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THE BULGARIANS OF BESSARABIA IN THE 1940'S: FACTORS OF THE DEMOGRAPHIC PROCESS. POPULATION SIZE AND AGE-SEX STRUCTURE

CZU:94(=163.2)(478) https://doi.org/10.52603/rec.2025.37.06

Rezumat

Bulgarii din Basarabia în anii ’40 ai secolului XX: factori al procesului demografic. Numărul populației și structura pe gen și vârste

Articolul examinează mecanismele transformării procesului de dezvoltare demografică a bulgarilor din Basarabia în anii ’40 ai secolului XX, ca urmare a represiunilor, strămutărilor și foametei din anii 1946–1947. Se analizează interacțiunea factorilor demografici endogeni de reproducere cu circumstanțele externe ale transformărilor socio-economice din anii ’40. Rezultatul acestor procese este schimbarea structurii populației pe gen și vârste, reflectând două modele de reproducere a populației care coexistă în paralel: modelul staționar și cel progresiv. O parte dintre comunitățile-sate, în cadrul modelului „progresiv”, își păstrează trăsăturile principale ale unei căi de dezvoltare extensive. În cealaltă parte a satelor, dacă nu ar fi fost strămutările și foametea din anii 1945–1948, până la mijlocul secolului XX, s-ar fi putut constata finalizarea procesului de tranziție de la modelul progresiv la cel staționar al structurii demografice de creștere a populației. Autorul ajunge la concluzia că evenimentele tragice ale foametei din anii 1946–1947 au devenit cel mai puternic factor exogen al transformărilor demografice în cadrul comunității bulgare. Consecințele foametei s-au reflectat într-o creștere de aproape 6 ori a ratei mortalității generale, comparativ cu perioada precedentă. Cele mai vulnerabile categorii ale populației au fost copiii și persoanele în vârstă. Turbulențele sociale din anii ’40 au dus la pierderi demografice, care constituie 1/6 din comunitatea bulgară a Basarabiei.

Cuvinte-cheie: bulgarii din Basarabia, procese demografice, represiuni, foamete.

Резюме

Болгары Бессарабии в 40-х гг. *XX* в.: факторы демографического процесса. Численность и половозрастная структура

В статье рассматриваются механизмы трансформации демографического развития болгар Бессарабии в 40-х гг. XX в. в результате репрессий, переселений и голода 1946–1947 гг. Анализируется взаимодействие эндогенных демографических факторов воспроизводства с внешними обстоятельствами социально–экономических трансформаций в 40-х гг. Результатом этих процессов являются изменения в половозрастной структуре населения, демонстрирующие две параллельно существующие модели воспроизводства населения: стационарную и прогрессивную. Часть из общин-поселков в рамках «прогрессивной» модели сохраняет основные черты экстенсивного пути развития. Во второй части сел, если бы не выселения и голод в 1945–1948 гг., к середине XX в. можно было бы констатировать завершение процесса смены прогрессивной на стационарную модель демографической структуры прироста населения. Автор приходит к выводу, что трагические события голода 1946–1947 гг. становятся сильнейшим экзогенным фактором демографических преобразований в среде болгарской общности. Последствия голода отразились на увеличении показателей общей смертности почти в 6 раз по сравнению с предыдущим периодом. Наиболее уязвимыми слоями населения оказались дети и пожилые люди. Социальная турбулентность 40-х гг. привела к демографическим потерям, соизмеримым с 1/6 частью болгарской общности Бессарабии.

Ключевые слова: болгары Бессарабии, демографические процессы, репрессии, голод.

Summary

The Bulgarians of Bessarabia in the 1940s: factors of the demographic process. Population size and age-sex structure

The article examines the demographic transformation mechanisms among the Bessarabian Bulgarians in the 1940s under the influence of repression, resettlement, and the 1946–1947 famine. It analyses the interaction between endogenous demographic reproduction factors and external socio-economic transformations in the 1940s. These processes resulted in changes in the age-sex structure of the population, revealing the coexistence of two parallel models of population reproduction – the stationary and the progressive. Some village communities within the “progressive” model retained the key characteristics of an extensive development path. In other settlements, had it not been for the forced relocations and the famine of 1945–1948, the transition from the progressive to the stationary demographic model could have been considered complete by the mid-20th century. The author concludes that the tragic events of the 1946–1947 famine emerged as one of the most powerful exogenous factors in the demographic transformation of Bulgarian society. The famine’s impact was reflected in an almost sixfold increase in overall mortality compared to the preceding period. The most vulnerable groups were children and the elderly. The social turbulence of the 1940s resulted in demographic losses equivalent to approximately one-sixth of the Bessarabian Bulgarian community.

Key words: Bessarabian Bulgarians, demographic processes, repression, famine.

The 1940s posed a significant challenge for the global community. Against the backdrop of large-scale and tragic events, the diverse fates of individual peoples – each drawn into the whirlwind of history in different ways – should not remain on the periphery of scholarly attention. For instance, the Bulgarians and Gagauz of Budjak, who were equally foreign and alien to both Romanian and Soviet authorities, became hostages to socio-political experiments. Although they largely escaped direct military action, they experienced multiple transitions from one state to another in 1940, 1941, and 1944. These shifts in political regimes entailed migration, deportation, repression, dispossession, famine, and other social upheavals that profoundly affected a significant portion of this regional community.

