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Population Policies in Turkey and Demographic Changes on a Social Map

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Abstract

Compared to its past structure, Turkey is now a country with low levels of fertility and mortality. This junction that Turkey now has reached is associated with a number of risks, such as an ageing population, and a decreasing working-age population. The antinatalist policy era of Turkey was followed by a period of maintenance, yet the recent demographic changes formed the basis of a pronatalist population policy from the government's view. This study discusses the link between demographic change and population policies in Turkey. It further aims to position Turkey spatially in relation to selected countries that are in various stages of their demographic transitions with different population policies, using a multidimensional scaling approach with data on 25 selected countries from the UN. The analysis is based on a 34-year period, 1975-2009, so as to better demonstrate Turkey's international position on a social map, past and present. Our findings suggest that Turkey's position on the social map shifted towards developed countries over time in terms of demographic indicators and population policies.

Keywords: *Population policy; demographic change; fertility; multidimensional scaling; Turkey.*

Introduction

The current world population owes its size of over 7 billion to a global demographic transition which began some 300 years ago (Weeks, 2002). This process began during the eighteenth century in England and France, and later spread to other European countries and continents (May, 2006). The first and most apparent effect of this process was a fall in mortality rates (the first stage of the transition), followed by rapid decreases in fertility (the second stage). Today, Sub-Saharan Africa, where the HIV/AIDS epidemic continues to produce high mortality levels, and some developing countries are examples of macro regions in the second stage of the transition (Reher, 2004; May, 2006; Caldwell, 2006). The transition often causes temporary demographic imbalances in the population, due to rising population growth rates in the early stages. The final stages of the transition cause various imbalances. For instance,

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when fertility drops under the replacement level and the effect of population momentum disappears, the population growth rate takes on negative values. This, in turn, leads to hyperageing, as observed in many developed countries today. Often, population policies are designed primarily to overcome these problems and face the new needs that arise in population size and structure (May, 2006).

Geographical differences among countries or regions in terms of this globally experienced demographic transition pose three main implications for population policy agendas around the world. The first is that population policies implemented in developing countries focus on the economic, social, and environmental impacts of rapid population growth. Secondly, there are policies meant to combat the demographic, economic and social impacts of the HIV/AIDS epidemic, tuberculosis, and malaria, especially in Sub-Saharan Africa (May, 2006 and 2012). Lastly, policies in developed countries focus their efforts on immigration, as well as the ageing population due to low fertility. Such countries mostly work to raise a sub-replacement fertility level. Furthermore, nation-states are generally the prime actors that implement population policies (May, 2006: 829) and Van Steen and Pellenbarg (2010: 612-618) noted that in developed countries, population decline nowadays seems to be more feared than population growth, and politicians and leaders are wary of lower population numbers since this could lead in the short or long term to the erosion of their power. Also, countries that are now moving towards the end of their demographic transition, such as Turkey, are showing a shift towards pronatalist policies.

Turkey currently has a total fertility rate (TFR; births per woman) of 2.26 (Hacettepe Institute of Population Studies or HUIPS, 2014), slightly above the replacement level of 2.1.[1] The most notable characteristic of this stage is that Turkey now, as opposed to in its past, is a country with low fertility and mortality rates (HUIPS, 2010). This is associated with a number of risks seen in Western European countries, such as an ageing population, and a shrinking working-age population (Ediev *et al.,* 2012; Yüceşahin and KC, 2015: 217). These formed the basis of a new population policy in the government's view. The exhortation for women to give birth to at least 3 children apiece, made in 2007 by the then-prime minister himself (now the president), as well as the statement of the need for a new pronatalist population policy in the most recent Five-Year Development Plan (Ministry of Development[2] or MD, 2013), can be seen as a message designed to help reach economic, social, and political aims via demographic change.

The aim of this study is to position Turkey within a diverse group of countries by discussing the relationship between basic demographic indicators

1 The TFR estimate by the Turkish Statistical Institute (formerly the State Institute of Statistics/SIS) is 1.99 for 2013 and 1.95 for 2016. Being based on Demographic and Health Survey data and not subject to underreporting, HUIPS estimates are preferred in this paper.
2 Formerly the State Planning Organisation (SPO).

and population policies in these countries. The paper begins with an attempt to link demographic change and population policies, followed by a special focus on Turkey in this sense. In the next step, the changing position of Turkey on a social map of selected countries over time is evaluated empirically with a Multidimensional Scaling Proxscal Analysis (MDSPA) approach. By including a wide variety of countries, we provide a better understanding of Turkey's policy responses to demographic change by comparing these to the policy responses of countries that are at different stages of their demographic transitions. We also discuss how likely Turkey's new population policy is to succeed and how its international position may change in the future under this new policy.

Theoretical Framework: Demographic Change and Population Policies

The demographic transition theory, formalizing the experience of Western European countries, explains how populations with high fertility and mortality rates transform into ones with low fertility and mortality rates. According to the theory, pre-transition societies have low levels of population growth, provided that the high fertility and mortality rates cancel each other out. As modernization and development start taking place, mortality rates first decline, with the decline of fertility lagging behind (Reher, 2004; Caldwell, 2006; Newbold, 2010). This results in a period of high population growth. Eventually fertility rates catch up with the lower mortality rates and population growth near stabilizes, similar to the pre-transition era.

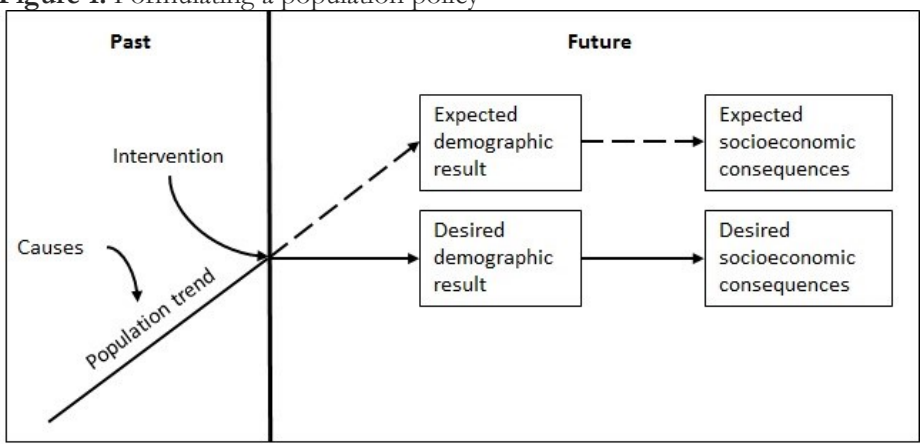
Newbold (2010: 18-19) highlights that the initial level of fertility and the difference in the timing of mortality and fertility declines are the two foremost determinants of population growth, with the former showing how far fertility can fall, and the latter showing how long the high population growth era will last before growth stabilizes. Characteristics of the demographic transition, such as the aforementioned ones or the underlying phenomena of the transition, vary among countries, despite the theory being applicable to most countries. For instance, demographic transition started later in the developing world than the developed world, and the high population growth era has been longer in the former as well. Such differences also form the basis of the criticisms the theory receives. The Western-centric nature of the theory, suggesting that the rest of the World will replicate the experience of the West, and the high variability of triggers for fertility decline are among the most controversial issues.

In the 1960s and 1970s, the population of the world was growing rapidly (Weeks, 2002). However, there were clear differences between developed and developing countries in terms of their differential population trends. While the developed world was reaching the later stages of its demographic transition, the developing world was facing high growth rates, particularly stemming from the baby-boom period. Thus, a need for intervention was perceived as necessary by

both developing and developed countries. In many countries, measures were taken through direct and indirect policies, and now, as of the twenty-first century, we find that the rate of population growth is slowing down (Weeks, 2002: 514; Reher, 2004).

In the process of the demographic transition, the implications of population growth and change have grown increasingly complex, requiring new policies and approaches to policy implementation. As stated by Weeks (2002: 514-515), the formulation of a population policy requires an assessment of current trends – requiring an understanding of the causes of population change – and an evaluation of the expected consequences of current trends (Figure 1). If the expected consequences differ from the desired result, then further policies may be implemented to alter the course of demographic events.

