measures	Problems	Remedial measures
New projects are not yet at the level of maturity required for submission for evaluation	Supplementing the number of experts Optimising the work process with experts	*Delays in the execution of works contracts*	Regular analysis, together with the beneficiaries, of the activity of entrepreneurs
High investment costs compared to the requirements of economic efficiency	Technical assistance provided for the evaluation of the impact on the objectives Analysing the possibility of resizing very high value investments related to the limited financial and administrative capacity of some beneficiaries	*Institutional blockages (delays in obtaining approvals/authorisations, etc.)*	Methodological coordination of beneficiaries and entrepreneurs Organisation of mediations between beneficiaries and different authorities involved in the flow of project implementation
Administrative capacity *reduced to the level of beneficiaries*	Strengthening the institutional capacity of beneficiaries Ensuring the consolidation of the observations of the advising ministries to increase the absorption of European funds	*Administrative capacity reduced to the level of beneficiaries*	Strengthening the institutional capacity of beneficiaries Ensuring the consolidation of the observations of the advising ministries to increase the absorption of European funds

Source: compiled based on Raport (2020)

In order to better understand the causes of the discrepancies between the concepts of European programs for financing investments in rural areas and the level of their realisation at the local level, especially the low level of capitalisation of funds through local projects, it is important to examine the changing relationship between scientific, professional and non-professional expertise in rural development, covering a wide spectrum of programming processes - planning, implementation mechanisms and models of rural development.

For this, we propose the use of a new concept of ***vernacular expertise***, introduced in the scientific circuit by P. Lowe in 2019, but which in Romania has not spread widely in practice, a concept that is the basis of neo-endogenous development models and which addresses the expertise that the people of a particular place have and develop, which must be understood not only as a local experience and knowledge (local knowledge) accumulated about the place, but also essentially fed by sources and external agents, and as a result, which can be better recognised and improved in development processes and policy agendas (Secco et al., 2016). In particular, the interaction between scientific, professional and non-professional expertise in the field of rural development must be examined, rural development being a case that offers the opportunity to conceptualise expertise due to the variety of well-documented, sometimes experimental management models and knowledge exchange (Gkartzios et al., 2019).

The notion of expertise can be defined as the development and deployment of tacit or codified human knowledge, experience and skills, informal or certified, individualised or collective (Spender, 2005), and of other technical capacities, the concept of expertise recognises that all those interested in a problem and who have relevant expertise should be involved in solving it (Carolan, 2006). According to Collins and Evans typology (Collins & Evans, R. 2002), the following tripartite model of knowledge is distinguished: (i) without expertise; (ii) interactive expertise, when there is sufficient experience to enable interesting interactions between contributing experts from generalisable fields or local/practical knowledge to the extent that all participants leave the cognitive process changed; (iii) contributory expertise, when there is sufficient expertise to contribute to the knowledge base of the individual or group of individuals.

Examining ways in which interactive expertise could be cultivated to facilitate knowledge exchange between local contributing and certified experts should, we believe, lead to a better understanding of how knowledge is communicated to certified contributing experts, and, in this sense, to contribute to the better use of local expertise (Wynne, 1989). Examining the evolution of rural development and knowledge generation models in recent decades has shown that the results of science have been disseminated to farmers by extension agencies in the form of technical recommendations, materials and equipment, with farmers being classified as "progressive" or "traditionalist", the main forces of progress within the exogenous rural development model being conceived outside rural areas. According to this model, rural areas do not have their own dynamism, and modernisation results from external planning, rationalisation of localities, infrastructural connections and the transfer of socio-technical innovations from dynamic urban areas, industrialisation and technological innovation as solutions generated from research and not as solutions developed in or for concrete localities, the role of rural development is to pave the way and stimulate the adoption of new scientifically driven technologies.

The bottom-up model, characteristic for the endogenous development concept based on the evolution of the local social and ecological system, was passed when the idea of state orientation towards welfare was refused in favour of competition (OECD, 2016), when the emphasis of rural development was placed on the exploitation of local potential depending on local knowledge and resources. The new model, the network or neo-endogenous development model, assumes that rural areas are shaped by internal and external forces, promoting local and extra-local connections, facilitated by state institutions (Bosworth et al., 2020) to strengthen the conditions of local confrontation (local enterprises, households, community groups and voluntary organisations) with the outside (capital circuits, powers and expertise, rural professionals, regional agents, NGOs, companies, universities and research institutes) (OECD, 2018). The Drumurile Bistritei Association could present a new model of relations, made up of 15 localities from Neamt (Alexandru cel Bun, Piatra Soimului, Savinesti, Roznov, Dochia, Margineni, Zanesti, Borlesti, Tazlau, Rediu, Podoleni, Romani, Moldoveni, Bahna, Costisa and Candesti) and Filipesti de Bacau. Many investments in the territory of these localities owe their existence to the LAG (Local Action Group) projects and the European money attracted, whether it is about the improvement of the infrastructure, the purchase of equipment needed by the town hall or the small farmers or the various local producers, who have seen in the European programs the saving solution for their businesses. During the funding period 2007-2014, the Drumurile Bistritei Association attracted 2.8 million euros for the implementation of the projects proposed by its partners. In 2015, after establishing the local development strategy, Drumurile Bistritei concluded a project financing contract of about 2.6 million euros.

The model of relations between actors necessary for starting, implementing and developing development projects in rural areas, the type of support they provide and their contributions, includes the categories: (1) scientific and technical support provided by research centers, technical staff from government offices, certification agencies, etc.; (2) knowledge and information on specific and technical issues, provided by a wide variety of public bodies; (3) the physical infrastructure necessary for the operation of the project provided by public bodies, especially local ones, and national governments; (4) organizing and marketing provided by a variety of actors, including public bodies, mainly local governments, private organizations and NGOs; (5) implementing regulatory standards provided primarily by local and regional governments; (6) participation of other types of actors, for example, business advice provided by external consultants or companies or organizations similar to the one leading the project.

Esparcia's model reflects the importance of actor networks in relation to different stages of projects (Esparcia, 2014):

- ***at the initial stages of idea generation***, two types of projects are found: (a) projects where the networks of actors are relatively weak, poorly developed or almost non-existent, when the adoption of the role of the network of individuals, one of whom takes the role of manager, becomes a key factor, and (b) projects where the generation of the basic idea is the result of the cooperation and interaction of several actors within a more developed network;
- ***at the implementation stage***, there are projects in which the network of actors involved grows significantly when the commitment of all those actors is required;
- ***at the development stage***, there are projects in which new actors have a significant contribution which, however, leads not so much to growth as to consolidation to ensure the network's sustainability.

Based on the fact that the implementation of projects requires a relatively large relational network, we further analysed the influence that different actors had on the design and implementation of projects within the networks with the participation of actors who have an active role in the managerial structure of the projects.

The results of the analysis show that: *1) for many interviewees, the major actors are those who participate in one or more of the stages of the project (internal actors); 2) the significance of the role of internal actors (project partners) is assessed as high and very high; 3) the intervention of public actors is particularly significant, especially in relation to promotion and financing policies, regional governments are perceived as the most influential external actors, and the role of other external actors, for example, collective associations, private companies, is much less significant for the realization of projects; 4) the role of regional governments (as external actors) is generally average; 5) in some cases the relationship with the project managers is valued as very important; 6) the influence of local authorities varies considerably, depending on the case, but for most of the interviewees it is valued from moderate to very significant; 7) for most projects, the national government has little influence; 8) non-public actors do not have significant influences on projects, thus, projects depend primarily on the network of internal actors, including partners on which project operations are based, external dependencies being mainly directed to public actors due to administrative links, public financing and other public policies to support the projects (Table 4).*

Table 4:
Perception of actors' influence on projects

	Average influence	Frequency by the level of influence, %				
		No influence -0	Low Influence -1	Medium influence-2	High influence-3	Very high influence-4
Project (internal)	3.3	0	13	0	38	50
Regional administration	2.4	0	22	44	0	33
Local administration	1.8	22	33	11	11	22
National administration	1.1	67	0	0	22	11
Other projects	0.8	44	33	22	0	0
Other Companies	1.1	22	56	11	11	0
Associations, NGOs	1.4	11	56	22	0	11

Source: Calculated based on the Survey

For projects at the local or regional level, the solid effort to ensure self-sustainability is specific, along with the need for external support, predominantly public. The analysis of the role of the actors in the promotion and implementation of the initiatives shows that their presence varies according to the project development stage, noting that once the projects are developed and consolidated, they tend to offer external services that contribute to their sustainability, especially for enterprises with private sector-oriented services, for example, trade in agricultural products, and enterprises operating based on public-private partnerships, for example, energy management advisory services. Because the relationships between actors and projects also have the opposite direction, we analysed the impact of projects on actors and stakeholders, assuming that the achievement of the project's objectives has a positive impact on directly involved actors and strong multiplier effects on other "external" actors.

The results of the analysis show *that: (1) the most significant impact is on the local and internal actors directly involved in the project; (2) there is an initial network of actors through which relationships of mutual influence are very strong; (3) the impact-benefit perception for external actors is as high as for public actors in the network of secondary actors (regional and local governments); (4) some projects have an "output", understood as a high, including political, profit for public actors and other actors involved; (5) there is a third group of external actors with less intense connections and less influence, which refers to collective associations and NGOs, other projects with which intense relations are maintained or private companies with which commercial transactions are negotiated (Table 5).*

Table 5:
Perception of the influence of projects on actors

	Average influence	Frequency by the level of influence, %				
		No influence -0	Low Influence -1	Medium influence-2	High influence-3	Very high influence-4
Project (internal)	3.3	0	0	0	13	88
Regional administration	2.4	0	1	56	11	22
Local administration	12.4	11	22	11	22	33
National administration	1,2	56	11	0	22	11
Other projects	1.0	44	22	22	11	0
Other Companies	1,2	22	56	0	22	0
Associations, NGOs	1,3	11	56	22	11	0

Source: Calculated based on the Survey

We mention that the impact or benefits of the projects on the actors are appreciated and perceived above the reverse - the impact of the actors on the projects (Table 6).

Table 6:
Average influence of project-actor relationship

	Actors' average influence on projects	Average influence of projects on actors
Project (internal)	3.3	3.9
Regional administration	2.4	2.4
Local administration	1.8	12.4
National administration	1.1	1,2
Other projects	0.8	1.0
Other Companies	1.1	1,2
Associations, NGOs	1.4	1.3

Source: Calculated based on the Survey

CONCLUSIONS

The survey study confirmed that the rural areas of Neamt County in Romania face a series of common challenges with those of rural areas in the EU, from lower connectivity and lack of services to fewer employment opportunities, however, demonstrating some particularities.

Therefore, the interview data show that vernacular expertise has a hybrid essence, it is a combination of knowledge generated by the concrete field of the project carried out, local and extra-local experiences, skills and knowledge, adapted to the specific context and objectives of the project, and strengthening the expertise of local actors is more effective in their perception by co-producing knowledge, creating networks for sharing expertise and equipping local actors with methods and tools to use to develop and apply their own expertise, and at the same time, to manage the specialist-non-specialist/expert-non-expert communication skill as a two-way, trust-based exchange process within the project.

In the context of the obtained results, the authors recommend the implementation and use of vernacular expertise in identifying the specific problems of each area of the rural space both nationally and internationally, which will allow the improvement of all rural development processes.

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CHANGES IN MORTALITY DURING THE COVID-19 PANDEMIC IN MOLDOVA

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ABSTRACT

The study aims to highlight changes in mortality during the Covid-19 pandemic in Moldova. Two sources of data were used: the National Bureau of Statistics database for overall mortality and mortality by major and specific causes of death and the Ministry of Health for Covid-19 deaths. The primary analysis methods applied in the research were direct mortality standardization and the decomposition of the difference in life expectancy. The results show that the Covid-19 pandemic caused a substantial increase in the number of deaths, which lead to a significant decrease in life expectancy in both sexes. The results emphasize an increase in mortality due to diseases of the cardiovascular system and diseases of the respiratory system. The more detailed analysis of the major causes of death increased during the pandemic period showed an increase in mortality due to coronary atherosclerosis and acute pneumonia, contrary to the trends existing in the pre-pandemic period. It is important to note that mortality due to Covid-19 was higher than major leading causes of death before the pandemic period. The decomposition of changes in life expectancy between the years 2021 and 2019 by age shows quite similar age profiles between sexes, indicating the pandemic's direct and indirect impact on the dynamic of mortality. The effect of the Covid-19 pandemic on mortality, but also on the health of the population, is much more complex, requiring further research to identify prompt and effective responses.

Keywords: Covid-19, overall mortality, causes of death, Moldova

Scopul acestui studiu constă în evidenţierea schimbărilor în mortalitate pe parcursul perioadei pandemice în Moldova. Cercetarea are la bază datele oficiale cu privire la numărul total de decese, dar şi pe cauze de deces prezentate de Biroul Naţional de Statistică şi numărul de decese prin Covid-19 prezentate pe pagina oficială a Ministerului Sănătăţii. Principalele metode de analiză aplicate în cadrul acestei cercetări au fost: metoda standardizării directe şi decompoziţia diferenţei în speranţa de viaţă la naştere. Rezultatele cercetării au arătat că pandemia Covid-19 a cauzat creşterea substanţială a numărului de decese, ceea ce a determinat şi descreşterea speranţei de viaţă la naştere pentru ambele sexe. S-a constatat creşterea moralităţii prin bolile sistemului cardiovascular şi prin bolile sistemului respirator. Analiza mai detaliată a cauzelor majore de deces, ce au înregistrat creşteri pe parcursul perioadei pandemice, a reliefat creşterea mortalităţii prin ateroscleroză coronariană şi pneumonie acută contrar trendurilor observate în perioada pre-pandemică. Trebuie să subliniem că mortalitatea prin Covid-19 a înregistrat un nivel mai înalt decât unele cauze majore de deces în perioada pre-pandemică. Decompoziţia diferenţei în speranţa de viaţă la naştere între anul 2021 şi 2019 pe grupe de vârste a demonstrat profile destul de asemănătoare pentru ambele sexe, ceea ce indică impactul direct şi indirect al pandemiei asupra dinamicii mortalităţii. Evident că consecinţele pandemiei Covid-19 asupra mortalităţii, dar şi sănătăţii populaţiei, sunt mult mai complexe, fiind necesare cercetări ulterioare ce ar permite identificarea unor răspunsuri prompte şi eficiente.

Cuvinte cheie: Covid-19, mortalitate generală, cauze de deces, Moldova

Целью данного исследования является определение изменений смертности в период пандемии в Молдове. Исследование основывается на официальных данных Национального бюро статистики об общем количестве смертей и по причинам смерти, а также Министерства здравоохранения о количестве смертей от Covid-19. Основные методы анализа: метод прямой стандартизации и декомпозиция разницы ожидаемой продолжительности жизни при рождении. Результаты исследования показывают, что пандемия Covid-19 привела к значительному увеличению числа смертей и снижению продолжительности жизни у обоих полов. Наблюдается увеличение смертности в результате заболеваний сердечно-сосудистой и дыхательной систем. Подробный анализ основных причин смерти, увеличившихся во время пандемии, показал повышение смертности из-за коронарного атеросклероза и острой пневмонии. Важно отметить, что смертность, вызванная COVID-19, была выше даже некоторых основных причин смерти в период до пандемии. Разложение изменений в ожидаемой продолжительности жизни между 2021 и 2019 годами по возрасту показывает довольно одинаковые возрастные профили для обоих полов, что указывает на прямое и косвенное влияние пандемии на динамику смертности. Очевидно, что влияние пандемии Covid-19 на смертность, а также на здоровье населения гораздо сложнее и требует дальнейших исследований для определения оперативных и эффективных ответных мер.

Ключевые слова: влияние Covid-19, общая смертность, причины смерти, Молдова

INTRODUCTION

The Covid-19 pandemic, which had a disastrous impact on the increase in the number of deaths worldwide, caused the reversal of the evolution curves of life expectancy in most countries, with the difference in the speed of recovery of the previous positions (Aburto, et al., 2022; Islam, et al., 2021). However, the impact of the Covid-19 pandemic was different, influenced by the population age structure, and level of population health in each country. The Covid-19 pandemic affected the elderly and the segment of young adults, but with different intensities being noted between countries (Ugarte, et al., 2022). At the same time, the Covid-19 pandemic has both its direct impact, translated into deaths caused by Covid-19, and an indirect impact through the repercussions of the pandemic on the health of the population who suffered from Covid-19 (Zarei, et al., 2022) but also, the ones eventually unaffected. The structural changes brought to overall mortality during this period are of particular scientific interest.

This research aims to analyze the changes in all-cause and cause-specific mortality during the Covid-19 pandemic in Moldova compared to the pre-pandemic period assessing for differences across ages and sexes.

The actuality of the study is determined by the withdrawal of the Covid-19 pandemic and the need to highlight the structural changes determined either directly or indirectly by it, but also by the attempt to report the character of the subsequent evolution of mortality. This research aims to answer the main question – what structural changes have overall mortality undergone from the perspective of causes of death and age profile.

LITERATURE REVIEW

The impact of the Covid-19 pandemic, due to the excellence of its unexpected nature, has determined an increased need to research this phenomenon, creating response possibilities and highlighting high-risk segments and preventive measures. The research that focused on this topic was quite specific and even necessary in the initial stage of the pandemic. Later the research acquired a more pronounced demographic character, focusing on researching the impact of the Covid-19 pandemic on mortality per se. In this research, we will refer to the studies from the demographic perspective of the Covid-19 pandemic and, more precisely, its impact on the evolution of general mortality during this period. We will mainly refer to studies that analyzed changes in life expectancy and excess mortality.

Among the first to analyze the impact of the Covid-19 pandemic from a demographic perspective and underscore the excessive increases in mortality, correlating this increase with the waves of the pandemic, were the Austrian researchers Bauer et al. (Bauer, R. & Trautinger, F., 2022). In their work, the existence of regional heterogeneity was also demonstrated.

Reducing life expectancy was one of the main effects underlined in research focused on the impact of the Covid-19 pandemic on mortality. Kolk and his colleagues present a relevant study on the impact of the Covid-19 pandemic on life expectancy (Kolk, et. al., 2021). This study was referred to Sweden – a country which attracted particular attention internationally due to the position adopted regarding protective measures during the pandemic, introducing the least restrictive measures applied compared to other countries. The authors have found a reduction in life expectancy in Sweden to the level of 2017 for men and 2018 for women. At the same time, the researchers noted that in the neighbouring Nordic countries, where the virus did not spread so quickly in the initial period, no reductions in life expectancy had been observed in the first pandemic year.

The impact of the Covid-19 pandemic on premature mortality was also studied by Ugarte et al. and colleagues (cited above). Based on a comparative study, the authors pointed out that, on average, death due to Covid-19 accounts for 8.7 Potential Years of Lost Life (PYLL), but considerable variations between countries were also observed. The authors also pointed out that the most notable losses in terms of premature mortality are for people over 60 or 65 years. However, in many countries, the most significant losses occurred in younger age groups.

Research has shown that the impact of the Covid-19 pandemic in 2021 in some countries, particularly in Eastern Europe, was even more disastrous than in 2020 (Schöley, et al., 2022). However, research at the national level acknowledges that the impact of the Covid-19 pandemic on the population's health is similar to that of the developed countries most affected by it (Penina, 2020).

Penina, Mesle and Vallin (2022) have analyzed mortality trends by causes of death in Moldova from 1965 to 2020. The authors pointed out that the Covid-19 pandemic caused a significant regress in the evolution of mortality in Moldova, compromising existing trends and diminishing previous gains in mortality decline.

DATA AND METHODS

The analysis in this study is based on data on overall mortality and cause-specific deaths from the National Bureau of Statistics database. The data on mortality due to Covid-19 were retrieved from the official page of the Ministry of Health and referred to the period 18 March 2020 – 19 April 2022 (Ministry of Health of the Republic of Moldova, 2022). Data on overall mortality and by causes of death refer to the period 2014–2021, with distribution by sex and age group. Also, the values for life expectancy at birth were taken from the NBS.

The direct standardization method was used for mortality analysis, for which was applied the European Population Standard 2013 (Eurostat, 2013). Thus, mortality was analyzed based on major causes of death, but some specific causes were also analyzed.

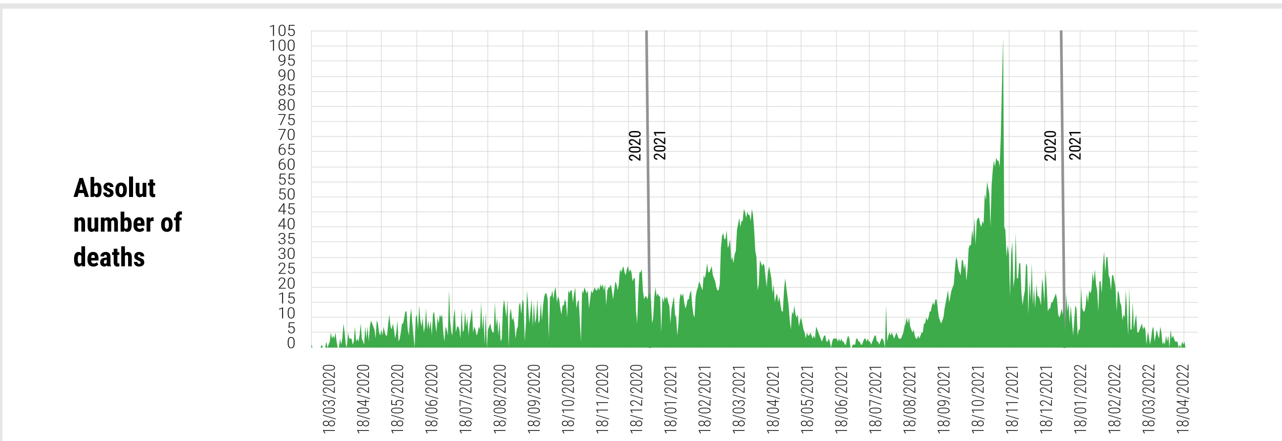
To highlight the changes in the age structure of mortality, the decomposition of the difference in life expectancy was carried out according to Andreev's method (Andreev, 1982). The decomposition was carried out for two periods - the first denotes the structural changes from 2014-2019. The first period is a pre-pandemic one, and the second presents the evolution of mortality during the Covid-19 pandemic, the year 2019 being chosen as their dividing moment.

It is essential to mention that the data used in this research refer to the revised demographic data concerning the population with usual residence on the territory of Moldova, the left bank of the Nistru River is not included.

BACKGROUND OF THE COVID-19 PANDEMIC IN MOLDOVA

In Moldova, the first confirmed Covid-19 test was registered on 7 March 2020, while first death from Covid- 19 was registered 11 days later, on 18 March 2020 (Ministry of Health of the Republic of Moldova, 2020). The evolution of the number of deaths due to Covid-19 denotes the existence of four waves (Fig. 1). The first wave recorded in 2020 was characterized by a moderate increase in the number of deaths. This fact is determined mainly by the gradual increase in the number of Covid-19 cases and the initiation of the pandemic. In 2021, two very pronounced peaks were recorded, with rapid growth and then a sharp decline. The year 2022 can be considered a year of lowering the pandemic from its active phase, but without excluding its possible replicas, even indirectly.

Figure 1:
The number of daily COVID-19 deaths, 18/03/2020 – 18/04/2022

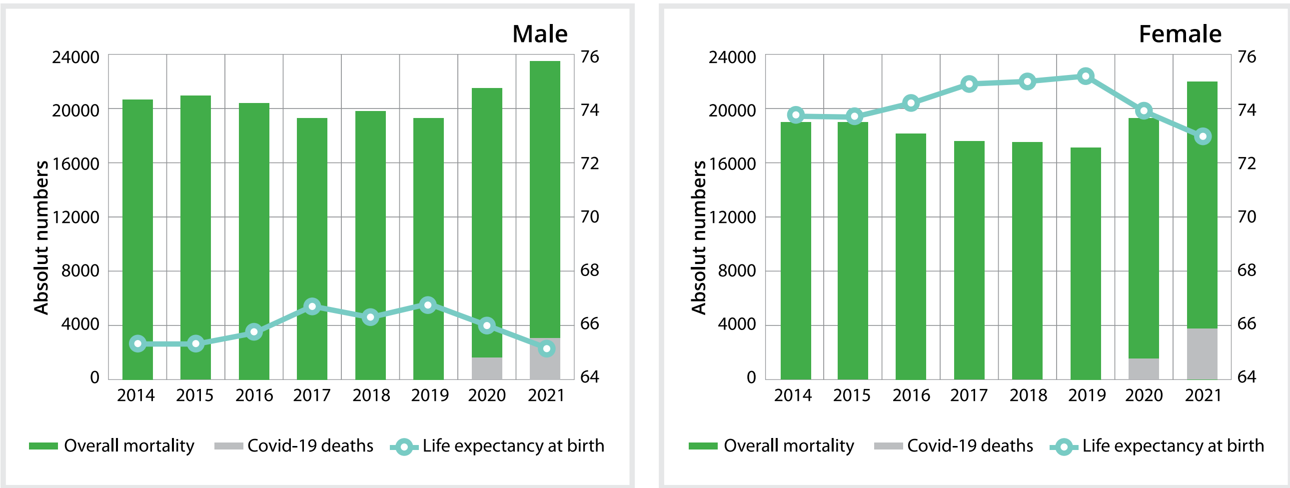


Source: Ministry of Health.