It is worth noting that, despite the extensive body of literature on the Bulgarian presence in Bessarabia and Budjak (Грек 2003), historical-demographic reconstructions of these events have rarely received significant scholarly attention. Narrative interpretations of the past and culture only underscore the necessity of quantitative research. This includes the modelling of these processes through demographic generalisations and the examination of their social aspects. Moreover, extensive documentary sources are available – most notably, household registers maintained by village councils. This was a routine form of administrative population record-keeping, a fundamental tool for ongoing statistical documentation. It was introduced in Bessarabia in 1940, replacing similar Romanian registers. These documents were distributed in September 1940, with strict instructions for careful completion and maintenance by village council secretaries (Пригарин 2007: 296). The records were organised by household, providing a valuable foundation for historical and ethnographic reconstructions. These records became the primary source for assessing the demographic situation of the Bulgarian population in Budjak during the 1940s.

The study focuses on the ethnocultural community of Bulgarians in Bessarabia (used synonymously with Budjak). The group of Bessarabian Bulgarians has been and remains the largest historical diaspora of this ethnic community. The scope of this study focuses on the demographic aspects of historical processes marked by social turbulence in the 1940s, specifically the dynamics of age and sex structure.

The ethnocultural landscape of the region underwent significant changes during World War II, particularly after Bessarabia became a part of the Soviet Union in 1940. Two particularly notorious and destructive large-scale processes were "preventive resettlements" and "dekulakisation".

Those subjected to forced resettlement were individuals deemed "unreliable" by Soviet authorities for various reasons. As noted by O. K. Lunyova, Soviet leadership largely implemented a "personnel policy" in which all key administrative positions were assigned to individuals appointed by the Central Committee of the Communist Party of Ukraine from the eastern regions of the Ukrainian SSR (Луньова 2012: 11). These appointees were experienced in enforcing Soviet rule in rural areas.

The process of "dekulakisation" and the collectivisation of agricultural holdings, aimed at creating conditions for implementing industrialisation plans, had already been completed in other parts of the Soviet Union. These processes were carried out in two stages during the 1940s, targeting the destruction of wealthier farms, social and familial ties within rural communities, and traditional community hierarchies that had, for decades, resisted assimilation and sustained traditional economic practices. Following Bessarabia's twofold incorporation into the USSR (in 1940 and 1944), the local population was forced to undergo, within just a few years, the same transformations that had unfolded over nearly three decades in Soviet territories: collectivisation, industrialisation, and the so-called cultural revolution.

To fully assess the demographic situation, it is essential to examine the age and gender characteristics of Bessarabian Bulgarians during the 1940s. Using a typological approach, the population can be divided into three generational groups, following the classification scheme widely adopted in historical demography: children and adolescents (0-14 years old); adults (15-49 years old); and older individuals (50 years and older). This cohort model has been established and justified in studies of traditional agrarian societies in the Balkans[1]. Similarly, an important aspect of demographic reconstruction is the gender ratio within each generational group (Арсеньев 1844; Кабузан 1963; Миронов 2006). In this context, two problem areas are identified: on the one hand, the methodological tools for determining age and gender balance, and on the other, the source-related limitations of population records. The current Soviet statistics (household registers) of the 1940s were considered "accurate", yet in some cases, they may not have fully reflected reality.

Statistical summaries for 1941 indicate that the Bulgarian community of Bessarabia exhibited characteristics of a progressive demographic structure (Table 1A and 1B). Children accounted for almost one-third of the total population – 30.8%. The terri-

torial variation of this indicator ranged from 28.2% in the village of Zadunaivka to 37.6% in Vynohradne. The reproductive cohort (ages 15-49) represented up to 54.6% of the population, with variation across settlements from 50.2% to 57.3%. Natural ageing of the population was reflected in the fact that individuals aged 50 and older made up 14.5%, meaning that one in seven Bulgarians belonged to this age group. The range varied from 12.2% in Vynohradne to 17.3% in Hlavani.

Age (A) and Age-Sex (B) Structures, 1941[2]

Table 1A

1941		Village			Total
		Hlavani	Zadunaivka	Vynohradne	
0–14	S	456	971	647	**2074**
	%	29.1%	28.2%	37.6%	**30.8%**
15–49	S	839	1975	865	**3679**
	%	53.6%	57.3%	50.2%	**54.6%**
50 >	S	270	498	211	**979**
	%	17.3%	14.5%	12.2%	**14.5%**
Total	**S**	**1565**	**3444**	**1723**	**6732**
	%	**100.0%**	**100.0%**	**100.0%**	**100.0%**