Figure 1. Formulating a population policy



Source: Weeks (2002: 515), based on Davis (1975).

Population policy represents a strategy for achieving a particular pattern of population change (Weeks, 2002; May, 2006). The strategy may consist of only one specific component – a single-purpose goal – such as to reduce or increase fertility to or above the replacement level. Alternatively, the policy may be multi-dimensional, such as an attempt to improve women's reproductive health. Naturally, in either circumstance, a policy is only required if there is some indication that the goal might not be achieved unless a policy is implemented. On the other hand, there are also indirect population policies, not necessarily designed to influence population trends, but which nevertheless do so by changing other aspects of social life. For instance, a policy to increase the educational level of women, as implemented in many developing countries, will improve the quality of life of the affected women in many ways. And it will also increase the likelihood that they will have further control over their reproductive behaviour and limiting their family size. Almost universally, women with higher levels of education demonstrably limit their births and have

greater access to birth control (Jejeebhoy, 1995; Weeks, 2002; KC *et al.*, 2010; Bongaarts, 2010; Lutz & KC, 2011: 588).

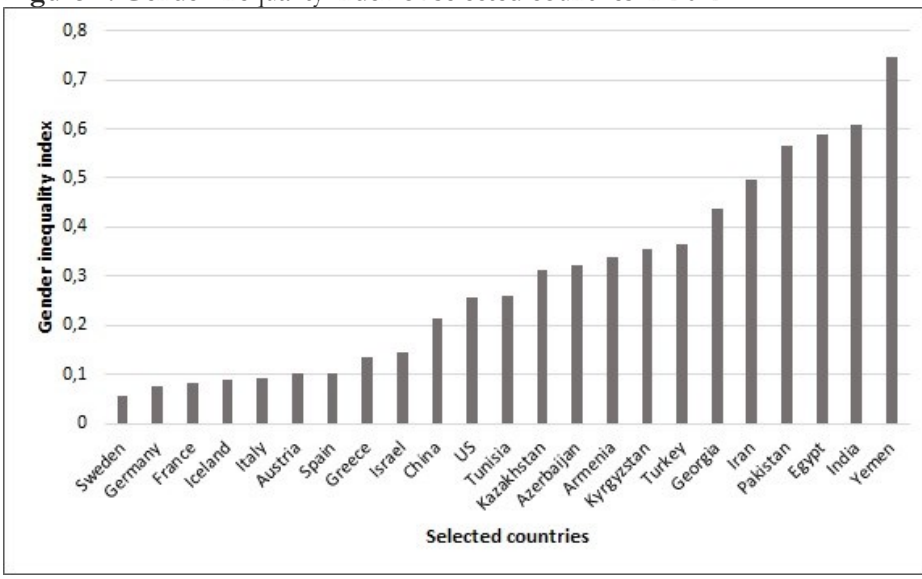
Governments are often interested in the characteristics of their populations. They may desire higher or lower fertility or wish to regulate immigration, for instance, in order to alter the age structure, size, or other socio-demographic characteristics of the population. As for mortality, actions are often taken in terms of health policies, targeting certain age groups or certain causes of death. Among policies related to basic components of population change, fertility policies are more often "purely demographic" or direct, compared to policies regarding migration and mortality, the latter two being highly intertwined with disciplines such as geography, international relations, international law, sociology, medicine, public health, etc. Thus, while policies related to migration and mortality may have goals other than demographic change, policies related to fertility are most likely aimed squarely in that direction.

The position of a country within the demographic transition is a major determinant on its attitudes towards fertility policies. For instance, mostly in developing countries, where birth rates exceed death rates, there are programs to decrease fertility (antinatalist policies), as the government sees it as too high. In other cases, where issues such as population decline, an increasing proportion of the elderly, or a shrinking working-age population are of concern, possibly due to birth and death rates levelling off or death rates exceeding birth rates, governments act in favour of increasing fertility through pronatalist policies. It should be underlined that not all pronatalist policies are based on specific targets related to fertility; some of them are policies to ensure the welfare of individuals or gender equity that indirectly have fertility-raising effects, such as those in many developed countries.

Data from the United Nations on fertility levels and fertility policies support the above generalization. Among countries from the developing parts of the world with higher-than-replacement-level total fertility rates (TFR), 81 aimed to lower fertility, 16 aimed to maintain it, 11 did not intervene, and only 6 intended to raise fertility (UN, 2015). Among developed countries with under-replacement fertility, 34 desired to raise it, 5 wished to maintain it, and 8 did not intervene. However, both these findings also underline exceptions, both in terms of the developing/developed divergence, and in terms of government responses to fertility change. First of all, not all developing countries have high fertility; Thailand and Singapore for instance, have TFRs lower than 1.5 births per woman. Furthermore, while these two countries wish to raise fertility, China (TFR of 1.63), Brazil (TFR of 1.90), and Lebanon (TFR of 1.58) did not adopt fertility-raising policies. The nature of fertility-raising policies also differs to a great extent, with examples of banning abortion or promoting sterilization at the one end of the spectrum, and examples of policies to promote gender equity to ensure a work-family balance for parents at the other. Thus, the link between the stages of the demographic transition and population (fertility and family planning, in the terminology used by the UN) policies seems quite

controversial. On the other hand, as Weeks (2002: 517) suggests, the biggest obstacle to population policy worldwide is probably gender inequality. As in Turkey (Figure 2), in societies where women are disadvantaged compared to men in terms of their legal, social, and economic status, policies that empower women to have greater control over their own health, indirectly lowering fertility, are more likely to be met with resistance. Therefore, in the twenty-first century, the world started to focus on attaining gender equality rather than focusing on quantifiable demographic targets (Weeks, 2002: 517). Especially after the 1994 International Conference on Population and Development, a shift has taken place from top-down population interventions to a human rights and gender equity perspective (May, 2006: 828).

Figure 2. Gender inequality index of selected countries in 2012



Source: Data from UNDP (2013).

Overview of Turkey's Population Policies and Population Trends

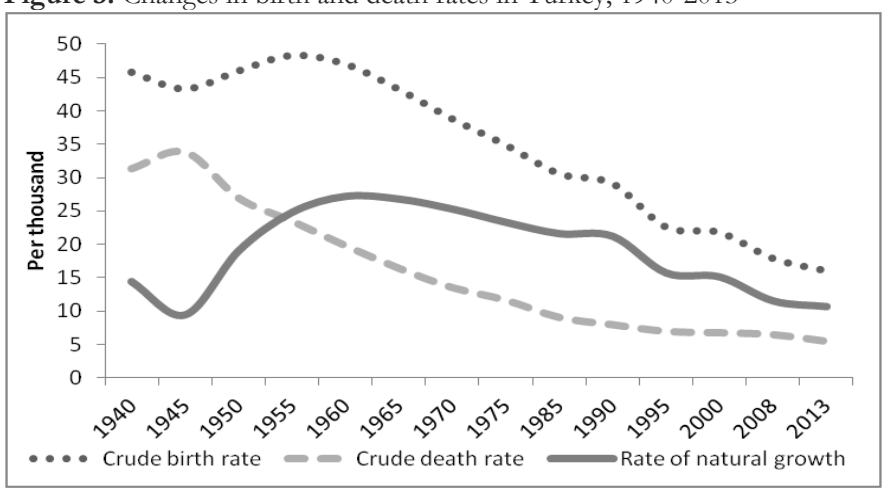
The population policies carried out in Turkey can be classified into three main eras, based on their aims and targets. The policy introduced shortly after the foundation of the Republic in 1923, and lasting until the mid-1960s, was one favouring a high population growth rate (pronatalist) (Yavuz, 2006). The second period, starting in the mid-1960s (Üner, 1984) and lasting until the first decade of the 2000s, was dominated by an aim to decrease the population growth rate (antinatalist). As of 2008, a new pronatalist policy entered the Turkish scene. Literature on the demographic transition in Turkey (SIS, 1995; HUIPS, 2010) usually focuses on three stages that resemble the periods above because of the changes observed especially in fertility and mortality, the details of which are discussed below.

