Leveraging demographic heritage for sustainable development: exploring fertility, migration, and health dynamics in the Republic of Moldova

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Abstract. Objective: *This study explores how demographic data can inform sustainable development policies in the Republic of Moldova, with a focus on fertility, migration, and population health dynamics. By analyzing data from the Generations and Gender Survey (GGS), the research aims to strengthen the analytical and informational basis for designing, implementing, and monitoring demographic and social policies. In the broader context of heritage capitalization, demographic structures and behavioral patterns represent a form of demographic heritage, a strategic societal resource that can drive long-term competitiveness and resilience.* ***Methods:*** *The study uses nationally representative data from the GGS electronic database, collected within the Generations and Gender Programme (GGP). A combination of descriptive statistical methods and comparative analyses is applied. Fertility patterns are analyzed by cohort to track changes in marital and reproductive behavior over time. Migration intentions are examined through multivariate models, identifying predictive factors and differences by gender and residential area. Self-Rated Health (SRH) is analyzed to highlight urban–rural and gender disparities.* ***Results:*** *The results reveal significant shifts in family formation and fertility timing, with younger cohorts showing postponed transitions to marriage and parenthood. Migration analyses indicate persistent gender and urban–rural differentials, influenced by socio-economic conditions and future aspirations. Health indicators highlight structural inequalities, with rural populations and women reporting poorer health outcomes. These findings underline the importance of integrating demographic evidence into policy design to address emerging vulnerabilities and capitalize on existing demographic resources.* ***Originality:*** *The originality of this study lies in its integrated demographic approach, linking fertility, migration, and health behaviors within the same analytical framework, and framing them as components of the Republic of Moldova's demographic heritage. By employing GGS data, the research contributes comparative insights that can support evidence-based policymaking. This perspective aligns demographic research with sustainable development strategies, emphasizing the role of population structures and behaviors as critical societal assets.*

Keywords*: demographic heritage, fertility, migration, health, Republic of Moldova, Generations and Gender Survey, sustainable development, demographic policy*
JEL classification*: F22, I14, J11, J12*

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1. Introduction

The Republic of Moldova is currently at a critical juncture in its demographic evolution, marked by the long-standing interplay between declining fertility, sustained emigration, population aging, and widening health disparities. These realities are not recent phenomena; however, their cumulative effects have intensified over recent decades, turning demographic change into a major challenge for sustainable development (Gailey, Gagauz & Pahomii, 2025). In this context, the Republic of Moldova's demographic heritage – understood as the ensemble of historical patterns of reproductive behavior, mobility, family structures, and health outcomes – represents both a source of structural vulnerability and a potential foundation for sustainable development.

Although the notion of demographic heritage is not yet fully consolidated as a distinct theoretical concept in the demographic literature, it builds upon well-established analytical frameworks. More broadly, recent demographic research emphasizes that population processes are deeply embedded in long-term historical trajectories and cohort dynamics, which shape current demographic configurations and future development pathways (Lutz, 2013; Vollset et al., 2020; United Nations, 2022). In this sense, the concept of demographic heritage can be understood as an integrative perspective that captures the cumulative and path-dependent nature of demographic change, linking past population dynamics to present structures and future development outcomes. Existing empirical studies, although not always explicitly theorizing the concept, illustrate how historical–demographic heritage continues to shape contemporary demographic behaviors, such as marriage patterns and regional demographic differences across long time spans (Solarević et al., 2020). At the same time, recent demographic research highlights the importance of considering population composition, distribution, and heterogeneity in understanding broader development and environmental processes, reinforcing the long-term and systemic nature of demographic change (Muttarak, 2021; Lutz et al., 2014).

Since the 1990s, the Republic of Moldova has experienced one of the sharpest demographic contractions in Eastern Europe. Fertility rates remain below the generational replacement level, and large-scale international migration has led to a significant decline in population and human capital, particularly among the young and working-age population. For several decades, international migration has been a defining feature of Eastern European societies, shaping demographic trajectories, labour markets, and social structures across the region (Tóth, 2025; Galstyan et al., 2022; Botev, 2012; Kahanec & Zimmermann, 2009). In this context, the experience of the Republic of Moldova fits within a broader regional pattern, yet it is marked by specific features in terms of the intensity of migration and its impact on population structure. At the same time, improvements in life expectancy have been uneven, and population health indicators continue to reflect pronounced socio-economic and territorial disparities. Overall, these dynamics have accelerated depopulation across the country, deepened the process of demographic aging, and altered the population structure, including the labor force (Gagauz et al., 2021).

Fertility in the Republic of Moldova has declined substantially over the past decades, reflecting broader trends observed across Central and Eastern Europe, including delayed childbearing and sustained below-replacement fertility. These changes are closely associated with life-course transformations such as prolonged education, shifting value orientations, increased emphasis on professional achievement, and reduced or postponed reproductive intentions. As a result, the total fertility rate has remained below the replacement level for more than two decades, contributing to population decline and accelerated population ageing. Recent policy efforts have focused on improving quality of life and work–family balance rather than directly increasing fertility, highlighting the need for evidence-based demographic policies that support the realization of intended family size in a context of ongoing socioeconomic change (Grigoraș & Gagauz, 2022).

For over three decades, the Republic of Moldova has experienced sustained waves of international emigration, resulting in a significant demographic decline. Approximately 20-25% of the population loss is attributed to migration alone, with 93% of the total population decrease between 1998 and 2020 caused by international migration (Gagauz et al., 2021). Between 2014 and 2023, net migration reached –370.300 people, over half (56.5%) from rural areas. The year 2022 marked the

highest negative net migration in recent decades (–63,000), largely driven by regional conflict and delayed departures from earlier years. Youth and working-age populations are most affected, with 58% of total migration losses coming from the 15–34 age group, particularly at age 19 and among those aged 20-24.

