

Contemporary and Future Status of Social Demography: An Analytical Review

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Abstract

A review followed a descriptive approach in analyzing the literature at the macro level to determine the nature of research interest in social demography during the specified time period (2014-2024). It then used a foresight approach to predict the prospects of social demography in the near future, through theoretical and methodological practices that have emerged in the studies of scholars and researchers on contemporary issues. A review of contemporary issues in social demography reveals a state of renewal that parallels social transitions currently taking place in societies. The paper concludes that social demography is not lacking in its scientific theories, methodological approaches, and research tools, given the tremendous progress of the digital revolution and artificial intelligence. It anticipates the emergence of new scientific theories for virtual societies and posthumanism, as well as their diverse issues. A review anticipates the increasing importance of social demography issues, theories, and methods as an interdisciplinary science in the near future, given its interconnectedness with many other sciences.

Keywords

Social Demography, Fertility, Mortality, International Migration

1. Introduction

Sociologists agree that social phenomena are constantly changing. This change serves as a motivation to study the state of these phenomena, their history, and their contemporary changes. It also motivates the prospective study of their future, fulfilling one of the functions of science through scientific prediction. Consequently, our interpretations of these phenomena and the sciences concerned with them are shaped by policies that monitor these phenomena between the past, present, and future.

Social demography, or rather the sociology of population, is a branch of the social sciences concerned with studying the historical roots of societal issues, their present and future. This branch of sociology emerged as a pressing need to study and analyze the relationships between population phenomena, whether those related to “population structure,” such as size, composition, and distribution, or “population change,” such as population increase and decrease. This analysis goes beyond attempting to understand the nature of these relationships and explains them within the context of the social structure of society, based on the population as a fundamental element. Therefore, population phenomena can only be understood by observing them within various social structure systems. It is a field of study that analyzes how social and cultural factors relate to population characteristics. It also focuses on the impact of these factors on demographic characteristics in society, such as marriage and childbearing patterns, the age structure of the population, in addition to providing scientific explanations for the social consequences of demographic changes (Carmichael, 2016).

These scientific explanations contribute to predicting the impact of various factors on population structure and characteristics, and understanding population growth trends over a specific period of time and geographic area. With the accelerating pace of transitions affecting the economic, social, and cultural aspects of contemporary societies, fundamental changes have occurred in the structure and functions of societies. The effects of these transitions have been evident in their systems and conditions, reflected in a parallel shift in the research interests of scholars and researchers, as well as in the theoretical and methodological frameworks that explain these transitions and future responses to them. From this perspective, this background paper reviews general features of social demography in terms of these transitions. It examines the most important contemporary issues on the global research map, sheds light on the theoretical and methodological practices of these issues, and forecasts their future trends. This foretells the future state of social demographics.

2. Methodology

2.1. Study Importance

1) This paper contributes to defining characteristics of contemporary issues and research interests in social demography, in terms of the diverse social transitions.

2) This summarizes the state of theoretical and methodological practices associated with research issues during the contemporary and future period of social demography.

3) The paper attempts to anticipate the future state of social demography by identifying knowledge gaps on its issues and approaches to address them theoretically and methodologically.

2.2. Study Objectives

The paper aims to investigate the following:

1) Monitor the accumulated sociological knowledge of social demography by presenting the most prominent research topics over a decade, during the period from 2014 to 2024.

2) Identify the most prominent classical, contemporary theoretical, and methodological trends and practices followed by social demographers in their research on these issues during the specified period.

3) Contribute to providing a prospective vision for future waves of these research issues, and the methodological and theoretical frameworks necessary for the development of social demography.

2.3. Study Problem

It is well-known that the social conditions that prevailed in the nineteenth and early twentieth centuries influenced the development of sociology, its theories, and methods. Poverty, the Industrial Revolution, and uncontrolled urban expansion were driving factors behind numerous issues that preoccupied researchers and scholars during that period. In parallel with these changes, societies have recently witnessed numerous social, cultural, epidemiological, economic, and political transitions.

This transition has generated issues related to the digital revolution as an alternative to the industrial revolution, generative artificial intelligence as an alternative to human intelligence, and the virtual public sphere as an alternative to the physical public sphere.

These issues include the emergence of refugee and displacement movements resulting from political conflicts, as well as green environmental movements resulting from environmental changes. Consequently, the trajectory of scientific theories and methodological frameworks that address, explain, and guide these issues has shifted, producing theories and scientific methods directly linked to social demography. The review problem statement could thus be framed as a knowledge gap, namely, the need for a systematic synthesis of recent trends to guide future research agendas in the rapidly evolving field of social demography.

2.4. Study Questions

The paper begins with a main question: *What are the general features of the map of social demographic research in contemporary and future periods?* From this question, the following questions branch out:

1) What are the most prominent contemporary research issues in the field of social demography?

2) What are the most important theoretical and methodological practices that address these issues, and what is expected to emerge in the near future?

3) What research topics are expected to be addressed by social demography in the near future, in terms of contemporary theoretical and methodological gaps?

2.5. Method and Level of Analysis

The research paper relied on an analytical review of the most prominent research

topics presented in international open-access demography journals on the Scopus database. It should be noted that these journals, whose rankings range from Q1 to Q4, published a total of 1475 research articles related to demography and were ranked among the top ten specialized journals on the Scopus database, as shown in **Table 1** during the last three years of the study period.

Table 1. Shows the highest percentage of citations to the best international journals specializing in social demography on the Scopus database during the period 2020–2023.

Scientific Journal	Highest Citation	No. of Citations	No. of Research	Rank
Comparative Migration Studies	97	1067	162	1
Genus	91	738	128	2
Journal of Migration and Health	90	10137	200	3
Chinese Journal of Population Resources and Environment	84	642	148	4
Demographic Research	79	1233	317	5
International Journal of Population Data Science	70	504	202	6
Population and Economics	65	259	124	7
IZA Journal of Development and Migration	74	101	54	8
Vienna Yearbook of Population Research	60	121	64	9
Comparative Population Studies	56	133	76	10

The paper followed a descriptive approach in analyzing the literature at the macro level to determine the nature of research interest in social demography globally. This was done by searching article titles, abstracts, keywords, and authors, and supported by referencing the issues presented in the databases Sage, JSTOR, ELSEVIER, ProQuest, and Springer.

The study also used the foresight approach to predict the prospects of social demographics in the near future, in terms of theoretical and methodological practices that have emerged in studies by scholars and researchers on contemporary issues.

The theoretical, methodological, and research practices of scholars and researchers can be described as those of “experts” in the field of social demography. Thus, the researcher claims that the accumulation of knowledge produced by experts may constitute one of the practical approaches to prospective the future.

3. Contemporary Research Issues in Social Demography

The paper will be limited to presenting selected models, which the researcher can monitor within the limits of the requirements of a pre-determined time period, to represent the issues of the contemporary period, then the most important theoretical and methodological practices. Thus, future issues can be prospective in the final section.

Much contemporary research in the field of social demography has devoted significant attention to issues of international migration, particularly **forced, climate, and irregular migration**. This interest stems from the growing prevalence of these patterns at the international level and their interconnectedness with many contemporary social, economic, political, and environmental issues. Regarding the first pattern (**forced migration and forced displacement**), it suffices to note that during 2022/2023, the world witnessed major migration and displacement events, causing significant suffering and psychological trauma, as well as loss of life. In addition to the conflicts in Gaza and Ukraine, millions of people were displaced in the Syrian Arab Republic, Yemen, the Central African Republic, the Democratic Republic of the Congo, Sudan, Ethiopia, and Myanmar (McAuliffe & Ocho, 2024: 3).

It is sufficient to point out that the estimate of the number of international migrants issued by the International Organization for Migration in its report (2024), shown in **Table 2**, indicates that the size of migrants in the year (2000)—that is, almost a quarter of a century ago—was estimated at about (150) million migrants compared to (281) million in the year (2024 AD), and the size of migrant labor increased last year to reach (169) million migrants, while the number of refugees reached (35.4) million refugees in the year (2024), compared to only (14) million refugees in the year (2000), a difference of (21.4) million refugees from that period, and the number of internally displaced persons exceeded three times that of the year (2000); as it reached (71.4) million internally displaced persons, compared to only (21) million in the year (2000) (McAuliffe & Ocho, 2024: 8).

Table 2. Facts and figures about the size of international migration in the world (2000-2024).