Pronatalist Population Policy: From 1923 to the mid-1960s

Turkey's first-ever pronatalist population policy arose as a natural consequence of a post-war environment in the 1920s. It was based on the idea that a rapid rise in the population would help make up for the losses from recently concluded wars (the First World War, and the 1919-1923 Turkish War of Independence), and also allow the new Republic to become a powerful nation-state, as well as benefitting the economy. A growing labour force would set idle resources into motion, and also allow the establishment of a social division of labour and consensus. In fact, almost all countries favoured population growth in the post-war years (HUIPS, 2010).

Thus, Turkey's first governments took legal measures to promote high fertility. For instance, families with more than 5 children were exempt from road taxes in 1929; families with 6 or more children were awarded medals in 1930; and families with a high number of children were granted land by the state (Turkish Industry and Business Association or TÜSİAD, 1999). Furthermore, the 1930 Public Hygiene Law gave the Republic's Ministry of Health and Social Welfare the responsibility to both boost fertility and reduce early mortality. Around the same time, provisions were added to the Turkish Penal and Civil Codes imposing penalties for induced abortions and lowering the legal minimum age for marriage. Laws facilitating emigration to Turkey were also passed in 1934 (TÜSİAD, 1999; HUIPS, 2010).

Figure 3. Changes in birth and death rates in Turkey, 1940-2013

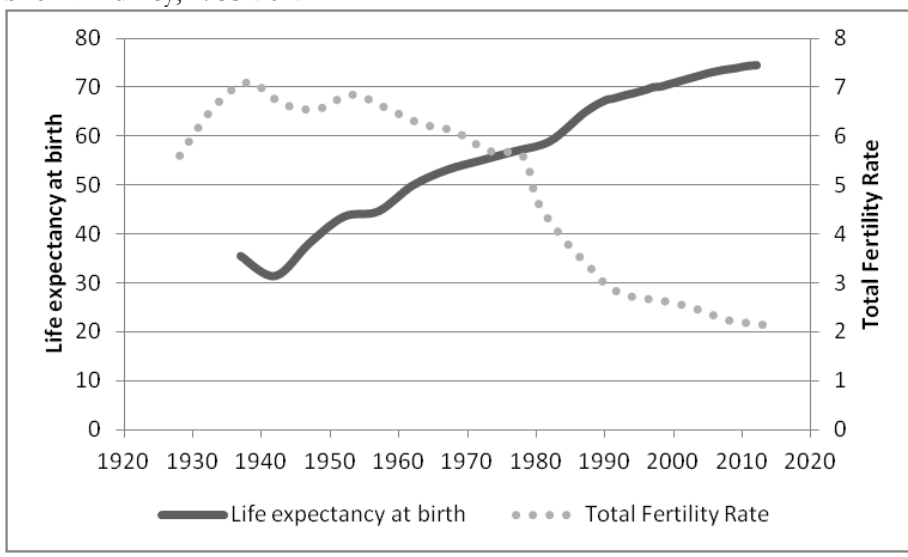


Source: Koç et. al (2010), Shorter and Macura (1982), Ergöçmen et al., (1995), SPO (1985; 2000), SIS (1995), TSI (2010; 2013)

Under such measures, Turkey's population rose from around 13 million in 1927 to 17 million in 1940, amounting to an annual population growth rate of 1-1.5 percent (Figure 3 and 5). Although the pronatalist policy continued during

the Second World War era, a distinct decrease in population growth rate was seen in 1940-1945. This can be explained through the conscription of a large male population due to mobilization meaning the temporary separation of many couples (Üner, 1984; Yüceşahin and Özgür, 2008) (Figure 3), the deteriorating environmental conditions of the mobilization economy leading to a spike in the crude death rate (CDR), and a fall in the crude birth rate (CBR), again due to couples' temporary separation.

Figure 4. Changes in total children ever born and overall life expectancy at birth in Turkey, 1933-2012



Source: SIS (1995), TSI (2010), HUIPS (1994; 1999; 2004; 2009), The World Bank (2013)

Antinatalist Population Policy: From the mid-1960s to 2008

In the 1950s, the population growth rate reached around 2.85 percent. The difference between death rates and birth rates grew, since the former stood far below the latter, resulting in a rising growth rate. However, TFR, seen at 6.85 in 1950-55, began to decline in a non-reversible manner, and was estimated to be 6.10 in the next five-year period.

The 1960s mark the beginning of the "planned era" in Turkey, where five-year development plans were prepared to assess the current economic, social and demographic conditions and set associated goals. The First Five-Year Development Plan of 1963-67 saw rapid population growth as an obstacle to economic development, predicting that consumption would rise due to the high proportion of youth and that labour supply would become a major issue (State Planning Organization, or SPO, 1963; Üner, 1984; Başar, 2010). The Law

Regarding Family Planning passed in 1965, concluding the pronatalist policy[3], and recognizing the freedom of individuals to decide on the number and timing of their having children.

The Second Five-Year Development Plan, implemented in 1968-72, suggested that high fertility caused problems for families (SPO 1968). The plan included numerical targets regarding modern contraception use that eventually failed; TFR went down to 5 children per woman, nevertheless (Figure 4). It follows that society was already at the point of regulating fertility, thanks to social phenomena such as increasing urbanisation, literacy, and GDP per capita, and a decreasing labour force in agriculture, which are often referred to as the major drivers of fertility decline in Turkey (Table 1) (Üner, 1984; Yüceşahin and Özgür, 2008).

Table 1. Average levels of selected developmental indicators in Turkey, 1935-2010

Indicator	Year								
	1935	1945	1955	1965	1975	1985	1990	2000	2010
Literacy (%)	19.3	30.2	41.0	48.8	63.7	77.5	80.5	87.3	89.7
Labour force in agriculture (%)	81.8	73.7	77.5	71.9	67.3	60.0	53.7	48.4	25.2
Urban population (%)	23.5	24.9	28.8	34.4	41.8	53.0	59.0	64.9	76.3
Gross domestic product per capita*	Na	Na	Na	1019**	1548	3327	4660	6950	10079

Source: Data from SIS (1996; 2002; 2003) and TSI (2014a; b; c; d)
**US dollars. **1971 data. Na: Not available.*

With the continuing decline in fertility, governments' interest in population policy waned significantly in the 1970s. The Third Five-Year Development Plan recognized that "rapid population growth is one of the societal issues that needs to be resolved in the long term" (SPO, 1973), and no targets were set. The Fourth Five-Year Development Plan noted the continuum in fertility decline (SPO, 1979), and anticipated that it would continue, provided expected social and economic developments, and no changes to the existing population policy were suggested. In 1983, the Law Regarding Population Planning was passed, under which the state's responsibility was limited only to supplying contraception, and induced abortion up to 10 weeks of pregnancy was legalized (Başar, 2010). In 1980s, births per woman were down to 4 and under (Figure 4).

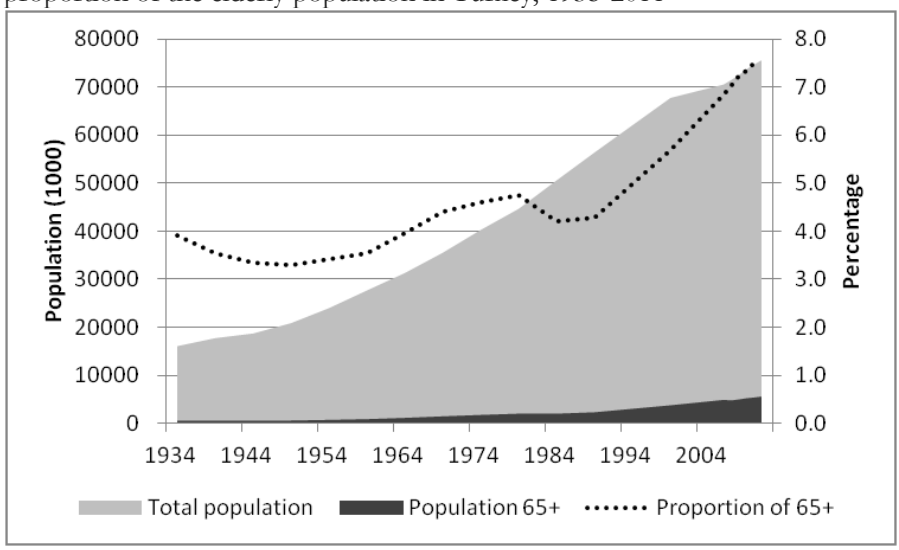
The Fifth Five-Year Development Plan emphasised human capital as a crucial element of development, and enhancing the quality of the population was a major principle (SPO, 1985). The Sixth Five-Year Development Plan restated this, and suggested that population growth should reach a level that would match economic development (SPO, 1989). The Seventh Five-Year

3 Under another law passed the same year, the newly established Directorate of Population Planning and Mother and Child Health tried to implement a new population policy.