Between 2014 and 2024, life expectancy at birth in the Republic of Moldova showed a steady increase, reflecting gradual improvements in population health. However, significant disparities persist. In 2024, life expectancy at birth for males was 67.6 years, while for females it was approximately 76.4 years. Women continue to outlive men, raising concerns about the quality of longevity and the need for care at advanced ages. Urban residents also benefit from higher life expectancy, though the urban–rural gap has narrowed in recent years. Notably, rural women experienced the most substantial gains (75.8), highlighting the potential impact of targeted health interventions. In contrast, rural men remain the most vulnerable group, with persistently low life expectancy (66.7 years), driven by untreated chronic conditions and behavioral risk factors.

Approaching these processes through the lens of demographic heritage allows for a more nuanced understanding of how historical trajectories continue to shape current opportunities and constraints. Through an integrated analysis of fertility patterns, migration dynamics, and population health, the study highlights their interdependence and long-term implications for demographic stability and human capital reproduction.

The originality of this study lies in its integrated demographic approach, which connects fertility, migration, and health-related behaviors within a single analytical framework and frames them as components of the Republic of Moldova's demographic heritage. By utilizing longitudinal data from the GGS (Generations and Gender Survey), the research contributes comparative insights that can support evidence-based policy-making. This perspective aligns demographic research with sustainable development strategies, emphasizing the role of population structures and behaviors as critical societal assets. The study contributes to the scholarly literature advocating for integrated frameworks of demographic and development analysis, particularly for small economies deeply affected by migration.

2. Literature review

Recent literature highlights that demographic change driven by fertility decline, migration, and health dynamics has become a central factor shaping sustainable development outcomes. Global evidence shows that persistent below-replacement fertility, population ageing, and negative demographic momentum increasingly define population trajectories, with migration only partially compensating for decline in some contexts (Gagauz et al., 2024). In this perspective, demographic heritage reflects the cumulative effects of past fertility, mortality, and migration on current age structures, labour supply, and future development capacity.

A growing body of research links fertility decline to the postponement of childbearing. Delayed first births are associated with lower completed fertility across cohorts, indicating that tempo changes may translate into long-term reductions in quantum when recuperation is incomplete (Beaujouan et al., 2023). Moreover, postponement is shaped by structural factors such as education, labour-market uncertainty, housing constraints, and gender inequalities. Recent global evidence reframes low fertility as a crisis of reproductive agency, emphasizing that individuals are often unable to realize their desired fertility due to economic and institutional constraints (Gagauz et al., 2024).

The COVID-19 pandemic further disrupted fertility dynamics, generating short-term declines in many countries, although effects varied across institutional and socioeconomic contexts. These disruptions are particularly relevant for Moldova, where pre-existing adverse demographic dynamics were exacerbated by economic uncertainty, health-system pressures, and migration-related family separation.

Migration plays a dual role in demographic change. While out-migration contributes to depopulation and labour shortages, return migration and remittances can support household resilience and social investment (Carracedo et al., 2025). In Moldova, recent projections confirm that long-term fertility, mortality, and migration trends are key determinants of future population size and age structure (Gagauz et al., 2024), while census data highlight the continued importance of mobility for demographic dynamics (NBS, 2025).

Importantly, the specific features of the fertility transition in Moldova have been increasingly documented in recent research. Empirical studies highlight the shift towards delayed childbearing, the decline in higher-order births, and the changing relationship between partnership formation and parenthood, reflecting broader processes associated with the Second Demographic Transition, but unfolding in a context of economic uncertainty and migration (Grigoraș & Gagauz, 2022). These findings emphasize that fertility change in Moldova is not only a matter of tempo adjustments, but also reflects structural transformations in family behaviours, gender relations, and life-course trajectories.

Macroeconomic analyses further demonstrate that demographic heritage has direct implications for sustainable development. Population ageing and declining fertility reshape labour markets and economic growth prospects, increasing pressures on intergenerational equity (EBRD, 2025; OECD, 2025). At the same time, demographic dividends remain conditional on investments in health, education, and employment (Bloom, 2020).

Health dynamics constitute another essential dimension of demographic heritage. While rising life expectancy may extend working lives, population ageing increases demand for healthcare and long-term care systems, posing significant challenges for countries such as Moldova.

Finally, advances in digital and computational demography provide new tools to analyse the complex interactions between fertility, migration, and health. These approaches enhance the capacity to model population dynamics and support evidence-based policymaking (Kashyap et al., 2023), offering important opportunities for improving demographic monitoring and policy design in Moldova.

3. Methodological approach

This study adopts a multidimensional and integrative methodological framework to explore the complex interactions between fertility behavior, migration intentions, and health outcomes in the Republic of Moldova. Drawing on longitudinal data and informed by demographic and social theory, the methodological design is structured into four interrelated components.

3.1 Data sources and analytical scope

The analysis is grounded in data from the Generations and Gender Survey (GGS), a harmonized, longitudinal dataset that captures a wide range of demographic, economic, and social indicators. The GGS provides a robust foundation for investigating both individual-level behaviors and broader structural trends across the domains of fertility, migration, and health.

3.2 Analytical framework for reproductive behavior

The analysis of fertility dynamics is based on a restricted analytical sample comprising women born between 1960 and 1984 (n = 2,237). This cohort was selected to ensure sufficient exposure to reproductive risk over the life course while maintaining comparability across birth cohorts. The methodological approach employed is Event History Analysis (EHA), which is well suited for examining the timing and occurrence of demographic events. Specifically, EHA enables the estimation of transition probabilities to childbirth as a function of age and individual-level characteristics. By modeling reproductive behavior across birth cohorts and age cohorts, this framework captures both the timing and intensity of fertility events, offering a dynamic perspective on reproductive trajectories rather than a static cross-sectional view.

3.3 Methodological perspective on emigration intentions

Migration intentions were investigated using a binary logistic regression model, with the dependent variable being the DEM20 indicator “In the next 3 years, do you intend to move to another country?”. The variable was recoded as follows: 0 = does not intend to emigrate (responses probably not and definitively not); 1 = intends to emigrate (responses not sure, probably yes, and definitively yes). One of the consequences of this method is that only adjusted-R-squared can be used as the determination coefficient.