In the last years in Moldova, an evident trend of mortality reduction can be observed (Fig. 2). Thus, from 2014, for both sexes, a reduction in the number of deaths was observed until 2018 when a slight increase was noticed. However, in 2019 the reduction tendencies were resumed again. The pandemic years, starting with 2020, followed with an absolute and categorical increase in the number of deaths. The evolution of life expectancy is an undoubted reflection of this situation.

In males, a reduction in life expectancy by 1.6 years was recorded for 2019 and 2021, and in females by 2.2 years. At the same time, the number of deaths in 2020 for males increased by 11.1% compared to 2019 and in 2021 by 21.4% compared to 2019; for females, there were increases of 12.6 and 28.7%, respectively. Deaths due to Covid-19 represented 7 and 7.4% of the total deaths recorded in 2020 for males and females, respectively, and in 2021 their share increased to 13 and 16.6%, respectively.

Figure 2:
Annual change in life expectancy and number of deaths for 2014–2021, by sex



Source: NBS and the Ministry of Health.

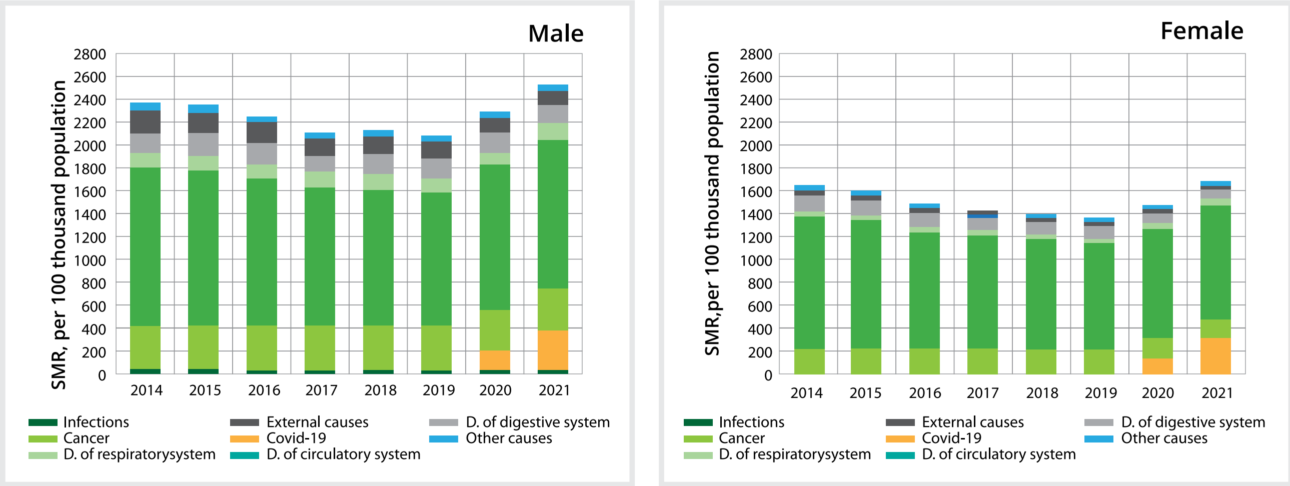
MAIN RESULTS

At the beginning of the analyzed period, in 2014, the leading three major causes of death for males were diseases of the cardiovascular system, neoplasms, and external causes (Fig. 3). Since 2015, SMR due to external causes has given way to SMR due to digestive system diseases. Thus, the top-3 major causes of death are identified with those for females - diseases of the cardiovascular system, neoplasms, and diseases of the digestive system. This hierarchy will be maintained until 2019 for both sexes. But much more critical from the perspective of the causes of death are the observed intra-causal changes. However, the pandemic period determined the interruption of the reduction in mortality due to diseases of the cardiovascular system for both sexes. The lowest value of SMR by diseases of the cardiovascular system was recorded in 2019. SMR by diseases of the cardiovascular system observed in 2021 denotes its increase by 10% for males and 7% for females. Another cause for which an increase in mortality was reported during the pandemic period is represented by diseases of the respiratory system. Thus, the SMR due to diseases of the respiratory system for males recorded in 2021 compared to its values from 2019 denotes a 13% increase in the indicator; for females, an increase in values of the SMR due to diseases of the respiratory system of 35% was noticed. Values are lower for males due to the increase in SMR due to respiratory system diseases from 2018; for females, a stable trend of reduction was followed until 2020. Another slight increase was noted for SMR due to infections, which was only observed for 2021. In 2020 still, SMR through infectious diseases followed the reduction trend.

In 2020, in the structure of the major causes of death, SMR due to Covid-19 also appeared. In 2020 SMR due to Covid-19 was very close to SMR due to diseases of the digestive system. In the following year (2021) - SMR, due to Covid-19, exceeds and outranks SMR due to diseases of the digestive system. In the case of females, the SMR due to Covid-19 in 2021 even exceeds the SMR due to neoplasms. However, the SMR due to Covid-19 is higher for males than for females – 1.5 times in 2020 and 1.3 times in 2021.

Figure 3:

Standardized mortality rate by major causes of death and Covid-19 by sex, 2014-2021

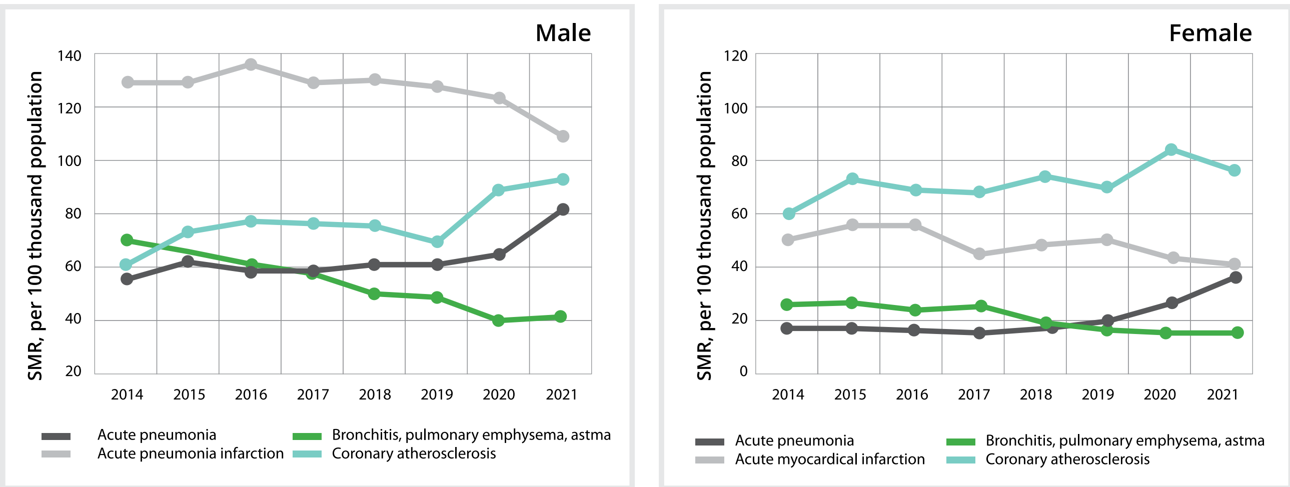


Source: Calculated based on NBS data

To understand the source of the increase in the major causes of death (through diseases of the cardiovascular system and diseases of the respiratory system), some specific, narrower causes were also analyzed (Fig. 4). Thus, the increase in mortality from diseases of the respiratory system for both sexes is mainly due to the increase in mortality from acute pneumonia. SMR by acute pneumonia until 2019 registered a stable level with insignificant oscillations for both males and females. In 2021, compared to 2019, SMR by acute pneumonia registered an increase of 34% for males and 89% for females. Increases were also noted in mortality from coronary atherosclerosis. For males, an increase in SMR due to coronary atherosclerosis is observed in both years of the pandemic, with a 33% increase recorded in 2021 compared to 2019. For females the increase was fragmentary. In 2020 an increase in mortality due to coronary atherosclerosis was highlighted, after which it was reduced; precisely because of this, the reporting of 2021 to 2019 shows an increase of 9%.

Figure 4:

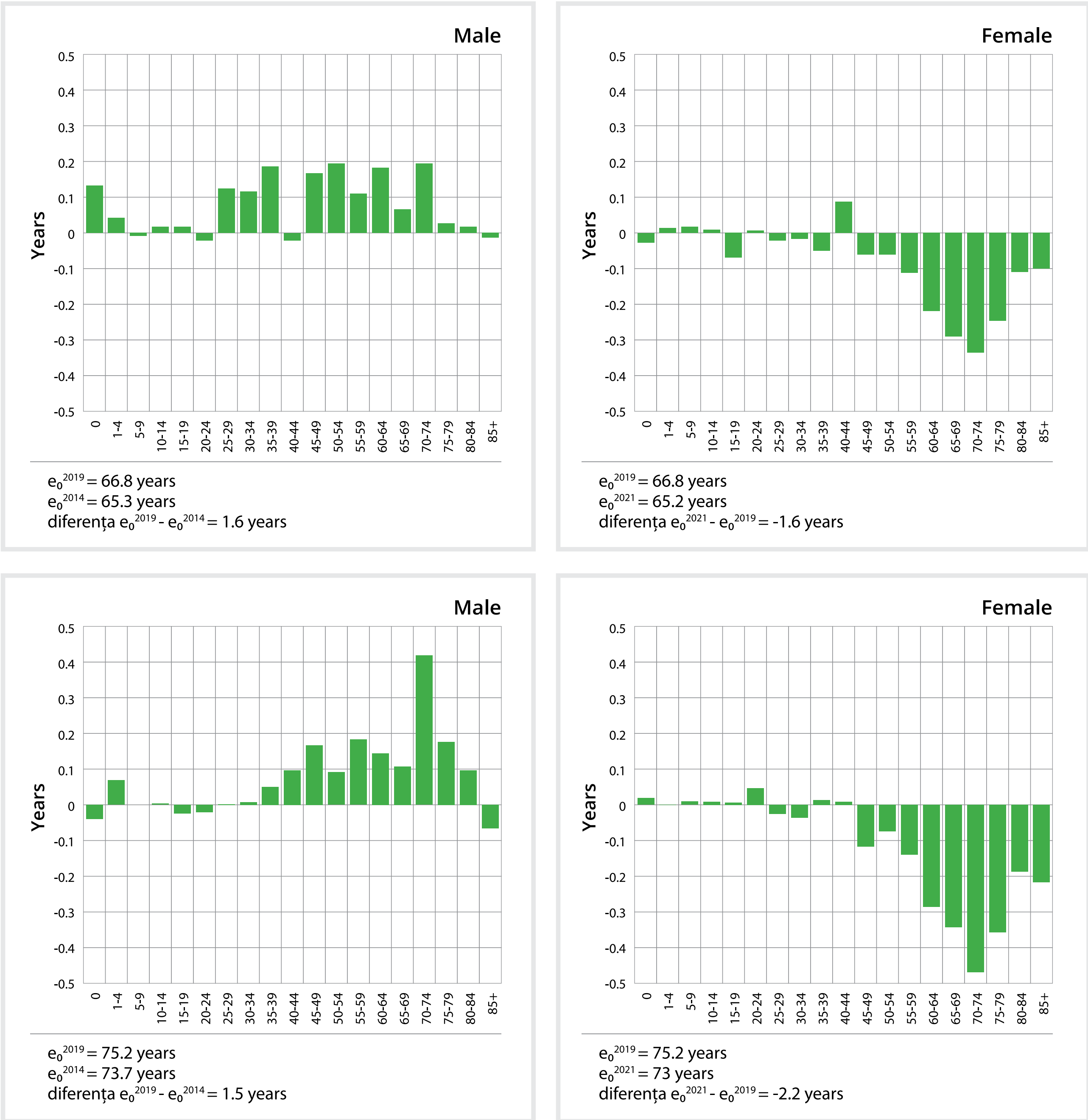
Standardized mortality rate for specific minor causes of death by sex, 2014-2021



Source: Calculated based on NBS data

The age structure of mortality represents another critical aspect. For the age structure analysis, the contribution of age groups to the formation of the difference in life expectancy was analyzed. For this exercise, two-time intervals were chosen with a standard reporting point – the year 2019 (Fig. 5). In 2014-2019, life expectancy for males increased by 1.6 years and for females by 1.5 years. During the pandemic, the reduction in life expectancy for males returned this indicator to the level of 2014; for females, the reduction was more significant, thus compromising the gains obtained over time and the return to a lower level of life expectancy than in 2014.

Figure 5:
The contribution of age groups to the formation of the difference in life expectancy



Source: Calculated based on NBS data

The summary difference in life expectancy between the years 2019 and 2014 is practically similar for both sexes; differences are present only in its distribution by age groups (Fig. 5). However, in the case of males, we are talking about a reduction in mortality in the group of young people 25-39 years, which later continues in the adult population and the young elderly, up to the age of 74. For the other age groups, we observe a stagnation of mortality. For females, mortality reductions were characteristic, especially for the adult and elderly population, without reaching the oldest old. However, in the case of females, the elderly group stands out more than the case of males.

The next stage of comparison, 2021 and 2019, the one devoted to the pandemic period, practically demonstrates a similar structure of changes in mortality between sexes with the only difference in intensity. However, for ages 0-44, the mortality level remained unchanged between 2019-2021. The increase in mortality has affected the elderly population. For the adult population, in the range of 45-59 years, an increase in mortality is also noticed but relatively moderate. The increases became more pronounced starting from the age of 60, increasing gradually and reaching the maximum increase at the age of 70-74 and then with a decrease towards the most advanced ages.

DISCUSSIONS

The analysis demonstrated that the Covid-19 pandemic had a disastrous impact on mortality trends that used to be stable in previous years. The available data do not allow us a much deeper analysis. However, the direct impact of the pandemic was undoubtedly quite strong – the number of deaths from Covid-19 led to a substantial increase in the annual number of deaths.

It is important to note that the deaths due to Covid-19 presented by the Ministry of Health on the official page refer only to deaths confirmed by a positive clinical test for the presence of the Covid-19 infection (Penina, 2021). Other countries affected by the Covid-19 pandemic have also reported deaths from Covid-19, including suspected cases that were not confirmed by a clinical test regarding the presence of the infection. In the interview given by the researchers - Garcia et al. – in 2021, they mentioned that the approach of an inclusive and suspicious death registration model would have increased by 30% the number of Covid-19 deaths recorded in some countries (Garcia, et al., 2021). The existing data on the number of deaths due to Covid-19 currently available for Moldova do not allow the verification of such hypothesis. However, precisely from this perspective, the evolution of mortality in Moldova during this period is of significant interest. From this perspective, the deaths that occurred as a result of complications - here it is important to emphasize that only 6% of deaths due to Covid-19 were not characterized by any comorbidities (the author's observations based on primary data) - or post-Covid-19 sequelae could be attributed other causes of death. However, the structural changes observed in the trends of the major causes of death and certain specific causes demonstrate their atypical evolution. Analyzes carried out at the international level highlight the impact of the Covid-19 pandemic, through possible complications or sequels, on the population's health level. However, this determines the possible appearance of respiratory, cardiovascular, neurological, or digestive complications (Yang, et al., 2021). This statement is only a hypothesis, the confirmation of which requires much deeper analysis and more complex data.

An indirect confirmation of the impact of the Covid-19 pandemic on mortality transformations during the pandemic period is brought by the age contribution in the formation of life expectancy in the 2019-2021 interval. Previous research on Covid-19 mortality indicates a synchronous distribution of Covid-19 deaths by both sexes and age groups, with the distribution observed for overall mortality (Pahomii, 2020; Penina, 2020; Pahomii, 2021). Such similar profiles in terms of changes in mortality for the sexes indicate a situation that exceeds a usual framework of the evolution of mortality, traditionally age profiles for the sexes being more heterogeneous.

A very worrying aspect highlighted during the pandemic period, both in the first and the following year, is the impact on the young elderly groups more than the very old (oldest-old). A similar situation is observed at the international level, however, the reduction of life expectancy in most countries was explicitly determined by the increase in mortality in the 60-79 age group (Aburto, et al., 2022).

International practice demonstrates that periods of increased mortality are followed by recovery periods. However, the pace and level of recovery are determined mainly by the general population's health level. More accurate conclusions on this subject could be drawn based on the data for the year 2022 when they will be available.

The impact of the Covid-19 pandemic on mortality, but also on the health of the population, is much more complex and probably even under-appreciated in the national context. The deep study of the situation would allow the derivation of effective and prompt responses to improve the impact of the Covid-19 pandemic on the subsequent evolution of mortality.

CONCLUSIONS

The Covid-19 pandemic caused a substantial increase in the number of deaths, also leading to a significant decrease in life expectancy in both sexes. Additionally, during the pandemic, an increase in RSM due to diseases of the cardiovascular system and diseases of the respiratory system and RSM due to infections was observed. It is important to note that the data presented by the NBS regarding the major cause of death – infectious diseases – do not include deaths due to Covid-19. The more detailed analysis of the major causes of death that registered increases during the pandemic period - diseases of the cardiovascular system and diseases of the respiratory system - showed an increase in mortality due to coronary atherosclerosis and acute pneumonia, contrary to the trends existing in the pre-pandemic period.

The analysis of the contribution of change in the mortality level by age groups in the formation of the difference in life expectancy during the pandemic period (2019–2021) is quite similar for both sexes, referring only to a different intensity of changes rather than essential discrepancies by sex.

All these transformations indicate the direct or indirect impact of the Covid-19 pandemic on the mortality change.

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PATERNITY LEAVE: FIRST RESULTS OF INTRODUCTION IN MOLDOVA

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ABSTRACT

Parental leave policies are important instruments regulating how the men's and women's concurrent role as parents and employees is valued and encouraged. Although paternity leave in Moldova was introduced in 2016, the share of fathers who benefit from this leave remains low.

The article presents the results of the qualitative sociological study conducted in 2022 with fathers who took paternity leave and fathers who did not take it. The aim of the research was to determine the barriers faced by fathers in taking paternity leave.

The benefits of paternity leave for both fathers and the whole family were found: formatting strong emotional bonds between father and child, developing newborn care skills, strengthening confidence in their ability to care for children, improving family relations. In the implementation of this leave, fathers face social, professional, financial and cultural difficulties. Traditional stereotypes of behavior and ideas that a woman (mother) should take care of a child have a negative impact on the position of men (fathers) about the possibility of using parental leave. The level of education and the position on the labor market are determining factors in the use of paternity leave. Respondents who took paternity leave have higher education, stable occupational position and relatively high incomes; and those who did not take this leave have secondary education, unstable occupational position, and low incomes. Most of the fathers who used parental leave had the first child in the family, and those who did not use it had a second or third child. The study found that some employers do not encourage their employees to take paternity leave. Often this is due to a shortage of workers in the organization / enterprise, and is also more typical for the private sector.

Keywords: paternity leave, paternity allowance, family policy

Politicile de concediu pentru creşterea copilului sunt instrumente importante care reglementează modul în care este valorificat şi facilitat rolul bărbaţilor şi femeilor ca părinţi şi ca angajaţi. Deşi concediul de paternitate în Moldova a fost introdus în 2016, ponderea taţilor care beneficiază de acest concediu se menţine la un nivel redus.

Articolul prezintă rezultatele studiului sociologic calitativ desfăşurat în 2022 în rândul taţilor beneficiari de concediu de paternitate şi taţilor care nu l-au utilizat. Scopul studiului a fost de a identifica barierele cu care se confruntă taţii atunci când doresc să folosească concediul de îngrijire a copilului.

În baza datelor obţinute s-au constatat beneficiile concediului de paternitate atât pentru taţi, cât şi pentru întreaga familie: formarea legăturilor emoţionale dintre tată şi copil, dezvoltarea abilităţilor de îngrijire a nou-născuţilor, întărirea încrederii în capacitatea de a avea grijă de copii, îmbunătăţirea relaţiilor conjugale. În implementarea acestui concediu taţii se confruntă cu dificultăţi de ordin social, profesional, financiar şi cultural. Stereotipurile tradiţionale de comportament şi reprezentările, conform cărora femeia (mamă) ar trebui să aibă grijă de un copil au un impact negativ asupra poziţiei bărbaţilor (taţilor) cu privire la posibilitatea de a folosi concediul paternal. Nivelul de educaţie şi poziţia pe piaţa muncii sunt factori determinanţi în utilizarea concediului paternal. Respondenţii care au luat concediul de paternitate deţin studii superioare, poziţie ocupaţională stabilă şi venituri relativ înalte; iar cei care nu l-au luat au studii medii, poziţie ocupaţională instabilă şi venituri mici. Majoritatea taţilor care au folosit concediul paternal au avut primul copil în familie, iar cei care nu l-au folosit au avut al doilea sau al treilea copil. Studiul a constatat că unii angajatori nu încurajează angajaţii să ia concediu de paternitate. Adesea, acest lucru este cauzat de insuficienţa de angajaţi în organizaţie/întreprindere şi este, de asemenea caracteristic pentru sectorul privat.

Cuvinte cheie: concediu de paternitate, indemnizație de paternitate, politică familială

Политика отпусков по уходу за ребенком является важным инструментом, регулирующим то, как оценивается и поощряется роль мужчин и женщин как родителей и работников. Несмотря на то, что отпуск по уходу за ребенком в Молдове был введен еще в 2016 г., доля отцов, им воспользовавшихся, остается на низком уровне.

В статье представлены результаты качественного социологического исследования, проведенного в 2022 г. среди отцов, использовавших отпуск по уходу за ребенком, и среди тех, кто его не использовал. Целью исследования явилось определение барьеров, с которыми сталкиваются отцы, когда желают использовать отпуск по уходу за ребенком.

На основании полученных данных были выявлены определенные положительные стороны отпуска по уходу за ребенком как для отцов, так и для всей семьи: создание прочных эмоциональных связей между отцом и ребенком, развитие навыков ухода за новорожденным, укрепление уверенности отцов в способностях по уходу за детьми, улучшение супружеских отношений. Вместе с тем, отцы, желающие использовать отпуск по уходу за ребенком, сталкиваются с определенными социальными, профессиональными, финансовыми и культурными трудностями. Традиционные стереотипы поведения и представления о том, что женщина (мать) должна заботиться о ребенке оказывают негативное влияние на позицию мужчин (отцов) о возможности использования отпуска по уходу за ребенком. Уровень образования и позиция на рынке труда являются определяющими факторами в использовании отцовского отпуска. Отцы, воспользовавшиеся отпуском по уходу за ребенком, как правило, имеют высшее образование, стабильную занятость и относительно высокие доходы; а те, которые не воспользовались отпуском имеют среднее образование, нестабильное место работы и низкий доход. Большая часть отцов, использовавших отпуск по уходу за ребенком, имели первого ребенка в семье, а те, кто его не использовал имели второго или третьего ребенка. Исследование показало, что некоторые работодатели не поощряют своих работников брать отцовский отпуск. Часто это связано с нехваткой работников в организации / на предприятии, а также в большей степени характерно для частного сектора.

Ключевые слова: отцовский отпуск, отцовское пособие, семейная политика

INTRODUCTION

Traditionally, with the appearance of a child in a family, the father takes care of the financial wellbeing of the family, while the mother assumes the housework and child care. During recent decades, the equal split of household chores and the full employment of both men and women have been promoted. The expectations pertaining to the parenting have changed in recent decades; so fathers are increasingly expected to be involved in their children's lives rather than merely be breadwinners.

Parental leave policies are important instruments regulating how the men's and women's concurrent role as parents and employees is valued and encouraged. Paternity leave is usually a short-term leave after the birth or adoption of a child and is intended to allow the father to spend time with his partner and the new child. The paternity leave policy mainly pursues several objectives: to help fathers achieve a balance between professional and private life; to encourage greater gender equality both in the family and labor market; to involve fathers more in childcare and other household chores to take over some of the mothers' responsibilities; to promote fairer working environments; to challenge gender norms that stereotype women as primary caregivers; to support the mothers' return to the labor market. Policymakers are convinced that paternity leave strengthens women's position in the labor market, reduces the gender pay gap and gives children the chance to be closer to their fathers - and vice versa (Cools, Fiva, Kirkebøen, 2011).