Statement	Migration Report 2000	Migration Report 2024
Estimated number of international migrants	150 million	281 million
Estimated share of the world's migrant population	2.8%	3.6%
Estimated share of female international migrants	47.5%	48.5%
Number of migrant workers	--	169
Number of refugees	14 million	35.4 million
Number of internally displaced persons	21 million	71.4 million

McAuliffe & Ocho (2024). World Migration Report 2024. International Organization for Migration (IOM), Geneva, p. 8.

The literature has interpreted most issues related to forced migration in light of the realist framework of internal security, based on the principle of border control and state sovereignty to maintain internal security and stability, and the liberal framework derived from human rights, based on the principle of ensuring that refugees enjoy their right to protection and security (Lahav & Messina, 2024).

Thus, Kreichauf (2019) asserts in his article “From Forced Migration to Forced

Arrival” that the strict laws and policies regarding refugee camps in European countries have led to many social and spatial changes in these societies, resulting in the spatial and legal exclusion of refugees and the territorialization (spatial segregation) of migrants in locations outside the territorial borders. This is in line with the general attempts of the European Union, but these policies towards excluded groups may result in the penetration of these marginalized groups into urban areas in various ways.

Recent demographic studies by [Reed, Sheftel, and Behazin \(2018\)](#) have examined **the relationship between forced migration and patterns of mortality and morbidity**. Their findings show that mass forced migrations often result in poor health and premature death, which vary depending on the migration scenario and the demographic, social, and health characteristics of the migrant groups.

[Agadjanian \(2018\)](#) also examined the relationship between forced migration, fertility, and reproductive health from three sociological perspectives: **selection, discontinuity, and adaptation**. The selection perspective assumes that migrants tend to self-select to reproduce, while the discontinuity or disruption perspective, which is more applicable in the general forced migration literature, assumes that migration disrupts migrants’ lives. Through separation in the absence of family migration patterns, immigrants’ fertility is typically lower than that of their non-immigrant peers. The final perspective (adaptation) sees immigrant fertility patterns adapting to the host society’s fertility regimes, especially when migration flows move from rural to urban areas.

In terms of the refugee crisis, some researchers have examined **the impact of educational policies and systems on the integration or exclusion of refugee children in the educational systems of some European Union countries** (Sweden, Germany, and Greece) and outside of them (Turkey and Lebanon). The study relied on methods of enrollment in compulsory education, the content of welcome and social integration lessons, and second language teaching as policies that influence children’s integration into educational institutions ([Crul et al., 2019](#)).

In a different context, [Abbasi-Shavazi, Mahmoudian, and Sadeghi \(2018\)](#) studied **“Family Dynamics in the Context of Forced Migration”**, recognizing the knowledge gap on refugee and forced migrant families due to the scarcity of demographic, social, and economic data and statistics. Studying the pattern of family life cycle changes among forced migrants requires data on age at marriage, family size and composition, fertility, intra-household decision-making, education level, income, and occupation.

After the focus of research was directed toward forced migrants and refugee protection and rehabilitation programs in light of the repercussions of exclusion and social integration, research has recently turned to tracking the economic conditions of these migrants in light of international attempts to return refugees to their countries of origin or resettle them, through well-known regional, international, and UN consultations and interactions. **Refugee movements (voluntary return or resettlement)** involve two elements: the refugee’s freedom of choice in

the country of asylum, and an informed decision regarding the situation and changes occurring in the country of origin after a prolonged absence. Here, pull factors in the country of origin may be more important than “push” factors in the country of asylum.

As a result, recent studies in social demography have examined the issue of refugees, **voluntary return, or resettlement, and their relationship to occupational mobility over the years of residence in the host society**. The higher the occupational mobility, the greater the likelihood of success. Refugees’ motivation to return to their country of origin or resettle in another country declines (Hagan, Wassink, & Castro, 2019; Fernández et al., 2023; Ressia, Strachan, & Bailey, 2017).

A related issue is examining the social implications of statelessness, particularly for irregular migrants, as a form of citizenship denial. These individuals lack formal legal status in their country of residence. Examples include some Palestinians living in the occupied territories, Rohingya Muslims in Burma, and hill tribes in northern Thailand. They face similar challenges to forced migrants, particularly in terms of the denial of their basic rights to improve their livelihoods.

Contemporary social demography literature has also raised the issue of resettlement and social reintegration as a potential outcome of forced migration. Social reintegration is a form of mixed integration that researchers envision. When refugees return to their country of origin, they may not immediately feel socially integrated. Successful integration requires an economic and social network, as well as social and psychological support for returnees, until they are reintegrated. Returnees may also encounter conflict with those left behind and may have little in common with the customs and culture of their old (or new) homeland (Reed, Sheftel, & Behazin, 2018).

Return migration has thus received increasing attention, given the lack of a comprehensive understanding of the factors that determine international migrants’ intentions and decisions to return. This includes assessing the role of crucial life events in the family, work, and health domains in the return decision-making process of non-Western first- and second-generation migrants (Bettin, Cela, & Fokkema, 2018).

3.1. Climate Migration

There is a clear link between climate change and the number of populations forced to abandon their lands due to critical humanitarian needs and protection gaps. The social, economic, and environmental vulnerabilities created by climate events create a greater likelihood of forced relocation due to the impacts of climate change. Statistics indicate that extreme weather events and conflict are among the most significant drivers of climate migration globally, together responsible for the annual movement of approximately 32.6 million people from their homes. Climate-related impacts also increase the stress on vulnerable communities, threatening social security due to the risks of conflict and displacement in the absence

of effective prevention efforts (UNHCR, 2023).

Recently, **climate migration** has gained particular importance for women and girls, who face social discrimination that impacts their ability to adapt to and cope with climate impacts. In his article on “**Climate Migration: A Gender Perspective**”, he highlights that climate change-induced migration has a significant gender dimension, yet it has received insufficient attention. Neither statistical data nor legal frameworks adequately integrate climate migration nor address it from a gender perspective, resulting in a lack of social protection for women (Borràs-Pentinat, 2023).

Contemporary literature predicts that marginalized and economically disadvantaged communities in both the Global South and the Global North will bear the brunt of climate change impacts in the future. Although migration has been identified as a beneficial strategy for adapting to climate change stressors, it is not without its limitations. **The influence of economic and social capital** on migration hinders the ability of marginalized individuals and groups to benefit from it. As an adaptation strategy, the intersections of individuals’ social identities—such as gender, age, and disability—also affect their access to migration resources, as well as the benefits they can gain from international migration movements or displacement (Baada et al., 2024). Therefore, some studies have critically evaluated international agreements related to the *global governance of climate migration* through their instruments and policies (van der Vliet & Biermann, 2022), through which the goals of providing humanitarian assistance with justice and shared participation in preparing for and responding to climate events are achieved (Maria et al., 2020).

3.2. Illegal Immigration

In an article titled “**Twenty-First-Century Globalization and Illegal Migration**” Donato and Massey (2016) assert that the increase in illegal migration from developing countries is due to increased violence, marginalization, and wide disparities in wealth and income, as well as the repercussions of capitalist globalization in the twenty-first century. Globalization has led to the emergence of a global economy in which the labor market and human capital are globalized, leading to an increased flow of illegal labor.

In this regard, a study was conducted on the “*Labor Market Effects of Immigration Policies Border Enforcement and Amnesty*” applying it to undocumented workers in the United States. The results showed that tightening border controls to prevent undocumented immigration would limit potential undocumented employment opportunities, and that increased undocumented employment rates would lead to higher wages in the labor market after the reconciliation or settlement process, requiring this type of worker to pay all applicable taxes, in addition to negatively impacting job opportunities for low-skilled workers and increasing unemployment rates (Orozco-Aleman & Gonzalez-Lozano, 2018). Papparusso et al. (2017) also studied the impact of Italian immigration policies on the

settlement of irregular Egyptian and Moroccan migrants; the findings indicated that changes in immigration policies hinder migrants' ability to settle and obtain legal residency as an alternative to temporary residence, secure working conditions, and opportunities for integration into the host society.