Plan, covering the period of 1996-2000, argued that population growth remained a problem (SPO, 1995), so still was in favour of an antinatalist policy.

The Eighth Five-Year Development Plan however, advised that population growth and fertility rates should be stabilized, marking a shift towards a "maintain" policy (SPO, 2000). The last plan of this era, written for the period 2007-13, underlined that changes in Turkey's demographic structure, fertility level, and age structure had started resembling those of developed countries, pointing to the need to revise policies on education, employment, health, and social security (SPO, 2006), setting the stage for a new pronatalist approach.

Figure 5. Changes in total population, the elderly population, and the proportion of the elderly population in Turkey, 1935-2011



Source: TSI (2013), HUIPS (2010)

The New Pronatalist Population Policy: 2008 and onwards

The 2000s mark the final stage of the demographic transition in Turkey, as well as a shift to a new pronatalist population policy. Life expectancy at birth rose to over 70 for both sexes combined (Figure 4), infant mortality rates fell significantly[4] (HUIPS, 2014), the proportion of the elderly increased (Figure 5), and, most importantly, fertility approached replacement level. The first sign of a pronatalist policy was given in 2008 by the then-prime minister and current president, suggesting that families should have at least 3 children. Additional signs of a new policy followed, such as discussions on restrictions on induced abortion (The Guardian, 2012b) and Caesarean sections (The Guardian, 2012a), as well as initiatives for longer maternal leave, early retirement opportunities for

4 Infant mortality rate declined from 29 to 13 per 1000 according to the Turkey Demographic and Health Surveys of 2003 and 2013 (HUIPS, 2014).

mothers, and a onetime child allowance. The policy nature of this view remained controversial until recently, solidifying with the Tenth Five-Year Development Plan (MD, 2013) prepared in 2013. This plan stipulated a need to "increase the fertility rate through population policies" and suggested the need for such a policy. To meet this need, the Ministry of Family and Social Policies coordinated an action plan in January 2015 called the "Action Plan to Preserve the Family and the Dynamic Structure of the Population" (MD, 2015). One of the explicit targets of the plan is to keep TFR above the replacement level. Moreover, the policy nature of the government's view is also recognized by demographers (Eryurt et al., 2013).

Turkey's Changing Position: The Relationship between Demographic Trends and Fertility Policies in Selected Countries

Having provided a background regarding Turkey's demographic change and population policies, we now wish to discuss the position of Turkey regarding these matters in an international context. This will allow us to follow a historical trajectory of Turkey in this intersection, demonstrating how Turkey is departing from developing countries and approaching developed ones. First, we aim to explore a potential relationship between the changes in basic demographic indicators and population policies of selected countries. Secondly, we attempt to show how Turkey's position changed compared to other countries from 1975-76 to 2009.

Data regarding demographic indicators and population policies were obtained from the United Nations' 2009 World Population Policies Report (UN, 2010), and 25 countries were selected. The report groups government fertility policies into four categories: raise, maintain, lower, and no intervention. All time periods in this report were included in the analysis, broken down into four periods: 1975-76, 1985-86, 1995-96, and 2009 (Table 2).

A number of criteria were considered in the selection of countries. The first was to make sure that a number of countries that had experienced significant changes in their demographic indicators and population policies were included. Care was taken to have both developing countries (such as Azerbaijan, Egypt, Pakistan, Tunisia, and India) and developed countries (such as Germany, Sweden, the US, Austria, and France) of that kind. Secondly, both countries that resemble Turkey (such as Iran, Egypt, and Tunisia) in terms of their demographic trends, and countries that show different demographic trends (China, Germany, France, Sweden, India, and Yemen), were included. Furthermore, countries that are close to Turkey both geographically and socio-culturally (the former Soviet Turkic republics and Iran) were included. A final criterion was to limit the number of countries included in the analysis; both countries with a large difference in their demographic indicators from Turkey and countries with a high resemblance to each other were excluded so as to avoid difficult-to-read graphics, provided their omission would not affect the interpretations significantly.

Table 2. Demographic indicators in selected countries, 1975-2009

Country	Total fertility rate (children per woman)				Infant mortality rate (per 1000 live births)			
	1975-76	1985-86	1995-96	2009	1975-76	1985-86	1995-96	2009
Armenia	3.0	2.4	2.4	1.7	63	53	44	25
Austria	2.0	1.6	1.5	1.4	24	13	7	4
Azerbaijan	4.3	3.0	2.9	2.2	100	90	82	43
China	4.8	2.6	2.0	1.8	61	40	30	23
Egypt	5.7	5.5	3.9	2.9	138	97	64	35
France	2.3	1.9	1.7	1.9	16	9	7	4
Georgia	2.6	2.3	2.1	1.6	52	47	40	35
Germany	1.6	1.5	1.3	1.3	21	11	6	4
Greece	2.3	2.0	1.4	1.4	34	15	9	4
Iceland	2.8	2.2	2.2	2.1	12	6	5	3
India	5.3	4.5	3.9	2.8	120	98	78	55
Iran	6.4	6.6	4.0	1.8	115	88	55	29
Israel	3.8	3.1	2.9	2.8	22	14	9	5
Italy	2.4	1.5	1.3	1.4	27	13	8	4
Kazakhstan	3.5	3.0	2.6	2.3	77	60	51	26
Kyrgyzstan	4.7	4.1	3.6	2.6	100	80	60	37
Pakistan	7.0	6.6	5.7	4.0	113	98	85	64
Spain	2.9	1.9	1.3	1.4	21	11	7	4
Sweden	1.9	1.6	2.0	1.9	10	7	5	3
Tunisia	6.2	4.9	3.1	1.9	119	64	34	20
Turkey*	5.5	4.0	2.9	2.1	138	93	54	28
Turkmenistan	6.2	4.8	4.0	2.5	111	91	75	50
United States	2.0	1.8	2.0	2.1	18	10	8	6
Uzbekistan	6.3	4.7	3.9	2.3	84	71	59	48
Yemen	8.7	8.7	7.7	5.3	184	126	92	59

Country	Annual growth rate (%)				Life expectancy at birth (years) (both sexes combined)			
	1975-76	1985-86	1995-96	2009	1975-76	1985-86	1995-96	2009
Armenia	2.3	1.5	-1.9	0.2	71	71	68	74
Austria	0.3	0.0	0.7	0.4	71	73	76	80
Azerbaijan	1.9	1.6	1.5	1.1	66	65	65	70
China	2.2	1.4	1.2	0.6	63	66	69	73
Egypt	2.1	2.6	2.0	1.8	52	58	64	70
France	0.8	0.5	0.4	0.5	72	75	77	81
Georgia	0.8	0.8	-1.5	-1.1	68	70	71	72
Germany	0.1	-0.2	0.5	-0.1	71	74	76	80
Greece	0.6	0.6	1.0	0.2	72	75	77	79
Iceland	1.3	1.1	1.0	2.1	74	77	79	82
India	2.2	2.2	2.0	1.4	50	56	59	63
Iran	2.9	4.2	1.8	1.2	55	60	66	71
Israel	2.9	1.7	3.5	1.7	72	74	77	81
Italy	0.7	0.2	0.1	0.5	72	75	77	81
Kazakhstan	1.5	1.1	-0.7	0.7	63	66	65	65
Kyrgyzstan	2.1	2.0	0.9	1.2	61	64	66	68
Pakistan	2.9	3.5	2.4	2.2	55	58	61	66
Spain	1.1	0.5	0.3	1.0	73	76	77	81
Sweden	0.4	0.1	0.6	0.5	75	76	78	81
Tunisia	2.0	2.5	1.7	1.0	56	64	70	74
Turkey*	2.6	2.1	1.7	1.2	57	61	66	72
Turkmenistan	2.8	2.4	2.6	1.3	59	62	63	65
United States	0.9	0.9	1.2	1.0	72	74	76	79
Uzbekistan	3.1	2.6	2.2	1.1	64	66	66	68
Yemen	2.1	3.8	4.6	2.9	40	49	56	63