Research hypothesis. It is assumed that emigration intention is significantly influenced by a set of demographics, socio-economic, and contextual factors. Specifically: ***H1.*** Individual demographic

characteristics – such as age, education level, and place of residence – are relevant predictors of emigration intention, with younger, more educated individuals, and those living in urban areas displaying a higher likelihood of intending to migrate internationally; ***H2.*** Occupational factors – including labor market status, job satisfaction, perceived job instability, and level of remuneration – increase the probability of expressing an intention to emigrate, particularly when individuals face professional uncertainty or limited opportunities for advancement; ***H3.*** Household economic conditions – such as lack of property ownership, financial difficulties, and low-income levels – are associated with a higher likelihood of emigration intention, indicating the role of economic pressures in generating mobility motivations.

As independent variables, over 150 items available in the database were explored. Items from the following sections were analyzed: "1. Demographics," "5. Intergenerational Relationships", "6. Health and Well-being," "7. Employment," and "8. Income." The items were tested for association with emigration intention using Pearson's bivariate correlation and Chi-Square tests. The model estimates the probability of expressing an intention to emigrate based on socio-demographic, economic, and contextual factors.

3.4 Health inequalities in 2024 the Republic of Moldova

To assess the population health status, the standard Self-Rated Health (SRH) measure was used, treated as a validated proxy for general health. As previous research suggests, the index was not stable during the COVID-19 pandemic, with people re-evaluating their health as higher than before the health emergency (Honnudóttir et al., 2023; Recchi et al., 2020; Reigal et al., 2021). This means that the longitudinal nature of the GGS could not be exploited without a heavy bias, and only cross-sectional data could be used. The effect of the lockdown is even harder to trace when accounting for the fact that the post-lockdown part of the first wave of GGS was collected over several months. Thus, the exposure to the pandemic was uneven. The SRH index also has five levels, and different groups use different levels as their benchmark (e.g., older people tend to call themselves 'fairly healthy' rather than just 'healthy'). Combined, these factors leave correcting SRH levels out of the scope of this study.

SRH has five levels, and its distribution across age-gender groups is provided below in *Table 1*. As mentioned above, it is important to preserve the differences between 'healthy', 'fairly healthy', and 'unhealthy' levels. This suggests using an ordinal regression. At the same time, the 'very healthy' and 'very unhealthy' answers are chosen very rarely for each age-gender group. Adding them to a regression analysis would bring little information while making the analysis heavier. Since most of the variables are likely to influence the dependent variable in one direction, the Cumulative Logit Model was used. Note that ordinal regressions do not have classical R-squared, and only adjusted-R-squared was used as a result. The calculations were done in R with *ordinal* package (Christensen, 2023).

Table 1. Distribution of self-rated health across ages and genders

Gender	**Men**				**Women**			
Age	**18-34**	**35-50**	**50-64**	**65-84**	**18-34**	**35-50**	**50-64**	**65-84**
Very healthy	62	54	11	12	59	44	12	10
Healthy	108	195	177	112	242	398	193	115
Fair	50	144	306	378	115	329	544	766
Unhealthy	3	30	101	183	3	35	144	434
Very unhealthy	0	5	20	47	1	2	33	125

Source: GGS 2024-2025.

GGS offers a rich questionnaire. To choose the variables that are most likely to influence SRH, Ordinal Random Forests were implemented in the exploratory analysis. The following variables were chosen because of the frequency of their use in the nodes: three illness variables (no diagnosed illness, a significant illness diagnosed, a cardiovascular disease (CVD) diagnosed), four difficulty variables (vision, moving, memory and concentration, and self-care), age, labour force status, life satisfaction, and the ease of making ends meet. In the exploratory part of the study, several classical variables did

not have a global effect on SRH, namely, the need for regular help with personal care, education, gender, area of living, having a partner, level of smoking, and having children aged 0-6. However, the method used in the preliminary part is ambiguous regarding the local importance of the variables. The variables also prove relevant when researching other spheres of life. Hence, these variables were also added.

Research hypothesis. Previous research shows that objective health indicators, socio-economic factors, and emotional states influence SRH. While the variables are interconnected (e.g., unemployed individuals and those with an illness have lower subjective well-being levels), the study attempts to distinguish the influence of socio-economic position and illnesses. The variables are tested jointly, with health indicators ***H1***. and socio-economic factors ***H2***. being tested separately and then together. The equations for the two hypotheses look as follows:

$$SRH = Age + Gender + Need\ for\ personal\ care + Difficulties\ seeing + Difficulties\ with\ self care + Difficulties\ moving + Difficulties\ with\ memory + Smoking\ level + Having\ a\ Diagnosed\ Illness + Having\ a\ Significant\ Diagnosed\ Illness + Having\ a\ CVD$$

$$SRH = Age + Gender + Urban\ Area + Having\ a\ Child\ Aged\ 0\ to\ 6 + Employment\ Status + Education\ Level + Life\ Satisfaction$$

Since the third model is based on the results of the previous two models, it cannot be predicted beforehand.

4. Empirical findings and thematic insights

4.1 Fertility dynamics and reproductive behaviour patterns

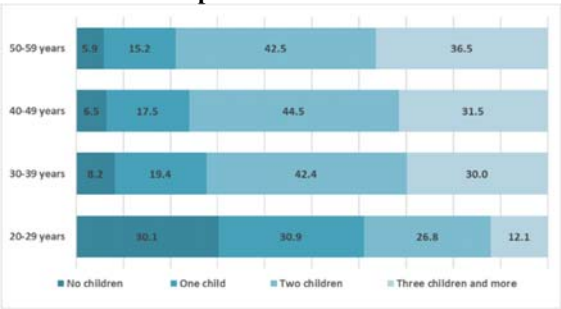
The age cohorts analysis reveals marked generational differences in fertility behavior and partnership dynamics in the Republic of Moldova. Younger cohorts exhibit a clear postponement of family formation, while older cohorts largely completed their reproductive period under more traditional demographic regimes.

Among females aged 20–29, childlessness remains widespread (30.1%), and higher-order fertility is rare (12.1% with three or more children). In contrast, completed fertility is substantially higher among older cohorts: 31.5% of those aged 40–49 and 41.4% of those aged 60–69 report having three or more children, while childlessness remains marginal (around 6–7%). This pattern reflects strong tempo effects rather than a definitive shift toward childlessness at younger ages.