Arguably, the issue of irregular migration is linked to many other sub-issues. Although it is considered a crime in itself, some have attempted to link it to the crime of **human trafficking**. Irregular migrants face the highest risk of exploitation due to their vulnerable clandestine status, which is exploited by human traffickers and other criminals in the illegal labor market. Furthermore, these victims find it extremely difficult to communicate with authorities or even seek assistance from government institutions (Annina, 2016). Recently, research on irregular migration and human trafficking has expanded to the point that some have attempted to revisit anti-trafficking discourses and security practices in the context of irregular migration management in the European Union. The discourse of protecting migrants from human traffickers, promoted by law enforcement officials, overlaps with a discourse that criminalizes irregular migration and distinguishes between the migrant as a passive victim, the asylum seeker, the "economic migrant," and smuggling gangs. These practices and procedures are primarily aimed at categorizing migrants into these categories and identifying potential threats to the country of arrival (Anderlini, 2024).

It is worth noting that the majority of policies proposed in the literature on irregular migration do not support proactive solutions to eliminate it, such as addressing the negative impacts of globalization, social and economic transitions, and human trafficking. This demonstrates that this phenomenon is not the responsibility of a single country. Therefore, it can be argued that an effective solution to this problem requires a regional approach and international measures by international bodies and the international community.

3.3. Reproductive Responsibility

Reproductive responsibility is the moral obligation of prospective parents to consider the quality of life their children are likely to lead and to refrain from having children if their lives are likely to be unsatisfactory. Reproductive responsibility is not limited to reproductive considerations; it includes responsibilities to ensure safe motherhood for wives, along with the welfare of the child, ensuring their educational development, and improving their emotional and psychological well-being (Mbadugha, 2018: 90). Therefore, reproductive responsibility implies a duty to adhere to a standard of responsible behavior when contemplating reproductive activities, where the birth of a child is a likely and foreseeable outcome.

Recent literature that has revived the issue of reproductive responsibility includes studies by (Kane et al., 2018) on reproductive responsibilities, and (Dukes & Palm, 2019), which aimed to monitor parents' interests and contributions to child development and well-being within the framework of reproductive responsibility and justice.

3.4. Body Studies and Their Implications in Social Demography

The first writings on the body appeared implicitly in classical sociology, through Karl Marx's (1945) interest in the question of the body's absorption in capitalist technology, Georg Simmel's (1990) interest in the bodily tendencies that drive people to interact with one another, Max Weber's (1904, 1915, 1948, 1985) work on the rationalization of the body, and Durkheim's (1995) consideration of the body as the source and site of religious phenomena that contributed to the cohesion of individuals (Shilling, 2013).

These writings neglected the body as an integral part of human action. Then came the interpretations of cultural theory and the views of "Goffman", representing a revival of the social study of the body in its sociodemographic aspect. Cultural theory embodies the discrimination that affects the female body in relation to reproductive function; in the cultural context of male dominance. While the female body is primarily blamed for infertility, pregnancy in the same cultural context is based on the notion that the male body is the only positive factor in the formation of the fetus. In the same context, "Goffman" interprets pregnancy as one of the symbolic, nonverbal bodily expressions.

Through these bodily expressions of "pregnancy and childbirth," the symbolism of the body can be categorized. Social life is filled with many roles, and if individuals wish to be convincing in performing them, they must adhere to the bodily rules that govern those roles. "Goffman" thus offered an analysis of the embarrassment and stigma that arise when the body mediates the relationship between self-identity and social identity (when an individual fails to perform the social roles they represent in a balanced manner) (Shilling, 2013). This has been confirmed by recent studies on the relationship between the infertile body and social stigma in India and China, by (Jing et al., 2021), (Zhang et al., 2021), and (Yokota et al., 2022). Therefore, body stigma is a major factor in achieving the missing reproductive identity of the infertile body. This stigma, in turn, influences healthcare practices, such as treating the body with assisted reproductive technologies.

Assisted reproductive technologies include "surrogacy," which raises questions about the social stratification of surrogacy. This new form of surrogacy involves the exchange of children within the context of social and economic disparities (class division) between those seeking it and their clients. Researchers have raised many key issues related to commercial surrogacy in its social context, the concept of motherhood and women's desire to have children, as well as other issues related to the genetic mother, the surrogate mother, and the exploitation of women's bodies.

Hence, it can be concluded that the spread of reproductive technology, in terms of the commercialization of reproductive and sexual activities, makes us expect many ethical and social issues that constitute a fertile field for research in the field of stratified reproduction (Riley, 2018: pp. 127-130).

3.5. Reproductive Rights and Reproductive Justice

Reproductive rights and justice frameworks align with the philosophical and the-

oretical foundations upon which social justice and social work are based. Reproductive justice is achieved when women enjoy physical, mental, and spiritual well-being, and possess the power and economic, social, and political resources necessary to make healthy decisions about reproduction for their families and society.

“Feminists argue that we need to reintegrate reproductive rights and justice with other social justice issues, such as environmental and economic rights, the rights of persons with disabilities, and other human rights that establish principles of reproductive justice for societies (Liddell, 2019: 103). This issue falls within the interests of sociology and social work, including population sociology. For example, social workers—including service providers such as social workers—work to provide health-related services and develop reproductive health policy” (Liddell, 2019: 107).

In the same context, some have addressed the issue of **women’s autonomy to exercise reproductive rights**, especially since the exploitation of women in patriarchal societies is governed by numerous social and cultural determinants. Therefore, we need to conduct more research on the “women’s autonomy model” and various issues of reproductive rights and justice (Biswas et al., 2017: 8).

Other examples of issues raised in relation to reproductive rights and justice include abortion and its implications, through achieving equal access to safe abortion, but after examining the social and cultural context in which the mother decides to terminate the pregnancy (Galloway & McGrath, 2018: 298).

Several cross-cultural studies have also emerged on the contemporary research map, examining the **reproductive rights of women with disabilities**, considering them to be in dire need of social care and, therefore, unable to fulfill their reproductive roles. Therefore, the feminist trend explores how patriarchal social constructions are organized. To the extent that reproductive rights for women with disabilities build upon their humanity and personhood, and initiate just decisions that affect their bodily and life rights (Vaidya, 2015).

A recent research paper (Giorgio, 2024) defended the forms of suppression of reproductive freedoms imposed by health systems in some societies, including cesarean delivery and access to safe and legal abortion. The issue of child adoption was also recently included among reproductive justice issues, with its physical and psychological impacts on adoptees and biological parents (Wexler et al., 2023).

3.6. Demographic Dividend and Investment in Human Capital

The concept of the demographic dividend can be summarized in two factors. The first is the creation of the demographic dividend resulting from the demographic transition through declining fertility rates and an increase in the proportion of the adult (economically active) population of productive age; the second is the translation of this opportunity or gift into rapid economic growth, thanks to the efforts of this young cohort.

Numerous studies have examined the impact of the demographic dividend on the economic growth of many developing countries, and have shown that the de-

mographic dividend, measured by the proportion of the working-age group in the population, has positively impacted economic expansion in developing and low-income countries in general. Furthermore, the literature has found that investing in human capital development provides a favorable outcome for economic growth and enhances the positive impact of the working-age population (Yaqoob et al. 2024).

A study (Amin and Singh 2024) on the **Demographic Dividend and Skill Development Initiative (DDI)** demonstrated that investment in human capital, based on skills and knowledge, is the engine of economic growth and social development for any society to reap the benefits of the demographic dividend; therefore, early investment in education and health is the common denominator for policies that lead to reducing fertility rates and achieving the demographic dividend, especially for females. Furthermore, a (social-health) policy can only be achieved by creating a favorable social environment for girls as they enter reproductive age (Jain. 2016: 1).

Therefore, Jain (2016), in his discussion of “**The Relationship Between Policies Leading to the Demographic Dividend and the Fertility Transition,**” asserts that countries that have succeeded in investing early in social development through indicators such as female tertiary education and low infant mortality have succeeded in creating a favorable social environment for reducing fertility and embracing the demographic dividend. In a way that makes it inevitable to benefit from it.

In the same context, (Miller, Saad, & Martínez, 2016) reviewed a study of the contributions of gender equality to labor market participation in order to benefit from the demographic dividend. Achieving women’s economic independence and equality is the most obvious path to revealing the benefits of the demographic dividend. Their analysis confirms the existence of a gender gap in labor force participation in many countries, including Latin American countries—the study population—compared to European countries that have achieved high levels of gender equality. They emphasize that cultural conditions and other obstacles that hinder women’s access to the labor market and reduce their benefits from the demographic dividend are matters that need further study and research.

Also, a study by Kotschy and Bloom (2023) on the **relationship between population aging and economic growth: From demographic dividend to demographic slowdown**, predicts that population aging, during the period (2020 - 2025), will slow economic growth in most parts of the world, or limit the expansion of labor supply; this is due to the improvement in the functional capacity of the elderly as a result of this demographic slowdown.