Balancing work and family has become more difficult for parents in recent decades due to increased demands on them at work and as parents. The uptake of paternity leave and father-specific parental leave has a positive effect on the work–life balance of families, and the work–life balance, as supported by state policies, has been regarded the most important factor influencing female economic activity (Belle, 2016). There are still, difficulties in maintaining the work-life balance in Moldova. These stem from insufficiency of child care and education possibilities, the rigidity of work schedules and the continued unequal division of family responsibilities between husband and wife (Chistruga-Sînchevici, 2021). The implementation of paternity leave in Moldova is important due to gender discrepancies regarding employment. Thus, although women have a higher level of participation in education than men, their employment rate is lower than that of men, being 35,4% and 44,71% respectively in 2021. A significant proportion of women continues to be economically inactive because of family responsibilities, including childcare. According to the data provided by the National Bureau of Statistics (NBS), 23% of the total number of women outside the labor force, do not want to work due to family responsibilities. Based on the above, it is necessary to estimate the particularities, factors, difficulties and benefits of implementing paternity leave.

MATERNITY, CHILDCARE AND PATERNITY LEAVE POLICIES IN MOLDOVA

Paternity leave, together with maternity leave and childcare leave can be considered important instruments of family policy. In the Republic of Moldova, maternity leave is paid and granted to women starting from the 30th week of pregnancy with a duration of 126 calendar days. The monthly amount of the maternity allowance is 100% of the calculation base established by the enterprise in which the employee carries out her basic activity. Childcare leave can only be taken at the end of maternity leave. In 2018, childcare leave was reformed, parents being offered the option to benefit from a higher childcare allowance in proportion to the reduction of the childcare leave period. In the current context where the childcare system for children up to the age of 3 is not well developed, we consider it appropriate to keep the option for parents to be on childcare leave up to the age of three even if the allowance they benefit from is a modest one (30% of the calculation basis).

Paternity leave is relatively new in Moldova, the legal framework being approved on 15.11.2016. It lasts 14 days and is granted in the first 12 months following the birth of the child. During the period of paternity leave, the employee benefits from a paternal allowance that cannot be lower than the average monthly insured income for the respective period and which is paid from the state social insurance budget. According to the data of the National Social Insurance House, the share of fathers who had benefited from the paternity allowance by 01.01.2021 was 15%. The amount of the paternal allowance is 100% of the average monthly insured income in the last 3 months preceding the month of the child's birth (income from which social insurance contributions were calculated and paid). In 2022, the average value of the paternity allowance was 5309.11 lei (267 Euro).

At the European level, paternity leave legislation has been introduced or developed in many states, especially in the late 1990s. In Eastern Europe, paternity leave is a new practice. Some countries near and in the vicinity of Moldova have not yet foreseen such a measure (Ukraine, Russia, Belarus). Romania offers fathers the opportunity to be on paternity leave, which was increased in 2023 from 5 to 10 days. In 2022, most EU countries except Germany, Croatia, Slovakia and Luxembourg, offered fathers paternity leave even if it is mostly non-compulsory. As of August 2, 2022, paternity leave was to be at least 2 weeks in all EU countries according to the new Directive of the European Parliament and of the Council on work-life balance for parents and careers. Before its adoption, there were no minimum standards regarding paternity leave. Respectively, Moldova as a candidate country for European Union membership, adjusts its socio-demographic policies both in accordance with the trends in the evolution of demographic phenomena and the relevant European policies.

LITERATURE REVIEW

Fathers who took paternity leave were found to have a higher level of involvement in children's developmental activities, such as reading and playing, and this higher level of involvement persisted throughout the children's first two years of life (Petts, Knoester, 2018). Some research suggests that paternity leave has positive effects on children's cognitive and socio-emotional outcomes and the father's long-term involvement in child care (Rege, Solli, 2010). Two-week or longer paternity leave is positively related to family cohesion and the mother's satisfaction with couple relationship (Petts, Knoester, Waldfogel, 2020). In the UK, a father's paternity leave is strongly associated with the mother's well-being at three months after childbirth (Redshaw, Henderson, 2013). Fathers taking paternity leave could also improve children's health through the enhancement of maternal physical and mental health, including reducing the likelihood of mothers having anti-anxiety and an antibiotic prescription; promoting maternal sleep (Yeung, Nanxun, 2021).

The analysis of the impact of paternity leave on the father's professional activity, revealed that this leave can reduce the time spent by young fathers at work by ~3.8 hours/week (equivalent to ~24 working days/year). This significant effect is not only due to reduced working time and the use of paternity leave but also other causes such as losing/quitting the job, switching from full-time to part-time work, decreasing overtime (Zhang, 2020). The given results suggest that, although paternity leave helps to equalize the participation of men and women in the fulfillment of family responsibilities, it affects men employment aspects.

The influence of paternity leave on reducing the gender gap in labor market participation, i.e. a more equal division of specific household tasks, is another widely researched topic (Canaan, Lassen, Rosenbaum, Steingrimsdottir, 2022). Paternity leave policies reduce the gap between mothers' and fathers' participation in the labor market. These policies will be more effective if they intervene at critical times when men are most open to changing behavior – for example, when they become fathers. Men are more likely to bond with their children, if they start caring for them at an early age. Thus, paternity leave policies are associated with a 4.9% increase in the women's labor market participation rate (Bettelli, 2020). Childcare during paternity leave can help fathers become comfortable with tasks that have traditionally been performed by mothers and begin to regard themselves as competent caregivers (Rehel, 2014). These processes appear to encourage fathers to become sensitive and responsive parents, these being two parenting attributes fundamentally important for child development and establishment of good parent-child relationships (Petts, Knoester, Waldfogel, 2020). Promoting this policy would encourage employers to overcome their still persisting reluctance to employ and promote young women due to family obligations and exclusive maternity leave.

The influence of employers on fathers' uptake of paternity leave is a widely discussed topic in the scientific literature. The level of employers' support affects the use of paternity leave. International practices reveal that in companies that also offer other facilities to balance professional and family activity, for example, nurseries, childcare services at the workplace etc. fathers are more likely to take paternity and care leave. Management attitudes, the sector a company works in company size, trade union presence and the proportion of female employees can also contribute to the access to paternity leave (Belle, 2016). Overall, the implementation of paternity leave has positive implications for employers as well, because the introduction of paternity leave contributes to equalizing women's and men's employment costs, so employers should no longer discriminate against women in this respect (Zhang, 2020).

Paternity leave can have mixed effects on fertility. On the one hand, it can increase fertility, as having children becomes less costly for mothers' careers. On the other hand, recent investigations have highlighted the likelihood that paternity leave will contribute to lower fertility rates and reproductive intentions. So, the introduction of the two-week paid paternity leave in Spain in 2007 led to a reduction in fertility. Fathers who were (only) entitled to the new paternity leave were less likely to have a child in the following six years compared to ineligible parents. This is explained by the greater involvement of fathers in child care, which led to an increase in professional activity among mothers. Also, fathers' low intentions to have more children may stem from their increased awareness of the costs of raising children and the change in preferences as to the number of children in favor of child quality (Farré, González, 2019). Evaluating the introduction and extension of paternity leave in Norway, Cools (2015) and Hart (2019) found no effect on fertility (Canaan, et al., 2022).

Several studies have investigated the effect of paternity leave on marital stability and have highlighted that the implementation of paternity leaves can contribute to strengthening family relationships. In Iceland parents eligible for paternity leave are less likely to divorce during the first fifteen years of their child's life. It was also highlighted that paternity leave has the strongest impact among couples where the mother has an educational level higher than or equal to that of the father (Olafsson, Steingrimsdottir, 2020). The link between parental leave and family stability is explained by the fact that the leave leads to a lasting change in the division of household chores. If the father becomes more involved in household and childcare activities, the mother's satisfaction with the marital relationship may increase (Hart, et al., 2022). Taking paternity leave can also foster stronger parenting relationships. Similar to the idea that fathers can take advantage of the time off granted by paternity leave to focus on their relationship with their new baby, they can also use this time to focus on their relationship with their wives. Having a baby is an important life event, and parents can strengthen their relationship with each other by spending time together after the baby is born (Petts, 2018).

Descriptions of profiles of fathers who implement paternity leave can be found in several scientific works. Nepomnyaschy and Waldfogel (2007) found that fathers are more likely to take paternity leave with their first child. This may indicate either that the financial burden is greater with more children, so fathers cannot afford to take time off, or that mothers with more children are more experienced and, therefore, less likely to need help from the father in caring for a child. Another interesting finding is that in dual-earner couples, fathers who cohabit with mothers are more likely to take leave than those who are married. This suggests that cohabiting couples have more egalitarian and neutral attitudes toward child-rearing compared to those in families with more traditional attitudes. Another study highlighted that the men who take paternity leave are, in the main, highly educated, have high incomes, do not perform manual labor and work in a public place (Mansdottera, et al., 2010).

THE THEORETICAL AND METHODOLOGICAL FRAMEWORK

The fundamental theory that served as theoretical basis was social capital theory, suggesting that paternity leave can increase family's social capital by allowing fathers to be more involved in child care and interactions with children, thus strengthening father-child attachment, family cohesion and promoting children's well-being (Yeung, Nanxun, 2021). During the leave, fathers learn more about their children and acquire more human capital necessary for child care (Marshall, Rieck, 2012). Also, increasing fathers' participation in housework after the birth of a child can have a lasting impact on the division of paid and unpaid work in the family, allowing mothers to return to paid work more quickly, and as a result, reducing the depreciation of human capital.

In accordance with the systemic theory, the family has all the characteristics necessary for a subsystem (Morgan, 1985). The family is a system made up of several individuals, whose behaviors and attitudes are interdependent; it is a complex, ever-changing adaptive system with a double opening (external and internal) and is built to cope with disturbances that intervene in the evolution of the family. According to this theory, the way, each family member fulfills his/her role, influences others. The experience of being a parent is often challenging as parents must adjust to their new roles.

The article was developed on the basis of a qualitative study, carried out between August and November 2022, in which 24 fathers, who have children under 3 years old, were interviewed (of which 10 benefited from paternity leave and 14 did not). The research method applied was the semi-structured sociological interview, and the research tool used was the interview guide. The general hypothesis of the study refers to the fact that access to paternity leave is conditioned by the professional stability, financial security and value orientation of fathers and that its uptake increases the involvement of fathers at home. The respondents were aged between 23-43 years. They were active in various fields of activity – IT, culture, entrepreneurship, health, construction, education, trade, services, and had various education levels, such as higher education, technical professional, secondary school and high school.

MAIN RESULTS

The arrival of a new child in the family brings many changes in the family, as newborns require a lot of attention, being dependent on their parents for physical, social and emotional care. The study data revealed that according to all fathers participating in the study, being on paternity leave had positive effects both for them and for their families: creating strong emotional bonds between father and child; developing newborn care skills; strengthening confidence in their ability to care for children; increasing the mother's confidence in the husband's childcare skills; changing attitudes towards childcare; providing support to other family members in case of a complicated birth, premature birth, health problem; increasing the responsibility for housework; taking sick leave when the child gets sick; accompanying children to medical consultations; spending more time with the child; improving family relationships; experiencing feelings of joy (Table 1.).

Table 1:
Impact of the paternity leave on fathers and their families

Creating strong emotional bonds between father and child	”When my first child was born, I used to come home from work late and tired and I didn't manage to spend time with him. After the birth of the little one, I even started to reserve time for her, and do you know what? The relationship is different”. ”She always looks for me, waits for me. The boy is more attached to his mother because only she took care of him as a child”. ”The child turns to both parents when she needs something, not only the mother, as it was before”.
Developing newborn care skills	”The girl was very small and the wife was afraid to bathe her. I still had some fears but I had to help. Now only I bathe the child”.

Strengthening confidence in their ability to care for children	”I never thought I would make it alone with a small child while my wife is at university. I already know that if he cries, something is bothering him - I have to change his diaper, feed him, keep him warm, etc.”.
Increasing the mother’s confidence in the husband’s childcare skills	”In the beginning, my wife was like a lioness. She thought that I wouldn’t be able to do what she did. But when she saw that I do also wake up at night and can prepare the food, calm the child so that she stops crying, she became calmer”.
Changing attitudes towards childcare	”I have always respected women’s work, but I also happened to say that it is not very difficult to stay at home and take care of the child. After being on leave for two weeks, I changed my mind. After giving birth, the woman only sees the child, forgets about herself. At the child’s every moan she is by her side, that’s why someone is needed to take over part of the other housework”.
Providing support to other family members in case of a complicated birth, premature birth, health problem	”Our third child was born prematurely. My wife and the little one had to stay in the hospital for 3 weeks to gain weight. There was a school child and a kindergarten child at home. The grandparents are far away and there was no one to help us. That’s why, thanks to this paternity leave, I was able to take care of the other two kids - prepare their food, clothes, check their homework etc.”.
Increasing the responsibility for housework	”At that time I understood that it is not easy to take care of a baby and the household. That’s why since then I often do some chores that only my wife did before - cooking, ironing, vacuuming”.
Taking sick leave when the child gets sick	”It happened that I also took medical leave with my little girl. She had a virus, fever and my wife was having a hard time at work, so I had to be the one to administer her medicine and take care of her”.
Accompanying children to medical consultations	”Me and my wife both work and when the child catches a cold, if I am more available then I go with the child to the doctor, take medicine, and if necessary I stay at home with him”.
Spending more time with the child	”I compare myself to other fathers, I can’t help but spend enough time with the child, otherwise something is missing”.
Improving family relationships	”My wife is very satisfied that I take care of the child, I feel that she values me more. I’m glad that I can make her happy because, after all, happiness in the family depends a lot on the wife”.
Experiencing feelings of joy	”I was feeling felt so fulfilled during that period while I stayed at home and once again I came to the conclusion that family is the most important thing and not the work”.

Simply providing paternity leave is not enough to achieve the objectives for which parental leave policies are designed. Fathers face a lot of difficulties in up taking it. The reasons for not using paternity leave are multiple, thus in many cases fathers do not resort to the paternity leave for several reasons. The results of the interviews allowed us to highlight some of the social, professional, financial and cultural difficulties (Table 2).

Table 2:

The barriers preventing fathers from accessing/implementing paternity leave

Social	Professional	Financial	Cultural
Lack of knowledge about the right to benefit from paternity leave. *"Neither I nor my wife knew about this leave, although we both have higher education„.*	**Informal employment.** *„I work in repairs, construction and I'm not employed by anyone, so I can't get paternity leave. I work when I have an offer. Even after the birth of the boy I went and performed repair works at a citizen settled in Italy".*	**Double salary – one official and one "in the envelope„.** "I work for a transport company and we don't receive the whole salary on the card. If I stayed home 2 weeks, I would only receive half of the salary, my wife doesn't work and it wouldn't be enough for us".	**Supporting the opinion** that current paternity leave is too short to contribute significantly to any change.
The pandemic situation. *„My wife gave birth during the restrictions related to the pandemic when we had to stay at home more, that's why I didn't even have to request permission from work to take this leave".*	**Specific periods in enterprise/company activity.** *"Now everything is under pressure. It is the most important period of the year - raw material supply. That's why I didn't fit in the first 56 days after birth".** This aspect denotes the lack of flexibility for fathers to choose when to take paternity leave.	**Dependence on additional income.** *"My salary is official, but working at one of the most luxurious restaurants, I collect another salary from "tips".* I wasn't even interested in this leave, nor would it be financially advantageous".	**Opinions on traditional gender roles** in the exercise of housework and childcare, according to which the mother is considered responsible for the care of the child.
Lack of labor force. *"With the second child, I am not allowed because there is no one to teach the lessons in my place". "We each do the work for 2-3 employees. A possible paternity leave is out of the question".* Many fathers realize that being on leave would put a burden on colleagues and disrupt the work rhythm. *"There are no substitutes, this means that my colleagues have to take over my duties while I am on leave„.*	**Impossibility of replacing highly qualified specialists.** *"I am the only specialist who understands how the whole system works. There is no other specialist who can take over my duties, nor can the director of the company replace me".* Shorter periods of leave create more burden and stress than longer periods where organizations are more likely to search and find a suitable replacement.	**Poverty.** *"Even if I took such a leave, I wouldn't stay at home because I have five mouths to feed". "With the greatest pleasure I would stay with the child, but the expenses are high, the wife has no more income. I'm the one who has to work for two„.*	**Fear of stigmatization.** *"My job is at a car repair shop. You realize how the other colleagues would regard me. They would question my masculinity if went on vacation? I wouldn't want to spoil my reputation among my colleagues".*
Lack of role models/ examples in the community. *"In our village, none of the men who have children have been on such leave. Not even our director who still has a small child".*	**The attitude of the employer.** *"My employer has only men workers. Nobody takes paternity leave, and they won't understand me if I request this leave. In all families the wife takes care of the children". „I am sure that when a situation related to career advancement arises, if the boss has to choose between one who had been on paternity leave and another who had not, he will choose the latter„.*	**Lack of jobs in small towns and rural areas.** *"I'm glad that I have work in our small town, that's why I can't afford to have such claims. I am happy that I have a salary that is paid to me regularly and with it I can support my family„.*	**Contradiction to the ideal norm that the worker must to prioritize the job.** *"How will the boss be able to evaluate me during the month I will be on leave? He will say that something is wrong and that I am not interested enough in the work".*

* Until 01.09.22 the paternal leave was granted in the first 56 days. It is currently granted in the first 12 months. This change provides more room for maneuvering for fathers who face certain constraints related to time and circumstances at work, but at the same time, it reduces the proportion of fathers who will take paternity leave in the first two months after the birth the child. Thus, it is most advisable that this leave be used mainly in the first three months after the birth of the child because this would be a rather difficult and demanding period for the mother to face the responsibilities of caring for and raising the child.

Paternity leave is an opportunity for a father to take care of his children from the first days of life and is an effective measure by the state to build responsible fatherhood. This emerges from the reasons why the interviewed fathers resorted to paternity leave:

- ***On one's own volition.*** *"Our child was long-awaited and desired, so when I found out that there is such a possibility to stay at home with the child after birth and still get paid, I said I'm going to use it„.*

- ***The example of other colleagues and close friends*** was the stimulus that influenced them to request paternity leave. *"At my service, all fathers take this leave. Of course, the person in charge of human resources informs us and proposes that we use this leave because it does not affect them as employers„.*

- ***The health problems of the child/mother.*** *"The child was born with several health problems. The birth was very difficult, my wife was extremely exhausted. I had to be with them„.*

- ***Facilitating the mother's return to work.*** *"My wife is chief accountant. Immediately after the birth she was the one who had to do most of the work. Her boss encouraged her to return to work quickly, and I had to support her. This leave helped us a lot because it was precisely during this period that my grandmother could no longer help us, so it was useful to us. Then I found someone to take care of the little one. I helped her to be less stressed. I would bring the baby to her for breastfeeding".*

Greater involvement of fathers in child care has beneficial effects on children's cognitive and behavioral development. So it is essential to involve fathers in the care of children from the moment of birth, including by offering paternity leave because it has direct effects on the well-being of the child. Despite this, fathers who were on paternity leave used this time in different ways:

- ***Engagement in the tasks of caring for the newborn child.*** *"I helped my wife a lot because she was after the surgery and it was difficult for her to hold the baby". "During those two weeks I would wake up at night and rock him when he started to cry, I would let my wife rest after nursing him". „I learned how to be a parent„.* These fathers definitely become more attached to their children. So paternity leave helps fathers have more opportunities to learn parenting skills. Specifically, paternity leave can reduce the likelihood of role traditionalization by giving fathers time to learn parenting tasks starting at birth.

- ***Taking over the activities of caring for and supervising other family members.*** *"The eldest boy was very jealous when the second was born, so during the paternity leave I spent most of the time with him so that he would understand that he is also loved and appreciated".*

- **Predominantly dealing with solving household problems during paternity leave**. *"To be honest, I did the facade of the house during paternity leave„.*

- ***Continuation of work activities.*** *"What I do in the company, no one else can do, so I continued to work from home„.*

- ***Being on paternity leave only from the primary employer***. *„I did not request this leave from the other two companies I work with and I continued to fulfill my obligations with them".*

- ***Travels, rest.*** *„The child was very quiet, so we took advantage and rested at the sea".*

The analysis of the interview data allowed us to outline the profile of the fathers who take it and those who do not benefit from this measure. Thus, the fathers who take leave are different from those who do not in terms of education level, age, working conditions, financial insurance, number of children, wife's professional activity, household composition (Table 3).

Table 3:
Social characteristics of fathers who did/did not take paternity leave

	Fathers who have taken paternity leave	Fathers who did not take paternity leave
Level of education	High	Medium and low
Age	They are mostly young, the average age of the respondents was 34 at the time of the child's birth.	
The working conditions	Qualified employees. The socio-professional position is stable. Most work in the public sector	Unstable position at work. Most work in the private sector, small businesses. Some fathers are informal employees. A small category was represented by small entrepreneurs who cannot afford to be on paternity leave because they are the only employees.
The financial assurance	High income (around 10000) and mostly official.	Most have low incomes and some are dependent on informal income.
Childbirth assistance	+	-
Number of children	1 child	2 and more
Professional activity of mothers/ wives	Employed in the field of work until birth	Not working
Household composition	Husband, wife and child	Extended family

According to the analyzed data of the study, fathers who do not take paternity leave can be classified into the following categories:

- ***Aware but constrained.*** Fathers who want to be on paternity leave, have intentions to get involved as much as possible in the upbringing and education of their children, consider that this is important for them, but the actual implementation is a challenge for them due to expectations and pressures at work. This is also true for the small entrepreneurs who have to work every day. *"I would love to stay at home with my wife and my little one, but I can't because this is my business and I have loans, I have borrowed equipment. It would be abnormal to stay at home under my conditions".*

- ***Traditionalist fathers*** who believe that raising and caring for children is strictly a female responsibility. *"Since the world and the earth, the mother is the one who takes care of the children. Yes, I can help her, but no one will take care of the child better than her".* The specialized literature highlights that the father's presence and involvement in the child's development is essential. The father develops such qualities in the child that the mother is not always able to cultivate: initiative, independence, courage, restraint, will, the ability to keep one's word, to defend one's point of view, courage and steadfastness.

- ***Undecided fathers*** who claim that they do not understand why it is necessary for them to take paternity leave and that it would be important for them to have some examples of fathers who took advantage of this leave to draw their attention to the benefits of this type of leave. Legislation and regulations that promote the uptake of paternity leave by fathers are a valuable tool for social change, but they are not sufficient. Individual ideals, social norms, awareness about the benefits of implementing paternity leave are essential.

The employer is obliged to encourage employees to benefit from paternity leave. Cases in which the employer creates situations disadvantaging employees who take paternity leave are considered cases of discrimination on the part of employers and shall be sanctioned according to the law. The data of the conducted study allowed us to identify several types of employers in terms of their opinion regarding employees being on paternity leave:

- ***Employers with conservative views.*** *"My employer is old-fashioned. Even if he allowed me to take this leave, he didn't understand me given that my wife doesn't work".* These employers may perceive employees who request paternity leave to be less committed and trustworthy, thus reducing the likelihood that they will be promoted and receive salary increases. In other words, taking paternity leave can be seen as a sign of being more family-oriented than career-oriented.

- ***Employers who understand and support the need for fathers to use paternity leave but who for objective reasons do not accept it.*** *"At our workplace, one can't take two weeks off like that. We even plan the annual leave and take it only in the summer".* Thus, the reality shows that some employers do not approve of taking paternity leave to spend time with the family. Many workplaces are structured around the ideal norm that employees prioritize work above all else.
- ***Employers who encourage employees to take paternity leave*** (especially in IT). In such a situation, paternity leave is compatible with the organizational culture that promotes the balance between work and family.

The employer and the support offered to the employee at the enterprise play the role of intermediary between the legally established norms and individual paternity practices. The attitude of the employer and colleagues determines the extent to which opportunities are used.

DISCUSSIONS

Our study shows that the use of paternity leave leads to greater father involvement, and this is important because it is associated with many positive outcomes among children and spouses, this fact being confirmed in other studies. Paternity leave develops fathers' confidence in their parenting skills, influences them to appreciate the importance of involvement in child care, and makes them feel that this aspect should not concern only mothers (Rehel, 2014). The results of our study revealed that fathers, after using paternity leave, value mothers' work more and believe that they can perform childcare tasks as well as their partners. This has created a certain confidence in their own strength. As a result, they are committed to carrying out childcare duties even after the period of paternity leave.

Researchers Lamb, Pleck, Charnov, and Levine 1985 highlighted the importance of father involvement in raising and educating children along three dimensions: direct interaction with children, accessibility (being available to children), and responsibility (making decisions about or arrangements for children). The study shows that paternity leave has effects on these three dimensions. Thus, the interviewed fathers who benefited from paternity leave interacted more with their children (care, play), they took the time to be available to the children when needed (consulting the doctor, taking care of the child when he has health problems etc.) and have become more responsible (e.g. looking after babies at night).