Partnership structures also differ significantly by age. Marriage remains dominant among older cohorts (67.2% married at ages 40–49), whereas younger adults are more likely to cohabit or remain single. Among those aged 20–29, only 56.6% are married, while 24.4% are cohabiting and 18.9% are single, indicating a move toward less formal partnership arrangements.

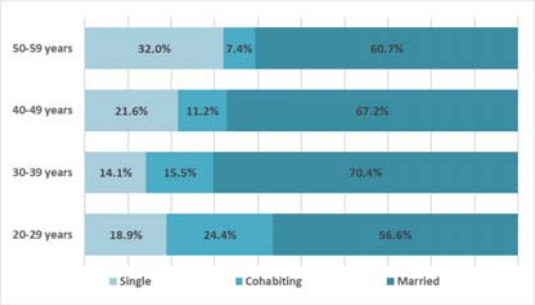
Cohort trends in family formation timing confirm a gradual postponement of key life events. The mean age at first birth increased from 22.6 years among cohorts born in 1960–1964 to 23.6 years among those born in 1980–1984. Similar increases are observed for the mean age at first union (from 21.8 to 22.4 years) and first marriage (from 21.7 to 23.0 years). Finally, partnership histories are becoming more complex. While most respondents experienced a single union, the share reporting two unions increased from 9.7% among the 1960–1969 cohort to 11.0% among the 1980–1989 cohort, suggesting the early emergence of more fragmented family trajectories. Overall, the results point to a pronounced generational shift: younger cohorts form families later, increasingly outside marriage, and within more diverse partnership pathways. These changes signal an ongoing transformation of the Republic of Moldova's demographic regime, with important implications for future fertility levels and population aging. The cohort analysis reveals a clear generational shift in reproductive behaviour in the Republic of Moldova, marked by delayed family formation and changing fertility patterns within marriage.

Figure 1. Proportion of women by parity and age group at the time of the interview Republic of Moldova



Source: GGS 2020

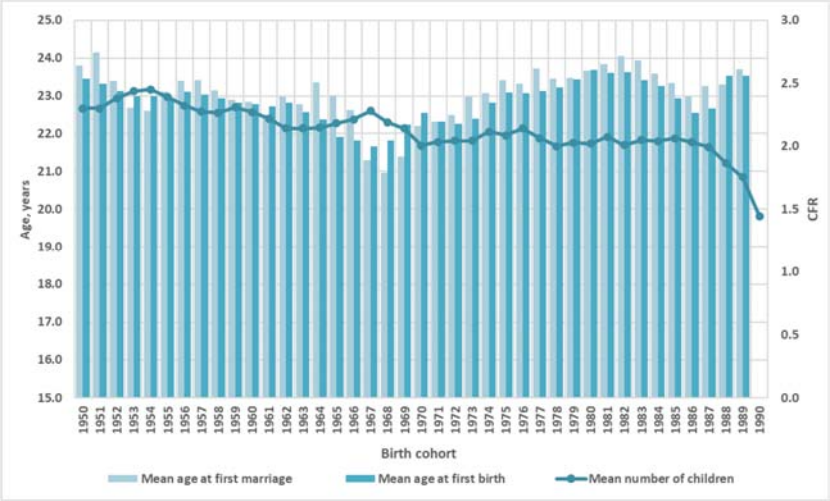
Figure 2. Forms of the partnership, Republic of Moldova



Source: GGS 2020

Figure 3 shows a steady increase in the mean age at first marriage and first birth across cohorts born between 1950 and 1990, accompanied by a decline in the mean number of children. While earlier cohorts entered marriage and parenthood at around 22 – 23 years and achieved a cohort fertility rate (CFR) of approximately 2.4 – 2.5 children, younger cohorts postpone both transitions to ages approaching 23 – 24 years, with CFR falling to about 1.5 – 1.7 children. These trends indicate a decoupling of marriage and immediate childbearing, reflecting postponed reproduction even within marriage. Overall, the findings point to a transformation of the Republic of Moldova's demographic regime, with delayed and reduced fertility contributing to population aging.

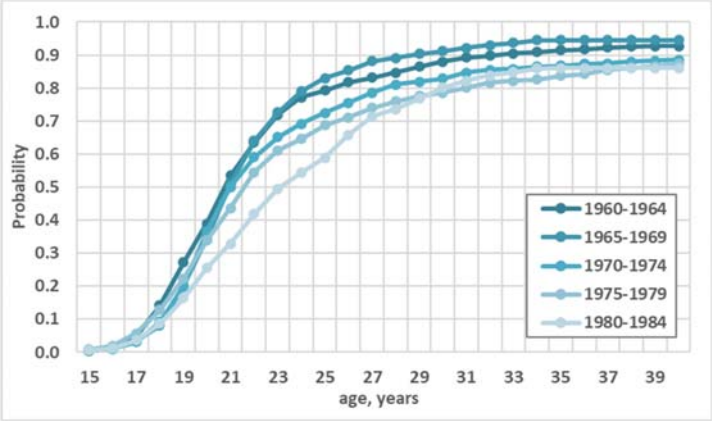
Figure 3. Cohort fertility, age at first marriage and age at first birth among women, 1950–1990



Source: GGS 2020

Figure 4 shows that younger cohorts experience a markedly lower probability of first birth at younger ages. By age 23, the cumulative probability of having a first child declines from approximately 0.65–0.70 among women born in 1960–1964 to around 0.45–0.50 among those born in 1980–1984, indicating substantial postponement of entry into motherhood. However, this cohort gap narrows at later ages, and by the end of the reproductive period, the cumulative probability of a first birth converges above 0.85–0.90 across all cohorts. This pattern suggests delayed timing of first births rather than a widespread increase in lifelong childlessness among women in the Republic of Moldova.