3.7. Epidemiological Transition and Mortality Trends

Recently, the study of mortality has not been limited to examining the causes of death among different age groups, such as fetal, infant, child, and maternal deaths; research in this field has evolved from sociology, employing new and innovative

methods and models to understand the reasons that lead individuals and social groups to survive longer periods compared to others, and how the likelihood of survival is related to the social structures of society and the various characteristics of individuals and groups, whether social, demographic, economic, or even psychological. This is especially true in terms of the epidemiological transitions sweeping societies.

Omran (1971) began his theory of epidemiological transition to describe and analyze the transition in causes of mortality. He proposed a three-stage model of epidemiological transition, introduced a new demographic criterion, life expectancy, and developed an internal view of societies by studying the variations in this indicator for females and males at different ages.

Some scholars have proposed expanding this theory by adding new phases, until the COVID-19 pandemic ushered in a new phase that can be described as the “return of major epidemics” in global societies. This phase revealed the fragility of social and political organizations, as health institutions were forced to reorganize themselves to deal with these types of epidemic risks, which are believed to be a part of history.

Among the studies that monitored the impact of the COVID-19 pandemic on mortality trends are Axenhus et al.’s study on “**Changes in mortality trends among common diseases during the COVID-19 pandemic**” (Axenhus et al., 2022) and Fernández et al.’s (2023) study on “**Government interventions and control policies to contain the first COVID-19 outbreak**”: the results of which supported high-level government interventions to effectively suppress the spread of the epidemic and mortality rates during the first wave worldwide, compared to other levels of control policies.

3.8. Demographic Transition and Challenges of Aging

The United Nations report on “**World Population Ageing 2023**” predicts that all least developed countries will experience a significant increase in both the proportion and number of older persons between 2023 and 2050. Preparing for population aging in least developed countries will be essential to fulfilling the promise of the 2030 Agenda for Sustainable Development. As countries transition through the demographic transition, their age structures change, passing through three distinct phases: a period of rapid population growth and increased youth dependency, followed by a period of slower growth and declining youth dependency, and a period of minimal or negative population growth and increased elderly dependency (United Nations, 2023: pp. 1-3). Therefore, it is crucial to focus on discussing and analyzing demographic data related to population aging and growth rates, as well as social, economic, and health aspects, with a focus on policy measures targeting older persons (Lopus, 2024). The phenomenon of population ageing, which is unprecedented in human history, brings with it sweeping changes in population needs and capacities, with potentially significant implications for employment, savings, consumption, economic growth, asset values, and fiscal balance (Bloom

& Luca, 2016).

Therefore, we must recognize that the growth in the elderly population accompanying the demographic transition is linked to many of the social and environmental dimensions that the population experiences throughout its lifespan, which has led to the emergence of many concepts related to aging, such as **healthy aging**, **active aging**, and **productive aging**.

In this regard, recent research on **productive aging** has focused on the health benefits associated with work and volunteering after retirement. These activities are often assumed to have independent associations with health and well-being. Results have shown the benefits of continuing to work beyond traditional retirement age, compared to those who leave work early. Individuals who delay retirement tend to maintain higher cognitive function and better mental health than early retirees. Furthermore, volunteer participation may maximize health benefits soon after the transition to retirement (Carr et al., 2023).

Karlin & Weil (2017) argue that understanding global aging as a phenomenon within its social context can only be achieved by examining the demographic composition of aging. Only then will aging reflect renewed concerns within a specific social context. Both researchers conducted a study on older adults' perceptions of healthy and active aging in Italy, the United States, Thailand, South Africa, Botswana, and Saudi Arabia; a comparative descriptive analysis of the data revealed that access to and use of health and social services, social support, daily activities, economic status, and sources of financial support led to significant variations in activity levels, health, attitudes toward happiness, and overall life satisfaction among comparison groups internationally.

Conversely, studies have investigated the impact of **social participation on age integration** between older and younger adults (downward age integration) and older and younger adults (upward age integration) in some European countries. The results demonstrated the importance of social participation, including formal social activities and networks, in achieving age integration for older adults (Sun & Schafer, 2019). In contrast, studies have been conducted on the **social exclusion of older persons**, by examining the impact of socio-demographic characteristics on the social exclusion of older persons. The results showed that the social exclusion of older persons results from weak social participation, difficulty in accessing basic social rights, and exacerbation of material deprivation, especially among widowed women living alone, in addition to other age-related characteristics, such as disability, cognitive decline, lack of mobility, and dependence on pensions (Jose & Cherayi, 2016).

4. Discussing Theoretical and Methodological Practices of Social Demography and Future Prospects

4.1. Theoretical Practices in Social Demography in the Contemporary Period

The classic debate over the capabilities and place of scientific theories of demog-

raphy in guiding and explaining sociodemographic phenomena continues. As early as 1952, **Rupert Vance**, in his presidential address to the **Population Association of America**, lamented the “poverty” of high theory in demography, including, of course, those on which social demography is based.

In contrast, there is a different group that promotes the status of scientific demographic theories. **Robert Gutman** 1960 wrote a “defense” of population theory, claiming that “demography still provides informed theoretical data that organize scientific knowledge, lead to the acquisition of new knowledge, and assist in solving population problems and issues.” **Hauser and Duncan** 1959 identified several classic population theories that explain population size, distribution, and fertility trends.

Recent assessments of demography show a similar ambivalence regarding the adequacy of population theories. **Eileen Crimmins** 1993 states that “although our theoretical approaches have become considerably more sophisticated in recent times than in the past, demography generally still has highly developed theories to explain many issues.” Other scholars, such as **Caldwell, Kirk, and Lee**, suggest that only the demographic transition theory is the core theory of the discipline. **Micklin & Poston (2005: 5, 6)** argue that although a variety of new or reformulated population theories have been proposed over the past half-century, their clarification and evaluation remain a challenge for the field.

It is worth noting that the literature selected during the study period reviewed aspects of classical theories of social demography, with attempts to draw on modern theories, particularly those inspired by contemporary sociology. Among the scientific theories that explained the economic and social factors causing demographic change, including population growth or decline and population growth rates, are **Malthus’s classics** on the relationship between population growth and global food production, the **Marxist perspective** on population change, the theory of **demographic transition**, and the theory of **change and response in modern demographic history** by Kingsley Davis.

Some theories have also addressed specific sociodemographic phenomena of population growth, such as births, deaths, and migration, including social and cultural theories of reproduction. This is based on the idea that the decline in fertility is only a result of changing social and cultural systems, customs, and traditions that encourage high levels of fertility.

Among these theories are **Modernization theory**, **Friedman’s views on fertility**, **the theory of diffusion of innovative ideas**, **the proximate determinants of fertility** by **K. Davis** and **J. Blake**, **the theory of intergenerational wealth** by **J. Caldwell**, **the theory of supply and demand** by **R. Easterlin**, as well as his views on the relationship between fertility and development.

Also, **the theory of child value** clarifies rational choice explanations of the shifts in fertility behavior on the part of parents, **Hammel’s statements on the theory of culture in social demography**, **Hofstede’s theory of cultural dimensions**, and the theory of social adaptation, and the **Uncertainty Reduction**

in **Parenthood** theory by Friedman, which crystallizes from two axes of the value of children, the main axis of which is **reducing uncertainty** and the sub-axis of which is **enhancing marital solidarity**.

It is also noted that the scientific theories of social demography that explain issues related to the field of mortality have relied on theoretical explanations of the effectiveness of changing levels of health and disease among populations as influential variables in shaping demographic changes. These explanations include **epidemiological transition theory**, **cultural theories of health and disease**, and **Sen's theoretical theories of aging**.

As for the scientific theories that explain migration, it can be concluded that the presentation of these theories usually begins with a review of classical theories explaining population movements, most notably **Ravenstein's laws of migration**, **M. Todaro's** theory of supply and demand, and Lee's theory of migration decisions.

In addition, some major theories that explain international migration are represented in the literature. These include **human capital investment theory**, the **new economics theory of migration**, **economic disparities theory**, the **duality of the labor market theory**, and **world system theory**.

Similarly, some literature has relied on **micro-theories** that explain individual migration decisions and analyze how potential migrants weigh the various costs and benefits of migration. These theories include **social network theory**, **rational choice theory**, and the segmented assimilation theory of migrants.