S – Size of population

Table 1B

1941			Village			Total
			Hlavani	Zaduna-ivka	Vynoh-radne	
0-14	M	N	238	498	316	**1052**
		%	15.2%	14.5%	18.3%	**15.6%**
	F	N	218	472	331	**1021**
		%	13.9%	13.7%	19.2%	**15.2%**
15-49	M	N	426	1006	435	**1867**
		%	27.2%	29.2%	25.2%	**27.7%**
	F	N	413	967	430	**1810**
		%	26.4%	28.1%	25.0%	**26.9%**
50 >	M	N	140	253	99	**492**
		%	8.9%	7.4%	5.7%	**7.3%**
	F	N	130	245	112	**487**
		%	8.3%	7.1%	6.5%	**7.2%**
Total	**M**	**N**	**804**	**1757**	**850**	**3411**
		%	**51.4%**	**51.1%**	**49.3%**	**50.7%**
	F	**N**	**761**	**1684**	**873**	**3318**
		%	**48.6%**	**48.9%**	**50.7%**	**49.3%**
Total			**1565**	**3441**	**1723**	**6729**

M – male, F – female, N – number

Despite the assertion of demographic stabilisation observed among the Bulgarians of Budjak in 1941, it is important to note a typical gender imbalance within certain age groups. This can be explained by the fact that the Soviet takeover of Bessarabia triggered new processes that significantly influenced the transformation of the Bulgarian community's structure. Immediately before 28 June 1940, a significant portion of the wealthier population, along with their families, managed to emigrate to Romania. At the same time, following Bessarabia's incorporation into the USSR, the first wave of political repression began.

Calculations and modelling of the age-sex structure, based on household register data from 1941 and 1946, show no fundamental differences between these years. For both years, the Bulgarian population of Bessarabia can be classified demographically as stationary. By 1946, the main cohort groups were distributed as follows (Table 2A): Children and adolescents (under 14 years) – 28.7%; Working-age population (15-49 years) – 55.7%; Older people (50 years and older) – 15.6% From a comparative historical perspective (in comparison with 1941), it is important to note a decline in the proportion of children and a slight increase in the representation of the older population.

While the Bulgarians of Budjak exhibit a stationary demographic structure, they differ from the typical model by having a somewhat smaller proportion of the older cohort (by nearly 10%) and a slightly different redistribution between the child and reproductive-age groups.

It should be noted that regional variation in these indicators was significant but not fundamental, with differences between villages ranging within 5-6%. From the absolute data, it can be reconstructed that the territorial units consisted of relatively small villages, with populations ranging from 1,000 to 1,500 residents, as well as larger settlements where the Bulgarian population exceeded 3,000-4,000. Smaller enclaves tended to be "younger", a trend influenced by economic factors, local historical development patterns, geographic location, and other circumstances. The age-sex distribution, presented in Table 2B, clearly demonstrates a fairly balanced demographic structure. Overall, men accounted for 50.7% of the population, compared to 49.3% of women. The numerical predominance of men in the three age cohorts was marginal, amounting to 0.7%, 0.4%, and 0.2%, respectively.

Age (A) and Age-Sex (B) Structures, 1946

Table 2A

1946		Vynohradivka	Hlavani	Zadunaivka	Total
0-14	S	382	1013	857	**2252**
	%	33.3%	28.5%	27.2%	**28.7%**
15-49	S	605	1980	1782	**4367**
	%	52.7%	55.8%	56.7%	**55.7%**
50 >	S	160	558	506	**1224**
	%	13.9%	15.7%	16.1%	**15.6%**
Total	**S**	**1147**	**3551**	**3145**	**7843**
	%	**100.0%**	**100.0%**	**100.0%**	**100.0%**

S – Size of population

Table 2B

1946			Village			Total
			Vynohradivka	Hlavani	Zadunaivka	
0-14	M	N	202	539	444	**1185**
		%	17.1%	14.9%	13.6%	**14.7%**
	F	N	182	499	444	**1125**
		%	15.4%	13.8%	13.6%	**14.0%**
15-49	M	N	313	1009	945	**2267**
		%	26.5%	27.8%	29.0%	**28.1%**
	F	N	318	1011	900	**2229**
		%	26.9%	27.9%	27.6%	**27.7%**
50 >	M	N	86	290	258	**634**
		%	7.3%	8.0%	7.9%	**7.9%**
	F	N	80	276	265	**621**
		%	6.8%	7.6%	8.1%	**7.7%**
Total	**M**	**N**	**601**	**1838**	**1647**	**4086**
		%	**50.9%**	**50.7%**	**50.6%**	**50.7%**
	F	**N**	**580**	**1786**	**1609**	**3975**
		%	**49.1%**	**49.3%**	**49.4%**	**49.3%**
Total			**1181**	**3624**	**3256**	**8061**

M – male, F – female, N – number

The age-sex characteristics of Bessarabian Bulgarians in the 1940s can be analysed by comparing data from 1941 and 1946. Despite the significant global events of this period, demographic differences remain relatively minor. The proportion of children decreased by only 2.1%, from 30.8% to 28.7%. The reproductive-age cohort (15-49 years) increased by 1.1%, from 54.6% to 55.7%, while the older population (50 years and older) rose from 14.5% to 15.6%.