Figure 4. Probability of having first birth by cohorts



Source: GGS 2020

4.2 Migration intentions and socioeconomic determinants

We analysed data from the Generations and Gender Survey (GGS) to assess the predisposition to emigrate among individuals who have not yet left the Republic of Moldova. It is important to emphasize that emigration does not begin with the physical act of leaving the country; rather, it starts earlier – in people's minds – in the form of an intention. The intention to emigrate serves as an early warning signal of accumulated dissatisfaction and a perceived lack of prospects within the country.

The results of the 2020 survey indicate that 16% of respondents expressed an intention to emigrate within the following three years (based on responses of "probably yes" and "definitely yes"), while an additional 11.8% were uncertain. This level is particularly high compared to other countries in the region participating in the Gender and Generations Programme.

The regression results are presented in *Table 2* and allow for the formulation of several key findings. The first model, focused on individual sociodemographic characteristics (such as age, gender, education level, place of residence, and occupational status), identifies statistically significant and highly relevant predictors of emigration intention. Specifically, the intention to emigrate is more prevalent among men, younger individuals, those with higher levels of education, and urban residents.

Regarding family background, only the educational level of respondents' parents proved to be a significant factor in explaining emigration intentions. More precisely, the higher the parents' level of education, the greater the likelihood that respondents intend to emigrate – potentially reflecting the influence of family values on aspirations for international mobility. The model also reveals that having children in the household is associated with a lower intention to emigrate, suggesting a stabilizing effect of family responsibilities on the migration decision.

The second regression model examines the impact of labour market factors and professional conditions on emigration intentions. This block of variables includes indicators such as occupational status, duration of employment in the current position, workload, commuting time, challenges in balancing work and family responsibilities, and various dimensions of personal economic insecurity. The results highlight several significant predictors.

Occupational status ($\beta = 0.446$, $p < 0.01$) has a significant positive influence on emigration intention, which may suggest that employed individuals are more mobile and more connected to opportunities on external labour markets. Analyzing the duration of current employment and its significant positive coefficient ($\beta = 0.022$, $p < 0.001$), we observe that the longer individuals remain in the same position, the more likely they are to consider emigration. Rather than reflecting increased stability, this finding may indicate a lack of advancement opportunities within the domestic labour market.

Both the number of hours worked per week ($\beta = 0.262$, $p < 0.001$) and the time spent commuting to work ($\beta = 0.188$, $p < 0.01$) are positively associated with emigration intention. These results suggest

a high level of strain and effort required from workers, which, in the absence of adequate remuneration, may drive them to seek better conditions abroad. Additionally, lack of concentration at work due to family responsibilities emerges as another significant predictor ($\beta = 0.495$, $p < 0.001$), and highlights the real difficulties faced in balancing professional and personal life.

Table 2. Results of the multivariate regression analysis on the determinants of emigration intentions

	Model 1	**Model 2**	**Mode 3**	**Model 4**
	Socio-demographic characteristics	***Labor market situation***	***Income and expenditure status***	***The combined scenario***
Gender	0.181***	0.184*	0.393***	0.23**
	(1.198)	(1.202)	(1.482)	(1.259)
Age	-0.414***	-0.285***	-0.35***	-0.295***
	(0.661)	(0.752)	(0.705)	(0.745)
Education	0.093***			
	(1.098)			
Urban place of residence	0.402***	0.562***	0.386***	0.601***
	(1.494)	(1.755)	(1.471)	(1.825)
Children	-0.177***			
	(0.838)			
Occupational status	0.236***	0.446**		0.461**
	(1.266)	(1.562)		(1.586)
Father's education	0.056***			
	(1.058)			
Mather's education	0.096***			
	(1.1)			
Duration of current occupational status		0.022***		0.028***
		(1.023)		(1.028)
Number of hours worked per week		0.262***		0.26***
		(1.3)		(1.297)
Time spent commuting from home to workplace		0.188**		0.18**
		(1.207)		(1.198)
Lack of concentration at work due to family responsibilities		0.495***		0.48***
		(1.64)		(1.617)
Ability to cover necessary current expenses			0.441***	0.442***
			(1.555)	(1.555)
Financial ability to afford a one-week holiday once a year			-0.384***	
			(0.681)	
Financial ability to replace furniture			0.18**	
			(1.197)	
Financial ability to buy clothing and footwear			-0.368***	-0.539***
			(0.692)	(0.583)
Financial ability to cope with unexpected expenses			0.284***	
			(1.328)	
Financial ability to own a car			-0.148**	
			(0.862)	
Intention to move to another address		1.15***	1.205***	1.205***
		(3.157)	(3.337)	(3.338)
Internet use		0.5***	0.92***	
		(1.649)	(2.509)	
Impact of COVID-19		0.26**	0.443***	0.237**
		(1.297)	(1.558)	(1.267)
Constant	-532.1***	-47.24***	-0.749***	-56.55***
	(0.000)	(0.000)	(0.473)	(0.000)
Number of observations	9308	1820	6279	1828

	Model 1	Model 2	Mode 3	Model 4
	Socio-demographic characteristics	***Labor market situation***	***Income and expenditure status***	***The combined scenario***
Adjusted-R^2 (adjusted)	0.201	0.232	0.287	0.254

*Note: Odds ratio Exp(B) are shown in the parentheses. The asterixis denote the significance in the following way: *** <0.001, ** <0.01, * <0.05.*

Source: GGS, 2020.

Together, these factors paint a complex picture of the inadequacy of working conditions in the Republic of Moldova for a significant segment of the active population. The lack of work-life balance, the considerable effort required to secure a minimum acceptable income, and limited opportunities for professional growth all contribute to the growing desire to emigrate.

The third regression model explores the influence of individuals' economic situation on their intention to emigrate, focusing on their financial capacity to meet current, unexpected, or discretionary expenses. The model shows that the intention to emigrate is significantly higher among individuals who report having sufficient financial resources to cover current expenses ($\beta = 0.441$, $p < 0.001$). Similarly, the intention increases among those who declare the ability to cope with unexpected costs ($\beta = 0.284$, $p < 0.01$), and to a lesser extent, among those who can afford to replace their furniture ($\beta = 0.18$, $p < 0.05$).