On the other hand, the researcher noted the trend of a group of researchers to rely on scientific interpretations of sociological theories of the **modernity and postmodernity** eras as a theoretical guide for the issues and research that concern them. Among these theories, we find research on the issue of population longevity based on the views of Michel and Robine on creating a **"new" general theory of population longevity**, explaining variations in human longevity, changes in life expectancy, and morbidity in different geographical, cultural, social, and medical contexts.

Most of the research papers also drew on **"modern feminist theory"**, particularly the **liberal approach** to studying issues of reproductive rights and reproductive justice for women. They highlighted the policies necessary for women's reproductive health, especially for women with disabilities, as well as the issue of autonomy advocated by feminists as a shortcut to women exercising reproductive rights and achieving reproductive justice. Some studies have also drawn on **Amartya Sen's "Development as Freedom" thesis**, which asserts that development is freedom and that freedom is the tool through which social exclusion is shackled, social integration is unleashed, and women's reproductive behavior is rationalized, thus achieving reproductive justice. Furthermore, they studied sexual and reproductive education and culture within the virtual public sphere, drawing on **Jürgen Habermas's theory of public sphere and communicative action**, and **Zygmunt Bauman's theory of liquid modernity**.

Contemporary studies of **international migration** have examined the interpretations of the “**world risk society theory**” of **Ulrich Beck** and **Anthony Giddens**, particularly the patterns of illegal and forced migration between national societies. Some literature has also drawn on **Bourdieu’s ideas about “practice theory”** through interpretations of habitus, migrants’ social ties, networks, human capital, economic resources, and cultural identity transformation to understand the features of migrant labor force integration.

Anthony Giddens’s “structural theory” and the reproduction of population consciousness were also relied upon. **Phenomenological approaches** were also adopted as a theoretical guide to the same issue, through the writings of **Alfred Schutz** (1899-1959) **in his theory of consciousness and action**, which proposes the consciousness of actors, or the way people shape social reality, and the relationship of that consciousness to individual thought and action.

Beyond the major and minor theories of international migration, **Meyers (2000)** developed a modern theory in the field of migration control policy, attempting to develop a new theory called the “**Theory of Immigration Policy.**” He examined six main approaches to international migration policies, including: Marxism, realism, liberalism, the national identity approach, domestic politics (party and interest group politics), and institutional and bureaucratic politics. These approaches were used to explain the goals and programs of social security protection for forced migrants, as well as the deliberate exclusionary policies of some countries that do not wish to admit forced migrants due to environmental and climate disasters.

4.2. Methodological Practices in Social Demography in the Contemporary Period

In the contemporary period, contrary to scientific theories, demographers agree on the significant advances that have occurred over the past few years in data collection and analysis methods from primary and secondary sources. “**Hauser and Duncan**” discussed population census procedures, vital registration systems, sample surveys, primary data processing, and various types of administrative record systems, as well as techniques for assessing, modifying, estimating, and analyzing demographic data through the application of recent developments in electronic information systems. Over the past fifty years, there has been a dramatic increase in the availability of demographic data.

Although the quality of data varies according to the source, the trend has been toward better coverage and reduced errors in population censuses and survey data collection. Furthermore, the development of techniques for estimating missing values or reducing measurement errors has increased the usefulness of these sources of demographic information (**Micklin & Poston, 2005: 6, 7**).

The reviewed literature varies in its methodological approaches, ranging from quantitative to qualitative and quantitative/qualitative approaches. This is despite the prevalence of quantitative approaches in most of the literature, relying on sample surveys, questionnaires, and scales, etc., which have pervaded most of this lit-

erature. Furthermore, quantitative analyses of secondary data are also common, given the decline in qualitative approaches. Furthermore, it is noted that experimental and quasi-experimental research is scarce among quantitative approaches; this is what we will review in the next section.

A) Quantitative Trends

The most important characteristic of quantitative trends in social demography research is that they deal with numerical data (numbers, rates, and percentages). Population development is certainly governed by established dynamics that justify the emphasis on the use of multiple statistical methods, in addition to the conventional mathematical models for fertility, mortality, and migration. Therefore, we can say that dealing with quantitative trends has become an unavoidable requirement for social demography; indeed, it distinguishes it.

The most prominent practices of quantitative trends used in contemporary literature in the period specified for the paper can be summarized as follows:

First: Primary data, including:

- **Scientific approaches**, including methodological methods: (descriptive approach, social sample survey, quantitative content analysis, comparative approach, historical approach, and ecological approach).
- **Methodological tools** for data collection, including: questionnaires that rely on direct/electronic interviews, whether structured or non-structured, direct/electronic scales, and analysis guides for content.

Second: Secondary data, including:

The literature relies on numerous secondary sources of population data, which reflect the characteristics of the population at a specific time. These sources include **population censuses** and **civil registration systems** for data related to vital statistics, such as births and deaths, which allow for measuring changes in natural population growth. **Sample surveys**, whether demographic, economic, or health-related, also provide detailed data on the social, economic, and demographic phenomena addressed in the literature.

Third: Statistical Processes:-

With the increasing reliance on quantitative methods, there has been an increasing reliance on questionnaires and scales for data collection. Consequently, the need for statistical analysis has increased, not limited to descriptive statistical analysis using frequencies and percentages. Some literature has relied on advanced statistical processes such as measures for testing the relationship between variables, including (statistical reliability and validity coefficients, correlation coefficients, regression, multiple analysis of variance, comparing means, time series analysis, etc.).

B) Qualitative Practices

Qualitative trends have emerged in social demography, with greater attention paid to the mechanisms for studying population behavior. In-depth interviews and focus group discussions constitute a fundamental pillar of this social demographic research. It should be noted that qualitative methodological practices have

not received the necessary attention compared to the literature that relies on quantitative methodology. A more integrated methodological approach, based on a combination of both methodologies, is rarely adopted, even though quantitative tools are usually the primary source of data for researchers. The most prominent qualitative practices used in the contemporary literature can be summarized as follows:

- Scientific approaches included: (case study method, ethnographic method, discourse analysis method, qualitative content analysis, and anthropological method).
- Methodological tools included: (direct structured/unstructured in-depth interview guide, or interviews via electronic messaging applications such as Snapchat, Telegram, WhatsApp, focus group discussion guide, ethnographic interview guide, case study guide, life history, and scientific observation guide).

4.3. Anticipating Future Prospects for Theoretical and Methodological Trends in Social Demography

1) Future Prospects for Social Demography Theory

There is a consensus, as we previously noted at the beginning of this paper, regarding the state of transitions that societies have witnessed from the industrial revolution to the digital revolution. This consensus is further supported by the fact that the future will include many technological and digital changes. There is no doubt that these changes will leave their mark on sociologists' analyses and their discoveries of new forms of social dispositions that are free from classical scientific theories. Accordingly, the researcher anticipates the following points regarding the future prospects of social demography theories.

a) *The Rise of "Posthuman Societies" and the Need for New Theories*

Posthuman technologies are expected to obliterate features of our shared humanity, including organic solidarity and the transformation of human physiology, the immune system, life expectancy, genetic engineering, and human intellectual and emotional capacities. This is because we are surrounded by miniaturized portable devices that expand our communication, computing, storage, and cognitive abilities (such as smartphones, laptops, hearing aids, cloud storage, etc.).

While most devices remain disconnected from our bodies, implants connected to our bodies are increasingly used. These include therapeutic devices such as thought-powered robotic arms, retinal implants, and artificial ears, as well as surveillance devices such as microchips implanted within the skin that collect data on soldiers and prisoners. A third, less certain, development concerns the production of new life forms that will disrupt our understanding of "life," "consciousness," and "humanity."

In the face of these new technologies, Al-Amoudi (2023) questions whether we should speak of "post-human societies" and whether we should revise our understanding of humanity in light of these technological developments.