Another important aspect worth discussing is the duration of paternity leave. Both the results of the study carried out by the author and a series of international investigations highlight that in order to have the most optimal results, it is necessary for this leave to be longer. Longer periods of paternity leave are associated with more frequent involvement in child development and caregiving tasks (Cabrera, Fagan, Farrie, 2008). Thus, some interviewed fathers did not take paternity leave for the reason that the period is very short and would not allow him to assimilate the child care skills. Both the author's study and other international studies highlight that limiting the legal period to two weeks is particularly inappropriate in certain specific circumstances, such as when the mother or child is ill or was born prematurely (House of Commons Women and Equalities Committee, 2018). As a result, the opportunity to allow the father to take a longer period of paternity leave for such complicated situations needs to be considered.

Particular attention is needed for fathers who wanted to be on paternity leave but who for objective reasons could not afford it – dependence on unofficial wages, employment at several jobs, lack of staff in enterprises/organizations, discrimination against fathers on paternity leave by employers and co-workers. So, on the one hand, the economic reason proves to be an important obstacle in accessing paternity leave, on the other hand, the problem of gender stereotypes according to which the care of the child/children is a main responsibility of women and not of men. Gender stereotypes are deeply rooted in the mass consciousness of the population of the Republic of Moldova and hide the loyalty to the established tradition: for a man work is more important and he is the one who has to earn money, provide for his family. The spread of such traditionalist approaches denotes that women are the main subject of child care and that the society does not approve of deviations from certain situations that have been previously established in terms of gender relations. Thus, the care and education of children is perceived in a stereotypical way, as being the fundamental responsibility of the woman and not of the man. Upholding traditional parenting practices does not allow couples to balance work with family life. In such situations, employees find themselves in a certain conflict because, on the one hand, they want to be more involved in raising children, but on the other hand, the current socioeconomic context creates constraints for them to achieve this desire. So, given that children are parents' priority, but they also care a lot about their careers, measures are needed to facilitate the implementation of paternity leave on a large scale.

At the same time, the study raises uncertainties as to whether taking paternity leave will encourage fathers to remain involved in the process of child rearing and education while they are growing up. There are fears that even if society goes through a process of change from a traditional type to a modern type, progress in the division of labor within the family will be low. Women continue to bear the primary burden of childcare and household responsibilities. Men only partially share these responsibilities, and the division of domestic and childcare activities between men and women is very limited.

The tendency for women to take full responsibility for child care is maintained. This was highlighted by the fact that not all fathers who were on paternity leave devoted time to caring for the newborn. In this sense, some fathers took care of household tasks, and others, even worse, continued to perform professional tasks even though they were on paternity leave. This aspect shows that it is still necessary to promote the "responsible fatherhood" model, i.e. increasing the participation of men in the care and education of children.

CONCLUSIONS

In addition to the immediate benefit of sharing the joy and responsibility of caring for a newborn child for fathers, the paternity leave has a medium- and long-term impact on the well-being of children and the family. The use of paternity leave can also influence changing gender norms and parenting attitudes, cultural ideals of the general population, thus stimulating behavioral changes in mothers and fathers (Wray, 2020).

In Moldova, the right to paternity leave is correlated with the father's work situation (the father who benefits from paternity leave: the income is predominantly official and significant; the father who does not benefit from paternity leave: is dependent on unofficial income; unofficial employee). Although the benefits of paternity leave are essential (increasing the level of involvement of fathers in household responsibilities, including caring for the newborn), the duration of this leave is short and does not always allow for the development of caring skills. Increasing the paternity leave uptake rate requires time and long-term intensive involvement of authorities, employers and parents.

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SOCIAL INTEGRATION OF MOLDOVAN MIGRANT'S CHILDREN IN ITALY

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ABSTRACT

The article explores the features of the Moldovan migrant's children integration in Italy and the dynamics and particularities of the second-generation formation. The study is based on statistical data analysis on the Moldovan communities of immigrants in Italy and the integration of migrant children into educational institutions. The risk factors of social adaptation of children of Moldovan migrants based on the sociological quantitative and qualitative research conducted in 2015-2019 are analyzed. The study results show that the children of Moldovan migrants face difficulties integrating into Italian society, even though they have more opportunities than their parents. There are specific differences in children's integration depending on the age of arrival in Italy, the success in learning the Italian language, the type of family (full or single parent, mixed family), and the intensity of social contacts. Children of migrants born in Italy do not experience significant difficulties in social integration, primarily thanks to their knowledge of the Italian language. Children from mixed families where one of the parents is an Italian citizen also do not have a problem. The most significant difficulties are encountered by young people who arrived in Italy as teenagers and have lived in Moldova for a long time with other relatives since their parents moved to Italy for work. The need to reunite with the family after 5-10 years of separation from parents, sometimes with a new mixt family, creates additional psychological and socio-cultural barriers in the process of integrating children in Italy.

Keywords: international migration, educational integration, children of immigrants, Moldovan migrants, second generations

Articolul evidenţiază particularităţile de integrare a copiilor migranţilor moldoveni în Italia, dinamica şi specificul formării celei de-a doua generaţii. Studiul se bazează pe analiza datelor statistice privind comunităţile de imigranţi originari din Republica Moldova şi integrarea copiilor migranţilor în instituţiile de învăţământ, precum şi pe rezultatele cercetărilor sociologice cantitative şi calitative realizate în anii 2015-2019. Într-o manieră complexă sunt analizaţi factorii de risc ai adaptării sociale a copiilor migranţilor moldoveni. Rezultatele studiului arată că aceştia se confruntă cu o serie de dificultăţi în integrarea în societatea italiană, în ciuda faptului că au mai multe oportunităţi decât părinţii lor. Există unele diferenţe în procesul de integrare a copiilor care depind de vârsta de sosire în străinătate, succesul în însuşirea limbii italiene, tipul de familie (completă, monoparentală sau mixtă), precum şi intensitatea contactelor sociale. Copiii migranţilor născuţi în Italia nu întâmpină dificultăţi semnificative în integrarea socială, datorită cunoaşterii limbii italiene. De mai multe beneficii se bucură şi copiii născuţi în familiile mixte în care unul dintre părinţi este cetăţean italian. Cele mai mari dificultăţi le-au întâmpinat copiii care au ajuns în Italia la vârstă de adolescenţă şi care au locuit o perioadă îndelungată în Moldova alături de alte rude atunci când părinţii lor au plecat în străinătate în căutarea unui loc de muncă. Necesitatea de a se reuni cu familia după 5-10 ani de separare cu părinţii, uneori cu o familie nouă mixtă, creează bariere psihologice şi socioculturale suplimentare în procesul de integrare a copiilor în Italia.

Cuvinte cheie: migraţia internaţională, integrare educaţională, copiii imigranţilor, migranţi moldoveni, generaţii secunde

В статье освещаются особенности интеграции детей молдавских мигрантов в Италии, динамика и специфика формирования второго поколения. Исследование основано на анализе статистических данных о сообществах молдавских иммигрантов в Италии, интеграции детей-мигрантов в образовательные учреждения, а также результатах количественных и качественных социологических исследований, проведенных в 2015-2019 гг. Анализируются факторы риска социальной адаптации детей молдавских мигрантов. Результаты исследования показывают, что дети молдавских мигрантов сталкиваются с целым рядом трудностей при интеграции в итальянское общество, несмотря на то, что они имеют больше таких возможностей, чем их родители. Существуют определенные различия в интеграции детей в зависимости от возраста прибытия в Италию, успешности в освоении итальянского языка, типа семьи (полная или неполная, смешанная семья), а также интенсивности социальных контактов. Дети мигрантов, родившиеся в Италии, не испытывают каких-либо значимых трудностей в процессе социальной интеграции, в первую очередь, благодаря знанию итальянского языка. Дети из смешанных семей, где один из родителей является гражданином Италии, также имеют больше преимуществ. С наибольшими трудностями сталкиваются молодые люди, прибывшие в Италию в подростковом возрасте, и которые длительное время проживали в Молдове с другими родственниками, с тех пор как их родители выехали в поиске работы. Необходимость воссоединения с семьей после 5-10 лет разлуки с родителями, иногда с новой смешанной семьей, создает дополнительные психологические и социокультурные барьеры в процессе интеграции детей в Италии.

Ключевые слова: международная миграция, образовательная интеграция, дети иммигрантов, молдавские мигранты, второе поколение

INTRODUCTION

Over the past decades, about a quarter of Moldova's population have left their homeland in search of work and a better life (Gagauz et. al, 2021). For many of them, short-term labor migration has turned into immigration with permanent residence in the host country. Currently, the largest communities of Moldovan emigrants are located in Italy – over 122 thousand Moldovan legal residents (ISTAT 2021). In the last few years the number of those who acquired Italian citizenship practically outnumbered those who emigrated to Italy from Moldova. In 2014, there were about 150 thousand Moldovan legal residents. According to the official data, about 30 thousand Moldovan migrants had obtained Italian citizenship until 2022 (MLSP 2022). Currently, an increase in the number of naturalization cases is expected because many Moldovan migrants have been living in Italy for more than 10 years. The share of young Moldovan migrants went up by almost 20%. They acquired Italian citizenship through transmission by submitting applications when they turned 18 years old.

Since 2010 the number of Moldovan children in Italian kindergartens and schools has been exceeding 20 thousand every year and has currently reached about 26 thousand (MIUR 2022). In addition, about 2500 Moldovan students are registered at universities. Most of them finished schools in Italy and then opted for further studies (MLSP 2022). The considerable number of Moldovan children born in Italy is relevant for the formation of the second generations. However, these children do not obtain Italian citizenship at birth (according to the IUS SOLI principle). They can only submit an application when they reach the age of 18. The last data show that about 20 thousand children of Moldovan citizens have been born in Italy (MLSP 2022).

The integration process is considered to be an important stage in the adaptation of migrants and their children in the host country. Nowadays Italy witnesses the formation of a second generation of Moldovan immigrants. The second generations are actually post-migration generations (came out of migration processes), they are descendants of parents who emigrated. These new generations represent a bridge between the country of origin – Moldova – and the country of residence – Italy, between the migrant parents and the host country society. Unlike their parents, children of immigrants choose to self-identify differently and it matters if they had migration experiences. This fact also influences their intentions regarding the future. A series of factors related to the emigration causes, such as the family background and the specifics of the host country, affect the intentions of young migrants and the integration success.

What actually happens to Moldovan children when they arrive abroad? What difficulties do they face, who helps them? What is the specificity of their educational and social integration? To what extent do the following factors matter: the age at which they emigrated, the family situation, the migration network, the knowledge of Italian? How do they self-identify and what are their future intentions? This study aims to answer these questions.

LITERATURE REVIEW

The immigrants' children in the host countries have attracted the researchers' and authorities' attention from the perspective of attested vulnerabilities. At the same time, child integration is considered a stage in the transformation process from temporary to long-term or even permanent migration. These aspects have been frequently studied in the last two decades (Bolzman et. al. 2017, Ricucci 2022).

The process of social and educational integration of migrant children is extremely important, and is a key factor for a successful management of this phenomenon (Giovinazzi & Cocchi 2022, Santagati & Colussi 2021, Mucomel 2013, Poalelungi 2012). Their well-being depends on the successful integration into schools. This fact applies not only to children of immigrants, who had migration experiences, but also to those born in the host country (Ambrosetti et. al. 2022, Gabrielli & Impicciatore 2022). The failure to integrate into school leads to the re-emigration or return of the children to the country of origin. Such cases are quite numerous among migrants (Triventi et al. 2022). It is attested that there are different trends and educational and training pathways in different integration contexts – countries, regions, cities. These aspects must be subject to a thorough analysis (Colombo & Rebughini 2012, Crul 2012, Bertozzi 2016).

Good language knowledge can predict the success of immigrant children's educational integration. This variable predominates during the first adaptation period. (Cavicchiolo et al.

2020). The academic success increases the motivation for integration as well as the level of self-esteem (Di Bartolomeo et. al. 2017). Immigrants' children actually represent the keystone of the family's migration project. Usually they have very high expectations. Several studies highlight the gap between the level of expectations and the real chances that the children of immigrants have (Feliciano & Lanuza 2016). In reality they still have difficulties in keeping up with the natives, either because of poor knowledge of the language or because traditionally the immigrant communities have a moderate level of schooling (Engzell 2019). The particularities of integration depend on the family's migration background and the involvement of women into this process (Marchetti & Venturini 2014).

There are several risk factors that can affect the success of migrant children's social adaptation process. Lack of equal opportunities, underperformance, prejudice and discrimination, antisocial attitude affect the children of immigrants, especially during adolescence (Bohman et. al. 2019, Di Bartolomeo 2017, Feliciano & Lanuza 2017). Some gender related aspects have also been mentioned among risk factors for the successful integration of young immigrants (Bozzetti 2019, Mantovani et al. 2018, ISTAT 2020). The advantages offered young immigrants by access to citizenship remain important in terms of overcoming the difficulties (Artero & Ambrosini 2022). The significant role of the host country local and central authorities in the efficient and responsible application of the integration policies has been emphasized. (Collyer et. al. 2020). A high level of integration of migrants and their children is reflected by their participation in society in general, with special reference to the institutional level: labour market, financial-banking sector, health and educational systems.

Some specific new social effects were noted in reference to emigration from Moldova. The development of the „culture of migration", along with other push factors, influence the emigration intentions, especially in young people (Tabac & Gagauz 2020). Depending on the context of integration, the social memory retains the migration experiences as „fingerprints". This leads to a specific attitude and behavior. It has been established that there is a connection between social memory, social capital, self-identification and belonging to a certain society, culture, history, etc. (Bozhkov &Ignatova 2020).

The literature review highlighted the existence of multiple factors that influence the integration of immigrants' children. During the long period of emigration to Italy (about 30 years) large communities of Moldovan migrants have been emerging, including post-migration generations – second generations. Therefore, it is very important to study the educational integration and future migration orientations. The purpose of the research is to determine the particularities of the Moldovan migrant children's integration process into educational institutions in Italy (kindergartens, schools, universities); to analyze the formation features of second generations.

RESEARCH METHODOLOGY AND DATA

The study is based on official data of the Italian National Institute of Statistics (ISTAT), Ministry of Labor and Social Policies (MLSP), Ministry of Education (MIUR) etc. The data regarding the presence of Moldovan citizens in Italy, the enrolment of Moldovan students in educational institutions have been analysed along with case study data and focus group discussions. In addition, quantitative and qualitative studies carried out in 2015–2019 have been used. The questionnaire-based survey included 100 young Moldovan migrants in Italy, 18–23 years old. Their socio-demographic profile is presented in (Table 1).

Table 1:
Socio-demographic profile of young Moldovan migrants in Italy included in Survey

Total		%
Age (years)	18–20	58,0
	21–23	42,0
Sex	Male	43,0
	Female	57,0

Total		%
Level of education	Secondary education	36,0
	Special secondary studies	25,0
	Tertiary education	39,0
Age at mother/father's emigration to Italy	1–5 years old	17,0
	6–10 years old	51,0
	More than 10 years	32,0
Length of stay in Italy	2–3 years	29,0
	4–9 years	48,0
	More than 10 years	23,0

The study data were corroborated with the data of the 31 questionnaires filled in by migrant parents. The selection of respondents was done according to the snowball method. Most migrant parents are from the Italian regions of Lazio, Lombardy, Emilia-Romagna, Veneto, Tuscany. Many of them have been living in Italy for 10–15 years and more.

Additionally, 25 in-depth interviews with young Moldovan migrants, 20 – with Moldovan teenagers born in Italy and 50 in-depth interviews with experts have been carried out. The last category included representatives of Italian and Moldovan institutions (Ministry of Foreign Affairs and European Integration, Migration and Asylum Bureau, Diaspora Relations Bureau, IDOS Centre, social services, high schools), academic environment, migration experts, cultural mediators, judges, pedagogues, psychologists, journalists, missionary priests, etc.

MAIN RESULTS

The empiric data show that many Moldovan children perceived the migration as a radical change, namely the integration into a new school, society in another country. In most cases the first months abroad did not pass without tears, without the need to rebel. The young respondents mentioned being rgistered in the new schools according to their age or in lower grades with 1–3 years younger children. They talked about the benefits of gradual integration or the immediate consequences of integration forced by circumstances. The stories of these children differ from case to case. The children often had the feeling that they have not justified their parents' expectations:

„When I came to Italy it was very difficult. I didn't know the language, I had to make new friends. The school was new. I had new teachers"...

„You feel disconnected from your own origins, from culture, from the habit of always hearing the mother tongue; it's hard to identify with a certain culture".

The (long) period of being away from the mother or both parents who had been working abroad, had several repercussions on the children, including on their integration in the host country. Where the decision to emigrate was made hastily, the difficulty increased even more. The emigration experience found the children totally unprepared: morally, psychologically, linguistically, etc.

„The children who came from Moldova in the first decade of the 21st century have a trauma from the period in which they lived in Moldova, in many cases alone – with neighbors, grandparents, brothers, sisters, relatives (without parents). They went to school in Moldova. Reuniting with the family, coming to Italy, those children integrated into the school in Italy very quickly and easily. But at the same time there is also a very big difference, because it is clear that they are psychologically stressed children – they have certain psychological problems, especially in the mother-child relationship. They suffered a trauma when they were small being left at home – it is very difficult to marginalize it".

In the interview the cultural mediator said:

One of the experts interviewed who supported the integration of Moldovan children in kindergartens and schools in Italy attracted attention to the emotional impact that entering a new school has on the migrant child's life:

„The migrant child enters the school door and knows no one. The teacher must understand that he doesn't talk to him not because he doesn't know the subject or doesn't want to, he actually knows, but at some moments he can't answer immediately. The child feels responsible in front of his parents – because he wants to prove them that he is brave".

The children who followed their parents abroad at the age of 10–12, mentioned that the adaptation period was long and difficult. Many of them, being students with good academic success in Moldova, experienced communication difficulties of at school in the first months:

„It was quite complicated for me and my sister. She had to pass the secondary school exams, and I – the exam at the end of high school studies, but we both didn't know anything in Italian".

For some young Moldovans migration was a true test of maturity; early maturity that made them very responsible. The respondents say that studying abroad facilitates the integration process, especially for children of Moldovan migrants. They overcome the difficultes after a certain period of time:

„This experience mobilized me and after a year I was already one of the best students at school, and this revealed the characteristics that we have – perseverance and tenacity".

The parents confirm the problems the young migrants had in the first months of stay in Italy: learning Italian, the integration/adaptation in a new school, a new country. Only 4 parents said that their children had not encountered any problems as the integration was gradual.

The young migrants who participated in the research were aware of the importance of learning Italian in order to integrate into the society. First of all, they mention the need to learn Italian to integrate in kindergartens or schools, as well as to interact with children and adults. Most of those who have been in Italy for more than 10 years said they had very good knowledge of Italian. The situation is different for those who have been in Italy for up to 3 years (Table 2).

Table 2:
Knowledge of the Italian language related to period of stay abroad, %

		Very good	Good	Suficient
Period of stay abroad	Up to 3 years	10,0	62,0	28,0
	3–9 years	70,0	28,0	2,0
	10 years and more	87,0	13,0	0
	TOTAL	56,6	34,3	9,1

Source: based on the Survey data

Maintaining Romanian as a language of communication in migrant families and within the migrant network (with friends, relatives, their children) contributes to self-identification, to the postponement of acculturation, which happens in the following generations. Most of the children and teenagers who immigrated to Italy at the age of 10–17 continue to consider Romanian as their mother tongue. Those who went to Italy for family reunification up to the age of 10 or even younger mainly speak Italian despite the parents' insistence. During the discussions they admitted they did not speak correctly because they had not spoken Romanian for a long time (Table 3).

Table 3:

The language spoken in a family related to the period of stay abroad, %

		Romanian and Italian	Mostly Romanian	Mostly Italian	Only Italian	Other languages
Period of stay abroad	Up to 3 years	31,0	69,0	0	0	0
	3–9 years	66,7	20,8	4,2	6,3	2,1
	10 years and more	65,2	4,3	26,1	4,3	0
	TOTAL	56,0	31,0	8,0	4,0	1,0

Source: based on the Survey data

The young Moldovans who emigrated to Italy and their parents point out that the emphasis on learning Italian was specially made in the first years of emigration. It was aimed to help children learn the Italian language more quickly and support them in their school integration process. Communication in Romanian and interaction with the Romanian-speaking people was limited to family members, migrant or parish communities, phone conversations with relatives or friends in the home country, short visits to Moldova, etc. Later these limitations are gone thanks to access to the Internet and social networks, etc.

The language spoken with friends reveals the extent of young people's tendency to integrate into Italian society. On the other hand, they make an attempt to preserve the knowledge of their mother tongue. However, it depends on the period of stay abroad and on the entourage. The situations are very different in the cases of mixed families; the presence of relatives and friends; in cases of larger compatriot communities; maintaining relations with the country of origin, etc. There have been noticed aspects connected with acculturation: the longer the duration of stay abroad the less is the communication with representatives of one's own community. It diminishes drastically or even disappears (Table 4).

Table 4:

Preferred language in communication with friends related to the period of stay abroad, %

		Romanian and Italian	Mostly Romanian	Mostly Italian	Only Italian
Period of stay abroad	Up to 3 years	35,7	60,7	0	3,6
	3–9 years	45,7	26,1	17,4	10,9
	10 years and more	30,4	4,3	43,5	26,1
	TOTAL	39,2	30,9	18,6	12,4

Source: based on the Survey data

The place of birth indicates the difference between children of immigrants and migrant children. If a child is born in Italy, he speaks perfect Italian – he may have other problems in the process of social integration, but not linguistic. Children who come for family reunification must overcome first of all the problem of learning Italian, in addition to various other discriminations. In both cases, they are attached labels like „son of the immigrant". They are viewed with distrust, sometimes almost with hostility.

„Children and young people from the second generations already have a double identity: one from their origin and the Italian one. They are raised in Italy and feel Italian. Basically, they started their education in Italy and are perfectly integrated. Those born in Italy take a different route, a different path. Those who came from Moldova are a bit adrift – in any case, it's a different language, a different reality for them" – expert, cultural mediator.

„The life of an emigrant represents the crossing of borders. Often this fact is trivialized and hidden under the burden of racism or enormous daily difficulties. The progress we must make is to come to consider immigrants as a resource" – reprezentative of the IDOS Centre.

Most of the respondents mentioned that at home they speak Romanian and Italian or predominantly Romanian. Only 7 parents from mixed marriages indicated Italian as the language of communication. The migrant parents said that they spoke Italian very well. Migrant parents who have children born in Italy mentioned that they had no problems with adaptation / integration into society because they consider Italian as a native language. These children may have a different attitude to the Romanian language, even in relation to their older brothers and sisters. Children born in Italy perceive Romanian as their „parent's native language". Even if they consider Romanian as their mother tongue, the language of the country of residence predominates in the children's lives.

In mixed families children often understand Romanian, but cannot overcome the language barrier to speak, because Italian is a predominant language of communication in their families. For some of them a motivation to learn Romanian was visiting their grandparents in Moldova on vacations. The migrant parents say their children born abroad learn Romanian, but speak with an accent or with difficulty.

„We noted several cases in which Moldovan children avoid or even categorically refuse to speak Romanian or say that they miss the country where they were born. I don't think that the main reason would be that they integrated perfectly into Italian society and forgot their mother tongue. Many times, the period when their parents went abroad leaving them in someone else's care was a traumatic experience and the children try to marginalize this trauma" – female, Moldovan migrant association.

Children whose at least one parent is a Moldovan citizen show good indicators of school and social integration in Italy, though there were some difficulties. The integration process of Moldovan children born in Italy or arrived in Italy at a young age (under 6 years old) was natural, without difficulties, because they started the cycle of integration in educational institutions from the very beginning. The difficulties increased for the 6–10 years old children who had started their education in Moldova and had been without any parental care for some period of time.

Moldovan teenagers who accompanied their parents to Italy at the age of 12–14 and more were the ones who encountered the most serious problems. It influenced the period of adolescence, the fact of being far from friends, grandparents, relatives, and the school/locality where they had grown up. Some of them who emigrated to small towns in southern Italy suffered more because of the disbalance between expectations and the reality they had to face. The integration process was easier in large Italian cities. As young Moldovan migrants mentioned, big cities offer more opportunities to study, more perspectives, and chances to find a job. Some young people confessed that they had gone through complicated periods in which they risked dropping out of school.

Many of the respondents who emigrated at least 10 years before, said that they had encountered various discriminatory situations (especially those who emigrated in the early 2000s). Those who have lived in Italy for up to 3 years experienced fewer situations of this kind. In particular, immigrant children felt discriminated against in society, in mass media, as well as at schools, public admini-stration institutions, etc.