By contrast, the intention to emigrate decreases significantly among individuals who report being unable to afford a one-week vacation once a year ($\beta = -0.384$, $p < 0.001$), or basic expenses such as purchasing clothing and footwear ($\beta = -0.368$, $p < 0.001$), or owning a car ($\beta = -0.148$, $p < 0.01$). These findings suggest that individuals facing major financial hardship (e.g., lacking resources for clothing, a vehicle, or vacation) are less likely to migrate, which reflects the existence of a real economic barrier to the actual realization of emigration plans.

Another significant predictor is the intensity of internet use ($\beta = 0.92$, $p < 0.001$), which can be interpreted as an indirect indicator of global connectivity and exposure to external opportunities. Those more active online are likely better informed about living and working conditions abroad, and therefore more inclined to express an intention to emigrate.

Additionally, the intention to move to another locality within the Republic of Moldova shows a strong positive association ($\beta = 1.205$, $p < 0.001$), supporting the idea that international migration is often preceded by internal mobility, as individuals seek improved living or working conditions domestically before considering emigration abroad.

The final model reflects the combined scenario of the three blocks of variables – that is, a multivariate regression model that simultaneously includes sociodemographic characteristics, labour market factors, economic status, and other relevant variables. This is the most comprehensive and complex model, providing an integrated picture of the factors influencing emigration intentions.

According to the results, men are significantly more likely than women to express an intention to emigrate ($\beta = 0.23$, $p < 0.01$), as are younger individuals. Furthermore, urban residents are much more likely to consider emigration ($\beta = 0.601$, $p < 0.001$) compared to those in rural areas, as well as those who are actively engaged in the labour market ($\beta = 0.461$, $p < 0.01$).

All variables related to working conditions and the work-life balance are statistically significant and positively associated with emigration intentions. In particular, the following variables were found to be significant: duration of current employment ($\beta = 0.028$, $p < 0.001$), number of hours worked per week ($\beta = 0.26$, $p < 0.001$), time spent commuting to the workplace ($\beta = 0.18$, $p < 0.01$), and lack of concentration at work due to family responsibilities ($\beta = 0.48$, $p < 0.001$). These findings suggest that high levels of job-related strain and difficulty in balancing professional and personal life increase the likelihood of considering emigration.

With regard to economic factors, only two variables are significant in this final model. First, individuals who are able to cover their current necessary expenses are more likely to intend to emigrate ($\beta = 0.442$, $p < 0.001$), supporting the notion that migration requires a minimum level of financial capital. Secondly, the inability to afford basic items such as clothing and footwear ($\beta = -0.539$, $p <$

0.001) indicates that individuals living in deep poverty are less likely to emigrate, due to a lack of resources required to initiate the migration process.

This final model explains approximately 25% of the variance in emigration intention (adjusted $R^2 = 0.254$), which is a reasonable explanatory power for a complex phenomenon such as migration — a process that is also influenced by cultural, emotional, political, and institutional factors that are not captured in this model.

Since the estimated models are binary logistic regressions, the classical coefficient of determination (R^2) and the Durbin–Watson statistic are not directly applicable. Therefore, we reported adjusted R^2 measures, which are standard goodness-of-fit indicators for logistic regression models. The Durbin–Watson test was not included because it is designed for linear regression models with continuous residuals and is not typically used in binary logistic regression analysis.

4.3. Health disparities and structural inequalities

Three regressions were done in this section. The results are presented in Table 3 below. The results show a stable and persistent influence of some health and socio-economic factors, with a mixed overlap between the results of the exploratory and the main parts. The adjusted-R-squared for the combined regression model is over 0.3. Thus, we can estimate the model's ability to explain 30% of the variation.

Among the health variables, the most substantial variable is the difficulty to move, which has the largest impact in absolute values in both regressions it was used in. Other difficulties follow it, and their effects in the combined regression are around twice as low as the effect on the function value of the difficulties moving. Note that since the regression function is non-linear, the effect on the dependent variable depends on the other variables' values as well. The significant illnesses, including cardio-vascular diseases, are insignificant, presumably, because their effect is better reflected by the variables of difficulties. Smoking casually does not lead to a significant influence on one's health, which can be partially explained by the low number of this group and thus high dispersion of the estimate.

Like in the exploratory part, we do not see a substantial difference between the employed and unemployed individuals – only between those in the labour force and those not in the labour force. This is partially explained by the fact that most of the people out of the labour force are pensioners, and thus, this dummy variable also interacts with the age variable. We also observe a significant and robust positive correlation between life satisfaction and SRH, as well as a significant and robust positive correlation between SRH and the easiness of making ends meet.

The classical variables, including age and gender, have a predictable effect as age and being a woman negatively influence self-rated health. Note, however, that in the combined regression the differences between the genders are insignificant, which means that they are likely to be explained by the health variables. The effect of having a child is also likely to be linked with the effect of the objective health indicators, since it is significant in the socio-economic model only. Finally, unlike the exploratory research suggested, we do observe a significant difference based on the level of education and living area, with higher-educated people and urban dwellers having better self-rated health.

Table 3. Cumulative Logit Regression Models for Self-Rated Health

	Model 1	**Model 2**	**Model 3**
Age	-0.031***	-0.051***	-0.021***
	(0.002)	(0.003)	(0.003)
Female gender	-0.086	-0.209***	-0.065
(Base variable: male gender)	(0.064)	(0.059)	(0.066)
No need for help with personal care	0.446*		0.388*
	(0.175)		(0.179)
Difficulties seeing	-0.5***		-0.471***
	(0.049)		(0.051)
Difficulties with self-care	-0.572***		-0.375***
	(0.104)		(0.107)
Difficulties moving	-0.986***		-0.858***