It can be argued that we need future social theories to address and explain these

technologies, which may hold great promise but may also exacerbate many key societal issues, in order to guide posthuman technologies in a manner that is safe for humanity. Therefore, it is expected that more attention will be paid to theories and interpretive frameworks that define the status of rights and moral obligations of these technologies. Whether for their innovators, users, or clients, at the socio-demographic level, medical advances in assisted reproductive technologies (egg freezing, in vitro fertilization, and IVF) represent one of the most significant challenges we will face in the future. Contemporary innovations have led to the ability to identify and implant embryos with desired male or female characteristics that are acceptable to parents unable to reproduce, posing a threat to the status of medical sexism and reproductive bias in male-dominated societies.

b) *Resolving the debate among theories of modernity versus postmodernity, the emergence of hybrid modernity.*

The term “modernity” is used to refer to the nature of social relations and conditions beginning roughly with the Enlightenment and continuing through much of the 20th century. Postmodernism, on the other hand, refers to the nature of social conditions from the late 20th century through the 21st. Postmodernists argue that many, if not all, essential aspects of modernity have disappeared. Economic processes have been radically transformed by technological advances, and similarly, the cultural and structural aspects of societies have been dominated by the masses, with popular culture, produced and reproduced by interacting individuals via digital technology and mass media, gaining in importance.

One of the most important points on which some contemporary sociologists agree after the “postmodern turn” is that the process of modernization, or late modernization, is not a linear evolutionary process that simply progresses toward an improved stage. Some sociologists agree with this postmodernist assumption in a recent article titled “**Modernity, Postmodernity, and Late Modernity: A Review of Sociological Theories**” Under the general conditions of late modernity, the situation of each society varies according to the period and location. Therefore, to understand and analyze the contingent and diverse features of (late) modernity from a comparative historical perspective, we must develop a theory that is open to the empirical reality of many societies. The Japanese sociologist “Koto” has written what he calls a hybrid modernity theory, as a useful perspective for this project (Sato, 2021).

Therefore, it can be said that postmodernism is merely an extension of modernity, and that hybrid modernity is a parallel extension of both. It describes our current state, manifested in totalitarianism and the networked information society, which has led to the hybridization of identities, basic cultural values, and ideologies, resulting in the erosion and collapse of the national identities of some societies.

This is expected to impact aspects of reproductive culture and the subcultural tributaries that feed into and stem from it, such as sexual culture. Thus, theories that guide these new cultures, in light of the interactions of the virtual public

sphere, will lead to a hybrid theoretical perspective between the public and virtual spheres for future generations. In addition, this theory can contribute to the analysis of transnational identities among immigrants, in the context of their interaction with different countries and cultures, where these identities accumulate as family, social, and cultural ties continue across national borders.

c) *Decline of Epidemiological Transition and Rise of Nutrition Transition*

Popkin was the first to use the term “nutrition transition” and proposed several formulations of the transition model. From his numerous publications, both alone and in collaboration with others, two theoretical models of the transition process can be identified. The first focuses on the influence of economic conditions on dietary patterns (energy intake and portion composition). The second, more consistent with the epidemiological transition, describes a shift in specific population nutritional standards at each stage of the epidemiological transition.

The formulation of the nutritional transition theory approaches the issue of nutritional changes on a large international scale, describing shifts in food availability per capita under certain modernization factors (such as economic development and urbanization). This theory has undergone numerous modifications, ultimately concluding that vegetable fats are partially replaced by fats of animal origin, and that protein intake also undergoes a structural shift, with plant proteins being replaced by animal proteins.

In terms of this, this version of the nutritional transition has provided the framework for numerous publications analyzing the consequences for public health. Among these attempts is the protein transition, which refers to the substitution of plant proteins for animal proteins and vice versa. While in early versions, the direction of the transition was viewed as a one-way shift from plant to animal, it is now a reversible process.

Early reflections on protein transition emerged as a subset of the nutritional transition approach and have recently evolved as a result of the interconnectedness and convergence of several complementary theoretical frameworks, most notably the relationship between sustainability and food choices (Poulain, 2021). Poulain’s arguments allow us to reconsider the health and environmental consequences of consuming certain foods. Ultimately, the question of global hunger and the Earth’s capacity to feed humanity remains.

d) *Population Growth and the Rise of Environmental Malthusianism*

When Springer acquired the journal *Population and Environment* in 2004, its editors promoted the development of high-quality research exploring the interconnections between ecological and demographic processes. This research continues to demonstrate that the relationship between population growth and environmental degradation is more complex. This research has led to the rise of Environmental Malthusianism, which champions the idea that human population growth is a major driver of ecosystem degradation and that environmental protection requires reducing human numbers.

There is an intertwined history of Environmental Malthusianism and demog-

raphy, ranging from methods for analyzing and forecasting population growth to the role of population growth in ecosystem degradation. It also includes persistent calls to control population growth, as opposed to proposals to mitigate environmental destruction through polluting production patterns, extractive business practices, and government subsidies for fossil fuel exploration (Merchant, 2022).

Therefore, we can expect that concern about the effects of population growth, climate change, and global warming will create widespread theoretical arguments for environmental Malthusians and green movements; in parallel with the above, environmental Malthusianism is expected to intertwine with theories of technological innovation, technological dominance, and the technology acceptance model, along with vital variables such as population growth and food production.

2) Future Prospects for Methodological Trends in Social Demography

It is expected that specialists in social demography will face the need for training, qualification, and digital learning to address the digital challenges imposed by artificial intelligence technology in quantitative and qualitative research methodologies and techniques using new software. These can be presented as follows:

a) *Statistical Analysis Using Artificial Intelligence and Statistical Sample Size*

Programming artificial intelligence technologies are expected to replace the role of statistical analysts in scientific research, given the availability of numerous free websites and packages that perform all statistical analyses and process statistical relationships between variables. These technologies enable researchers to automatically check data quality without prior experience with statistical packages, as they only require uploading the data. An example of this is the website (<https://datastatpro.com>), which provides statistical analysis, automatically extracts tables and graphs, and suggests the most appropriate tests for the uploaded data.

In the context of statistical sample size programming, numerous packages and websites, such as surveysystem.com, hotjar.com, and raosoft.com, provide easy-to-use tools for drawing statistical samples and representing the study population. By entering the required data, the necessary calculations are performed, and the results are displayed quickly and reliably.

All of these factors will be reflected in the accuracy of the results that make the sample size statistically representative of the study population. In addition, the decline in dealing with statistical methods will cause researchers to lose manual capabilities in knowing and practicing estimation methods in simple random sampling, linear and circular methods in drawing systematic random samples, as well as the skill of dividing the population into classes and categories in stratified and cluster samples, and techniques for drawing sampling units for non-probability samples.

b) *Population Projections and Population Forecasting*

Social demographers use population projection and forecasting software in various fields (for fertility, mortality, and migration), as well as for the distribution

and composition of population characteristics. This software relies primarily on the efforts of the United Nations Statistical Office, the International Statistical Institute, and the U.S. Census Bureau. In addition, the presence of the United Nations, commercial and public software packages, and the adaptation of this software to run on computers have made significant contributions to the entry, validation, tabulation, publication, and analysis of data from research projects, as well as censuses and surveys.

This progress is expected to help overcome many of the problems related to data processing and refinement. Currently, computer software packages are available that are designed for statistical and demographic analysis and projections, as well as for capturing and recording map boundary coordinates on a computer and retrieving data, including remote sensing maps and geographic positioning systems (GPS).

Examples of population projection software for future forecasting include The Futures Group's DEMPROJ and RAPID population projection packages, ESCAP/POP, the Population Council's FIVFIV-SINSIN population projection software, the United Nations' PROS, PEOPLE and WORKERS, and the MORTPAK package for demographic forecasting, life table construction, and fertility and mortality data evaluation.

c) Increasing Demand for Other Demographic Operations Software in the Future

Software packages have significantly reduced the burden of processing various demographic operations data. In the contemporary period, a wide range of computer software for population activities has become available, both commercially and through the United Nations and other public organizations and agencies, making it more widely available and widely used than before. The following are examples of these programs, which the researcher expects to see increased use in the future, following the development of their versions, depending on the scope of application in various demographic operations.

- Implementing Censuses and Population Surveys

Agency groups specializing in population activities have developed the **CENPLAN** package, a software package designed to plan and evaluate population censuses and estimate the cost, time, and human resource requirements for each census. This package was released by the International Statistical Programs Center (ISPC) of the U.S. Census Bureau, along with various versions of **CSPro**, which is designed to process population censuses and surveys. Recently, the United Nations Development Program (UNDP) released the **UNPD_FerModel_v.1** package for various digital population census operations.

- Data entry and tabulation

Programs are available for maintaining data after entry and for data validation. These include the United Nations program called **PC-EDIT** and the **CENTRY** program, produced by the International Statistical Programs Center (ISPC). The **ADePT** software package for modern statistical and analytical work on population

data, developed and provided by the World Bank to its users worldwide, is also available.