There were no significant changes in gender distribution across all three cohorts. In both 1941 and 1946, there was a slight predominance of men: among children (0-14 years), 14.7% were male compared to 14% female; in the reproductive-age group (15-49 years), 28.1% were men versus 27.7% women; in the elderly cohort (50+ years), 7.9% were men compared to 7% women. A notable finding is that, despite an overall population increase of nearly 20% in absolute numbers, the overall gender ratio remained unchanged – 50.7% men and 49.3% women. However, it is important to note that the 1946 household registers include records of men officially "registered" in their home villages but who were actually deployed on the labour front in the Urals and Kazakhstan. A considerable number of these individuals never returned to Budjak.

Significant demographic transformations were experienced by Bessarabian Bulgarians in the second half of the 1940s. The forced relocation of part of the reproductive population to labour armies, repressions, and the tragic events of the famine had a direct impact on the age-sex structure of the Bulgarian community in the region. These demographic shifts can be identified through calculations and comparative analysis of household register data from village councils, covering the period from early 1947 to late 1949. While these sources reflect the state of the Bulgarian population at the end of 1949, they also contain detailed retrospective data on events throughout the three-year period in which the records were kept.

To determine the age-sex characteristics and direct demographic losses of Bulgarians in Budjak between 1947 and 1949, a retrospective modelling approach has been applied. This method is based on three levels of index-based indicators: the overall age-sex characteristics of the community in dynamics, the mortality structure, and its impact on gender balance across different generations. This approach allows for a clear understanding of the actual demographic situation and enables an analysis of real losses due to famine and deportations. In line with these research objectives, the summarised data is presented in tables, detailing the composition of the population without accounting for mortality (Structure-1), the composition of the population including mortality rates for these years (Structure-2), and the difference between them, which highlights demographic losses for both sexes across different cohorts.

These calculations are illustrated using data from Novi Troyany and Vynohradne (Table 3A and 3B). Structure-1 represents the hypothetical distribution of age groups. Had the tragic events not occurred, the proportion of children would have ranged from

32.7% to 24.5% across different settlements. The working-age cohort (15-49 years) would have accounted for 56.2% and 60.8%, while the older population (50 years and older) would have been 11.1% and 14.7%, respectively, indicating a stationary demographic structure. A particularly notable demographic feature is the relatively small proportion of the older population. Instead of comprising the typical quarter of the total population, as expected in a stationary structure, they represented only one-tenth among the Bulgarians of Budjak. Mortality in absolute numbers was distributed across different generations, with between 210 and 422 recorded deaths per cohort. It is important to note that even such a significant mortality factor did not fundamentally alter the demographic potential of these territorial communities. Despite the famine and a high overall mortality rate, in which one in five (!) inhabitants of Bulgarian settlements in Budjak perished, the age-sex structure remained relatively stable. The proportions of children and elderly individuals decreased slightly, while the active age cohort increased.

The most vulnerable groups were children and older people, as their mortality rates exceeded their actual demographic share. Among individuals over 50 years old, this figure was more than twice the expected rate, indicating that mortality in this period was driven by external and artificial causes.

A breakdown of the age-sex structure by cohorts reveals a balanced mortality distribution between male and female populations (Table 3B). Yet, despite the extremely high mortality rates in both villages, the overall gender ratio remained unchanged. In the village of Novi Troyany, the male population decreased by only 0.9%, while in Vynohradne, the decline was even smaller – just 0.1%. However, certain specific patterns can be observed. Among the youngest cohort, changes occurred in a relatively synchronous manner. In Novi Troyany, the male child population decreased by 0.7%, while the female child population declined by just 0.1%. In Vynohradne, the losses were 0.6% for boys and 0.2% for girls. Due to greater losses among individuals aged 50 and older, there was a corresponding increase in the proportion of the reproductive-age group (15-49 years), ranging between 1.1% and 2.2%.

Analysing the age-sex mortality structure, it is again evident that mortality rates were particularly high among children (0-14 years) and older people (50+ years), with a slight predominance of male mortality. Only in Novi Troyany did the number of female deaths exceed male deaths, though only by two individuals (0.2%). In the 15-49 age group, contrasting trends were observed: in Novi Troyany, the proportion of male deaths was 2.6% higher than female deaths, while in Vynohradne, the opposite pattern was noted, with female mortality exceeding male mortality by 2.8%.

Age (A) and Age-Sex (B) Structure with Calculations of Demographic Losses 1947–1949

Table 3A

1947–1949		Novi Troyany			Vynohradne		
		Structure-1	Structure-2	**Difference**	Structure-1	Structure-2	**Difference**
0-14	S	1705	1367	**338**	1334	1070	**264**
	%	32.7%	31.9%	**36.7%**	24.5%	23.6%	**29.2%**
15-49	S	2929	2555	**374**	3304	2882	**422**
	%	56.2%	59.5%	**40.6%**	60.8%	63.6%	**46.7%**
50 >	S	579	369	**210**	800	583	**217**
	%	11.1%	8.6%	**22.8%**	14.7%	12.9%	**24.0%**
Total	**S**	**5213**	**4291**	**922**	**5438**	**4535**	**903**
	%	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