Country	Population under age 15 (%)				Population aged 65 and over (%)			
	1975-76	1985-86	1995-96	2009	1975-76	1985-86	1995-96	2009
Armenia	34	30	29	20	8	8	13	14
Austria	23	18	18	15	20	20	20	23
Azerbaijan	40	33	34	24	8	7	8	9
China	39	31	28	20	7	8	9	12
Egypt	42	42	40	32	6	6	6	7
France	24	21	20	18	18	18	20	23
Georgia	28	25	24	17	12	13	16	19

Table 2. *continued.*

Country	Population under age 15 (%)				Population aged 65 and over (%)			
	1975-76	1985-86	1995-96	2009	1975-76	1985-86	1995-96	2009
Germany	22	16	16	14	20	20	21	26
Greece	24	21	17	14	17	18	21	24
Iceland	30	26	24	21	13	14	15	16
India	40	39	37	31	6	6	6	7
Iran	44	45	40	24	5	6	6	7
Israel	33	33	29	28	12	12	13	14
Italy	24	19	15	14	18	19	23	26
Kazakhstan	35	32	30	24	9	8	10	10
Kyrgyzstan	40	37	38	29	8	8	8	7
Pakistan	43	43	43	37	7	6	6	6
Spain	27	23	17	15	15	17	21	22
Sweden	21	18	19	17	21	24	22	25
Tunisia	44	40	34	23	6	6	9	10
Turkey*	41	39	33	27	7	6	7	9
Turkmenistan	43	41	39	29	7	6	6	6
United States	25	22	22	20	15	16	16	18
Uzbekistan	43	40	40	29	8	6	6	6
Yemen	50	51	50	44	4	3	4	4

Country	Annual growth rate (%)			
	1975-76	1985-86	1995-96	2009
Armenia	64	67	66	64
Austria	65	66	66	67
Azerbaijan	52	53	52	52
China	17	23	44	44
Egypt	43	44	43	43
France	73	74	75	78
Georgia	50	54	54	53
Germany	73	73	73	74
Greece	55	58	59	61
Iceland	87	90	92	92
India	21	24	27	30
Iran	46	53	60	69
Israel	87	90	91	92
Italy	66	67	67	68
Kazakhstan	53	56	56	58
Kyrgyzstan	38	38	36	36
Pakistan	26	29	32	37
Spain	70	74	76	77
Sweden	83	83	84	85
Tunisia	48	54	61	67
Turkey*	42	52	62	69
Turkmenistan	48	46	45	49
United States	74	74	77	82
Uzbekistan	39	41	38	37
Yemen	15	18	24	31

Source: Data from UN (2010).

Changes and trends in demographic indicators between 1975-76 and 2009 were taken into account using seven variables, as follows: annual population growth rate (percent), the percentages of the population under 15 and 65 and older, TFR, life expectancy at birth, the infant mortality rate (per 1,000 births), and the percentage of the population living in urban areas (Table 2).

Multidimensional Scaling Proxscal Analysis (MDS PA) was applied to the data sets of 25 selected countries across four different time periods (Table 3). The calculations were carried out by IBM PASW Statistics (Predictive Analysis Software Statistics) 18 with the PROXCAL (Proximity Scaling) algorithm. We

used the MDS PA method to obtain a "social map" of countries based on the relationship between the selected indicators and population policies for the time periods. MDS is a method based on proximities between units (referring to countries in this study), utilized to produce a spatial representation of them. MDS Analysis enables the spatial representation of the proximities between N units in a k-dimensional space, based on p (p>k) different variables; thus, it is a multivariable statistical method. Proximities express the similarity or dissimilarity between units. It is a dimension-reduction technique, since the aim is to find a set of points in low dimensions (typically 2) that reflects the relative configuration of the high-dimensional data objects (Härdle and Simar, 2003: 373; Everitt and Dunn, 1991: 67; Özdamar, 2010: 483-502).

Table 3. Results of Multidimensional Scaling Proxscal Analyses for selected variables among selected countries (n=25)

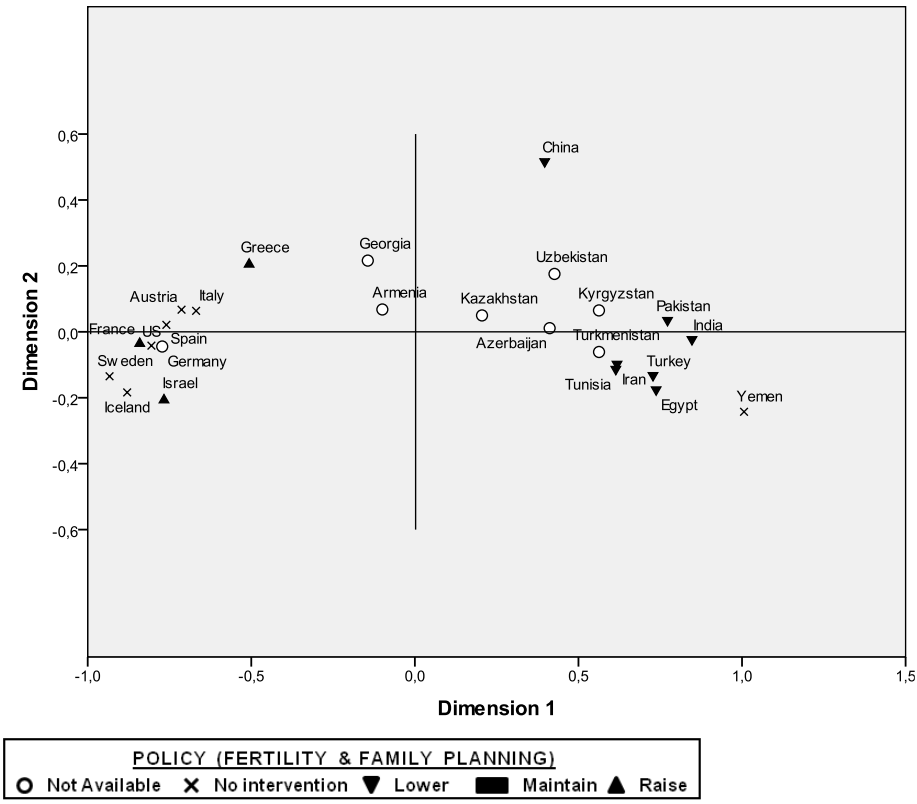
Country	MDS PA I		MDS PA II		MDS PA III		MDS PA IV	
	Period/year							
	1975-76		1985-86		1995-96		2009	
	Dimension							
	1	2	1	2	1	2	1	2
Final coordinates								
Armenia	-0.099	0.068	-0.067	0.127	-0.024	0.240	-0.141	0.044
Austria	-0.713	0.067	-0.726	-0.088	-0.689	-0.159	-0.612	-0.205
Azerbaijan	0.412	0.011	0.527	0.132	0.749	0.199	0.444	0.106
China	0.397	0.516	0.180	-0.552	-0.040	-0.192	0.066	-0.322
Egypt	0.737	-0.176	0.743	0.111	0.639	0.031	0.503	-0.085
France	-0.841	-0.036	-0.790	-0.011	-0.719	-0.052	-0.668	-0.036
Georgia	-0.144	0.216	-0.079	-0.073	-0.019	-0.021	0.148	-0.197
Germany	-0.772	-0.045	-0.779	-0.012	-0.748	-0.097	-0.687	-0.142
Greece	-0.507	0.205	-0.650	-0.205	-0.630	-0.273	-0.588	-0.310
Iceland	-0.879	-0.184	-0.822	0.163	-0.766	0.142	-0.693	0.210
India	0.847	-0.023	0.917	-0.096	1.004	-0.180	1.156	-0.135
Iran	0,618	-0.098	0.588	0.180	0.308	0.264	-0.047	0.307
Israel	-0.767	-0.207	-0.718	0.233	-0.712	0.209	-0.634	0.302
Italy	-0.669	0.064	-0.718	-0.093	-0.703	-0.197	-0.644	-0.241
Kazakhstan	0.205	0.050	0.151	0.068	0.224	0.173	-0.018	0.182
Kyrgyzstan	0.563	0.065	0.597	-0.083	0.631	-0.138	0.642	-0.205
Pakistan	0.772	0.035	0.880	-0.062	1.029	-0.109	1.204	0.055
Spain	-0.760	0.021	-0.746	-0.011	-0.741	-0.067	-0.665	-0.061
Sweden	-0.933	-0.135	-0.865	0.063	-0.795	0.002	-0.743	0.020
Tunisia	0.614	-0.113	0.267	0.075	-0.132	0.148	-0.226	0.152
Turkey	0.728	-0.132	0.614	0.161	0.226	0.272	-0.070	0.273
Turkmenistan	0.563	-0.061	0.647	0.074	0.773	0.083	0.711	0.220
US	-0.805	-0.042	-0.760	0.021	-0.695	0.029	-0.630	0.111
Uzbekistan	0.427	0.176	0.466	-0.113	0.609	-0.095	0.855	-0.091
Yemen	1.006	-0.243	1.145	-0.006	1.223	-0.211	1.337	0.048
Decomposition of Normalized Raw Stress								
Normalized Raw Stress	0.00080		0.00106		0.00117		0.00161	
Stress-I	0.02835[a]		0.03249[a]		0.03424[a]		0.04018[a]	
Stress-II	0.05195[a]		0.06000[a]		0.06437[a]		0.07630[a]	
S-Stress	0.00110[b]		0.00175[b]		0.00156[b]		0.00158[b]	
Dispersion Accounted For (D.A.F.)	0.99920		0.99894		0.99883		0.99839	
Tucker's Coefficient of Congruence	0.99960		0.99947		0.99941		0.99919	
a. Optimal scaling factor	1.001		1.001		1.001		1.002	
b. Optimal scaling factor	0.993		0.989		0.991		0.989	