- Data validation and correction

Examples of this include demographic data validation packages such as UNPC-EDIT and the International Statistical Programs Center (ISPC) Consistency and Correction (CONCOR) program.

d) *Digitizing Qualitative Analysis Tools*

Qualitative analysis relies on the collection of qualitative or textual data, using in-depth interviews, scientific observations, case studies, life histories, focus groups, etc. Digital advancements have enabled superior capabilities for processing data from these tools; these data can be analyzed programmatically using a variety of methods, such as clustering, classification, binary analysis, interpretation, and other features provided by qualitative data analysis software. These software programs thus support researchers in producing detailed and rich data that help in understanding complex phenomena and details, and they help researchers navigate the data to interpret the meanings behind the responses and their implications, arriving at scientific explanations for the phenomenon under study (Paulus, 2022).

Traditionally, manual analysis has been relied upon to transcribe and interpret respondents' responses. This has sometimes cast doubt on the objectivity of qualitative analysis and researchers' biases. This is despite the availability of numerous technical programs, such as "QDA MINER, ATLAS.ti, Nvivo, Leximancer, and MAXQDA", which have proven their objective ability to perform qualitative analysis in sociology in general.

These programs can be used to analyze content, classify data, conduct binary analysis, textual and thematic analysis, as well as semantic analysis, code text, and divide it into broad or narrow subject headings. They also link content to other elements, such as texts, audio, and video files, to obtain qualitative data. The researcher noted the scarcity of use of these programs in research literature during the specified period. Their popularity is expected to increase with the growing interest in qualitative analysis in the field of social demography in the future.

5. Prospective Future for Social Demographic Issues

From the above, social demography is expected to address many future issues through the overlap of other scientific disciplines, such as statistics, political and environmental studies, medicine, geography, and economics. The essence of this overlap is primarily due to the interconnectedness of these issues. The researcher reviews examples of these future issues that have not received sufficient attention in the contemporary period, as shown:

1) *Enhancing Data Fairness and the Growing Importance of the Demographic Data Industry*

The World Economic Forum released a report titled "Promoting Data Justice: A Guiding Framework" in 2024. The report emphasizes that automated decision-

making systems based on algorithms and data, and their profound impact on individuals, communities, and society, have gained increasing popularity in recent years. Data equality has therefore become a shared responsibility, requiring collective action to establish fair data practices and systems that promote equitable outcomes for all, more than ever before. This paper, prepared by members of the World Future Council on Data Justice, proposes the development of national statistical offices (NSOs) into data stewards, with official statistics adhering to recognized principles to remain a trusted and freely accessible public resource (World Economic Forum, 2024).

With the growing importance of data science, the importance of big data analytics has also increased. Whether structured (stored in database fields), such as census statistics, population surveys, and geographic location data, or unstructured (not easily categorized), such as graphs, images, audio clips, videos, and 3D models derived from the web, social media, phones, and cloud computing, this type of data requires official statistical agencies and research institutions to deal with and use it in the future, away from the traditional tools used, and to innovate new methods for producing information and statistical data objectively and fairly, without being politicized, in addition to methods for dealing with and accessing this data, relying on advanced mathematical algorithms.

2) Digitization of Migration Flows and the Rise of Anti-International Migration Movements

In his book, “Digital Migration”, Leurs (2023) explores the unequal power relations of modern international migration. He examines the digital infrastructures that target the recruitment and transportation of migrants; migrant communications and the use of digital devices, platforms, and networks that facilitate migration from the virtual to the real; dominant digital representations of migrants and how they are resisted; the impact of digital intimacy on transnational family life; and how pre- and early digital migration histories help us locate and rethink contemporary research.

In the same context, the (IOM) devoted a special topic in its World Migration Report (2023) to “Artificial Intelligence, Migration, and Mobility: Implications for Policy and Practice,” where AI and related technologies have been used in Australia, the United States, Japan, and several European countries (McAuliffe & Triandafyllidou, 2021).

The digitization of migration flows has enabled the monitoring of cross-border movements due to the use of artificial intelligence technologies throughout the migration cycle, whether before departure, upon entry, during residence, or upon return. These technologies are even used in migration forecasts through predictive analyses of migration and mobility processes. The digitization and circulation of data have contributed to the emergence of anti-immigration movements, which are founded on hostility towards non-citizen immigrants; also, anti-immigrant laws may stir the pot further, mobilizing individuals already critical of immigrants (Flores, 2017; Kokkonen & Linde, 2024).

Academic research claims that cultural and religious diversity and political realities are dynamic factors that drive anti-immigration sentiment and state responses toward immigrants and refugees. The diversity in many democratic countries around the world renders traditional arguments for multiculturalism inapplicable in these countries (Parvin, 2020). Thus, anti-immigration movements remain important political issues on the global stage and will be the focus of extensive academic study in the future, as will public attitudes toward immigrants and other cultural and religious minorities.

3) Promoting Obstetric Transition to Avoid the Demographic Waste of Maternal Death

In 2014, Souza JP developed the Obstetric Transition Model to describe the gradual changes societies undergo on their path to eliminating maternal death, noting: (equity of the social environment, health care systems and services, women's education and related social customs and practices that affect their reproductive health, and quality of social support) as social determinants that help understand stages of the transition process (Souza et al., 2014). The idea of obstetric transition model is that countries and regions of the world go through five stages to eliminate maternal deaths: When maternal mortality rates (MMRs) throughout pregnancy and postpartum transition between the following stages:-

- Stage 1: (MMR: >1000/100,000 live births)
- Stage 2: (MMR: 999 - 300/100,000 live births)
- Stage 3: (MMR: 299 - 100/100,000 live births)
- Stage 4: (MMR: <50 maternal deaths/100,000 live births)
- Stage 5: (MMR: <5 maternal deaths or no deaths per 100,000 live births)

Taking into account that all countries experience this transition at varying rates in demographic history, some developed countries have already completed their transition years ago, while most developing countries are still in the process of transition.

To achieve the SDG global target of MMR below 70 deaths per 100,000 live births by 2030, and to achieve Stage 4, an ARR of 11.6% is required between 2021 and 2030, equivalent to over 1 million deaths averted (World Health Statistics, 2024: 15). This is a global challenge for the future to eliminate maternal deaths. Thus, this issue will occupy many interdisciplinary scientific disciplines.

4) Artificial Intelligence Technologies and Embryo Preferences

Artificial intelligence technologies have established themselves in the field of reproductive medicine, given their significant role in the tangible development of assisted reproductive technologies and the improvement of treatment options for couples suffering from infertility. They offer solutions to various problems affecting fertility.

The importance of these technologies is growing, given the vital importance of reproductive technology in family and social life. Those who follow infertility treatment interventions through assisted reproductive technologies will find that they have evolved. Annual global data on infertility treatment—monitored by the

International Committee Monitoring Assisted Reproductive Technologies (ICMART)—confirm the increasing use of assisted reproductive technologies in more than 100 countries worldwide. The number of these countries increased from 25 countries in 1991 to 79 countries in 2018, and exceeded 100 by the end of 2023. The data show that reliance on assisted reproductive technologies has increased with the development of artificial intelligence. The estimated total number of interventions performed worldwide from 1978 to the end of 2023 is approximately 60 million, resulting in more than 10 million births (Adamson et al., 2023: 473).

Recently, artificial intelligence has introduced numerous machine learning algorithms to reproductive medicine, including logistic regression, decision trees, and random forests, for use in infertility treatment applications. These algorithms utilize known parameters such as patient age, body mass index, endometrial thickness, progesterone levels on the day of embryo transfer, and the rate of high-quality embryos, etc. (Medenica et al., 2022).

Artificial intelligence technologies have also advanced to the point where embryologists can evaluate and select oocytes and sperm, analyze semen, select and classify the best embryos for transfer, and utilize programs for storing and retrieving patient histories and algorithms for determining treatment paths. Based on patient data (Wang et al., 2019), we are therefore forced to rely on artificial intelligence technologies as assisted reproduction techniques. This requires exploring the preferences and aspirations of these couples regarding potential embryo genders, as a result of their reliance on these advanced alternatives that allow for fetal sex determination. This is achieved by examining the decisions and choices of spouses regarding embryo genders, the surplus of potential embryos available for implantation, whether homogeneous or heterogeneous, and their relationship to gender, as well as the social and cultural factors underlying these preferences.