S – Size of population

Table 3B

1947–1949			Village					
			Novi Troyany			Vynohradne		
			Structure-1	Structure-2	**Difference**	Structure-1	Structure-2	**Difference**
0-14	M	N	856	667	**189**	725	562	**163**
		%	16.2%	15.5%	**19.1%**	13.0%	12.4%	**15.9%**
	F	N	867	699	**168**	631	507	**124**
		%	16.4%	16.3%	**17.0%**	11.4%	11.2%	**12.1%**
15-49	M	N	1424	1205	**219**	1683	1447	**236**
		%	27.0%	28.1%	**22.2%**	30.3%	31.9%	**23.0%**
	F	N	1543	1350	**193**	1699	1435	**264**
		%	29.2%	31.5%	**19.6%**	30.6%	31.6%	**25.8%**
50 >	M	N	264	156	**108**	418	292	**126**
		%	5.0%	3.6%	**10.9%**	7.5%	6.4%	**12.3%**
	F	N	323	213	**110**	402	291	**111**
		%	6.1%	5.0%	**11.1%**	7.2%	6.4%	**10.8%**
Total	**M**	**N**	**2544**	**2028**	**516**	**2826**	**2301**	**525**
		%	**48.2%**	**47.3%**	**52.3%**	**50.8%**	**50.7%**	**51.3%**
	F	**N**	**2733**	**2262**	**471**	**2732**	**2233**	**499**
		%	**51.8%**	**52.7%**	**47.7%**	**49.2%**	**49.3%**	**48.7%**
		N	**5277**	**4290**	**987**	**5558**	**4534**	**1024**

M – male, F – female, N – number

Thus, retrospective modelling of demographic changes during the 1946–1947 famine allows us to draw the following conclusions. Firstly, direct losses in Bulgarian settlements of Budjak can be estimat-

ed as approximately one-sixth of the population, which, according to empirical calculations, accounts for around 15%. Secondly, those at the highest risk were older individuals, with mortality reaching up to half of this cohort, and children, as one in three deaths was recorded among those under the age of ten. Thirdly, there was a slight predominance of male mortality among the deceased.

The collection of household registers from 1947–1949 includes six complete lists of residents from monoethnic Bulgarian villages in Budjak. During the examination and analysis of mortality patterns, data from only two settlements were used because the remaining four in the entire dataset did not contain direct references to population mortality during the 1947 famine. It appears that these records were re-written at a later date, likely to conceal the full scale of the 1946–1947 tragedy.

The entire dataset, analysed as of late 1949, contains information on 18,799 residents of Bulgarian settlements, including Vynohradivka, Hlavani, Zadunaivka, Novi Troyany, Vynohradne (Bolhrad raion), and Dmytrivka (Bilhorod-Dnistrovskyi raion) in the Odesa Region. According to the 1959 All-Union Census, a total of 128,072 individuals belonging to the Bulgarian ethnocultural group were recorded in rural areas of the Odesa Region (Станчев 2009: 259). If we subtract the number of Bulgarians living outside Budjak and account for the natural population growth over the ten years from 1949 to 1959, it can be asserted that the processed dataset represents one-fifth, or approximately 20%, of the total Bulgarian population in Bessarabia. This large and representative sample provides a solid foundation for a detailed study of age and gender structures, gender distribution within society, and the construction of age-sex pyramids.

Analysing the age groups of Novi Troyany and Vynohradne, it can be concluded that by 1949, the Bulgarian community was in a transitional state – shifting from a traditionally progressive to a stationary model of population reproduction.

The data presented in Table 4A fully supports this statement for the entire village sample. The youngest generation (under 14 years old) comprised 5,266 individuals, representing 28% of the total population. The largest group, the reproductive-age cohort (15-49 years old), included 11,470 individuals, accounting for 61%. The older population (50 years and older) consisted of 2,063 individuals, making up 11% of the total population. Thus, the observed ratio is 28 : 61 : 11, whereas the classical proportion for a stationary model should be 25 : 50 : 25 (Тотев 1974: 143). It is evident that by the mid-20th century, the proportional share of the child population was close to contemporary demographic structures. However, in our view, this is a direct consequence of low birth rates and indirect demographic losses resulting from the tragic events of the 1940s (war, deportations, and, most notably, famine). This assumption is confirmed not only by the analysis of the total fertility rate (Ганчев 2020: 156) but also by age structure data for the Bulgarian population of Bessarabia in 1966, where the 0-14 age group accounted for 34.3% (Ганчев 2020: 450).

Undoubtedly, the high percentage of the reproductive-age population is directly linked to the low proportion of the older cohort (50+ years old). As noted earlier, by 1946, this cohort represented 15.6%, showing a positive growth trend compared to 1941.

The age structure data for individual settlements, summarised in Table 4A, is of particular interest within the scope of this research. The first observation is the extremely low percentage of residents aged 50 and older and the high share of the reproductive-age population. This characteristic should be considered a marker of demographic balance in territorial communities that experienced deportations, repression, and famine. It further supports our hypothesis that in most settlements, mortality data from 1947 were artificially removed from the household registers by updating and rewriting these records.