	Model 1	**Model 2**	**Model 3**
	(0.052)		(0.053)
Difficulties with memory and concentration	-0.499***		-0.426***
	(0.062)		(0.064)
Casual smoker	0.214		0.261
(Base variable: not smoking)	(0.191)		(0.198)
Regular smoker	-0.323**		-0.158
(Base variable: not smoking)	(0.104)		(0.109)
Having no diagnosed illnesses	0.547***		0.677***
	(0.091)		(0.067)
Having a significant illness	-0.102		
	(0.11)		
Having a CVD	-0.147		
	(0.091)		
In paid work on leave		-0.36	-0.12
(Base variable: in paid work)		(0.224)	(0.231)
Unemployed		-0.037	-0.065
(Base variable: in paid work)		(0.106)	(0.108)
Not in labor force		-0.666***	-0.487***
(Base variable: in paid work)		(0.075)	(0.078)
Having a child aged 0 to 6		0.316**	0.23*
(Base variable: not having such a child)		(0.109)	(0.111)
Urban area		0.325***	0.375***
		(0.063)	*(0.065)*
Higher-secondary education		0.267***	0.225**
(Base variable: up to 9 classes of education)		(0.066)	(0.069)
University education		0.676***	0.555***
(Base variable: up to 9 classes of education)		(0.093)	(0.097)
Easiness making ends meet		0.26***	0.185***
		(0.025)	(0.026)
Life Satisfaction		0.296***	0.247***
		(0.015)	(0.015)
N obs	**5602**	**5602**	**5602**
"Unhealthy" vs. "Fairly healthy" threshold	-7,01	-1.963	-3.446
"Fairly healthy" vs. "Healthy" threshold	-3.762	1.089	0.088
McFadden R-sq	0,255	0,229	0,302
AIC	8739.8	9061.5	8186.6

*Note: The standard deviation is shown in the parentheses. The asterixes denote the significance in the following way: *** <0.001, ** <0.01, * <-0.05.*

Source: GGS, 2020.

5. Conclusions and discussions

The Republic of Moldova's demographic trajectory over the past three decades has been shaped by a complex interplay between declining fertility, sustained emigration, and persistent health disparities – three interdependent components that have deeply influenced the country's human capital and demographic development prospects. This article examines how the Republic of Moldova's demographic heritage, understood as the historical patterns and structures related to reproduction, mobility, and population health, continues to shape present-day challenges and opportunities for sustainable development. Through the analysis of data from the Generations and Gender Survey, we highlight structural changes in reproductive behavior, the key determinants of migration, and inequalities in population health. The study adds to the academic discourse promoting integrated approaches to demographic and development analysis, with a particular focus on small economies significantly impacted by migration.

The analysis reveals a clear generational shift in fertility and marital behavior in the Republic of Moldova, characterized by delayed family formation and increasingly diverse partnership trajectories. Younger cohorts postpone both marriage and first birth compared to older cohorts, resulting in high levels of childlessness at younger ages but largely converging probabilities of entry into motherhood later in life. This pattern indicates strong tempo effects rather than a widespread move toward permanent childlessness. At the same time, completed fertility has declined substantially across cohorts, suggesting that postponed childbearing is only partially recuperated. Partnership behavior has become more complex, with cohabitation and singlehood increasingly replacing marriage as early or prolonged family arrangements. Together, these trends point to a transformation of the Republic of Moldova's demographic regime, with important implications for population aging and long-term demographic sustainability.

The findings indicate that emigration intention in the Republic of Moldova is a structured and socially differentiated process, reflecting both individual characteristics and broader socio-economic conditions. Migration intentions are higher among younger individuals, men, urban residents, and those integrated into the labour market, pointing to a selective outflow of economically active populations, while family responsibilities act as a stabilizing factor. Labour market conditions such as high workload, job instability, and difficulties in balancing work and family life emerge as key drivers, suggesting that migration is shaped not only by lack of employment but also by dissatisfaction with working conditions. At the same time, economic resources play a dual role: individuals with sufficient means are more likely to intend to migrate, whereas extreme poverty constrains mobility. Overall, these results highlight that migration intentions are rooted in structural constraints and opportunities, contributing to the ongoing reproduction of demographic heritage through the selective loss of human capital.

The results of the regression analysis largely confirm the research hypotheses, albeit with important nuances that reflect the multifaceted nature of international migration. The first hypothesis (H1), which posited the relevance of demographic characteristics in explaining emigration intentions, is partially confirmed. Age and place of residence emerge as strong and significant predictors: younger individuals and urban residents are clearly more likely to express an intention to emigrate. By contrast, education level, while significant in the intermediate models, loses statistical relevance in the final combined model, suggesting possible mediation or overlapping effects with other variables such as occupational status or economic conditions.

The second hypothesis (H2), concerning the influence of occupational factors, is clearly supported. Labour market-related variables – including number of hours worked, duration of employment in the current position, commuting time, and difficulty concentrating at work due to family responsibilities — all have a significant and positive impact on emigration intention. These findings suggest that it is not only the lack of employment that drives migration, but also poor working conditions, professional instability, and psychological strain experienced by employees.

In contrast, the third hypothesis (H3), which posited a direct correlation between household economic hardship and emigration intention, is only partially supported. While material conditions do play a role, it is not the poorest individuals who are most likely to consider migration. On the contrary, the data indicate that emigration intentions are higher among those who are able to cover their daily expenses, whereas individuals in extreme poverty, who cannot afford even basic necessities such as clothing and footwear, tend to express lower migration intentions. Therefore, although economic motivation exists, the actual ability to initiate migration is conditioned by the availability of minimum financial capital, confirming that migration is often inaccessible to the most vulnerable (Barshila et.al., 2025; Casentini, Hammond, & Bakewell, 2024).

The combined regression model explains approximately one quarter of the variation in emigration intention, suggesting that migration is influenced not only by objective conditions, but also by subjective, cultural, and contextual factors, which warrant further investigation.

The health state analysis shows that the Republic of Moldovan's health follows standard lines of inequalities, with urban dwellers and higher-educated individuals having greater self-rated health levels than lower-educated rural residents. Higher-earning people also have better health than lower-earning people. The pensioners show themselves as an especially vulnerable group. Among the objective health factors, the variables related to difficulties with everyday interactions have the greatest influence on the index. Difficulties moving have the highest effect in absolute values. The substantial

influence of mobility difficulties specifically shows that SRH reflects not only objective health but also the ease of having such a health level. The study shows that there are intersecting inequalities in health in the Republic of Moldova. However, paying greater attention to them also means making the city more accessible regarding urban infrastructure and transport. Further research can take into account the spatial distribution of such inequalities.

