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# Chapter 4

## The Various of Demographic Transitions



**Abstract** Since the eighteenth century, and at different periods, the world's populations have been undergoing, or have undergone, a process of demographic transition. The Mediterranean countries present a great diversity of demographic transitions in terms of timing, pace, intensity, etc. The aim of this chapter is to take stock of demographic transitions in the Mediterranean by identifying the different types of demographic transition that have occurred since 1950. This typology makes it possible to place the national demographic transitions within a general model, while also highlighting the contrasting situations that exist in the Mediterranean.

**Keywords** Demographic transition · Demographic counter-transitions · Birth rate · Mortality rate · Natural change of population · Convergence · Mediterranean

### 4.1 Introduction

Since the eighteenth century, and at different periods, the world's populations have been undergoing, or have undergone, a process of demographic transition.<sup>1</sup> The Mediterranean countries present a great diversity of demographic transitions in terms of timing, pace, intensity, etc. (Doignon, 2020). The aim of this chapter is to take stock of demographic transitions in the Mediterranean by identifying the different types of demographic transition that have occurred since 1950. This typology makes it possible to place the national demographic transitions within a general model

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<sup>1</sup> See Box 4.1 for an overview of the demographic transition.

(Box 4.1), while also highlighting the contrasting situations that exist in the Mediterranean. Using data from the UN's *World Population Prospects, 2022*, we will construct a classification of demographic transitions according to four criteria:

- The status of the demographic transition in 1950, to indicate whether the transition has already begun, what step it is at, or whether it is already complete (pseudo-equilibrium<sup>2</sup> of mortality and fertility) (Fig. 4.1).
- The status of the demographic transition in the most recent period (2015–2019<sup>3</sup>).
- The type of post-transitional regime reached at the end of the transition: a zero natural change, a positive natural change or a negative natural change.
- The levels of mortality, birth rate and natural change.

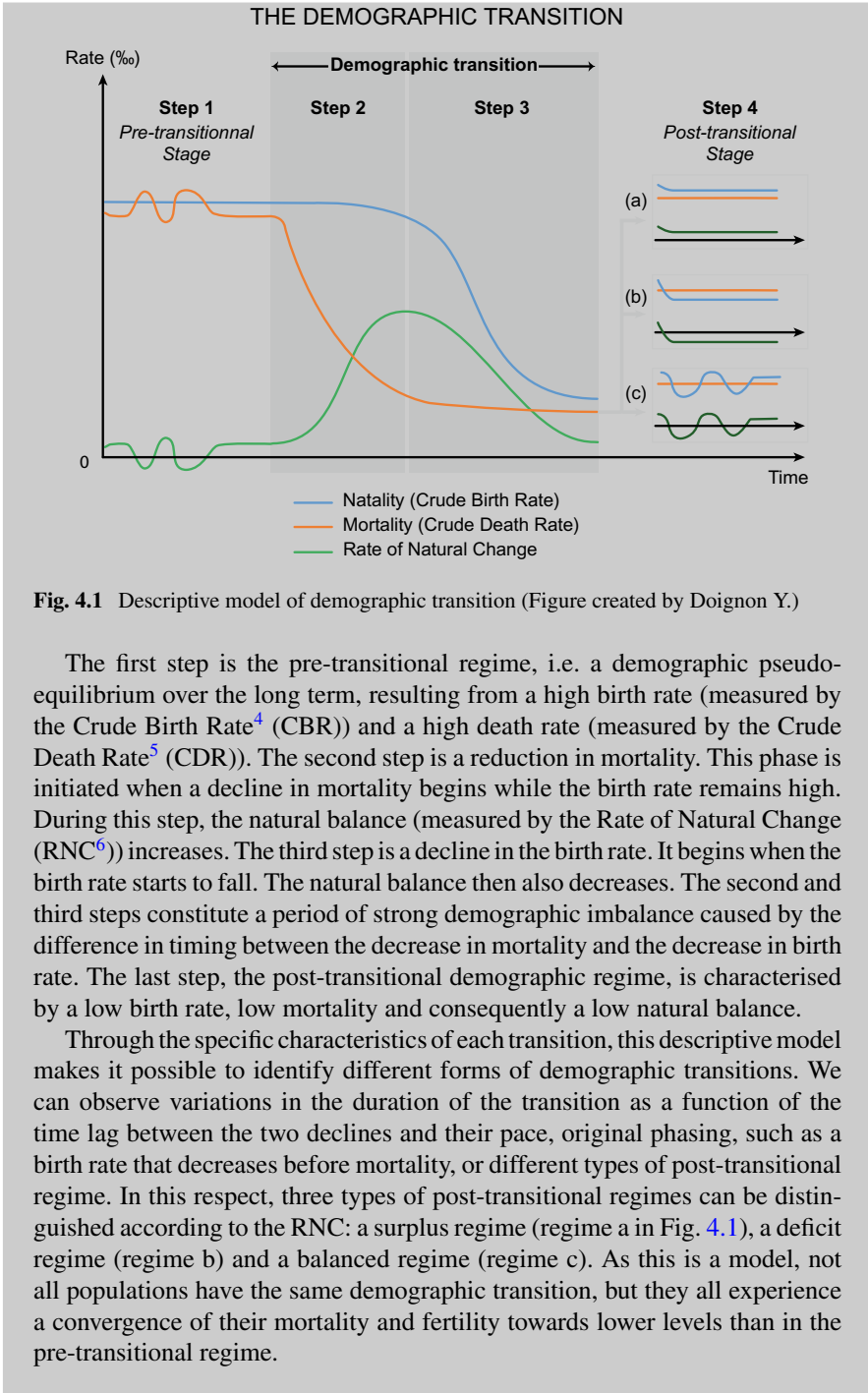
By combining these four criteria, we will obtain 10 types of demographic transition, which we will then group into 6 broad types: demographic transitions that conform to the theoretical model (types 1, 2 and 3), transitions leading to a post-transitional regime of decline (types 4 and 5), the specific transition of Israel whose post-transitional regime retains strong population growth (type 6), recent and rapid transitions (types 7 and 8), cases of a sustained rise in birth rate (type 9), and recent and slow transitions (type 10).