A second distinct feature highlighted by the division of data across settlements is the identification of two parallel demographic models within the Bulgarian population of Bessarabia. By analogy, these two models can be provisionally classified as "progressive" and "stationary." The "progressive" model includes the communities of Novi Troyany, Dmytrivka, and Vynohradivka, which are characterised by a high proportion of children under 14 years old and a low percentage of older individuals. The above-mentioned table makes it evident how closely aligned the cohort distribution indicators are across these three villages. The calculated average indices provide a generational ratio, allowing us to distinguish this demographic development model as 32.3 : 58.3 : 9.5.

The "stationary" model of population reproduction includes the villages of Vynohradne, Zadunaivka, and Hlavani. Its distinctive feature is its closest alignment with the modern type of generational proportion distribution. In this model, children account for an average of 24.6%, with variability ranging between 23.6% and 26%. The older population (50+ years) represents 12.6%, fluctuating between 11.5% and 13.3%. The overall cohort distribution follows the proportion 24.6 : 62.8 : 11.5, demonstrating the

Age (A) and Age-Sex (B) Structures, 1949

Table 4A

1949		Vynohra-dne	Zaduna-ivka	Hlavani	**Average**	Novi Troy-any	Dmytrivka	Vynohrad-ivka	**Average**	**Total**
0-14	S	1070	583	853	**2506**	1367	924	469	**2760**	**5266**
	%	23.6%	24.4%	26.0%	**24.6%**	31.9%	32.4%	32.6%	**32.3%**	**28.0%**
15-49	S	2882	1493	2053	**6428**	2555	1669	818	**5042**	**11470**
	%	63.6%	62.4%	62.5%	**62.8%**	59.5%	58.5%	56.8%	**58.3%**	**61.0%**
50 >	S	583	318	379	**1280**	369	261	153	**783**	**2063**
	%	12.9%	13.3%	11.5%	**12.6%**	8.6%	9.1%	10.6%	**9.5%**	**11.0%**
Total	**S**	**4535**	**2394**	**3285**	**10214**	**4291**	**2854**	**1440**	**8585**	**18799**
	%	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

S – Size of population

Table 4B

1949			Vynohra-dne	Hlavani	Zaduna-ivka	**Average**	Novi Troy-any	Dmytrivka	Vynohrad-ivka	**Average**	**Total**
0-14	M	N	562	440	285	**1287**	667	471	231	**1369**	**2656**
		%	12.4%	13.4%	11.9%	**12.6%**	15.5%	16.5%	16.1%	**16.0%**	**14.1%**
	F	N	507	413	298	**1218**	699	453	237	**1389**	**2607**
		%	11.2%	12.6%	12.4%	**11.9%**	16.3%	15.9%	16.5%	**16.2%**	**13.9%**
15-49	M	N	1447	1016	754	**3217**	1205	788	373	**2366**	**5583**
		%	31.9%	30.9%	31.5%	**31.5%**	28.1%	27.6%	26.0%	**27.6%**	**29.7%**
	F	N	1435	1035	739	**3209**	1350	881	443	**2674**	**5883**
		%	31.6%	31.5%	30.9%	**31.4%**	31.5%	30.9%	30.8%	**31.2%**	**31.3%**
50 >	M	N	292	173	149	**614**	156	103	63	**322**	**936**
		%	6.4%	5.3%	6.2%	**6.0%**	3.6%	3.6%	4.4%	**3.8%**	**5.0%**
	F	N	291	206	169	**666**	213	158	90	**461**	**1127**
		%	6.4%	6.3%	7.1%	**6.5%**	5.0%	5.5%	6.3%	**5.4%**	**6.0%**
Total	**M**	**N**	**2301**	**1629**	**1188**	**5118**	**2028**	**1362**	**667**	**4057**	**9175**
		%	**50.7%**	**49.6%**	**49.6%**	**50.1%**	**47.3%**	**47.7%**	**46.4%**	**47.3%**	**48.8%**
	F	**N**	**2233**	**1654**	**1206**	**5093**	**2262**	**1492**	**770**	**4524**	**9617**
		%	**49.3%**	**50.4%**	**50.4%**	**49.9%**	**52.7%**	**52.3%**	**53.6%**	**52.7%**	**51.2%**
Total		**N**	**4534**	**3283**	**2394**	**10211**	**4290**	**2854**	**1437**	**8581**	**18792**

M – male, F – female, N – number

highest recorded percentage of the reproductive-age population in the demographic history of Bulgarians in Budjak. Comparing these two models, the most striking difference is the significant variation in the proportion of the youngest generation. The difference between these demographic models is expressed as 7.7 : 4.5 : 2.

This naturally raises the question of the causes and timing of this demographic shift. To explore this, we turn to earlier data. For example, the age distribution for 1946, presented in Table 2A, shows that the difference in the proportion of children under 14 between Hlavani and Zadunaivka was 1.3%, while in Vynohradivka, the corresponding figure was 5.4% higher than the average indices of the two previous villages (27.9%). According to earlier data from 1941 (Table 1A), the average percentage of children in Hlavani and Zadunaivka was 28.7%, with a difference of 0.9%. In Vynohradne, however, the proportion of this generation was 8.9% higher.