Despite its contributions, the main limitation of this study lies in the incomplete operationalization of demographic heritage within a unified analytical framework. Although fertility, migration, and health are conceptualized as interconnected components of demographic heritage, they are modeled separately, and their interdependencies are interpreted conceptually rather than empirically estimated, which limits the ability to fully capture the cumulative and dynamic nature of demographic processes.

In addition, the analysis relies on survey-based GGS data, where key variables particularly migration intentions and self-rated health are self-reported and partly subjective. This may introduce measurement bias and affect the extent to which individual responses accurately reflect underlying structural dimensions of demographic heritage.

***Authors contribution**: Introduction: EG and TT; Literature review: EG; Methodology and data: EG, TT and MS; Reproductive Behavior Analysis: EG; Migration Intentions Analysis: TT; Health Status Analysis: MS; Conclusions and Discussions: EG, TT and MS; Limitations of the Study: EG.*

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Annexes. Full tables of the regression models on self-rated health

Annex 1. Cumulative Logit Regression Model 1 for Self-Rated Health

	Estimate	Standard Error	Z-Value	P-value
Age	-0,031	0,002	-13,322	<0,001
Female gender (Base variable: male gender)	-0,086	0,064	-1,351	0,177
No need for help with personal care	0,446	0,175	2,554	0,011
Difficulties seeing	-0,5	0,049	-10,172	<0,001
Difficulties with self-care	-0,572	0,104	-5,49	<0,001
Difficulties moving	-0,986	0,052	-18,982	<0,001
Difficulties with memory and concentration	-0,499	0,062	-8,052	<0,001
Casual smoker (Base variable: not smoking)	0,214	0,191	1,116	0,264
Regular smoker (Base variable: not smoking)	-0,323	0,104	-3,098	0,002
Having no diagnosed illnesses	0,547	0,091	5,992	<0,001
Having a significant illness	-0,102	0,11	-0,927	0,354
Having a CVD	-0,147	0,091	-1,608	0,108
N obs	**5602**			
“Unhealthy” vs. “Fairly healthy” threshold	-7,01			
“Fairly healthy” vs. “Healthy” threshold	-3,762			
McFadden R-sq	0,257			
AIC	8739.8			

Source: Authors' calculations based on Gender and Generation Survey (2025).

Annex 2. Cumulative Logit Regression Model 2 for Self-Rated Health

	Estimate	Standard Error	Z-Value	P-value
Age	-0,051	0,003	-20,014	<0,001
Female gender (Base variable: male gender)	-0,209	0,059	-3,566	<0,001
In paid work on leave (Base variable: in paid work)	-0,36	0,224	-1,609	0,108
Unemployed (Base variable: in paid work)	-0,037	0,106	-0,354	0,723
(Base variable: in paid work)	-0,666	0,075	-8,856	<0,001
Not in labor force (Base variable: in paid work)	0,316	0,109	2,892	0,004
(Base variable: in paid work)	0,325	0,063	5,197	<0,001
Having a child aged 0 to 6 (Base variable: not having such a child)	0,267	0,066	4,07	<0,001

	Estimate	Standard Error	Z-Value	P-value
Urban area	0,676	0,093	7,238	<0,001
Higher-secondary education (Base variable: up to 9 classes of education)	0,26	0,025	10,205	<0,001
University education (Base variable: up to 9 classes of education)	0,296	0,015	20,279	<0,001
Easiness making ends meet	-0,051	0,003	-20,014	<0,001
Life Satisfaction	-0,209	0,059	-3,566	<0,001
N obs	**5602**			
"Unhealthy" vs. "Fairly healthy" threshold	-1,963			
"Fairly healthy" vs. "Healthy" threshold	1,089			
McFadden R-sq	0,229			
AIC	9061.5			

Source: Authors' calculations based on Gender and Generation Survey (2025).

Annex 3. Cumulative Logit Regression Model 3 for Self-Rated Health

	Estimate	Standard Error	Z-Value	P-value
Age	-0,021	0,003	-7,561	<0,001
Female gender (Base variable: male gender)	-0,065	0,066	-0,984	0,325
No need for help with personal care	0,388	0,179	2,166	0,03
Difficulties seeing	-0,471	0,051	-9,268	<0,001
Difficulties with self-care	-0,375	0,107	-3,522	<0,001
Difficulties moving	-0,858	0,053	-16,051	<0,001
Difficulties with memory and concentration	-0,426	0,064	-6,687	<0,001
Casual smoker (Base variable: not smoking)	0,261	0,198	1,323	0,186
Regular smoker (Base variable: not smoking)	-0,158	0,109	-1,453	0,146
Having no diagnosed illnesses	0,677	0,067	10,07	<0,001
In paid work on leave (Base variable: in paid work)	-0,12	0,231	-0,517	0,605
	-0,065	0,108	-0,602	0,547
Unemployed (Base variable: in paid work)	-0,487	0,078	-6,243	<0,001
(Base variable: in paid work)	0,23	0,111	2,082	0,037
Not in labor force (Base variable: in paid work)	0,375	0,065	5,772	<0,001
(Base variable: in paid work)	0,225	0,069	3,263	0,001
Having a child aged 0 to 6 (Base variable: not having such a child)	0,555	0,097	5,75	<0,001
Urban area	0,185	0,026	7,06	<0,001
Higher-secondary education (Base variable: up to 9 classes of education)	0,247	0,015	16,064	<0,001
University education (Base variable: up to 9 classes of education)	-0,021	0,003	-7,561	<0,001
Easiness making ends meet	-0,065	0,066	-0,984	0,325
Life Satisfaction	0,388	0,179	2,166	0,03
N obs	**5602**			
"Unhealthy" vs. "Fairly healthy" threshold	-3,446			
"Fairly healthy" vs. "Healthy" threshold	0,088			
McFadden R-sq	0,305			
AIC	8186.6			

Source: Authors' calculations based on Gender and Generation Survey (2025).

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