After several years of stay in Italy, over 50% of young Moldovans applied for Italian citizenship. Several respondents, being aware that they do not fulfill the conditions provided by the Italian authorities for the acquisition of citizenship, mentioned that they would apply when they or their parents would have 10 years of legal residence.

CONCLUSIONS

The study carried out with young Moldovan migrants in Italy revealed the particularities of the integration process in Italy. A series of difficulties encountered by the children of Moldovan migrants at the first stage of settling in the host country, including episodes of discrimination and increased vulnerability in the case of single-parent families, have been determined.

The Moldovan teenagers had to learn the Italian language very quickly in order to be able to study the school subjects, to get promoted to the next grade at the end of the academic year and take the exams provided by the school program.

Several variables influenced the integration process: the place of birth, the emigration age, the presence of both parents, other siblings, etc. The risk factors are the emigration in adolescence age with its vulnerabilities; the fact of leaving friends in Moldova when adolescents at the age of 15 already have their group with common interests. In their case the cultural and psychological shock was very strong, especially because they had to re-integrate into the family (sometimes in a new, mixed family) after a period of 6–9 years.

The registration in 1–3 years lower grades, not according to their age, increased the feeling of non-integration and a desire to re-emigrate to have better life prospects. The Moldovan children, who emigrated to Italy with their families before 2010–2014, had more integration difficulties.

Many Moldovan teenagers say they had to work to support their families while studying in high school or university. They are convinced that they did the right thing by making efforts to integrate because the studies in Italy offered them a lot of opportunities.

For what concerns Moldovan children born in Italy, they pursued a natural path of integration into society, without specific difficulties. They partially speak Romanian, though Italian prevails. Romanian is spoken in the families and the children are aware that it is also their mother tongue.

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EXPORT OF TOURIST SERVICES OF BELARUS TO CHINA

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ABSTRACT

The article discusses the institutional foundations of mutually beneficial Belarusian-Chinese tourism cooperation. The research aims to explore the state, problems, and prospects for the development of the tourism industry in China and Belarus and to develop proposals for the development of tourism export services to China. The authors examine the structure of the tourism industry in Belarus and China, the inductive prerequisites for the development of the tourism sector of the two countries, as well as global trends in the field of tourism related to the COVID-19 pandemic. Special attention was paid to developing promising types of tourism in Belarus and China, such as "red," rural, folklore, digital, and "winter" tourism. The case of the Republic of Belarus, which may be helpful for Central and Eastern Europe countries, illustrates the possible directions for the growth of tourism export services to China, thanks to the optimisation of measures to prevent and control COVID-19. This optimisation contributed to the cross-border movement of Chinese citizens and opened up opportunities to attract Chinese tourists to the Belarusian market and the markets of Central and Eastern Europe. We have emphasised that for Belarus, achieving significant results in the development of the export of tourist services to China involves solving some essential tasks: conducting large-scale and ongoing advertising and informational campaigns to increase the awareness of foreign audiences about tourism products and recognition of the country as an attractive tourist destination; development and implementation of an incentive system for tour operators from China; performance of activities to adapt the service in hotels, airports, train stations, restaurants, museums to the individual characteristics and specific needs of tourists from China; improving the tax-free system to increase the interest of citizens from China in visiting Belarus.

Keywords: tourism industry of Belarus and China, tourism development trends, types of tourism, Belarusian-Chinese tourism cooperation, export of tourism services, and government support of tourism

Articolul pune în discuţie aspectele instituţionale ale cooperării beloruso-chineze reciproc avantajoase în domeniul turismului. Scopul cercetării este de a studia starea, problemele şi perspectivele de dezvoltare a industriei turismului în China şi Belarus şi de a elabora propuneri pentru dezvoltarea exporturilor de servicii turistice în China. Autorii examinează structura industriei turismului din Belarus şi China, premisele obiective pentru dezvoltarea sectorului turistic din cele două ţări, precum şi tendinţele globale în domeniul turismului, influenţate de pandemia COVID-19. O atenţie deosebită este acordată dezvoltării unor tipuri promiţătoare de turism în Belarus şi China: „roşu", rural, folcloric, digital şi de iarnă. Cazul Republicii Belarus, care poate fi util pentru ţările din Europa Centrală şi de Est, ilustrează posibilele direcţii de creştere a exporturilor de servicii turistice către China, în contextul de optimizare a măsurilor de prevenire şi control al COVID-19. Această optimizare a contribuit la circulaţia transfrontalieră a cetăţenilor chinezi, ceea ce a deschis oportunităţi de a atrage turişti chinezi pe piaţa belorusă, precum şi pe pieţele din Europa Centrală şi de Est. Se subliniază că, pentru Belarus, obţinerea unor rezultate semnificative în creşterea exportului de servicii turistice către China implică rezolvarea unui număr de sarcini cheie: desfăşurarea de campanii de publicitate şi informare pe scară largă şi continuă pentru a creşte gradul de conştientizare a publicului străin cu privire la produsele turistice şi recunoaşterea ţării ca destinaţie turistică atractivă; dezvoltarea şi implementarea unui sistem de stimulare pentru operatorii de turism din China; desfăşurarea de activităţi de adaptare a serviciului în hoteluri, aeroporturi, gări, restaurante, muzee la caracteristicile individuale şi nevoile specifice ale turiştilor din China; îmbunătăţirea sistemului de scutire de taxe pentru a creşte interesul cetăţenilor din China de a vizita Belarus.

Cuvinte cheie: industria turismului din Belarus și China, tendințe de dezvoltare a turismului, tipuri de turism, cooperare turistică belorusă-chineză, export de servicii turistice, sprijin guvernamental pentru turism

В статье рассматриваются институциональные основы взаимовыгодного белорусско-китайского взаимодействия в области туризма. Цель исследования – изучение состояния, проблем и перспектив развития туристической отрасли КНР и Беларуси, выработка предложений по развитию экспорта туристических услуг Беларуси в Китай. В соответствии с данной целью авторы исследуют структуру туристической отрасли Беларуси и Китая, объективные предпосылки развития туристической сферы двух стран, а также мировые тенденции в области туризма в контексте изменений, вызванных пандемией COVID-19. Отдельное внимание уделено развитию перспективных видов туризма в Беларуси и в Китае: «красному», сельскому, фольклорному, цифровому и зимнему туризму. Пример Беларуси может быть полезен для стран Центральной и Восточной Европы, иллюстрирует возможные направления роста экспорта туристических услуг в КНР, в контексте оптимизации китайскими властями в январе 2023 года мер по профилактике и контролю над COVID-19. Оптимизация способствовала беспрепятственному и упорядоченному трансграничному перемещению китайских граждан, что открывает возможности привлечения китайских туристов на белорусский рынок, а также на рынки стран Центральной и Восточной Европы. Рассматриваются вопросы, а также структура государственной поддержки туристической отрасли в Республике Беларусь. Подчеркивается, что для Беларуси достижение значимых результатов в наращивании экспорта туристических услуг в Китай предполагает решение ряда ключевых задач: проведение масштабной и постоянной рекламной и информационной кампаний для повышения осведомленности зарубежной аудитории о туристических продуктах и узнаваемости страны как привлекательного туристического направления; разработка и внедрение системы стимулирования туроператоров из Китая; проведение мероприятий по адаптации сервиса в гостиницах, аэропортах, вокзалах, ресторанах, музеях под индивидуальные особенности и специфические потребности туристов из Китая; совершенствование системы tax free для повышения заинтересованности граждан из Китая в посещении Беларуси.

Ключевые слова: *туристическая отрасль Беларуси и КНР, тенденции развития туризма, виды туризма, белорусско-китайское туристическое сотрудничество, экспорт туристических услуг, государственная поддержка туризма*

INTRODUCTION

On September 15, 2022, at the summit of the Shanghai Cooperation Organization in Samarkand, the Heads of the Belarusian and Chinese states signed the "Joint Declaration of the establishment of all-weather comprehensive strategic partnership." In recent years, the Belarusian-Chinese diplomatic relations levelled up several times - from "friendly relations of cooperation," "relations of comprehensive strategic partnership," "relations of trusting comprehensive strategic partnership and mutually beneficial cooperation" to the current "relations of all-weather comprehensive strategic partnership."

It is expected that the current increase in the level of Belarusian-Chinese relations will take the interaction between the two states to a higher stage of development, opening up new prospects in various areas of the life of Belarusian and Chinese societies. In the signed document, the priority tasks of cooperation are the deepening of trade, economic, financial, and interbank cooperation, the acceleration of technological and investment cooperation, and the expansion of interregional relations. Separately, in paragraph 16 of the Declaration, both sides express their readiness to expand cooperation in education, culture, sports, and tourism. At the same time, it is emphasised that countries are ready to develop contacts between Chinese and Belarusian tour operators, improve the infrastructure for Chinese tourists in Belarus, and promote new tourism products and destinations.

Undoubtedly, expanding cooperation with the Chinese side in the tourism sector will require industry experts to conduct an in-depth study of the Chinese market, its state, structure, and development trends, as well as to study the capabilities, needs, and psychology of the subjects of this market. It will allow researchers from the Republic of Belarus and Central and Eastern Europe to determine the main directions of export of tourism services to the Middle Kingdom to formulate the most critical stages of digitalisation of this process.

The above-mentioned indicates the relevance of the topic.

LITERATURE REVIEW

The theoretical basis for studying the tourism industry was the works of leading scientists from the post-Soviet space (Sobolenko&Gansky, 2017; Matzel, 2020; Fedorovsky&Shvydko, 2020; Zaklyazminskaya, 2021; Voronovich, 2022; Davydenko, 2022). The authors also relied on the work of leading Western researchers on Chinese and international tourism (Lew A., 2001; Ap John&Yu Lawrence, 2002; Wen J. & Tisdell A., 2011; Dai Bin & Jiang Yi, 2013; Wolfgang Georg Arlt, 2017). The writings of Chinese scholars dealing with economic policy in the tourism sector have become essential sources (Zhang Hanqin Qiu & Chong King, 2002; Xiao, Honggen. 2006; Kaye Sung Chon & Zhang Guangrui, 2002; Zhang Hui, 2016). Issues concerning the need, structure, and scale of state support for the tourism industry have been carefully studied.

The article's authors relied on the findings of many national researchers who consider that the success of tourism development directly depends on how this industry is perceived at the state level and how much it enjoys state support. Also, the article focuses on an important detail highlighted by foreign authors: building the image of the country - a purposefully formed image of the territory, which has particular valuable characteristics and is designed to influence consumers of tourism services to develop inbound tourism.

At the same time, according to the national and foreign studies, the mechanisms for exporting tourism services to China are not fully developed due to the specifics of the socio-political and socio-economic development of China, as well as cultural and historical features and daily preferences of the Chinese population. In this regard, the authors consider the issue of studying the institutional environment of China as the most crucial component of the potential success in the development of exports of tourism services to any country, including the countries of Central and Eastern Europe. Given the above, the authors in this study provide the necessary information about the characteristics of the tourism market development in China.

DATA SOURCES AND METHODS USED

The research methodology relies on the study and interpretation of open sources that reflect the trends, prospects, and specifics of the development of the tourism sector in the Republic of Belarus and the People's Republic of China. The subject area of the research predetermined the choice of methods and tools based on quantitative analysis and qualitative synthesis of input information. The process of collecting initial materials for the study relies on official documents, collections, and bulletins of the National Statistical Committee of the Republic of Belarus and the National Bureau of Statistics of China. To increase the reliability of the results obtained during the study, techniques such as review, continuity of observation, analysis of initial data, including statistical ones, and rejection of conflicting data were used.

DEVELOPMENT OF THE TOURISM INDUSTRY IN CHINA

The continuous growth in wealth of the Chinese population and the victory over poverty, announced in 2021, were the objective prerequisites for the development of Chinese tourism and increase in the number of tourist trips, including those outside the PRC. Hence, since 2013, according to the World Tourism Organization, China has become the leader in the number of tourists travelling outside the country, surpassing the United States in this parameter. In 2019, 169 million people left China for tourism purposes, suggesting that citizens of the PRC made every tenth tourist trip in the world (Fedorovsky&Shvydko, 2020).

The main driving force of China's tourism industry in the coming future will be the middle class. If, for example, by the beginning of 2021, there were about 400 million people in China who are attributed to this population category, then by 2035, as part of long-term planning, their number is expected to double to 800 million. All of them will need high-quality tourist services, and consequently, the domestic tourism market's volume and tour operators' income will increase.

According to Belarusian tour operators, it is possible to attract tourists to Belarus from China only by offering them the level and the form of tourist service familiar to the Chinese consumer, which involves studying the tourism business characteristics of China. In particular, digital tourism is becoming increasingly popular in China:

- online visits to museums, vernissages, and various exhibitions;
- online visits to theatre productions and world premieres;
- online listening to lectures and viewing live broadcasts of iconic events.

The digital twin has covered almost every tourist attraction in China. The development of digital tourism in Belarus will contribute not only to the information content of tourist routes for the

Chinese but also to their initial acquaintance with the points of attractions and the possible tours to Belarus.

Today, in China, with more than 40 thousand travel companies, a wide variety of types of tourism are developing. Recently, one of the most common types is the so-called "red" tourism, which consists of visiting places of military and revolutionary glory. Now "red" tourism is experiencing a significant increase, which allows Belarusian tour operators to use this peculiarity of China's tourism business to attract organised groups of tourists from China.

In 2021, commemorating the 100th anniversary of the founding of the Communist Party of China, the Ministry of Culture and Tourism of China presented 100 "red" tourism routes. All routes (Table 1) are divided into three main thematic categories: "Remember the history of the Revolution and inhere the spirit of struggle" (52 tours), "Keep the great country's values and the Motherland's power" (20 times) and "See the achievements in the eradication of poverty and lifting villages" (28 rounds). In this regard, it is noteworthy that in Belarus, state tourist operators took advantage of the opportunity to receive Chinese tourists as part of the "red" tourism services. They are offering them not only to include an excursion to the House-Museum of the 1st Congress of the Russian Social-Democratic Labor Party in the program of stay of Chinese tourists, but also recommended to the Chinese side to integrate this subject into one of the Chinese "red" routes, including visits to the historical subjects of the Russian Social-Democratic Labor Party – All-Union Communist Party (Bolsheviks) – Communist Party of the Soviet Union – Communist Party of China, Russia and Belarus.

Table 1:

Routes of "red" tourism in China

Number and thematic category of the route	The content of the thematic category of the route
1. "Remember the history of the Revolution and inhere the spirit of struggle."	Among the excursions of this thematic focus, the route called "The Great Road - a contemporary of history" stands out, which begins in the central square of the Chinese capital Tiananmen, goes along the Monument to the People's Heroes, the National Museum of China, the Memorial Museum dedicated to the movement for a New Culture, the house-museum of Li Dazhao (one of the founders of the Communist Party of China, one of the first Chinese Marxists and Communists), the Memorial Museum of Chinese People's Resistance to the Japanese Invaders, the Lugouqiao Bridge and the February 7 Memorial Museum. The route considers all the major historical events that took place in Beijing after the May 4th Movement (1919), as well as important milestones in the history of the Chinese revolution and the history of building New China, demonstrating the achievements of the PRC in state building.
2. "Keep the great country's values and the Motherland's power."	The routes of this thematic category are dedicated to China's world-famous achievements in science, technology, and infrastructure construction. A significant location here is the Hongqi (Red Banner) Canal in Henan Province, which is more than 70 km long. Residents dug this unique hydraulic structure. The spirit of the Hongqi Canal has gone down in the Communist Party of China's history as a symbol of self-reliance, hard work, unity, cooperation, and selfless contribution. Other significant objects in this thematic category are the world's largest hydraulic structure on the Yangtze River, "Three Gorges" (Hubei Province), as well as a spherical radio telescope with a five-hundred-meter aperture FAST / Five-hundred-meter Aperture Spherical Telescope /, which is the most sensitive radio telescope in the world and which unofficially called the "Heavenly Eye of China" (Guizhou Province).
3. "See the achievements in eradicating poverty and lifting villages."	The theme group tours showcase China's progress in poverty reduction, rural revitalisation, and environmental improvement. The tours of this group are closelyStatistical related to rural tourism and tell how, during the years of reform and opening up (from 1978 to 2021), the Chinese Communist Party lifted 770 million Chinese rural residents out of poverty, which is 70% of all the needy in the world. It also includes folklore tours to get acquainted with the rich cultural heritage, unique architecture, and customs of the small nations of China (56 nationalities live in the country).

The successful hosting of the Winter Olympic Games in Beijing in 2022 stimulated the development of winter tourism programs. This rather expensive holiday is now becoming increasingly popular among Chinese tourists. We also emphasise that the presence in the Republic of Belarus of a modern base for ski tourism in the city of Logoisk (Belarusian Switzerland) allows us to count on the interest of Chinese tourists in this matter too.

In early January 2023, the Chinese authorities streamlined COVID-19 prevention and control measures, contributing to a smooth and orderly cross-border movement of Chinese and foreign citizens. The outbound tourism market in China, which had been practically non-functional for the past three years, began to recover rapidly, especially during the holidays, during the Chinese Spring Festival, which again opened up opportunities to attract Chinese tourists to the Belarusian tourism market.

PROSPECTS FOR EXPORT OF TOURIST SERVICES OF BELARUS FOR CHINA

In recent years the tourism industry of the Republic of Belarus has experienced the same difficulties as the tourism market in the People's Republic of China. As for organised tourism, in the pre-pandemic period (2017-2019), the number of foreign tourists and excursionists who visited the Republic of Belarus has steadily increased: 282.7 thousand people in 2017, 365.5 thousand people in 2018 and 405.5 thousand people in 2019. With the onset of the COVID-19 pandemic, the flow of foreign tourists is significantly reduced: 81.0 thousand people in 2020 and 71.4 thousand people in 2021. According to the National Statistical Committee of the Republic of Belarus, the number of organisations engaged in tourism activities in the republic is also decreasing: in 2019, there were 1544 of them (315 organisations involved in tour operator activities, 833 organisations engaged in travel agency activities and 396 organisations involved in tour operator and travel agency activities), while in 2021, 1315 (292; 776 and 247 organisations, respectively) (National Statistical Committee of the Republic of Belarus, 2022).

At the same time, in 2020 - 2021, following the trends in the development of the world tourism market indicated by us above, in Belarus, there is a reorientation of tourists-citizens of the republic to the domestic market. Hence, in 2021, it has been noticed:

- The cost of tours paid by tourists and visitors for domestic tourism amounted to 54.1 million Belarusian rubles (in 2020 - 21.7 million rubles);
- the number of organised tourists and visitors - citizens of the Republic of Belarus, sent on tours within the territory of the country amounted to 1,187.9 thousand people (growth rate by 2020 - 207.9%);
- the number of persons accommodated in hotels and similar accommodation facilities - citizens of the Republic of Belarus, amounted to 1,072.6 thousand people (growth rate by 2020 - 142.9%);
- the number of persons accommodated in sanatoriums, health resorts, and other specialised accommodation facilities - citizens of the Republic of Belarus, amounted to 749.6 thousand people (growth rate by 2020 - 135.2%);
- the number of tourists served in agricultural-eco-estates, citizens of the Republic of Belarus, amounted to 548.8 thousand people (the growth rate by 2020 is 130.0%);
- attendance of special protected natural areas increased by 1.5 times;
- the number of events held for gastronomic tourism increased by 1.6 times (Voronovich, 2022).

The measures taken by the Chinese authorities in early January 2023 to ensure the smooth and orderly cross-border movement of Chinese citizens open up additional opportunities for Belarusian tourism organisations. Successful work with the Chinese tourism market can be accomplished through a range of mechanisms for increasing the export of tourism services to China. Using the example of Belarus, let us list the main directions for promoting tourism services.

Agricultural eco-tourism is one of the most popular types of tourism in the Republic of Belarus. Moreover, this type of tourism has recently become, to some degree, a brand of the Republic of Belarus (repeatedly awarded the prestigious international performance "National Geographic Traveller Awards"). In 2021, half a million people visited Agricultural eco-farms, of which 15,000 were foreigners. More than three thousand agricultural-eco-tourism entities were registered in January 2022 in Belarus.

On October 5, 2022, President of Belarus Alexander Lukashenko signed Decree No. 351, "On the development of agricultural eco-tourism". The document aims to improve the regulation of activities in agricultural Eco-tourism, improve the quality of services, and eliminate the possibility of running a hotel or restaurant business under the guise of agricultural eco-tourism and protecting the rights of citizens living in their neighbourhood. The decree clarified the requirements for agricultural-eco-tourism objects. In particular, this concerns the number of living rooms for agricultural eco-tourists, where there should be at most ten of them. There is also a specification on the conduct of personal subsidiary plots and the number of services provided - at least two.

The list of services is supplemented by holding master classes aimed at familiarising visitors with the crafts and national traditions of the region. The responsibility of the owners of agricultural estates for violation (including by visitors) of public order or the peace of citizens, non-compliance with legislation in the field of sanitary and epidemiological welfare of the population, and environmental and fire safety requirements has been established. Restrictions have been introduced on holding presentations, anniversaries, banquets, and other events in neighbouring residential buildings. The need to obtain permission from the district executive committees to conduct activities in the field of agricultural eco-tourism has been established. Operating farmsteads must obtain such consent before July 1, 2023.

Recreational tourism. The development of recreational (health-improving) tourism ensured the recovery growth of all the leading indicators regarding the activity of the system of sanatorium-and-spa treatment and health improvement. According to operational data, in the first half of 2022, compared to the same period in 2021, the average occupancy level of the country's health resorts was about 75%. The number of foreign citizens provided with Belarusian medical and health services increased by 22.3% and amounted 63.1 thousand people.

Educational tourism - more than 20 thousand foreign citizens from 107 countries study in the educational institutions in Belarus, including the necessary base to provide educational services to Chinese citizens.

Sports tourismn - before the pandemic, the number of major international sports events held in Belarus grew, with Chinese citizens becoming enthusiastic fans and active participants in sports events.

Ecological tourism includes excursions on swamp ledges and swamps; photo hunting; trailing traces of wild animals and looking them; ornithological tours; diving; water trips on rafts and kayaking; rental of a floating cottage and a pontoon boat. Several directions for the development of ecological tourism are unique and accessible only in the territory of Belarus. As part of environmental tourism, four national parks (Belovezhskaya Pushcha, Braslav Lakes, Narochinsky, Pripyatsky) and the Berezinsky Reserve in the first half of 2022 were visited by 300 thousands of tourists and visitors.

Event tourism is a promising and dynamically developing tourism in the Republic of Belarus. It is becoming more and more popular for foreign tourists, including tourists from China. The number of exhibitions, fairs, festivals, concerts, sports, and cultural events in Belarus is increasing yearly. Event tourism activities stimulate the revival of local cultural traditions, customs, and folk-art development.

Autotourism - to develop camping and caravanning, there are 40 parking lots, and international rallies are held, which can be exciting and informative for tourists from China.

Culinary tourism - in Belarus, there are about two hundred specialised catering facilities based on the traditions of the Belarusian national cuisine, fifty of which are located in Minsk. In 2021, compared to the previous year, the number of gastronomic events in the country increased from 139 to 224 (more than 1.5 times).

Hunting tourism - hunting is allowed for fifty species of wild animals, including 21 species of mammals and 29 species of birds, some of which are unique.

Industrial tourism - the development of industrial tourism serves as an additional advertisement for domestic products, and many Belarusian enterprises are receiving and serving excursion groups.

Military historical tourism - The Republic of Belarus is rich in military history: the Brest Fortress and the Stalin Line, the battlefields of the First World War, monuments in honour of the battles with the French and Swedes, and memorials about the battles of the distant Middle Ages. Medieval festivals are also held in Belarus ("The Age of Chivalry", "Our Grunwald", "Knights of the Four Epochs", "Gonaru Prodkaў", "The Way of the Vikings", "Mensk Starazhytny"). Due to common ideological approaches, tourists from China are susceptible to the military-historical heritage of the territory of Belarus; they actively study Belarusian history as part of the history of the Soviet Union.

Religious tourism - the traditions of East and West are intertwined in Belarus, and each religion has left its spiritual and material mark on the Belarusian land. There are 26 religious denominations and directions registered in the country. The total number of religious buildings operating in Belarus is over 2.6 thousand.

Medical tourism - Belarus has the necessary base for providing medical services to Chinese patients. In the country, the export of medical services is realised due to the activity of state medical institutions, scientific and practical centres, private medical centres, and individual entrepreneurs. The number of foreign citizens provided with medical services is constantly increasing. About 160 thousand foreign patients visit Belarus annually, and conditions have been created to attract patients from China for treatment. It also indicates a high level of the national healthcare system that can compete in the global services medical market.