The transformation of the population reproduction model in Vynohradne is of particular interest. Undoubtedly, as of 1941, this settlement belonged to the group of villages characterised by the "progressive" model, which was marked by a high percentage of individuals under 14 years of age. The generational ratio in Vynohradne in 1941 was 37.6 : 50.2 : 12.2. As a result of massive demographic losses – to the extent that this term can be applied to a local context – during the forced resettlements and the 1947–1948

famine, by late 1949, the structure had shifted to a cohort ratio characteristic of the "stationary" model – 23.6 : 63.6 : 12.9. However, looking ahead, it is noteworthy that by 1966 (Ганчев 2020: 450), the structure had reverted to its original model, with proportions of 38.5 : 47.8 : 13.7. This suggests that, despite the profound impact of exogenous factors – namely forced displacement and famine – the "progressive" model of demographic reproduction demonstrated a capacity for renewal and restitution. Conversely, the "stationary" model serves as a clear marker of demographic transition, having reached by 1966 a ratio of 26.9 : 52.5 : 20.6, a proportion remarkably close to the ideal societal balance of 25 : 50 : 25 (Тотев 1974: 143).

Let us focus on the specific features of the age-sex structure of the Bulgarian community in Bessarabia in the mid-20th century (Table 4B). Summarising data from the entire database, we can observe that in the youngest cohort, boys outnumbered girls by only 0.2%. Due to the high mortality rate among boys in early childhood, the sex ratio in the reproductive-age group shifted in favour of females by 1.6%. This gender distribution indicates that by the mid-20th century, maternal mortality during childbirth had significantly declined. A higher mortality rate among men in the older population led to a slight predominance of women, though this difference remained minimal in our data (1%).

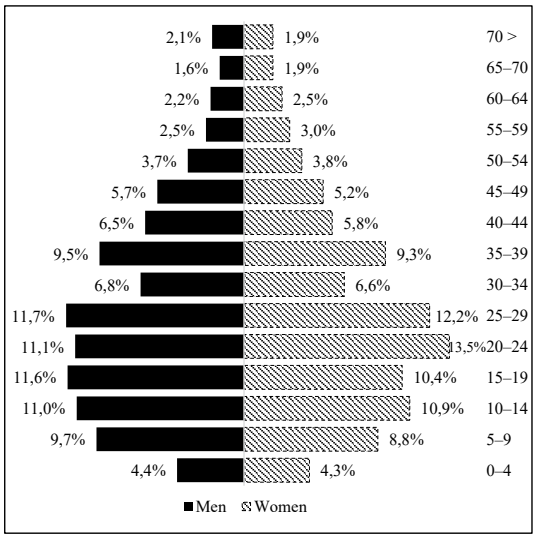
The data variability across different Bulgarian settlements in Budjak naturally reflects the differences between the two demographic models described earlier. In the "stationary" group of villages, the sex ratio was nearly equal, at 50.1 : 49.9, with a 0.2% male advantage. Despite minor variations between individual settlements, the average figures represent a well-balanced age-sex structure within the society. Among children under 14 years old, boys outnumbered girls by 0.7%. Their traditionally higher childhood mortality, combined with increased adult male mortality due to exogenous factors, resulted in a gender ratio of 31.5% men to 31.4% women in the reproductive-age group. Among the older population, male mortality exceeded female mortality, leading to a decline in the proportion of men aged 50 and older compared to women of the same age – 6% versus 6.5%, respectively.

The "progressive" demographic model of Bulgarian villages in Budjak demonstrated a greater numerical dominance of women, with a difference of 5.4%. Among the young generation (under 14 years old), only in Dmytrivka did boys outnumber girls, and even then, by just 0.6%. Across all three settlements, the overall gender ratio stood at 16% for boys versus 16.2% for girls. This trend became even more pronounced in the reproductive-age cohort, where women outnumbered men by 3.6%. Additionally, the older population (50+) contributed another 1.6% to the gender imbalance in favour of women.

Thus, another distinctive feature of the "progressive" development model in the mid-20th century is the numerical predominance of the female population across all age cohorts. At the same time, the "stationary" model was characterised by a balanced age-sex structure, with a logical sequence of gradual demographic transformations.