#### **Box 4.1: The demographic transition model**

Demographic transition is the passage between two different demographic regimes, called “pre-transitional regime” and “post-transitional regime”, corresponding to the demographic regimes in force before and after the transition respectively (Chesnais, 1992). This transition is usually formalised by a four-step process (Fig. 4.1).

<sup>2</sup> By pseudo-equilibrium we mean a situation where there are fluctuations in the mortality and birth rates, but where the overall trend is balanced.

<sup>3</sup> The graphs in this chapter will represent the period 1950–2022. However, the typology did not take into account the 2020–2022 period to avoid bias from cyclically differentiated effect of the Covid-19 pandemic.



**Fig. 4.1** Descriptive model of demographic transition (Figure created by Doignon Y.)

The first step is the pre-transitional regime, i.e. a demographic pseudo-equilibrium over the long term, resulting from a high birth rate (measured by the Crude Birth Rate<sup>4</sup> (CBR)) and a high death rate (measured by the Crude Death Rate<sup>5</sup> (CDR)). The second step is a reduction in mortality. This phase is initiated when a decline in mortality begins while the birth rate remains high. During this step, the natural balance (measured by the Rate of Natural Change (RNC<sup>6</sup>)) increases. The third step is a decline in the birth rate. It begins when the birth rate starts to fall. The natural balance then also decreases. The second and third steps constitute a period of strong demographic imbalance caused by the difference in timing between the decrease in mortality and the decrease in birth rate. The last step, the post-transitional demographic regime, is characterised by a low birth rate, low mortality and consequently a low natural balance.

Through the specific characteristics of each transition, this descriptive model makes it possible to identify different forms of demographic transitions. We can observe variations in the duration of the transition as a function of the time lag between the two declines and their pace, original phasing, such as a birth rate that decreases before mortality, or different types of post-transitional regime. In this respect, three types of post-transitional regimes can be distinguished according to the RNC: a surplus regime (regime a in Fig. 4.1), a deficit regime (regime b) and a balanced regime (regime c). As this is a model, not all populations have the same demographic transition, but they all experience a convergence of their mortality and fertility towards lower levels than in the pre-transitional regime.

We will now present the different types of the typology obtained, starting with the demographic transition “models”.