Source: Data from UN (2010), see Table 2.

MDS does not require a large number of assumptions; this is an advantage that may make it preferable over similar types of analysis. The final

representation obtained by analysis is expected to show similar units (countries) closer together and dissimilar ones farther apart, thus making it possible to interpret the spread of units on a new space or namely on a social map (Gözükara Bağ and Alpar, 2011: 395). The table of final coordinates presents similarity or dissimilarity; units with the same signs and close values have characteristics that are alike or vice versa. These coordinates and other fit statistics are presented in Table 3.[5] The other results of the MDS Analysis are presented in Figures 6, 7, 8, and 9 and Table 4.

Figure 6. The relationship between MDS PA I Analysis results and fertility policies in 1975-76



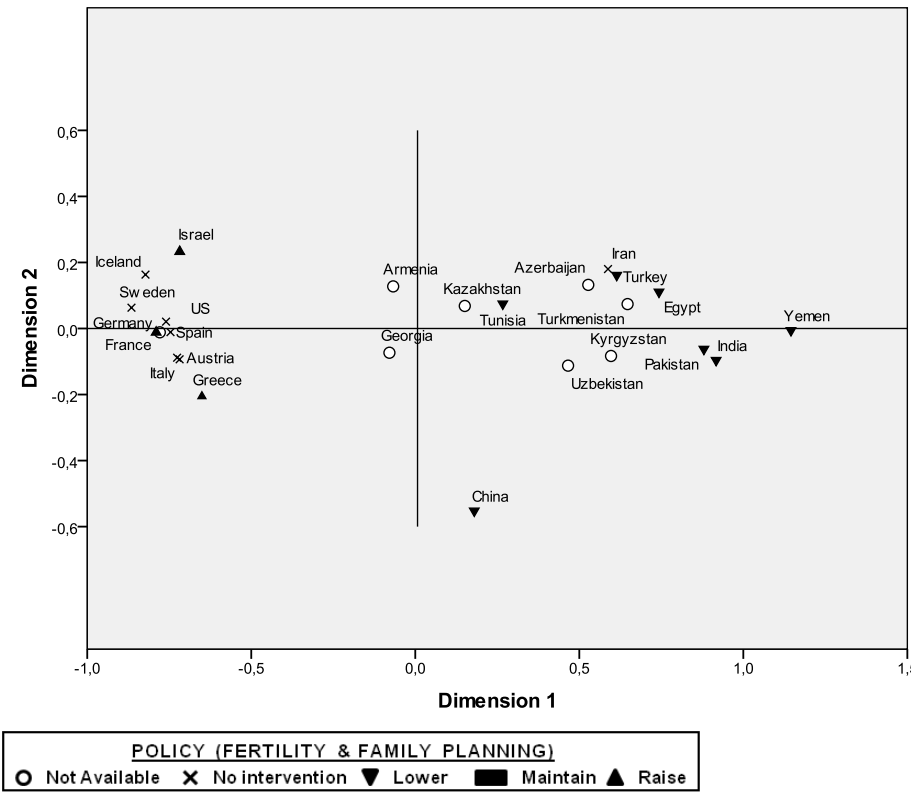
Source: Data from UN (2010), see Table 2

5 The aim in Multidimensional Scaling Analysis is to obtain a Stress statistic close to 0. The Normalized Raw Stress values obtained from MDS analysis for the four periods are between 0.00 and 0,025, indicating a "perfect fit" category (Everitt & Dunn 1991: 77; Büyüker İşler 2010: 384-403; Özdamar 2010: 489; Gözükara Bağ & Alpar 2011: 395).

Overview of the Analysis Period

As seen in Figures 6, 7, 8, and 9, while the positions of developed countries remained stable over time, significant changes have taken place in the positions of less-developed countries. Since developed countries had already reached the last stage of the demographic transition by the beginning of the twentieth century, their demographic indicators remained relatively stable over the analysis period. Most developed countries remained with no intervention or else maintain policies until recently, except for France, Greece and Israel, which implemented fertility-raising policies during the whole period of analysis.

Figure 7. The relationship between MDS PA II Analysis results and fertility policies in 1985-86

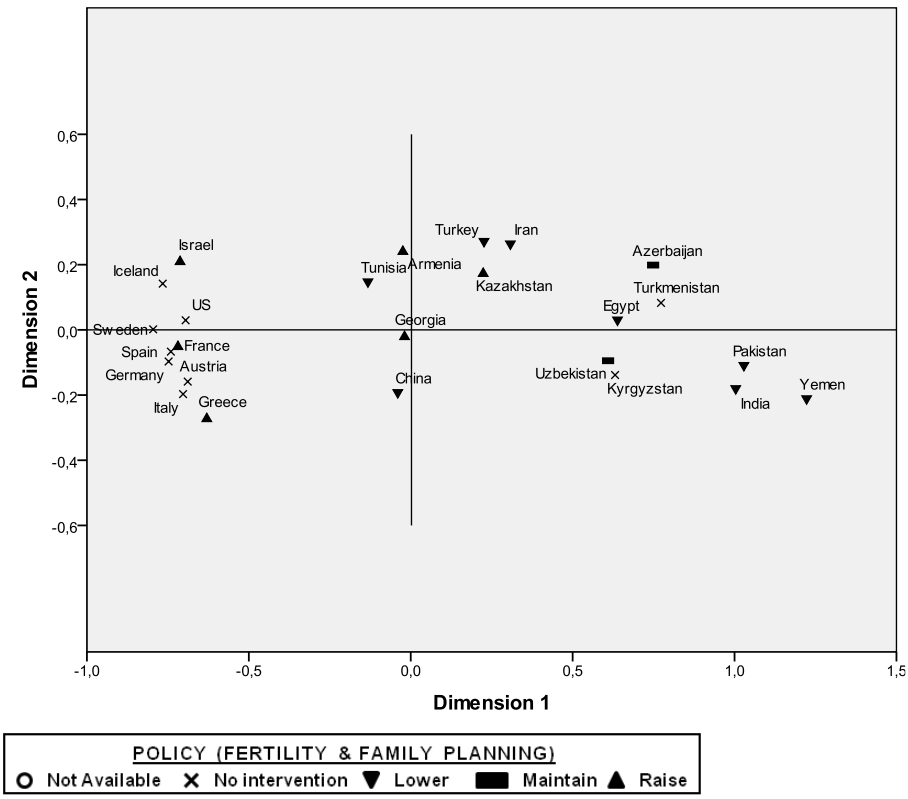


Source: Data from UN (2010), see Table 2

For developing countries, significant decreases in TFR, the population growth rate, infant mortality rate, and the proportion of the population aged 15 and under were observed in general (Table 2). Conversely, increases in the proportion of the population aged 60 and over, life expectancy at birth, and proportion of urban residences accompanied these changes. Developing