5) Reproductive Identity: Among Infertile, Reproductive, and Non-Reproductive

Identity represents the sum of the characteristics that distinguish one social group from others. Every group has elements of identity that are dynamic, one or more of which can be prominent at one stage and another at another. Therefore, the term “reproductive identity” is broad, encompassing the basic categories of parenthood, motherhood, and non-parenthood, as well as how people define themselves as a result of their reproductive experiences in general. Reproductive identity also intersects with a range of determinants, such as age, gender, sexual orientation, race, class, immigration status, and disability. Therefore, reproductive identity can be explored at all stages of the reproductive journey, from pre-conception (e.g., consideration and preparation), to its challenges (e.g., infertility, surrogacy), to the transition to reproduction (e.g., childbirth, adoption, voluntary non-reproduction), to reconsideration (e.g., multiple births, IVF cycles, and the death of a child) (Athanasopoulos, 2020).

We must examine the reproductive identity of individuals and groups in light

of two distinct contexts: micro and macro. The micro context refers to reproductive aspirations and intentions at the personal level, reproductive decision-making, and subsequent behavior that leads to related outcomes. The macro context (or sociocultural context) refers to the characteristics and reproductive attributes of society that shape this identity and are important for individual decisions and experiences regarding reproduction (Janković et al., 2024).

Therefore, we need future studies to understand the representations of reproductive identity among infertile women who undergo IVF, given that motherhood is an aspirational identity for this group of women, and that everything else becomes less important and subordinate to pregnancy: work, future planning, and social activities. We can say that the period during which women undergo IVF is a period when reproductive desires and intentions become dominant over all other aspects of life. Motherhood is seen as a missing piece for a sense of completeness, indicating the importance of this aspect of identity for self-perception. On the other hand, the social and cultural context that encourages childbearing directs identity toward motherhood. This is consistent with the findings of research conducted in developing societies, which confirm that having children is a fundamental component of a woman's identity and gaining acceptance in society (Janković et al., 2024). Similarly, social demography will need to examine the reproductive identity of so-called "non-natalists," who adopt a philosophical approach that is anti-natalist and rejects the birth of new children, despite the reproductive capacity of husbands or wives who have not yet reached menopause.

6) Future Policies for the Elderly

As previously explained, managing population aging—as an investment in human capital—is the direct demographic outcome for societies that have already experienced a demographic dividend, as population aging is changing the demographic composition of societies worldwide. In 2024, life expectancy at birth exceeded 75 years in half of the world's countries, 25 years longer than in 1950. By 2030, the number of older people is expected to outnumber the young globally. It is estimated that by 2050, at least 20 percent of the population of strong nation-states will be over the age of sixty-five. This demographic shift is expected to significantly alter the landscape of care policies, particularly the support needs of all societies (United Nations, 2022).

Therefore, social demography requires future studies to determine the size and distribution of the elderly in the future. Through what is known as population projections, and sociological theories that explain the social, cultural, and productive aspects of active aging, as well as lifestyle practices and strategies for adapting to this stage of life, the researcher also expects greater attention to be paid to policies, legislation, and practices that strengthen care and support systems for the elderly in the future. Among the future policies expected to take into account the aging of the world's population are social security networks, pensions and assistance, transportation, healthcare equipment and delivery systems, medical research priorities, communication technologies and civil rights for the elderly,

housing, and age-friendly urban communities.

6. General Conclusions and Results

Data analysis revealed several implications that met the study's objectives and answered its questions, and these implications are as follows:

- A review of contemporary issues in social demography revealed a state of renewal and change parallel to social transitions taking place in societies. This has led to a growing interest in international migration studies and the emergence of new patterns that require further study and research into migration and displacement movements resulting from climate change, as well as forced migrations resulting from wars and political conflicts. This was confirmed by a literature analysis of specialized scientific journals. Data also showed that the Journal of Comparative Migration Studies topped the list of the top ten international journals in terms of the highest percentage of citations on issues of displacement and international migration.
- A review of selected literature during the study period revealed researchers' attempts during the period to break out of the circle of researching traditional issues and concepts related to family size, reproductive and demographic behavior, and fertility trends, to renew them through studying issues of reproductive health, reproductive rights and justice, as well as reproductive responsibility, and studies of the sterile body, with reference to the effects of assisted reproductive interventions on those bodies to transition from sterility to reproduction, in addition to policies and experiences of the stages of demographic transition that achieved the demographic window and its returns; thanks to the decline in total fertility rates.
- Researchers in the field of mortality have moved away from studying social, cultural, and economic factors influencing death among different age groups, especially among fetal, child, and infant deaths. This may be due to low death rates among these age groups, as research in this field has developed in the contemporary period to study the state of epidemiological transition and the effects of the "COVID (19)" epidemic on different age-related death trends, in addition to researching and studying the challenges of population aging, to identify differences in life expectancy among the elderly, and political interventions followed by countries to benefit from patterns of active, healthy, and productive aging.
- Contemporary literature, in its practice of theoretical trends, has agreed on some classical and modern theoretical trends in explaining the social, economic, and cultural factors of demographic change. Scientific theories of fertility have had the largest share among these theories. This is attributed to agreement with the viewpoint that defends the capabilities of population theory and its position in explaining sociodemographic phenomena, and contributes to supporting demographic knowledge and evaluating it alongside mathematical models that characterize social demography. Therefore, we can say

that “social demography is not poor in its scientific theory.”

- The majority of contemporary literature has relied in its methodological trends on quantitative practices and the methodological combination of quantitative and qualitative approaches, and sometimes the qualitative approach, despite its scarcity. Consequently, the literature on social demography has been characterized by the widespread use of quantitative methods and statistical analyses of secondary data. We conclude from this continued decline in the importance of qualitative research, despite its importance, and the persistent call for its application in recent times. This is due to its distinction in highlighting research talents and capabilities in following deductive, inductive, and hypothetical reasoning analyses, through its various tools, which require in-depth analysis and encyclopedic reading of the phenomenon under study, and cognitive grasp that enables researchers to delve into aspects of the phenomenon and its complexities.
- In terms of dramatic transitions the world is undergoing and the excessive expansion of the digital revolution, the analyses anticipate the emergence of a new sociological imagination for the future of social theory that guides issues of social demography. Aspects of this scientific imagination include predicting the need for scientific theories for post-human societies, to address issues of rights and moral obligations, and the disappearance of the body in a post-virtual society. Furthermore, the emergence of hybrid modernity after the debate between modernity and post-modernity theories has been resolved, and the trend toward nutritional transition theories to explain health and food consumption behaviors in diverse social and demographic contexts. Similarly, horizons of green and environmental Malthusian movements are expected to expand, with the escalation of ecological risks caused by population growth and climate change.
- A review anticipates an increase in demand for various demographic analysis programs based on quantitative analysis methods, which researchers expect to see increased use in the future. This is due to capabilities provided by technology, which has helped researchers conduct advanced statistical analyses, electronically draw statistical samples, and conduct surveys, including planning for various stages, data entry, cleaning, scheduling, and processing. This is in addition to the significant progress that this technology will bring to our ability to predict population size more accurately than now, digitize qualitative analysis tools, and enable us to analyze the content, text, and semantics of qualitative data in easy and accurate ways.
- With the increasing importance of interdisciplinary studies, and in terms of the significant interconnectedness in the fields of science, knowledge, and scientific research, the paper anticipates the interaction of sub-disciplines of sociology and other sciences with social demography in studying issues that have not received sufficient attention in the contemporary period, including: the effects of big data production and methods of dealing with it; the concomitants

of anti-international migration movements; influential concomitants of embryo preferences in gender balance, in terms of the progress of assisted reproductive technologies; ways to enhance birth transition to avoid demographic waste of maternal deaths; the reproductive identity of those who do not want to have children; and future policies directed at the elderly.

- Literature analysis concludes that internal migration and its repercussions are no longer the subject of study by modern researchers as they were in the past. Although it is a phenomenon that requires researchers to study it to find scientific and innovative solutions to address related and even resulting issues, such as unemployment, slums, urban growth, and population concentration, the researcher envisions that research may take a different direction in the near future, toward increasing the pace of research into the migration of women to urban areas, and the migration of populations from capitalist classes to fenced-in population centers. These are issues contemporary to patterns of internal migration at national levels. In addition, research into counter-migration from urban areas to villages and the attraction of populations to planned rural areas, such as artificial countrysides, similar to the European countryside, is also being explored.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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