As part of medical tourism, potentially attractive destinations for Chinese tourists can be:

- **transplantation of organs and tissues** (regarding the number of organ transplants, the Republic of Belarus is in the first place and is ahead of all CIS countries. Thus, 18 operations per 1 million population are carried out in the country, while in Russia and Ukraine, there are 9.2 and 2.2, respectively. High transplantation activity in the republic also persists in the transplantation of hematopoietic stem cells and bone marrow. Foreign patients to the Republic of Belarus, including Chinese, come from all over the world for organ and tissue transplantation. Every year surgeons perform hundreds of transplants on patients and tissue and human stem cell transplants);

- **dentistry** (foreign patients, including Chinese, are provided with all types of services: therapeutic, surgical, and orthodontic care in both public and private medical clinics);

- **oncology** (in the Republic of Belarus, new treatment methods have been introduced, such as thermo-chemo-therapy for advanced lung cancer, photodynamic therapy for patients with cervical dysplasia, and transplantation of hematopoietic stem cells. In the Republican Scientific and Practical Center for Pediatric Oncology, Hematology and Immunology, seven percent of patients are foreign, including Chinese);

- **traumatology and orthopaedics** (some of the interventions performed by Belarusian specialists are unique. Since 2009, in addition to arthroplasty of the knee and hip joints, endoprosthesis of the shoulder and ankle joints have been performed; arthroscopic interventions on large joints, mainly on the knee, operations for transverse flat feet in women, hand surgery and pediatric orthopaedics);

- **otorhinolaryngology** (restoration of the lumen of the larynx and trachea in children under one-year-old, microsurgical operations to correct the nasal septum, cochlear implantation);

- **gynaecology** (in the World Maternity Ranking, the Republic of Belarus ranks 26th among all world countries, ahead of the USA, Japan, and Israel. The ranking takes into account several parameters of national health development, including infant and maternal mortality rates, which are among the lowest in the world);

- **sanatorium-resort treatment and rehabilitation.** The Republic of Belarus has unique opportunities for body restoration. There are 324 certified sanatorium-resort and health-improving organisations for 67.4 thousand beds, including 113 sanatorium-resort organisations for 28.9 thousand beds and 211 health-improving organisations for 38.5 thousand places.
- **attracting patients from China with unique services – speleotherapy.** The only spelaria in the CIS operates in the Republic of Belarus (one day in a speleotherapy hospital costs a foreign patient from 45 to 80 US dollars).

As a result, in recent years, the above directions have been implemented and continue to be implemented in the following projects.

Firstly, the expansion of "China-friendly" system in the country. For example, the Minsk Hotel was the first to receive the China Friendly certificate in Minsk. The Crowne Plaza Hotel has received an analogue of such a certificate - Welcome Chinese certification - an exclusive standard of hospitality for Chinese travellers, issued by the Chinese Tourism Academy (CTA), a committee of the National Tourism Administration of China (CNTA) and the international holding group Select Holding Ltd. The eight other hotels in Minsk have met the program's requirements.

In addition, an important task is to expand the software and hardware infrastructure facilities, in which it is possible to execute transactions using bank payment cards of the international payment system, China Union Pay.

Secondly, versions of national sites are created. For example, the portals belarus.travel and vetliva.by in the Chinese language have been created in Belarus to popularise travel opportunities for the Chinese population.

Thirdly, several travel companies in the Minsk region have developed tourist routes from China. The courses include visits to the following objects of the Minsk region: the memorial complex "Khatyn", the memorial complex "Mound of Glory", the historical and cultural object "Stalin's Line", the centre of ecological tourism "Stankovo", the architectural and cultural complex in the city of Nesvizh, the ethnographic complex "Dudutki", ethnocultural complex "Nanosy-Novosele", interactive history park "Sula", and also farmsteads.

Fourthly, in the frame of the urban spatial orientation system for pedestrians in Minsk, works have been done to translate the names of complexes, streets, and main sights of the city into the Chinese language for further use, including via the navigation system. Visual orientation systems, information boards, monitors, and announcements were translated into Chinese at Minsk National Airport, and the airport website was supplemented with a version in the Chinese language. Information structures in the tourist areas "Upper City", "Nemiga", "Trinity Suburb", and "Station Square" are equipped with elements of tourist navigation in Chinese. The "Minsk City Tour" excursion project audio guide is also broadcast in Chinese.

Similar work is also underway in the regions. Thus, in the cities of Vitebsk, Grodno, and Bobruisk, advertising and information stands on route orientation have been installed, which have been translated into the Chinese language.

For the main tourist sites of Belarus, information in Chinese has been provided with the assistance of the EU Project "Support for Sustainable Tourism Development in Belarus".

Audio guides in Chinese are also used at the permanent expositions of the largest museums in Belarus - the National Art Museum, the National Historical and Cultural Museum-Reserve "Nesvizh", the Museum "Castle Complex Mir", the Belarusian State Museum of the History of the Great Patriotic War, the State Literary Museum of Yanka Kupala, Museum of the Defense of the Brest Fortress, and others.

Fifth, concerning the objects of historical and cultural heritage and museums, constant work is held to open new access points to the WI-FI network using QR codes with information in the Chinese language.

Finally, presentations of the tourism opportunities of the Republic of Belarus in China are held, including within the framework of the exhibitions: COTTM (Beijing), ITB China (Shanghai), and International Exhibition for trade in services (Beijing), as well as study tours for representatives of travel companies, specialised media, and educational institutions of Belarus and China with tourism orientation programs.

In the future, representatives of the Chinese media will create programs about the tourism potential of Belarus and broadcast these materials on Chinese television and in print media. On average, each journalist prepares 5-9 publications, which, given the size of the Chinese audience, is a fail-safe method for promoting Belarusian tourism services.

Summing up some of the above, we especially emphasise that the effectiveness of tourism activities largely depends on state regulation. The experience of different countries shows that the success of tourism development directly depends on how this industry is perceived at the state level and how much it enjoys state support.

In the Republic of Belarus, the state supports this type of activity. On April 17, 2019, the composition of the Interdepartmental Expert and Coordinating Council for Tourism working groups under the Council of Ministers of the Republic of Belarus was approved. Seventeen working groups for developing different areas of activity and types of tourism are assigned to specific executive bodies.

The head of the working group approves roadmaps for developing types of tourism based on the incoming proposals of its members, including the analysis of problematic issues. Working groups interact with leading Belarusian tour operators and public associations in the tourism field, cover their media activities and make proposals for draft regulatory documents. Specific positions and recommendations developed as a result of the activities of the working groups form the basis of innovations in legislation.

By analogy with the republican Council of Ministers of the Republic of Belarus, local coordinating councils for tourism have been created at the level of regions and districts, to develop a joint position in specific types of tourism, including the issues of reducing the resort fee and other local taxes, rental payments, etc.

The Belarusian-Chinese investment forum on tourism, held at the end of October 2022, was a clear expression of the close attention and support of the Belarusian state to the country's tourism industry. The event was organised by the Belarusian Embassy in China together with the Ministry of Sports and Tourism and the Ministry of Economy of Belarus with the active support of business circles, business associations of China, and the Hong Kong Chinese Special Administrative Region. It aims to present the tourism potential of the Republic of Belarus, to attract Chinese investment in the cultural and tourism sectors and to identify new areas of cooperation in the tourism sector, including medical, health, environmental, events and business tourism.

The forum emphasised that, firstly, in the pre-pandemic period, Belarus was at the top list of tourist destinations in Eastern Europe for Chinese tourists. Secondly, the reconstruction of existing and construction of new tourism infrastructure facilities in Belarus, including by attracting Chinese investments, will significantly expand the possibilities of receiving tourists from China in the post-pandemic period.

CONCLUSION

At present, it is essential to resist the temptation to interrupt active work on forming new strategies for tourism recovery after the pandemic and the development of its main directions.

For Belarus, achieving significant results in increasing the export of tourist services to the East, including China, involves solving the following essential tasks:

- realizing a large-scale and continuous advertising and outreach campaign to raise awareness of foreign audiences about tourism products and recognition of the country as an attractive tourist destination;
- development and implementation of an incentive system for tour operators from China to attract foreign tourists;
- carrying out activities to adapt the service in hotels, airports, train stations, restaurants, museums, etc., to the individual characteristics and specific needs of tourists from China (projects such as China Friendly);
- improving the tax-free system to increase the interest of citizens from China in visiting Belarus.

It is also essential to build a country image - a purposefully formed image of the territory, which has particular value characteristics and is designed to influence consumers to develop inbound tourism.

As we see it, the Republic of Belarus is consistently moving in solving the above tasks, which can serve as a specific guideline for many countries, particularly those of the post-Soviet space.

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THE IMPACT OF ENVIRONMENTAL REGULATIONS ON FOREIGN DIRECT INVESTMENT: A LITERATURE REVIEW

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ABSTRACT

Foreign direct investment (FDI) is essential for the global economy, especially for developing and emerging countries, which are dependent on these financial resources. Governments compete to attract foreign investors by offering tax incentives, strong regulatory frameworks and flexible environmental regulations. While some countries relax environmental regulations to attract FDI, others implement stricter measures to reduce greenhouse gas emissions and protect the environment. The aim of this article is to present a thorough and up-to-date review of the literature that has focused on the analysis of the correlation between FDI and environmental regulations. The bibliometric analysis focuses on the main concepts that elucidate the relationship between environmental regulations and SDI, highlighting current trends and theories. This research is crucial for understanding the influence of environmental regulation on FDI and its effects on economic development and environmental conservation worldwide. According to the literature, the pollution haven theory has received substantial support, indicating that nations with permissive regulations attract more foreign direct investment due to lower business costs. The literature indicates strong support for the pollution haven theory, suggesting that countries with relaxed regulations attract more FDI due to lower business costs. The results of this study could help inform the development of environmental policies and strategies to attract foreign investment and address climate change and environmental degradation. At the same time, this research provides valuable information for researchers as it highlights the main research niches that need to be addressed and analysed.

Keywords: foreign direct investment, determinants, environmental regulations, pollution haven theory, race to the top theory

Investiţiile străine directe (ISD) sunt esenţiale pentru economia globală, în special pentru ţările în curs de dezvoltare sau emergente, care sunt dependente de aceste resurse financiare. Guvernele concurează pentru a atrage investitorii străini prin oferirea de stimulente fiscale, cadre de reglementare puternice şi reglementări flexibile în materie de mediu. În timp ce unele ţări relaxează reglementările de mediu pentru a atrage ISD, altele implementează măsuri mai stricte pentru a reduce emisiile de gaze cu efect de seră şi pentru a proteja mediul. Scopul acestui articol este de a prezenta o analiză amănunţită şi actualizată a literaturii de specialitate care a avut drept topic analiza corelaţiei dintre ISD şi reglementările privind protecţia mediului. Analiza bibliometrică se concentrează asupra principalelor concepte care elucidează relaţia dintre reglementările de mediu şi ISD, evidenţiind tendinţele şi teoriile actuale. Această cercetare este crucială pentru înţelegerea influenţei reglementărilor de mediu asupra ISD şi a efectelor acesteia asupra dezvoltării economice şi conservării mediului la nivel mondial. Conform literaturii de specialitate, teoria paradisului de poluare a primit un sprijin substanţial, indicând faptul că naţiunile cu reglementări permisive atrag mai multe investiţii străine directe datorită costurilor reduse ale afacerilor. Literatura de specialitate indică un sprijin puternic pentru teoria paradisului de poluare, care sugerează că ţările cu reglementări relaxate atrag mai multe investiţii străine directe datorită costurilor mai mici pentru întreprinderi. Rezultatele acestui studiu ar putea ajuta la elaborarea de politici şi strategii de mediu pentru a atrage investiţii străine şi pentru a aborda schimbările climatice şi degradarea mediului. Totodată această cercetare oferă informaţii valoroase pentru cercetători, datorită faptului că evidenţiază principalel nişe de cercetare care necesită a fi abordate şi analizate.

Cuvinte cheie: investiții străine directe, factori determinanți, reglementări de mediu, teoria paradisului poluării, teoria cursei în sus

Прямые иностранные инвестиции (ПИИ) играют важную роль в мировой экономике, особенно для развивающихся стран и стран с развивающимися рынками, которые зависят от таких финансовых ресурсов. Правительства конкурируют за привлечение иностранных инвесторов, предлагая налоговые льготы, сильную нормативную базу и гибкие экологические нормы. В то время как некоторые страны смягчают экологические нормы для привлечения ПИИ, другие принимают более строгие меры для сокращения выбросов парниковых газов и защиты окружающей среды. Цель данного исследования - представить подробный и актуальный обзор литературы, посвященный анализу взаимосвязи между ПИИ и экологическим регулированием. Библиометрический анализ фокусируется на основных концепциях, проясняющих взаимосвязь между экологическим регулированием и ПИИ, выделяя современные тенденции и теории. Данное исследование крайне важно для понимания влияния экологического регулирования на ПИИ и его последствий для экономического развития и сохранения окружающей среды во всем мире. Согласно литературе, теория «убежища от загрязнения» получила значительную

поддержку, указывая на то, что страны с разрешительным регулированием привлекают больше прямых иностранных инвестиций из-за более низких затрат на ведение бизнеса. В литературе отмечается значительная поддержка теории «убежища от загрязнения», согласно которой страны со смягченным регулированием привлекают больше ПИИ из-за более низких затрат на ведение бизнеса. Результаты данного исследования могут помочь в разработке экологической политики и стратегий для привлечения иностранных инвестиций и решения проблем изменения климата и деградации окружающей среды. В то же время, данное исследование предоставляет ценную информацию для исследователей, поскольку оно выделяет основные исследовательские ниши, которые необходимо рассмотреть и проанализировать.

Ключевые слова: *прямые иностранные инвестиции, детерминанты, экологические нормы, теория оазиса загрязнения, теория гонки за вершиной*

INTRODUCTION

In light of the present scenario where environmental concerns and climate change are growing more urgent, comprehending the interconnection between environmental policy and the attraction of foreign direct investment is imperative. According to the United Nations Environment Programme (UNEP), "environmental regulations are policies and legal instruments established by governments to protect the environment, human health and natural resources; these regulations aim to prevent or minimise pollution, waste and other harmful effects on the environment caused by human activities." Environmental regulations hold a crucial position in ensuring the sustainable growth of a country's economy, as well as in creating a favorable business environment. Consequently, national governments are encouraging investment in significant ventures of polluting industries, with the objective of curtailing carbon emissions. A growing number of studies highlight the relationship between these issues (Wang & Li, 2021), forming a growing debate on the effectiveness and consequences of different approaches to environmental regulation and attracting foreign direct investment (ISD).

Certain nations have implemented rigorous regulations to combat greenhouse gas emissions and safeguard the environment. Conversely, some have adopted a flexible stance to allure foreign direct investment. Bearing this in mind, the scholars probed several hypotheses that aimed to elucidate the correlation between the level of environmental regulations in effect and the magnitude of international direct investment in those nations. In short, the debate on environmental regulation and ISD attraction has broadened and now encompasses several theories. In the following we present the most popular theories in the literature:

1. *Polllution* Haven Theory: This theory argues that companies tend to shift their production and investment to countries with more relaxed environmental regulations in order to reduce costs and avoid the restrictions imposed by stringent regulations (Nasir, Huynh & Tram, 2019). This theory stresses the need to address the problem through an international framework, thereby ensuring that tax havens do not undermine global environmental protection efforts.

2. *True Cost* Theory: states that strict environmental regulations will lead to more sustainable and efficient production in the long run. Businesses that comply with these regulations will be able to reduce their long-term costs and protect their reputation with stakeholders (Caetano, Marques, Afonso & Vieira, 2022). Therefore, this theory stresses the importance of transparency and communication within companies to implement and monitor the effects of these regulations.

3. According to the *Convergence Theory*, countries that experience economic growth will eventually encounter increasing pressure from various stakeholders to implement more rigorous environmental regulations. This would ultimately lead to all nations adopting comparable environmental regulations, as observed by Nguyen (2022). Therefore, promoting favorable regulatory convergence requires nations to work together, sharing their best practices and collaborating on environmental policies.

4. *Race to the top* Theory: believes that countries that introduce increasingly stringent environmental regulations will create a competitive advantage due to sustainable and durable products and services, which will attract ISD and contribute to sustainable development (Du, Cheng & Yao, 2021). Given this theory, promoting proactive policies to boost innovation and competitiveness is particularly important.

5. *Transaction Cost*s Theory: suggests that strict regulations will contribute to higher transaction costs for companies investing in foreign countries. This is because the implementation of strict regulations requires additional resources to comply, thus investments become costly and risky (Duzbaievna Sharapiyeva, Antoni & Yessenzhigitova, 2019). This theory highlights the need to balance transaction costs with the benefits of strict environmental regulations, while promoting collaboration between the public and private sectors to develop innovative and efficient solutions to manage these costs.

These theories offer varying viewpoints regarding the correlation between environmental regulations and foreign direct investment (ISD). Notably, the pollution haven theory and the race to the top theory present conflicting arguments on how regulations impact ISD attraction. As a result, the literature in this area is extensive and controversial. Although there are numerous studies addressing different aspects of this topic, only a few have applied a bibliometric approach. Rezza (2015) analyzed a set of empirical studies exploring the pollution haven theory, providing explanations for the differences in their results.

This paper aims to make new contributions through a comparative analysis of existing theories and relevant studies. By carefully reviewing the literature and applying rigorous bibliometric methods, the paper identifies current trends and possible future research directions in the field. In addition, the results will provide a solid basis for developing recommendations on environmental policy and strategies to attract foreign direct investment.

LITERATURE REVIEW

Determinants of ISD

Currently, there is an extensive literature on ISD in a country that presents diverse and multifactor approaches to this activity (Osei & Kim, 2020). These involve both macro- and micro-level environmental characteristics (Dinh, Vo, The Vo & Nguyen 2019). Even though there is no general agreement on the main determinants for ISD, authors mention certain determinants very often. The most common one is infrastructure. This determinant considers that good infrastructure facilitates communication, transportation and access to natural resources, which can make a country attractive for ISD (Majeed, Jiang, Mahmood, Khan & Olah, 2021). Another determinant, this time at the micro level, often mentioned in the literature, is the cost of production. Thus, low production costs, such as cheap labour or access to raw materials, can contribute to a country's attractiveness for ISD (Saidi, Mani, Mefteh, Shahbaz & Akhtar, 2020). Another accepted determinant in the literature is the cost of production (Khan, Chenggang, Hussain & Kui, 2021). This determinant can be explained by the fact that low production costs, such as raw materials and cheap labor, make a country more attractive for ISD. The next determinant looks at economic and political stability. Countries that enjoy good economic and political stability significantly reduce investment risks, thus making the country in question more attractive for ISD (Agyapong & Bedjabeng, 2020). The next important factor is tax regulation. Thus, business-friendly tax regulations can make a country more attractive for ISD (Jushi, Hysa, Cela, Panait & Voica, 2021).

Yet, a significant area of research focuses on the effects of various geographic settings and geographies on the connection between environmental regulation and foreign direct investment. The degree to which environmental rules effect foreign direct investment may vary by region according to regulatory frameworks, cultural and social considerations, and economic conditions. The relationship between environmental regulation and foreign direct investment may also be influenced by cultural and social issues, such as views toward the environment. The link between these variables may also be impacted by changes in economic conditions, such as fluctuations in the availability of natural resources or the existence of rival industries. To guide investment strategies and inform policy decisions, a deeper understanding of how regional variations affect the link between environmental regulation and foreign direct investment is required.

Several studies have looked into how cultural and socioeconomic factors affect how environmental regulations and foreign direct investment are related. It has been suggested that social and cultural aspects may have an impact on how foreign investment is impacted by environmental legislation. Companies from cultures where environmental protection is valued more than economic growth, for instance, might favor investing in areas with strict environmental regulations, whereas those from cultures where economic growth is valued more highly might favor investing in areas with laxer regulations. For example, Park and Luo (2001) argue that guanxi, or personal connections and networks, play a significant role in organizational dynamics in Chinese firms. This suggests that companies from different cultural contexts may approach FDI differently depending on their networks and relationships.

Furthermore, public opinion and political views toward environmental regulation can be influenced by cultural and socioeconomic variables, which can therefore have an impact on the regulatory environment for foreign investment. Strong environmental movements may increase the likelihood that nations implement stringent environmental laws, which may either encourage or discourage foreign direct investment. For exemple, Slangen and Van Tulder (2009) suggest that cultural distance, political risk, and governance quality all contribute to external uncertainty variables that can affect FDI decisions. Furthermore, Gereffi, Humphrey, and Sturgeon (2005) highlight the governance of global value chains as a key factor in understanding FDI decisions and outcomes. Cultural and social factors may play a role in shaping the governance structures and power dynamics within these value chains. Lucke and Eichler (2016) investigated the impact of cultural and linguistic distances on the relationship between environmental regulations and foreign direct investment in the international location of 65 countries. Their study found that cultural and linguistic differences can moderate the relationship between environmental regulation and foreign direct investment, suggesting that cultural and social factors should also be considered when examining the impact of environmental regulations on foreign investment. Finally, Chen and Miller (2010) propose an ambicultural approach to management that integrates Western and Eastern perspectives. This could be relevant to FDI decisions and outcomes in cross-cultural contexts, where cultural and social factors may influence the way that environmental regulation is perceived and navigated.

Moreover, it is crucial to remember that other aspects of the relationship between environmental regulation and foreign direct investment, such as the accessibility of natural resources, technical advancements, and economic conditions, can also have an impact. While examining this link, it is important to take into account these elements since they have the potential to either lessen or worsen the effects of environmental regulation on foreign investment.

In general, understanding how cultural, socioeconomic, and other elements may affect environmental regulation and foreign direct investment is essential for policymakers and investors.

Next, we conducted a meta-analysis in Table 1 of the most important studies in the literature that consider the determinants of ISD:

Table 1:

Meta-analysis of the most relevant papers on ISD factors

Authors and year	Study name	Results	General remarks
Hossain, M. S., Kamal, M. S., Halim, M. R., & Zayed, N. M. (2019).	„Inward Foreign Direct Investment and Welfare Nexus: the Impact of Foreign Direct Investment on Welfare in Developing Countries."	„The influx of foreign direct investment in developing nations can be influenced by factors such as political stability, governance, and socio-economic well-being."	„The attraction of foreign direct investment is contingent on crucial factors such as political stability and socio-economic well-being."
Yang X, & Shafiq, M.N. (2020).	„The impact of foreign direct investment, capital formation, inflation, money supply and trade openness on economic growth of Asian countries."	„The implementation of advantageous tax policies can incentivize the inflow of foreign direct investment."	„The attraction of foreign direct investment can hinge on the implementation of favorable tax regulations."
Li, K., Zu, J., Musah, M., Mensah, I. A., Kong, Y., Owusu-Akomeah, M., ... & Agyemang, J. K. (2022)	„The link between urbanization, energy consumption, foreign direct investments and CO2 emanations: An empirical evidence from the emerging seven (E7) countries."	„Foreign direct investment can be impacted by factors such as energy consumption and urbanization."	„Factors like energy consumption and urbanization can play a significant role in attracting foreign direct investment."

Authors and year	Study name	Results	General remarks
Huynh, C. M. (2021)	„Foreign direct investment and income inequality: Does institutional quality matter?."	„The standard of education can be a determining factor in attracting foreign direct investment."	„The standard of education can play a significant role in the attraction of foreign direct investment."
Xiao, D., Gao, L., Xu, L., Wang, Z., & Wei, W. (2023).	„Revisiting the Green Growth Effect of Foreign Direct Investment from the Perspective of Environmental Regulation: Evidence from China."	„The adoption and development of green technology can play a significant role in attracting foreign direct investment."	„The adoption and development of green technology can play a significant role in attracting foreign direct investment."
Balsalobre-Lorente, D., Driha, O. M., Shahbaz, M., & Sinha, A. (2020).	„The effects of tourism and globalization over environmental degradation in developed countries."	„Tourism can be a factor in attracting foreign direct investment."	„Tourism is a factor that can significantly impact the attraction of foreign direct investment."
Contractor, F. J., Dangol, R., Nuruzzaman, N., & Raghunath, S. (2020).	„How do country regulations and business environment impact foreign direct investment (ISD) inflows?."	„The standard of regulations in a country can impact the attraction of foreign direct investment in developing nations."	„Attracting foreign direct investment to developing countries can be influenced by the quality of regulations in place."
Shuyan, L., & Fabuš, M.(2019)	„Study on the spatial distribution of China's Outward Foreign Direct Investment in EU and its influencing factors."	„Transport infrastructure can be a crucial factor in attracting foreign direct investment."	„The availability of transport infrastructure can play a crucial role in attracting foreign direct investment."
Ahmad, M., Jiang, P., Majeed, A., & Raza, M. Y. (2020)	„Does financial development and foreign direct investment improve environmental quality? Evidence from belt and road countries."	„Foreign direct investment can be attracted by good infrastructure and financial development."	„Infrastructure and finance have a significant impact on attracting foreign direct investment."