countries, aside from Pakistan, India, and Yemen, experienced more rapid transitions, moving them closer to developed countries. For countries such as Turkey, Iran, Tunisia, Armenia, and Kazakhstan, the differences in the positions over time are striking. China changed its position more quickly in 1975-76 (Figure 6) and 1985-86 (Figure 7) due to a sharp drop in TFR (from 4.8 to 2.6 respectively, Table 2), thus forging a different path from other countries. Pakistan, India and Yemen have consistently implemented policies to reduce fertility, probably because problems associated with rapid population growth have persisted. These three countries remained farther apart from other developing countries that experienced demographic changes related to development.

Figure 8. The relationship between MDS PA III Analysis results and fertility policies in 1995-96



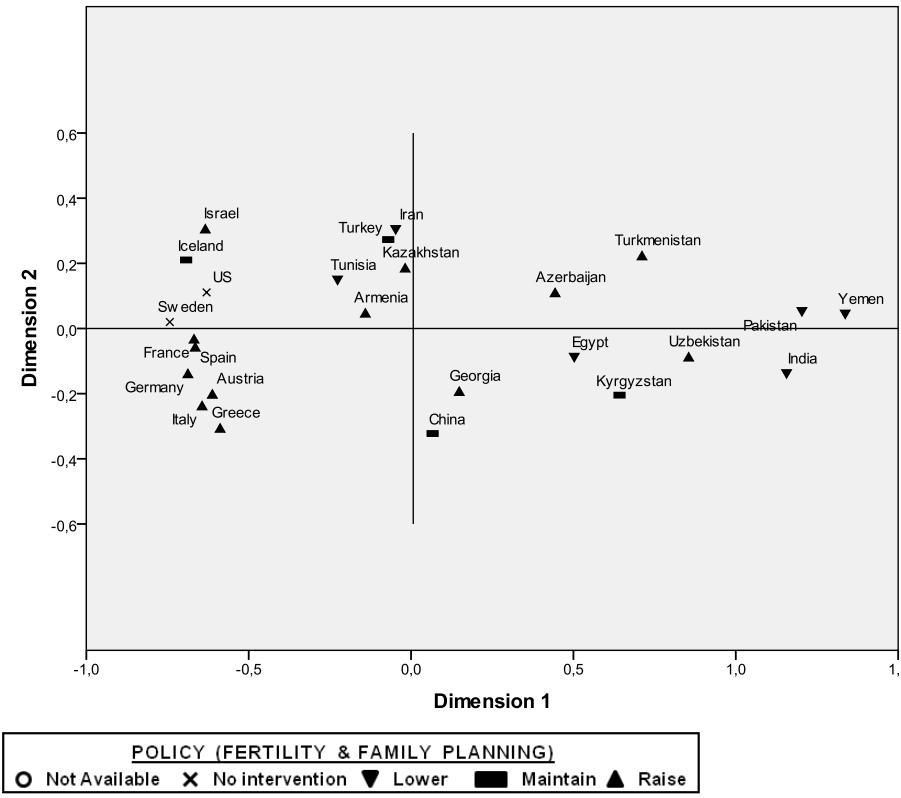
Source: Data from UN (2010), see Table 2

Figures 6, 7, 8, and 9 also present the changes in the fertility policies of countries. While most developed countries adopted a "no intervention" fertility policy during 1975-76 and 1985-86, most developing countries adopted policies

to lower fertility. In fact, these two time periods are rather consistent in terms of the fertility policies seen (Figures 6 and 7).

Data for some countries, especially those founded after the breakup of the USSR, are not available for the 1995-96 period. Nevertheless, it might be argued that some of the countries leaned towards a policy change during this era. While Armenia, Georgia, and Kazakhstan adopted fertility-raising policies, Azerbaijan and Uzbekistan chose policies to maintain the current fertility level. Turkmenistan and Kyrgyzstan chose to not intervene in fertility (Figure 8).

Figure 9. The relationship between MDS PA IV Analysis results and fertility policies in 2009



Source: Data from UN (2010), see Table 2

The year 2009 saw most of the selected countries take up policy changes: Most of the developed countries, except for Sweden and the US, shifted towards fertility-raising policies (France, Spain, Austria, Germany, and Italy), and Iceland adopted a maintenance policy. Most of the developing countries (Armenia, Kazakhstan, Turkmenistan, Georgia, and Uzbekistan) either continued implementing population-raising policies, or switched to them.

Turkey, China, and Kyrgyzstan turned to maintenance policies. Pakistan, India, and Yemen, all countries with relatively high population growth rates and fertility (Table 2), chose fertility-lowering policies. Iran, Tunisia, and Egypt also adopted fertility-lowering policies, despite the significant declines they experienced in the recent past.

A Closer Look at the Current Situation: 2009

MDS analysis carried out on the indicators from 2009 (Table 3 and Figure 9) indicates the presence of six groups. The first consists of Germany, Austria, France, Italy, Spain, and Greece. This group is identified by large elderly populations, high urbanisation, and long life expectancies, as well as low youth populations, low TFR, and low population growth and infant mortality rates (Table 2). These countries seem to have lost their dynamic population structures, and in 2009 they all introduced fertility-raising policies.

The second group consists of Israel, Iceland, the US, and Sweden. The demographic indicators for this group are quite similar to those of the first group; their slightly higher replacement-level fertility and higher urbanisation rate make the difference (Table 2). Such countries do not feel the need to intervene, probably due to the migrants they receive from developing countries (Sleebos, 2003).

Armenia, Iran, Kazakhstan, Tunisia, and Turkey constitute the third group. With close proximity to the origin of the plot, these countries are advantageous in terms of fertility and population growth, which are not very high (Figure 9). These countries also have relatively high urbanisation rates, and have dynamic population structures due to their high proportions of young people. However, the demographic transition process is ongoing and their populations are ageing (Table 2). Thus Armenia and Kazakhstan are implementing fertility-raising policies and Turkey is implementing a maintenance policy. However, Iran and Tunisia are implementing fertility-lowering policies.

The fourth group includes Azerbaijan, Kyrgyzstan, Uzbekistan, and Turkmenistan. The main characteristics that separate this group from the latter are higher infant mortality rates, lower urbanisation levels, and large youth populations, but small elderly ones (Table 2 and Figure 9). All countries other than Egypt in this group have adopted either fertility-raising or maintenance policies.

China and Georgia make up the fifth group. TFR and the population growth rate for these countries are at very low levels. With these and rising life expectancy, rapid ageing has also emerged. Yet urbanisation is quite low in this group. China is implementing a fertility maintenance policy, and Georgia is implementing a fertility-raising policy (Table 2 and Figure 9).

The last group consists of India, Pakistan, and Yemen. TFR, population growth, the share of the young population, and infant mortality are high in these countries, as opposed to low life expectancy at birth and urbanisation. Given the problems associated with rapid population growth, these countries are implementing fertility-lowering policies, and they stand out compared to other

countries with the high positive dimension values they show in the MDS analysis (Table 2 and Figure 9).

Turkey's Position

In the 1975-76 period, when TFR, population growth, infant mortality rates, and the share of the population aged 15 and under were relatively high, and when the percentage of the elderly, life expectancy, and urbanisation were low, Turkey carried out antinatalist policies (Table 2 and Figure 6) as mentioned in the Second and Third Five-Year Development Plans. In this era, the countries that resembled Turkey the most in terms of demographic indicators were Egypt, Tunisia, and Iran respectively, and the countries least like Turkey were Sweden, Iceland, and France (Table 2 and 4). In the 1985-86 period, the latter group stayed unchanged, but the countries most like Turkey were Iran, Azerbaijan, and Turkmenistan. This was a period of significant declines in TFR, population growth, and the proportion of the young population for both this group of countries and Turkey (Table 2; Figure 6 and 7). In this period, the antinatalist view remained unchanged.