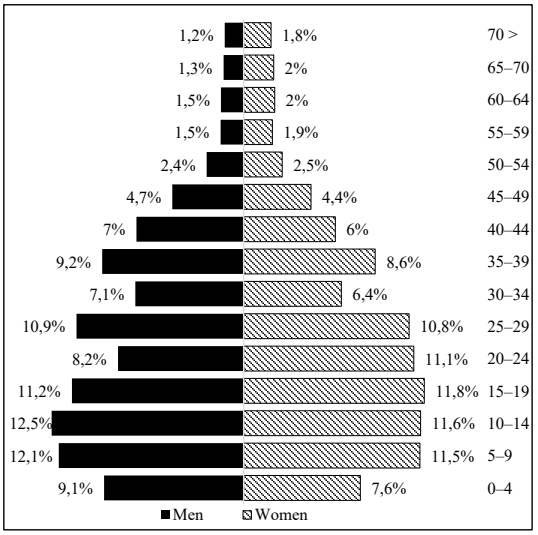
Age-Sex Pyramid of the Bulgarian Population of Bessarabia with a „Stationary" Structure 1949

Diagram 1



Age-Sex Pyramid of the Bulgarian Population of Bessarabia with a „Progressive" Structure 1949

Diagram 2



The age-sex pyramids presented in Diagrams 1 and 2 clearly illustrate the potential and trajectory of demographic transformations within the Bulgarian community of Bessarabia throughout the first half of the 20th century. The identification of these typological characteristics reflects the combined effects of multiple factors. Among these factors, exogenous influences such as famine, mechanical mortality, and forced resettlements play a significant role, along with natural shifts in endogenous processes, particularly changes in birth and death rates as key determinants of population reproduction.

The first and most evident fact is the artificially narrow bases of these age-sex pyramids, which reveal a significantly reduced birth rate during periods of social upheaval (particularly during the forced resettlements and famine of 1945–1948), with figures two to three times lower than the typical levels. In villages with a „stationary" structure, the birth rate was even lower, by more than twofold. Among children born between 1 January 1946 and 31 December 1949, boys accounted for only 4.4% of the total male population, while girls made up 4.3% of the total female population. Furthermore, the proportion of "war children" – those born between 1941 and 1945 – was 9.7% for boys and 8.8% for girls. A comparison with the corresponding results for the "progressive" demographic structure highlights that, during the war, the birth rate in this group of villages was 2.4% – 2.7% higher.

The gender ratio among the two "pre-war" cohorts, aged 10-19 years (born 1931–1940), appears relatively balanced, with minor fluctuations in favour of one sex or the other. The variation in the proportion of males within the 15-19 age group directly reflects the fact that 19-year-old boys (and, to some extent, 18-year-olds) were subject to conscription and sent to serve in the Soviet Armed Forces [On Universal...]. Between 1947 and 1949, men born in 1929–1931 were mobilised into the army.

Examining some key aspects of the gender balance in both pyramids, the "stationary" pyramid shows a higher percentage of young men aged 15-19 compared to the 10-14 age group. This suggests that despite high mortality within this cohort and the departure of 18-19-year-old conscripts from rural settlements, the group remained relatively large due to a high birth rate between 1931 and 1935. The decline in the percentage of girls aged 15-19 is likely linked to slightly higher female mortality, influenced by both exogenous and endogenous factors. The data from the "progressive" pyramid for the 10-14 and 15-19 age cohorts indicate a high birth rate throughout the 1930s. The changes in the 15-19 male age group follow a logical pattern, reflecting a decline in the number of young men due to mortality and military service. However, the slight increase in the number and proportion of girls in this cohort, despite accounting for a certain level of female mortality, supports our hypothesis of a higher birth rate during 1931–1935.

Thus, the demographic transition processes among the Bulgarian community of Bessarabia in the 1920s–1930s resulted in the formation of two distinct models of population reproduction. Some village communities within the "progressive" model retained key characteristics of an extensive development path, marked by high birth and mortality rates. The transformation dynamics in the second cluster of villages suggest that had it not been for the forced resettlements and famine of 1945–1948, by the mid-20th century, the transition from a progressive to a stationary demographic growth model could have been considered complete. It is difficult to provide a definitive answer regarding the reasons behind this differentiation and the formation of two distinct models of natural population movement among Bessarabian Bulgarians. It can be assumed that this reflects the interaction of multiple factors, including the socio-territorial distance from urban centres, the degree of integration into new economic relations, the patriarchal nature of society, and the conservatism of family traditions.

Summarising the points made above, the introduction of collective and state farms, combined with other elements of the Soviet system, created a new social stratification within Bulgarian rural communities. The tragic events of the 1946–1947 famine became yet another exogenous factor, contributing to significant demographic transformations within the Bulgarian community. First and foremost, it should be noted that the impact of the famine resulted in an almost sixfold increase in overall mortality compared to 1946 figures. The most vulnerable groups were children and older people. As a result of repression, deportation, and famine, the Bulgarian community of Southern Bessarabia in the USSR suffered a conditional population loss of 18,000-19,000 people, including those unborn due to the depletion of the reproductive population.

Notes

[1] According to this classification, the three age groups – under 14, 15-49 years, and over 50 years – should be distributed in a progressive population as 40: 50: 10, in a stationary population: 25 : 50 : 25; in a regressive population: 20 : 50: 30 (Тотев 1974: 143).

[2] Hereinafter, the table has been compiled by the author based on data from household registers of the village councils of Hlavani, Vynohradivka, Vynohradne, Zadunaivka, and Novi Troyany in the Bolhrad raion of Odesa oblast, as well as Dmytrivka in the Bilhorod-Dnistrovskyi raion of Odesa oblast (archived in village councils).

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