Source: developed by the author

Based on the meta-analysis presented in the table, we can deduce that numerous factors may have an impact on foreign direct investment. The most significant of these factors are political stability and socio-economic welfare, favorable tax regulations, energy consumption and urbanization, quality of education, green technology, and tourism. Taking these aspects into account, the following hypothesis can be formulated:

H1 Favourable tax regulations, green technology and quality of education are key factors in attracting ISD.

ISD and environmental regulation: theoretical approaches

It is accepted in the literature that foreign direct investment flows are a particularly important factor for economic development, job creation and technology transfer. However, ISD flows are also associated with negative environmental impacts such as pollution, deforestation and carbon emissions. This is why various environmental regulations have been implemented to reduce these negative aspects. Taking these issues into account, there are various theoretical approaches to the relationship between ISD flows and environmental regulations.

One of the important theories is the pollution paradise theory. It suggests that more permissive environmental regulations could attract foreign investment, especially in polluting industries. However, some studies contradict this theory, indicating that a more sustainable and responsible approach to the environment can provide a stable and predictable business environment and a positive reputation, which is beneficial in attracting investor interest [1].

[1] The global apparel value chain, trade and the crisis: Challenges and opportunities for developing countries.

Another theoretical approach is the true cost approach. This offers a similar argument, arguing that strict environmental regulations can bring long-term benefits by promoting sustainable and efficient production and generating a competitive advantage. Recent studies cited in the literature review support this view, demonstrating that strict regulations can improve the financial performance of companies and stimulate innovation. Zeng et al. (2020) found that strict carbon regulations can lead to beneficial innovation outcomes.

On the other hand, the Convergence theory analyzes the relationship between environmental regulation and economic growth, positing that developed countries are more capable of addressing environmental concerns. Nevertheless, Awan (2013) investigated the connection between economic development and the environment and discovered that „while developed countries may be more proficient in managing environmental issues, they did not observe a distinct convergence in the extent of environmental regulation." The race to the top theory argues that countries that introduce increasingly stringent environmental regulations will create a competitive advantage over time. In the literature we find a study by Lee et al. (2015) that studied the impact of carbon regulations on the financial performance of companies and showed that these regulations can indeed attract ISD. Likewise, another study by Ahmadova et al. (2022) showed that strict environmental regulations can be a competitive advantage for companies and can lead to sustainable development in the long run.

The last theory examined in this paper is transaction costs and considers that strict regulations will contribute to higher transaction costs for companies investing in foreign countries. In the literature we found only one study that shows that strict regulations increase transaction costs and reduce ISD (Dong et al., 2021).

H2: The race up theory has the most support in the literature.

This hypothesis can also be tested by comparing the frequency of occurrence of different theories in the literature, thus identifying the theory that is most often addressed and has the greatest impact in the context of ISD and environmental regulation, which we will do in the practical part of this paper.

METHODOLOGY OF THE WORK

The research methodology used in this study involves collecting and analyzing data using bibliometric analysis tools. Bibliometric analysis is a quantitative method that examines the patterns and relationships within the literature of a particular field. It is based on the use of statistical techniques to analyze and map the citation patterns and co-occurrence of terms in a collection of scientific articles.

The data for this study was collected from the Web of Science (WoS) platform. WoS is a comprehensive database of scholarly literature in various fields, including economics, business, and environmental science. The study focused on publications from 1987 to 2022 that addressed the relationship between foreign direct investment flows and environmental regulation.

The inclusion criteria for selecting articles from the WoS platform included articles, books, conference papers, editorials, notes, and reviews related to the research topic. This ensured that the study included a broad range of literature on the subject. The selected articles were then analyzed using bibliometric analysis tools such as bibliographic coupling, co-citation analysis, and co-word analysis.

Bibliographic coupling analysis is a method of identifying the relationships between articles based on their shared references. Co-citation analysis is a technique that examines the frequency with which two articles are cited together in other articles. Co-word analysis, on the other hand, involves analyzing the frequency with which specific words or phrases occur together in the titles or abstracts of articles.

By using these bibliometric analysis tools, the study was able to identify the most cited articles, authors, and journals related to the research topic. This provided a comprehensive overview of the state of research on the topic and helped to identify potential research gaps and areas for further investigation. Five sets of keywords were used as a search engine for the bibliometric analysis, as we can see in Table 2.

Table 2:
Keywords used and number of papers collected for bibliometric analysis

Keywords	Number of works
Environmental regulation 'and ISD	185
Pollution haven Theory	54
True Cost Theory	13
Convergence Theory	26
Race to the top Theory	179

Source: authored by

For the analysis of the collected databases, we used bibliometrix software, specially designed for bibliometric studies. Using this tool, we efficiently and systematically analysed the literature, identifying trends, connections and central themes of the literature analysed.

In summary, the research methodology used in this study involved collecting data from the WoS platform and analyzing it using bibliometric analysis tools such as bibliographic coupling, co-citation analysis, and co-word analysis. This methodology allowed for a comprehensive analysis of the literature on the relationship between foreign direct investment flows and environmental regulation.

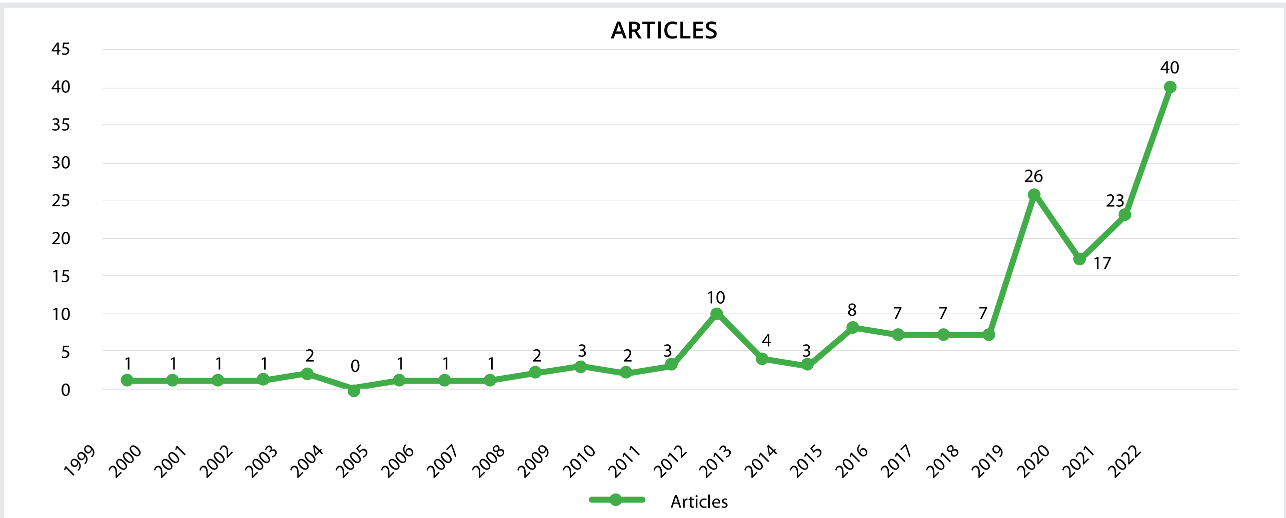
DISCUSSIONS AND RESULTS

Next, we will conduct bibliometric analysis for the databases obtained from the information collection process. It is important to note that the number of articles in the literature related to true cost and convergence theory is small, and the results of the analysis were found to be irrelevant. This suggests that these theories are not major topics of interest in the current literature and therefore cannot adequately explain the relationship between environmental regulation and ISD. This highlights the need to explore alternative theories and approaches to better understand this complex and dynamic relationship.

a) Environmental regulations and ISD

After collecting and filtering the results, a total of 185 papers were obtained and processed in bibliometrix. First of all, we aimed to test the topicality of this theme, which is why we followed the evolution of the annual production of articles on this topic. The results can be seen in Figure 1.

Figure 1:
Annual scientific output - Media regulations and ISD

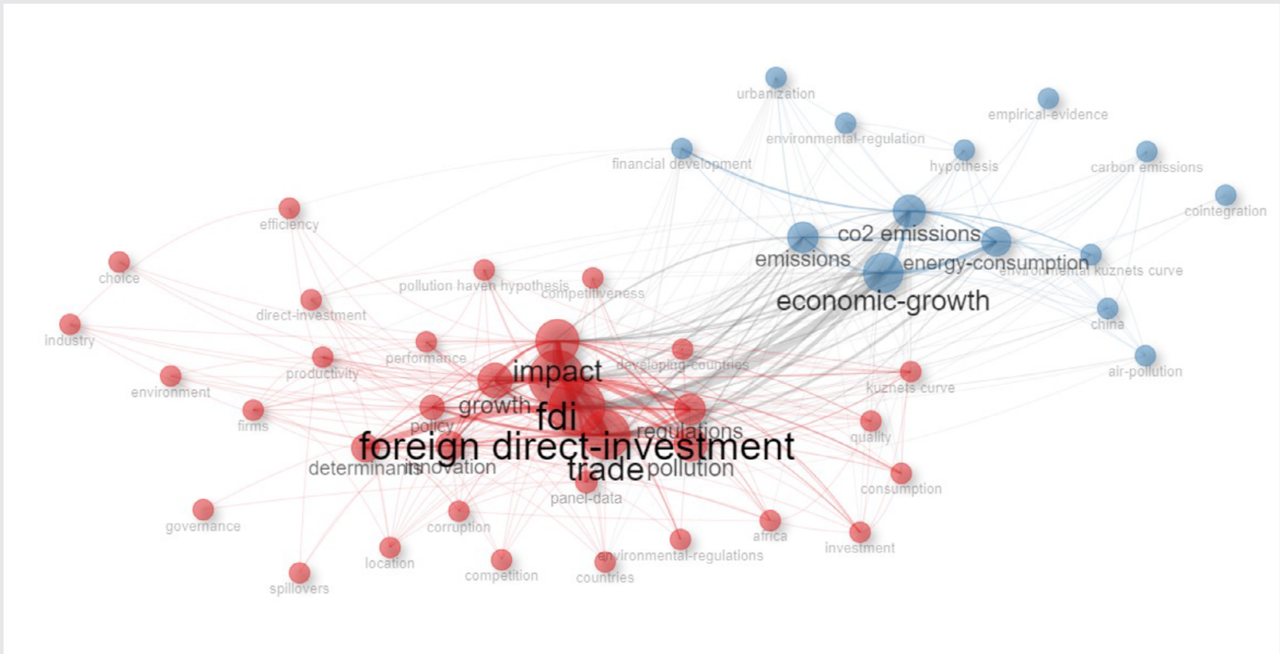


Source: author's own processing in bibliometrix

Based on Figure 1, it is evident that there has been a rise in the number of academic articles dedicated to investigating the connection between environmental regulation and inflow of foreign direct investment. This observation points towards the growing interest of scholars in this area. We believe that this trend will continue to grow in the future due to the consequences and importance of ISD flows in the sustainable development of national economies.

Figure 2:

Cluster network analysis - Environmental regulations and ISD



Source: author's own processing in bibliometrix

The analysis of the research clusters (Figure 2) found that there are two main clusters, namely one dealing with ISD and economic growth and another involving a number of related topics such as energy consumption, pollution, innovation, performance, environment, competitiveness, carbon emissions and financial development. These topics are at the heart of the articles reviewed, indicating their importance in environmental regulation and ISD research.

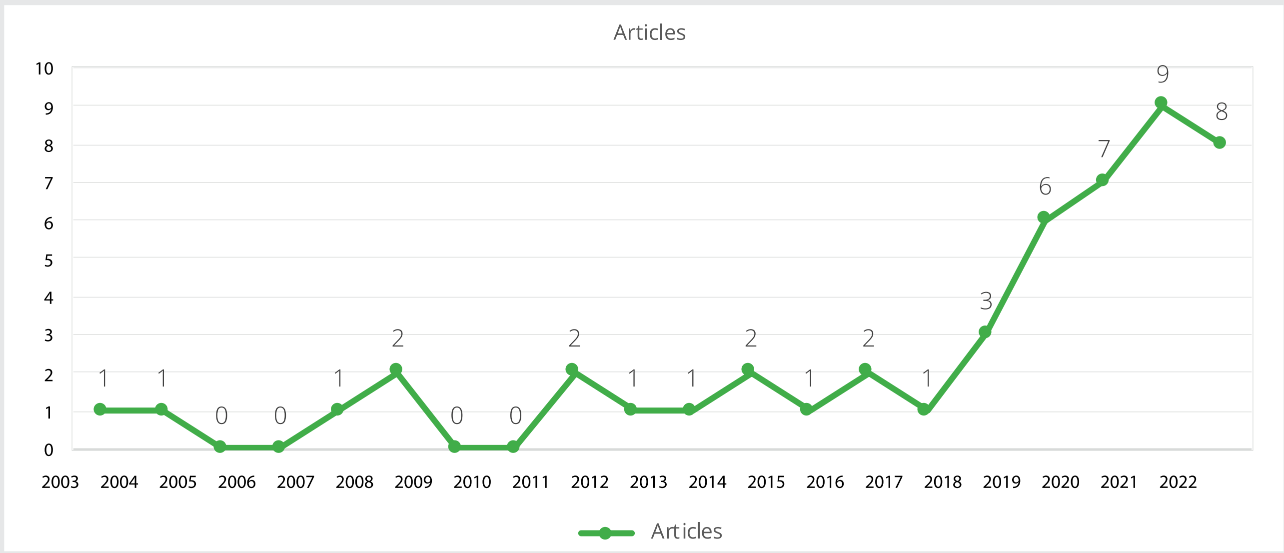
At the same time it is highlighted that the pollution haven theory is a significant topic that is part of this network. This observation implies that several authors view the relationship between environmental regulation and ISD flows through the lens of the convergence theory. Additionally, we observe that environmental regulations and ISD flows are linked to environmental issues and economic development, emphasizing their significance. As a result, we propose that scholars should focus on these themes, particularly those in cluster 2 (blue), to gain a more comprehensive understanding and enhance the connection between environmental regulations and ISD inflows. To improve and expand our understanding of the relationship between environmental regulation and ISD, researchers could also explore other variables and mechanisms that influence this relationship, such as institutional, political and cultural factors. This would allow the identification of more effective strategies tailored to different national and international contexts to balance the need for economic growth with responsibility for environmental protection and sustainable development.

b) Pollution paradise theory

Applying the same research strategies as in the previous case, we analyzed the scientific publications that have as a theme the theory of pollution paradise (see Figure 3). Thus, in order to analyse whether this theory is of interest we analysed the scientific production on this topic, as can be seen in Figure 3.

Figure 3:

Annual scientific output - Pollution paradise theory



Source: author's own processing in bibliometrix

Here again, we can see an increase in the number of scientific publications that focus on the pollution haven theory. This indicates that the topic is of interest to researchers, moreover, it is in an increasing trend, i.e. more and more researchers are interested in this theory. Following the cluster analysis on this theme we obtained Figure 4.

Figure 4:

Cluster Network Analysis - Pollution Haven Theory

Source: author's own processing in bibliometrix

In this case, the bibliometric analysis of network co-occurrence reveals a diversification of discussions on pollution haven theory, as we identified a larger number of clusters (7 clusters). The results indicate that pollution haven theory is closely related to topics such as the environment, emissions, air pollution, international trade, economic growth and environmental and societal impacts. It is also interesting to note the presence of China in this network, suggesting that this country exerts a significant impact on environmental and ISD issues, which could be the subject of further specific research.

The areas of focus related to pollution haven theory and ISD are policy, environmental regulation, and economic and environmental performance. Researchers are urged to pay important attention to these areas when considering this theory, as they can help develop a comprehensive understanding of the relationship between environmental regulation and ISD. The analysis reveals a strong link between the pollution haven theory and economic growth, indicating that environmental problems are closely related to economic development. There is a need to examine and assess the influence of environmental regulations on economic expansion and to find solutions to facilitate sustainable development and environmental conservation at the same time.

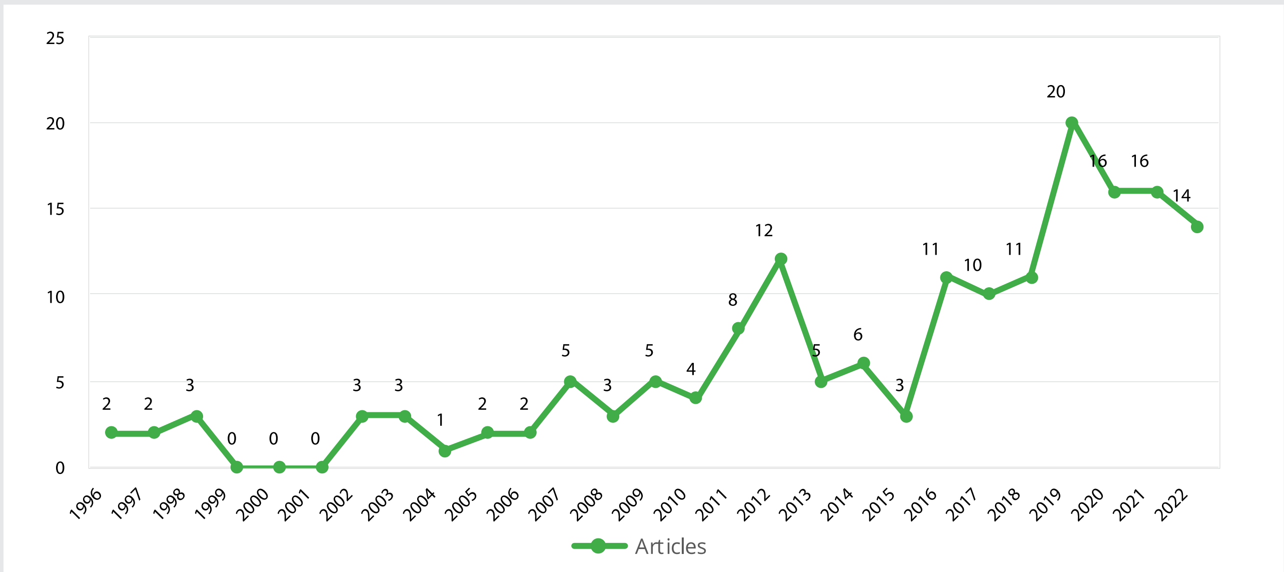
In summary, the co-occurrence network analysis conducted through bibliometrics underscores the significance of themes connected to emissions, pollution, global trade, and economic growth when examining the discourse on pollution haven theory and ISD. The results suggest that researchers and policy makers should consider these topics in the development of coherent and integrated policies and strategies to promote foreign direct investment in a manner consistent with environmental protection and sustainable development goals.

c) Race up theory

In the following, we will analyse whether the race-up theory is of research interest, which is why we have analysed the scientific output on this topic, as shown in Figure 5.

Figure 5:

Annual scientific output - Race theory up

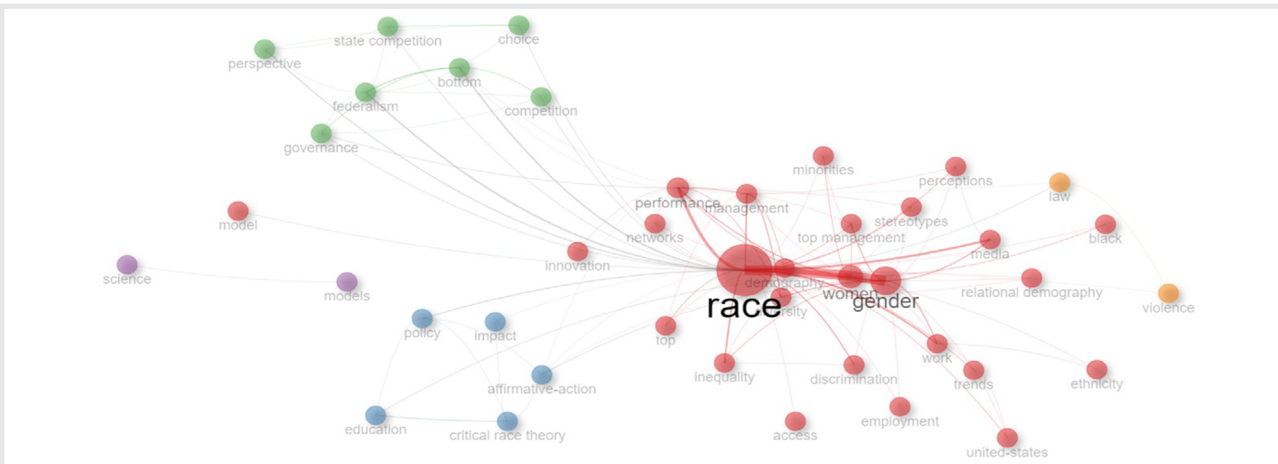


Source: author's own processing in bibliometrix

Unlike the pollution paradise theory, we see that interest in the race to the top theory is not on an upward trend. Since 2019, the interest of researchers in this theory has decreased, as we can see in the figure above. Which is why we refute hypothesis #2 of this paper, namely: the race up theory is the one that has the most support in the literature. Consequently, we can state that the theory that enjoys the greatest popularity at present is the pollution paradise theory. Following the cluster analysis on this theme we obtained Figure 6.

Figure 6:

Cluster Network Analysis - Race Up Theory



Source: author's own processing in bibliometrix

The cluster network analysis (see Figure 6) highlights 5 research clusters in terms of the race up theory, with a variety of topics being addressed in the literature on this topic. These clusters highlight the importance of different aspects related to race-up theory and how they influence the attractiveness of ISD.

In the first cluster, we see terms such as race, gender, women and diversity. This reveals to us that these topics are closely related to race theory upwards and can be considered important factors in determining the attractiveness of ISD. This finding suggests that researchers and policy makers should address issues of diversity and inclusion when analysing and developing strategies to attract ISD. In the second cluster, it highlights the role of public policies, such as race-criticism theory and affirmative action, in encouraging competition among states to attract ISD and improve economic performance. This highlights the importance of developing equitable and inclusive public policies to create an attractive environment for investors. In the third important cluster, issues of governance and competition between states to attract ISD are discussed. This suggests that attracting ISD requires effective and transparent governance, as well as the promotion of a stable and supportive business environment. The last two clusters of research focus on scientific models and legal aspects, emphasizing the significance of a sound legal framework and innovation in attracting ISD. This suggests that countries should invest in R&D and maintain a sound legal framework to promote an attractive business environment for investors.

Taken together, these results illustrate the complex connections between race to the top theory and ISD and highlight the importance of factors such as diversity, public policy, governance and education in creating an environment conducive to ISD and economic performance. The results suggest that researchers and policy makers should consider these issues in formulating and implementing strategies to attract ISD and promote sustainable and inclusive development.

CONCLUSIONS

The bibliometric analysis showed that interest in the relationship between environmental regulation and ISD is growing, with two main clusters identified in the literature. The importance of topics such as energy consumption, pollution, innovation, performance, environment, competitiveness, carbon emissions and financial development was highlighted in the analysis. Hypothesis H1, which states that favourable tax regulations, green technology and quality of education are key factors in attracting foreign direct investment, was confirmed by the results. The findings of the analysis indicate an increasing interest in the pollution haven theory and its connection to topics such as emissions, air pollution, international trade, and economic growth. Thus, the hypothesis that the race to the top theory has the most support in the literature (H2) is refuted.

The relationship between environmental regulation and ISD attraction is multifaceted and intricate, involving various theories and approaches. By utilizing bibliometric methods and reviewing the literature, we obtained a clearer understanding of the ongoing debate and the state of research in this area. Furthermore, the research highlights the necessity of developing coherent and comprehensive policies that foster foreign direct investment while upholding environmental protection objectives. Effective and transparent governance, as well as a conducive and stable business environment, are crucial in attracting ISD. Additionally, the significance of legal frameworks and innovation in attracting ISD is highlighted in the last two clusters, which focus on scientific models and law.This would mean close collaboration between governments, business and international organisations, and is the only option to create a framework for sustainable development and innovation in green technologies. At the same time, there is a strong need for further research in this area to identify the most effective approaches and strategies to attract ISD without compromising environmental protection and sustainable development. This will allow for more informed policy recommendations tailored to the specific context of each country, thus contributing to the achievement of the global goals of combating climate change and environmental degradation.

The limitations of the research are: First off, the study did not take into account how various geographic contexts and locations can affect how environmental regulation and foreign direct investment are related. This could be a drawback because regional variations might alter how these variables are related. The study's focus was on the more general relationship between environmental regulation and foreign direct investment, which was the justification for this choice.

Second, the study did not examine how other facets of the relationship between environmental regulation and foreign direct investment, such as cultural and social features, might play a role. This is a drawback since these variables could harm foreign direct investment by interacting with environmental laws.