## 4.2 Demographic Transition “Models”

This group of demographic transitions is consistent with the theoretical model: the process results in a low pseudo-equilibrium of mortality and births, and a positive, but very low natural dynamic. The transitions corresponding to this case are already in the third step<sup>7</sup> of the demographic transition in 1950, i.e. both the birth rate and the death rate are already falling. We distinguished three types of demographic transition according to the progress made in the second step in 1950, and the date at which pseudo-equilibrium is reached: an early transition with third step tending to end in 1950 and a pseudo-equilibrium reached from the 1970s onwards (Spain, France) (type 1); a transition in the middle of third step in 1950, and a pseudo-equilibrium reached in the 1990s (Cyprus, Montenegro, Malta) (type 2); and a rapid transition at the very beginning of third step in 1950, with a pseudo-equilibrium reached in the middle of the 2000s (Macedonia, Albania, Kosovo) (type 3).

### 4.2.1 *Type 1: Ancient Transition with Pseudo-Equilibrium in the 1970s (Spain, France)*

This type is characterised by a demographic transition that is almost completed by 1950: mortality and birth rates are balanced, and the RNC is already around 10%. In 1950, the transition was clearly at the end of the third step of the process. A low pseudo-equilibrium has been observed since the mid-1970s for France and since the beginning of the 1990s for Spain (Fig. 4.2). The RNC tends to become very low. It has even become negative very recently in Spain. If the trend were to continue in the future, this country would have to be classified in another category of the typology, as the low pseudo-equilibrium would then be negative.

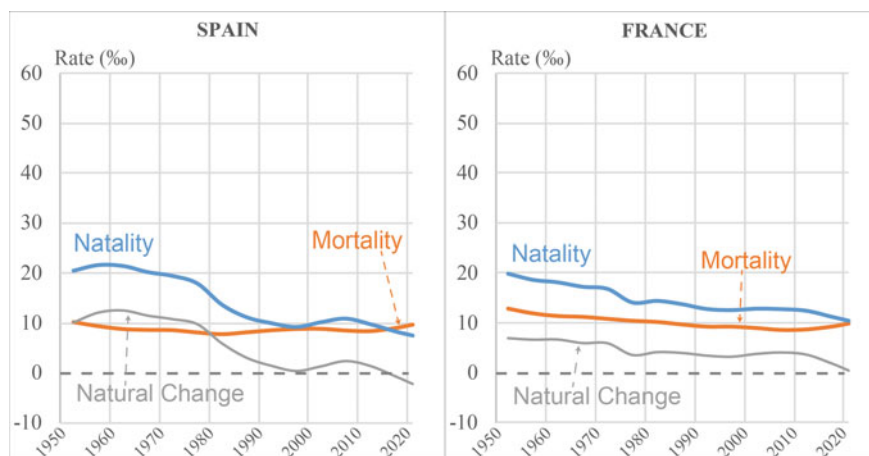
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<sup>4</sup> The Crude Birth Rate (CBR) is calculated by dividing the number of live births in a year by the average population in that year.

<sup>5</sup> The Crude Death Rate (CDR) is calculated by dividing the number of deaths in a year by the average population in that year.

<sup>6</sup> The Rate of Natural Change (RNC) is calculated by subtracting the CDR from the CBR. For ease of reading, we use the annotations “CBR”, “CDR” and “RNC” in this chapter instead of “Crude Birth Rate”, “Crude Death Rate” and “Rate of Natural Change” respectively.

<sup>7</sup> In this chapter, the word “step” refers to the different stages of the demographic transition outlined in Fig. 4.1.



**Fig. 4.2** Demographic transition in Spain and France (1950–2022) (Source World Population Prospects [2022] Calculations made by the authors. Note The time units used are five-year periods)

### 4.2.2 *Type 2: Transition with Pseudo-Equilibrium in the Late 1990s (Cyprus, Montenegro, Malta)*

In 1950, countries experiencing this type of transition were in the middle of the third step, with a relatively high CBR ( $\approx 30\%$ ) and a balanced mortality around  $10\%$  (Fig. 4.3). The RNC became quasi-stable and weak starting at the end of the 1990s: the process ends later than the previous type.