Table 4. Turkey's transition: The three countries closest to and furthest from Turkey according to MDS PA analyses

Proximity features	Period/year			
	1975-76	1985-86	1995-96	2009
The countries furthest from Turkey	Sweden Iceland France	Sweden Iceland France	Yemen Sweden Germany	Yemen India Pakistan
The countries closest to Turkey	Egypt Tunisia Iran	Iran Azerbaijan Turkmenistan	Iran Kazakhstan Armenia	Iran Kazakhstan Tunisia

Note: This table was prepared based on the transformed proximities (final coordinates in Table 3) and distances matrix[6] of the MDS PA analyses output.

The 1995-96 period saw even more demographic changes. The group of countries that differed most from Turkey included Sweden and Germany, but also a developing country, Yemen, for the first time. With significant declines in TFR, Turkey differed from Yemen, but remained far from countries such as Sweden and Germany, because of a combination of lower fertility and infant mortality rates as well as higher life expectancy at birth (Table 2). Iran, Kazakhstan, and Armenia were the countries most like Turkey in this period. The 1995-96 period signifies the transition of Turkey's fertility, population growth rate, and the share of the population aged 15 and under from values

[6] The distances matrix of the MDS analysis was not presented due to excessive length.

resembling less-developed countries to those of developed countries (Table 2 and Figure 8).

The position of Turkey in the 1995-96 period changed more drastically in 2009, forming a cluster with Iran, Tunisia, Kazakhstan and Armenia, now moving even closer to developed countries (Figure 9 and Table 4). Thus the list of countries most unlike Turkey added India and Pakistan to mainstay Yemen (Table 3 and 4). Turkey became a country with replacement-level fertility, and it switched to a maintain policy with its Eighth Five-Year Development Plan via a recommendation to stabilize the population growth rate.

Conclusion and Discussion

Focusing on Turkey's past and current social and demographic changes, we observed that responses in terms of population policies were given at different stages of the demographic transition. The high mortality era of the 1910s and the foundation of the nation-state was followed by a pronatalist policy. The high fertility era, i.e. the second stage of the demographic transition, led to an antinatalist policy. As of today, where Turkey has reached its final stage of the transition, we see a shift to a fertility-raising policy once again. We have also observed links that are somehow weak, in the international sense. However, placing Turkey on a social map of selected countries during 1975-2009 has helped to demonstrate the demographic journey of Turkey while paying attention to fertility and family planning policies.

The empirical dimension of this study presented how six groups of countries were identified in the MDS analysis (Figure 9) according to their demographic indicators in 2009. These countries can be roughly classified according to their fertility levels as follows: 1) developed countries with low fertility, 2) developed countries with replacement-level fertility, 3) developing countries with replacement-level fertility where Turkey was positioned, 4) developing countries with higher fertility than group 3, 5) developing countries with below replacement-level fertility, and 6) developing countries with very high fertility rates compared to the rest of the countries in the analysis.

The analysis further showed that the position of Turkey kept changing alongside changes in its demographic indicators between 1975 and 2009. Plots showed that Turkey moved further away from countries with -relatively- high fertility and mortality and low urbanisation, to move closer to developed countries on the social map. Parallel to this situation, the countries that were farthest away from Turkey switched from developed countries to developing countries. These changes, in the authors' interpretation, led to a maintenance policy in 2000. Should the past demographic trends of Turkey continue in the near future, Turkey will most likely move closer to the second group of countries mentioned above, which consists of developed countries.

Although demographic transition is assumed to operate as a global process, country-level differences and similarities in the long run show that there are separate groups of countries in terms of their population policy agendas.

Around 1975-76, most of the developed countries included in this study chose not to intervene with fertility, yet most developing countries aimed to lower fertility. However, after the 1990s, there were marked changes in the policies implemented by countries in response to changing population dynamics. As of 2009, almost all developed countries adopted fertility-raising policies, the number of countries with fertility-lowering policies fell, and the number of maintainers rose. Nevertheless, it is difficult to assert a powerful link between demographic change and population policies for the selected countries. Although there were clear differentials in basic demographic indicators during the 1975-2009 period, particularly in developing countries; while some countries such as Egypt, Israel, Greece, and Sweden did not change their fertility and family planning policy, others – such as Italy, Austria, Turkey, Kyrgyzstan, and China – responded to demographic change with new policies.

Regarding Turkey's new 3-child policy, studies of the impact of family policies on low fertility have shown how difficult it is to achieve an increase in fertility (Sleebos, 2003). In Turkey's case, the legal and administrative measures taken after 1923 to increase population growth failed to succeed; the general view is that these policies did not have a significant impact on either boosting fertility or population growth (TÜSİAD, 1999). Furthermore, although Turkish governments implemented antinatalist policies and more liberal regulations regarding reproductive health after 1965 (Yavuz, 2006), the fertility decline in Turkey has followed a path that is rather independent from these measures (Behar, 1995; Üner, 1984). Bongaarts (1993), in his study of the impact of policies, found that only 31% of Tukey's fertility decline could be attributed to family planning programs. In fact, the fertility transition has mainly proceeded due to socio-economic developments and the transformation of society (Farooq and Tuncer, 1974; Yüceşahin and Özgür, 2008).

Research in such European countries as Sweden, Norway, and Finland has shown that the role of public policies and their results seem to indicate that there is a certain impact on fertility trends (Rønsen, 2004). For example, Rønsen (2004) states that Swedish women are more likely to have a second child if the father takes parental leave with the first child, suggesting that features which encourage active paternal participation in childcare may stimulate fertility. In addition, the literature also emphasises the importance of the positive effect of increasing day-care supply on encouraging fertility. These examples suggest that the 3-child policy is likely to fail in Turkish society. Although Turkey has gone through major socio-economic transformation, society has still preserved its patriarchal structure (Herdman and Badir, 2008), as is the case in many developing countries. Successful policy implementations in countries such as Sweden and France ensure gender equity, offering a work-life balance to both mother and fathers. It follows that a fertility-enhancing policy could succeed if it takes people's – and especially women's – needs and wants into account. Although Turkey's current action plan on population and family claims to aim for a balance between work and family life which would fulfil a necessity

towards becoming a social state, it includes no mention of gender equity. For instance, paternal leave is limited to a mere 5 days, compared to a maternal leave of 16 weeks in total (8 weeks prior to and 8 weeks following birth), and can only replace maternal leave in the case of the death of the mother. which could both be evaluated in terms of and a pronatalist population policy.

On the other hand, Turkey may prove to be a different case in terms of the success of the current policy. Turkey's political climate has changed dramatically since the beginning of the 2000s, when a relatively conservative government took office with a high percentage of the vote; 51% in the 2011 elections, and 41% in the 2015 elections. Both because this government's rule from 2002 until 2015 has been widely supported, and because labour force participation among women is low (28% in paid employment), we recognize that the new population policy could succeed, at least partially. Also, various social groups may respond to 3-child policy with different outlooks. For instance, motivating women outside the labour force to bear more children requires no regulations regarding day care or parental leave; thus, such women may be more inclined to increasing their fertility if they are convinced that it is a national necessity. Furthermore, another hypothesis could be that the government's new population policy may be effectual -or may have repercussions- if society transforms to become more traditional and conservative in the near future. However, as we discussed in the introduction, policies aiming at specific demographic targets have lost their popularity in modern societies, to be replaced by policies focusing on people's well-being and gender equity. In today's world, industrialized countries are often reluctant to implement pronatalist policies that are directly aimed at raising fertility (May, 2006: 829). Thus, for a fertility-enhancing policy to be successful while paying attention to women's rights in Turkey, awareness of gender issues should be fostered, and policies must also take this dimension into account. The demographic implications of a successful 3-child policy are also crucial. If fertility were to keep rising, education and healthcare services for mothers and children would constantly need to expand until around 2050, when Turkey's population is expected to peak. Moreover, the proportion of the working-age population would shrink, leading to high dependency ratios.

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