The study's investigation of the literature on the connection between environmental regulation and foreign direct investment solely relies on bibliometric approaches. This methodology is helpful in spotting patterns and trends in the literature, but it does not fully explain the underlying causes that might affect how these variables interact. Hence, in order to provide a more thorough grasp of the subject, future research may need to combine different techniques.

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THE SOCIO-DEMOGRAPHIC PROFILE OF INFERTILE COUPLES AND CAUSES OF INFERTILITY IN MOLDOVA: THE CASE STUDY

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ABSTRACT

The present study aims to analyze infertile married couples' demographic and social characteristics to understand the need for policy interventions to prevent, diagnose, and treat infertility in Moldova. The study provides information about couples facing the problem of infertility, its causes and risk factors. The study is based on the analysis of medical documentation from the files submitted by infertile couples, during 2017-2021, to the Commission for the Evaluation of Insured Couples. In addition to the documentary analysis, the individual interviews were followed during the Commission meetings with the 244 couples whose files submitted met all the conditions stipulated in the normative acts of the Ministry of Health. The study results showed that the primary beneficiaries of in vitro fertilization are people aged 30-39 who live in urban areas, usually in the capital city of Chisinau. Married couples from rural areas are less likely to use specialized services, which is associated with their low level of information and the low financial availability of this service for rural residents. Among the main infertility factors, the tubal factor was detected, which determined more than half of the cases of infertility among the studied couples. Based on the research, some policy recommendations are formulated, such as improving the information system and databases, increasing access to services and the quality of the services offered, and introducing measures to prevent infertility.

Keywords: infertility, causes of infertility, infertile couples, in vitro fertilization

Studiul de față își pune drept scop de a analiza caracteristicile demografice și sociale ale cuplurilor conjugale infertile pentru înțelegerea necesității intervențiilor de politici de prevenire, diagnostic și tratament al infertilității în Moldova. Studiul prezintă informații despre cuplurile care se confruntă cu problema infertilității, cauzele și factorii de risc. Studiul are la bază analiza dosarele medicale depuse de către cuplurile infertile pe parcursul anilor 2017-2021 la Comisia de evaluare a cuplurilor asigurate. Adițional analizei documentare, s-au urmărit interviurile individuale în cadrul ședințelor Comisiei cu cele 244 cupluri a căror dosare depuse au întrunit toate condițiile stipulate în actele normative ale Ministerului Sănătății. Rezultatele studiului au arătat că principalii beneficiari ai fertilizării in vitro sunt persoanele în vârstă de 30-39 de ani care locuiesc în orașe, de obicei în capitală, or.Chișinău. Cuplurile conjugale din mediul rural sunt mai puțin probabil să apeleze la servicii specializate, ceea ce este asociat cu un nivel scăzut de informare a acestora, precum și cu disponibilitatea financiară scăzută a rezidenților din mediul rural pentru acest serviciu. Printre factorii principali ai infertilității a fost depistat factorul tubar, care a determinat peste jumătate din cazuri ai infertilității în rândul cuplurilor studiate. În baza cercetării sunt formulate unele recomandări de politici precum: îmbunătățirea sistemului informațional și a bazei de date, creșterea accesibilității la servicii și a calității acestora, dar și introducerea măsurilor de prevenire a infertilității.

Cuvinte cheie: infertilitatea, cauzele infertilității, cuplurile infertile, fertilizarea in vitro

Настоящее исследование направлено на анализ демографических и социальных характеристик бесплодных пар в Молдове, чтобы понять необходимость политических мер по профилактике, диагностике и лечению бесплодия. В исследовании представлена информация о брачных парах, сталкивающихся с проблемой бесплодия, его причинах и факторах риска. Исследование основано на анализе медицинской документации, представленной бесплодными парами Комиссии по оценке застрахованных брачных пар в течение 2017-2021 годов. Помимо документального анализа, на заседаниях Комиссии были проведены индивидуальные интервью с 244 парами, чьи документы соответствовали всем условиям, предусмотренным в нормативных актах Минздрава. Результаты исследования показали, что основными бенефициарами экстракорпорального оплодотворения являются люди в возрасте 30-39 лет, проживающие в городах, как правило, в столице г. Кишиневе. Брачные пары из сельской местности реже обращаются в специализированные службы, что связано с низким уровнем информированности, а также низкой финансовой доступностью данной услуги для сельских жителей. Среди основных факторов бесплодия выявлен трубный фактор, определяющий более половины случаев бесплодия среди исследованных пар. На основании исследования сформулированы некоторые рекомендации, включающие совершенствование информационной системы и базы данных, повышение доступности и качества предлагаемых услуг, а также внедрение мер по профилактике бесплодия.

Ключевые слова: бесплодие, причины бесплодия, бесплодные пары, экстракорпоральное оплодотворение

INTRODUCTION

Infertility is a disease of the male or female reproductive system defined by the failure to achieve a pregnancy after 12 months or more of regular unprotected sexual intercourse (WHO, 2018). Infertility should be treated as a couple's condition because men and women alike can have states that cause the inability to conceive.

Addressing infertility is central to achieving Sustainable Development Goal (SDG) 3 – Ensure healthy lives and promote well-being for all ages – and SDG 5 – Achieve gender equality and empower all women and girls. Addressing infertility is central to achieving the human right to enjoy the highest attainable physical and mental health standards.

In the context of demographic changes, emigration and the continuous decrease in the population, infertility has become a public health problem and a demographic challenge for Moldova. Analyzes recently developed based on the data of the Generations and Gender Study (GGS) find out changes in reproductive behavior, characterized by postponing childbearing to older ages. With advancing age, couples are also more likely to suffer from diseases that affect the reproductive system, causing the inability to conceive. At the same time, the tendency to postpone childbirth causes a low probability for couples to have the desired number of children.

Understanding the magnitude of infertility is critical for monitoring, assessing, and improving equitable access to quality fertility care services and addressing risk factors for and consequences of infertility (WHO, 2023).

A recent study shows that infertility prevalence decreased in high-income and developed countries and increased in others (Borumandnia et al., 2022). The official statistics of Moldova do not provide data on female and male infertility, both male and female, unexplained infertility, and primary and secondary infertility, including as a result of genital tract infections. According to the Gender and Generation Survey, about 11 per cent of couples of reproductive age in Moldova declare that they cannot conceive. The share of women who stated that they have difficulty conceiving is about 12%, compared to 10% of men who cannot induce a pregnancy. The limitation of the ability to conceive registers higher values in the urban environment (13.4%) compared to the rural setting (9.3%). At the same time, for both men and women, the value of this indicator is higher in Chisinau compared to the country's other territories. The estimates of infertility are needed to guide the planning and coordination of infertility prevention, diagnosis, and treatment efforts at the national level (GGS, 2022).

Depending on whether or not a pregnancy preceded infertility, it is classified as primary or secondary infertility. Primary infertility implies that the person did not have any pregnancy during the reproductive period, and secondary – previously, at least one pregnancy was obtained. At the global level, secondary infertility is associated with infection-related pathology resulting from postpartum infections, unsafe abortions (Sharma, Mittal, Aggarwal, 2009), and some sexually transmitted infections (Chemaitelly et al, 2021).

The current demographic trends, along with the obligation to respect human rights to the highest possible standard of physical and mental health, including sexual and reproductive health, the right to freely decide the desired number of children, the period and interval between pregnancies, lead the Government of Moldova to take concrete measures to support citizens in their achievement. In this context, one of the priority areas focused on by the reproductive health protection services, organized and coordinated by the Ministry of Health, is the prevention, diagnosis and treatment of infertility. Infertility diagnostic and treatment services are provided in the public and private sectors. Moreover, couples can benefit from infertility treatment by applying assisted reproductive technologies (ART).

There are situations when people/couples can achieve their reproductive function only through ART technologies, namely the In Vitro Fertilization (IVF) procedure that allows the couple to overcome the problem of infertility when other ways to get pregnant naturally may have failed (Zegers-Hochschild, Dickens, Dughman-Manzur, 2013).

In Moldova, public and private medical institutions can provide assisted reproductive technologies services, accredited or licensed for this activity. The in vitro fertilization procedure has been performed only in the private sector.

Not all people/couples have income that would allow them to pay the costs of the IVF procedure. In this sense, the state came with support, offering the opportunity to couples whose partners are medically insured and meet the medical criteria established by the Ministry of Health to benefit from an IVF procedure.

In 2017, by order of the Ministry of Health, the Regulation was approved regarding IVF services provided through compulsory medical assistance insurance funds. The medical insurance fund covers about 40 per cent of the actual cost of IVF. Couples are paying a significant part of the costs related to laboratory diagnostic services, andrology services and the procurement of medicines.

The study's objectives were to analyze the demographic and social profiles of infertility couples in Moldova and to determine the risk factors of infertility.

CONDITIONS FOR FACILITATING IVF PROCEDURE

During the five years (2017-2021), 244 insured couples benefited from the IVF procedure. Couples within the insurance policy can only request the IVF procedure financed by the medical insurance fund. To benefit from such a procedure, the applicants must go to the family doctor to execute free investigations and medical consultations, including the obstetrician-gynecologist.

The family doctor and the obstetrician-gynecologist complete and sign the referral ticket to the Commission, and the applicants personally submit the files. The file must contain the couple's referral ticket to the Commission, the couple's request and agreement, copies of identity cards and documents of medical insurance policies

According to the Regulation of ART procedures, the medical indications to benefit from the IVF procedure are grouped as follows:

- the primary (the tubal factor of infertility, such as the absence of fallopian tubes or tubal obstruction in the absence of effect from repeated laparoscopic treatment; the endocrine factor, such as anovulation and ovarian polycystic in the absence of effect from specific treatment during two years; documented endometriosis, in the absence of effect from specific treatment during two years; infertility of other etiology, if conventional treatments did not give results during five years);

- complementary (uterus without pathology, such as congenital anomalies, synechiae, submucosal or interstitial uterine myoma; ovarian reserve within normal limits and antimullerian hormone values > 1.1 ng/ml; body mass index with values ≥ 20 and ≤25; sperm formula within the norm; absence of extragenital diseases, established in annex no. 4 to this Regulation).

Couples who meet one of the primary and all complementary indications can benefit from an IVF procedure.

DATA AND METHODS

The case study was conducted to provide in-depth qualitative information about couples facing the problem of infertility, its causes and predisposing factors. The medical documentation submitted by infertile couples from Moldova to the Commission for the Evaluation of Insured Couples (from now on, the Commission) was analyzed. This Commission operates at the Center for Reproductive Health and Medical Genetics within the Mother and Child Institute of the Ministry of Health. It evaluates the files of couples who submitted to benefit from IVF, the costs of which were partially covered by the medical insurance fund.

The research started from the assumption that no demographic profile of the beneficiaries/ couples facing the infertility problem exists. Based on the documentation, the demographic profile of infertile couples and the causes of infertility were studied.

In addition to the documentary analysis, individual interviews were conducted with 244 couples, which took place during Commission meetings. Thus, 488 men and women facing infertility as a couple were interviewed. Based on the in-depth interviews, the risk factors predisposed to infertility were highlighted.

MAIN RESULTS

Due to the purpose of the analysis and the need to identify the demographic profile of couples developed with policy recommendations in the prevention, diagnosis and treatment targeted at certain population groups, the data were disaggregated by age groups and residence.

The women in the couples who benefited from the IVF procedure are between 24 and 45 years old. The largest group of women is the 30-34-year-old group (49.6%), followed by the 35-39-year-old group (30.7%) and the 25-29-year-old group (11.5%). About 80 per cent of the couples who resorted to the IVF procedure are between 30 and 39 years old. These data are explained by the fact that before the IVF procedure, older couples, over the years, resorted to numerous drug and surgical treatments that did not result in success. Therefore, with increasing age, the probability of using the IVF procedure increases; simultaneously, it is essential to consider that the procedure's success decreases progressively after 35 years.

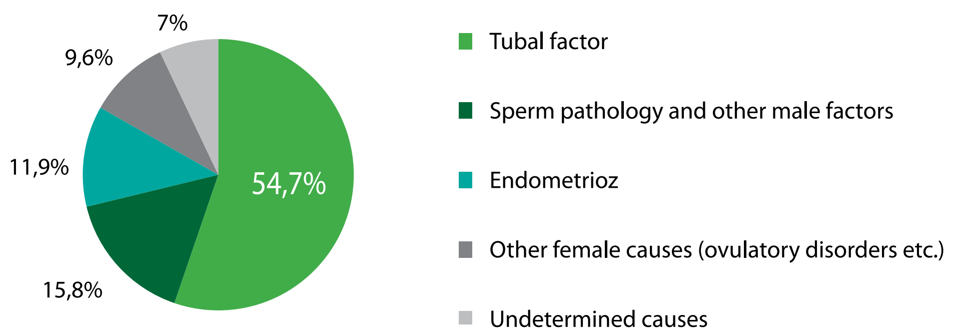
The tendency of infertile couples from the urban environment to turn to specialists and benefit from specialized services to diagnose and treat infertility is superior to those from the rural setting. This finding is also valid for the IVF procedure. According to the study results, more than 2/3 of couples are from urban areas. Among the couples with an urban residence environment, 83.4% are from the Municipality of Chisinau.

Analyzing the time of onset of infertility, we found that of the total number of couples who benefited from IVF, 55.7% were with primary infertility and 44.3% with secondary infertility.

The analysis of the causes that led to infertility in couples, which required the application of ART technologies, namely IVF, allowed the highlighting of the most frequently encountered reasons and their ranking (Fig 1).

Figure 1:

Causes of infertility in couples who benefited from IVF in 2017-2021 years



Many factors, including the tubal factor, can cause female infertility. For couples with the tubal factor of infertility (TFI), IVF is the only way to get pregnant; the results are usually the expected ones. In the structure of the causes of infertility identified in the present analysis, more than half (54.7%) returned to the TFI (tubal obstruction or even the absence of fallopian tubes, in some cases bilaterally, as a result of infections of the genital tract, including STIs, suffered during life and ectopic pregnancies). This fact denotes the need for preventive measures to increase the population's information and education to adopt safe sexual behaviors. Preventative measures are cost-effective compared to infertility treatment and IVF.

Another cause of infertility is endometriosis. Endometriosis is a complicated pathology whose etiology is not definitively known. One thing is sure: it has a detrimental effect on the sexual and reproductive health of women from menarche to menopause. It leads to the impairment of reproductive function by involving the uterus, and ovaries with a decrease in their reserve, adjacent organs and the development of an adhesion process expressed in the pelvis due to a chronic inflammatory reaction, thus creating severe obstacles in the occurrence of a pregnancy. In cases where drug and surgical treatments are not successful, IVF is used. In the structure of the causes of infertility in couples, endometriosis takes the fourth place, with 11.9%, and in the form of female infertility - the second place, after the tubal factor.

Other uterine disorders that may be inflammatory, congenital (e.g. abnormalities of the development of the uterus) or tumors (such as uterine myoma); diseases of ovarian function such as polycystic ovary syndrome (PCOS); disorders of the endocrine system that cause hormonal imbalances and as a result lead to the appearance of fertility problems, in some cases, can only be solved through IVF, being anticipated, by drug and/or surgical treatments.

In the present study, 9.6% of couples were identified with other causes of infertility (PCOS, anomalies of genital development, etc.), which, although previously corrected, did not result in obtaining a pregnancy naturally. Thus, it was decided to resort to IVF.

Infertility of male origin takes second place in this ranking (15.8%), caused by several factors, such as obstruction of the reproductive tract causing dysfunction in the ejection of semen. This blockage can occur in the tubes that carry semen (such as the ejaculatory ducts and seminal vesicles). Blockages are usually caused by injuries or infections of the genital tract, including STIs. It is also worth mentioning the hormonal disorders that lead to abnormalities of the hormones produced by the pituitary gland, hypothalamus and testicles. Because of the varicocele or medical treatments that affect sperm-producing cells (such as chemotherapy) in cancer patients, the testicular inability to produce sperm is found. Conditions or situations that cause abnormal sperm quality (oligospermia, azoospermia), defects in the morphological shape of spermatozoa (teratospermia) and low sperm mobility (asthenozoospermia) affect the ability of men to induce a pregnancy.

There are situations when infertility is caused by a combination of two or more factors that simultaneously amplify the adverse effect, such as the absence of fallopian tubes and ovulatory disorders or endometriosis, among other elements. In some couples, both partners have problems conceiving or inducing a pregnancy with the predominance of one factor or another. The defining role in selecting the IVF treatment method belongs to the identified causes.

It is more complicated to intervene and obtain the expected result when both partners have problems achieving reproductive function. According to the analysis, 1 out of 10 couples who resorted to IVF faces a situation when both partners have problems conceiving.

At the same time, it should be noted that there are situations, for various objective or subjective reasons, when the origin of infertility remains unidentified -"unexplained infertility." In the present analysis, of the 244 infertile couples referred to specialized clinics for the IVF procedure, the source of infertility remained unidentified in 17 cases (7.0%).

The success of the IVF procedures performed is shown in Table 1.

Table 1:

The success rate of the IVF procedure in 2017-2022 years

Reference year	No. of couples	Pregnancies obtained	IVF procedure success rate (%)
2017	30	10	33,3
2018	60	30	50
2019	60	25	41,7
2020	50	18	36
Total	200	83	41,5
*At the time of the study, the data for 2021 were incomplete.			

The best results were obtained in 2018 when the success rate was 50% (30 pregnancies), 16 of which ended with the birth of 24 healthy children (Table 18).

Table 2:

IVF procedure results, the year 2018

Year	No. of couples	Preg-nancies	Success rate (%)	Births	Duplex	Triplex	Children	Girls	Boys
2018	60	30	50	16	4	2	24	15	8

CONCLUSION

Infertile couples arrive late to specialized healthcare facilities for various reasons, such as (1) lack of information/knowledge about the facilities and the range of services offered; (2) non-addressing by medical service providers in optimal times at the level of specialized medical assistance, hierarchically superior; (3) inability of individuals/couples to pay for travel to medical institutions outside the towns and making payments for diagnostic and treatment services. These amounts are often beyond the means of a person with low or no income and thus miss the optimal period when they could benefit from the necessary support, which would give them the expected result - the birth of a desired child.

There are obstacles in accessing financial services and the need for adequate information for couples regarding the available infertility diagnosis and treatment services offered by public and private institutions, including IVF. An argument in this regard is that approximately twice as few couples from rural areas (30.7%) compared to those from urban areas (69.3%) applied to benefit from the IVF procedure. This fact attests to the rural population's low level of information about the current opportunities offered by the state for infertility couples. At the same time, people from rural areas have low incomes and often cannot cover the costs of medicines, investigations, and additional expenses.

The quality of infertility diagnosis and treatment services also depends to a large extent on the training of staff. The lack of a national clinical protocol for medical service providers (family doctors, obstetrician-gynecologists, andrologists, etc.) in infertility couples treatment impedes providing quality medical care.

Even in conditions where medical insurance fund grants financial support of about 40 per cent of the cost of the IVF procedure, some people/couples cannot afford to pay another 60%, including the cost of medicines, thus being deprived of the possibility of being parents.

POLICY RECOMMENDATION

It is necessary to find mechanisms that would facilitate the systematic collection of accurate and complete data concerning this phenomenon, with their segregation (e.g. male, female and mixed infertility; primary and secondary; by causes; depending on the environment of residence, etc.) to know the magnitude of infertility in Moldova. The database would provide the necessary support to argue the need to allocate resources to provide medical services for infertility issues.

To increase the addressability of the reproductive-age population to specialized services, including IVF, women and men of reproductive age must be informed about the institutions and the type of technical diagnostic and treatment services available in the field of couple infertility. Channels for information could come from health service providers and other communication channels such as mass media, information and education campaigns.

Preventive measures are considered the most relevant in cost-effectiveness, so they should be considered and set at the national policy level. This postulate is valid in all cases, but mainly in the conditions of a country that is part of the group of states with medium per capita incomes, such as Moldova. In this context, it is time for the Moldovan society to become aware of the importance of measures to inform and educate the population in the field of sexual-reproductive health; it has the role of preventing risky sexual behaviors, especially among adolescents and young people, which would ultimately contribute to the reduced incidence of infertility.

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REVIEW OF THE MONOGRAPH "MORTALITY TRENDS BY CAUSES OF DEATH IN THE REPUBLIC OF MOLDOVA, 1965-2020".

Authors: Olga Penina, France Meslé and Jacques Vall

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The research monograph "Mortality trends by causes of death in the Republic of Moldova, 1965-2020" is dedicated to a topic with particular importance, taking into account the fact that mortality trends have a significant impact on the population reproduction process determining the dimensions of the natural increase and the pace of the demographic ageing process. Despite a recent increase in life expectancy observed in the pre-pandemic period, the Republic of Moldova has been facing a population health crisis manifested through the maintenance of a significant discrepancy compared to the European level. During several decades, the Republic of Moldova has not managed to obtain sustainable progress in life expectancy growth, unlike Western countries that benefited from a constant increase of the indicator in the 70s of the last century due to a striking reduction in cardiovascular mortality. A high level of premature mortality among the adult population in the Republic of Moldova leads to harmful premises from a demographic point of view, determining significant human potential losses.

The monograph "Mortality trends by causes of death in the Republic of Moldova, 1965-202" represents the result of the prolonged scientific activity of Olga Penina as well as her fruitful collaboration with known demographers France Meslé and Jacques Vallin from the French Institute for Demographic Studies or INED. The manuscript is distinguished through the use of a special reconstruction method of the continuity of death time series by cause developed by France Meslé and Jacques Vallin. Further, particular attention is given to data quality problems and correction methods, which ensure reliable mortality estimates over different periods. It is known that mortality data quality for the Soviet period does not entirely meet the corresponding standards. Incomplete registration of infant deaths and underestimation of old-age mortality resulted in an overestimation of life expectancy at birth in the Republic of Moldova until the late 70s of the last century. This problem needs the application of particular correction methods while studying mortality for this period, which the authors have successfully realized.

In the Republic of Moldova, during the period of independence, the discrepancy between the national migration definitions and the European standards, as well as the difficulties in producing reliable migrational flows, caused considerable population overestimation and, consequently, the underestimation of life expectancy at birth. This problem was solved by producing the 1959-2013 intercensal population estimates prolonged with the official postcensal estimates for 2014-2020. Applying the corrected population counts in computing mortality indicators contributed to reliable life expectancy estimates for the period of independence.

The monograph represents a comprehensive analysis of long-term mortality trends by cause of death in the Republic of Moldova. The manuscript consists of five chapters. The first chapter focuses on the evolution of mortality by age and sex in the Republic of Moldova during the second half of the XXth century and the beginning of the XXIst century. The system of death registration in the Soviet period and after independence is described, and mortality data quality issues are examined, in particular, infant and old-age mortality rates. Available population counts are analyzed, and some methods of incomplete data corrections are presented. The impact of mortality corrections on life expectancy at birth and trends in age-specific mortality is shown. The second chapter describes the system of registration of causes of death and presents information related to the collected data, and some issues concerning the codification of causes of death, especially in the Soviet period. The third chapter describes the reconstruction of the mortality series by detailed causes of death under the 10th revision of the International Classification of Diseases and Causes of death with specific examples. The fourth chapter presents a comparative analysis of the reconstructed mortality series by sex and leading causes of death since the mid-60s of the last century in the Republic of Moldova and Ukraine. The fifth chapter examines the reconstructed mortality series by sex, age and detailed causes of death.

The comprehensive study let the authors formulate essential conclusions concerning the most vulnerable points in mortality evolution in the Republic of Moldova, which represents a particular interest for researchers in population studies and policymakers. The unfavourable situation in the population's health is determined by low living standards and growing segments of the marginalized population, where the risk of dying from external causes of death and causes associated with excessive alcohol consumption is high. The mortality pattern in the Republic of Moldova is characterized by a very high level of mortality from cardiovascular diseases, liver cirrhosis, a continuing growth or stagnation of mortality attributable to suicides and transport accidents, an increasing burden of cancer mortality, in particular, breast cancer and intestine cancer, as well as unfavourable trends in mortality from pneumonia among the adult population.

The monograph is distinguished by the highly scientific approach to the topicality and includes tables, graphs and annexes, contributing to the clear perception of the presented material. The data correction methods and the methodology of death time reconstruction are described in detail: correspondence tables, coefficients of transitions and fundamental associations of items. The bibliography covers the most relevant sources and contributes to the foundation of the explanatory framework regarding the evolution of mortality in the Republic of Moldova.

The monograph is available online https://hal.archives-ouvertes.fr/hal-03781912v1

Olga Penina, France Meslé, Jacques Vallin. Mortality trends by causes of death in the Republic of Moldova, 1965-2020. CEP Medicina, 279 p., 2022, 978-9975-82-233-6.

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