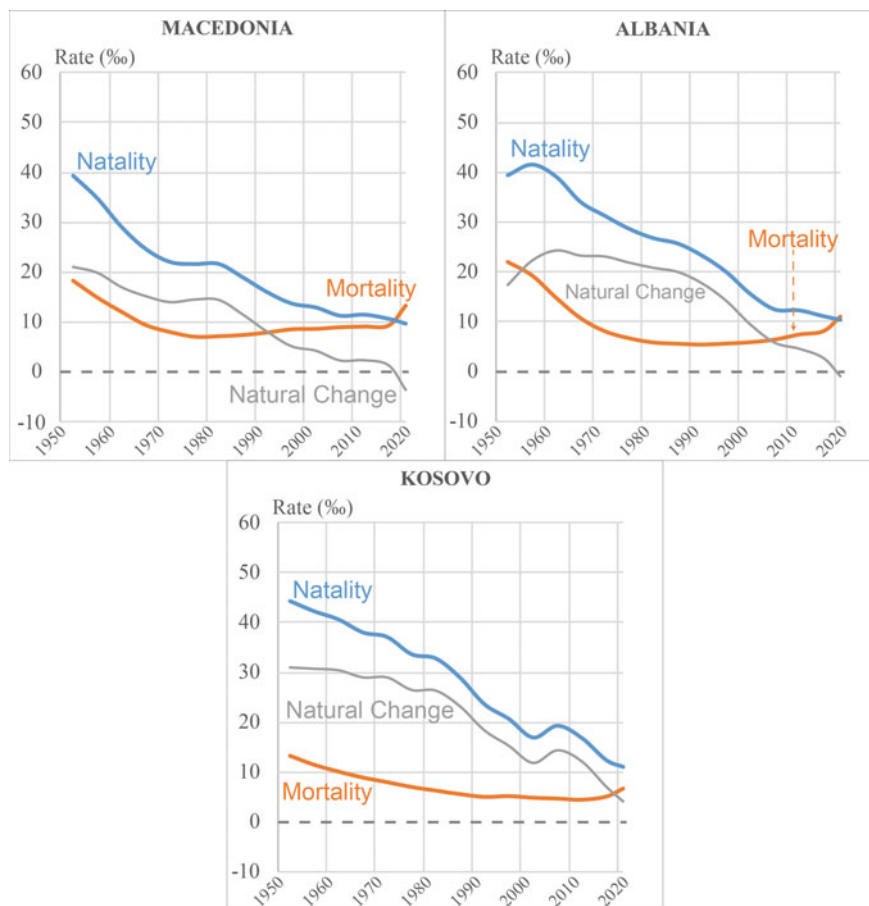
### 4.2.3 *Type 3: Rapid Transition with Late Pseudo-Equilibrium from the 2000s Onwards (Macedonia, Albania, Kosovo)*

In 1950, this type of transition occurred at the end of second step (Albania) or at the beginning of third step (Macedonia) (Fig. 4.4). This is a demographic transition that is in line with the theoretical model, one that is also occurring rapidly. The decline in mortality reached a pseudo-equilibrium in the late 1970s. The birth rate has been rapidly converging to very low rates ( $\approx 10\%$  in 2015–2019). The pseudo-equilibrium of these countries has been achieved late, from the 2000s onwards, except for Kosovo where the CBR has continued to decrease since the 2010s.

Out of 26 countries, 8 have experienced a transition in line with theoretical model. The other 18 countries have thus shown different transitions. We will begin with those with a post-transitional decline regime.



**Fig. 4.3** Demographic transition of Cyprus, Montenegro, Malta (1950–2022) (Source World Population Prospects [2022] Calculations made by the authors. Note The time units used are five-year periods)



**Fig. 4.4** Demographic transition in Macedonia, Albania and Kosovo (1950–2022) (Source World Population Prospects [2022] Calculations made by the authors. Note The time units used are five-year periods)

### 4.3 Completed Demographic Transition with a Post-Transitional Decline Regime

This group of transitions is distinguished from the previous one by a post-transitional demographic regime of slight decline, i.e. one with a slightly negative natural balance (number of deaths exceeding the number of births). We differentiate two types of transition: those occurring early, at the end of third step in 1950 with a pseudo-equilibrium reached in the 1980s–1990s (Italy, Portugal, Greece, Slovenia, Croatia, Bulgaria) (**type 4**); and those occurring later, in the middle of third step in 1950 and reaching a pseudo-equilibrium only in the 2000s (Serbia, Bosnia-Herzegovina) (**type 5**).



### **4.3.1 *Type 4: Transition with Pseudo-Equilibrium in the 1980s–1990s (Italy, Portugal, Greece, Slovenia, Croatia, Bulgaria)***

In 1950, demographic transitions of this type occurred at the end of third: mortality stabilised at 10% and fertility at around 20% (Fig. 4.5). Over the 1950–2019 period, the CBR gradually decreased to reach the CDR in the 1990s (1980s for Italy and Bulgaria), resulting in a near-zero RNC. Thereafter, the CDR exceeded the CBR, and the RNC became negative. In 2019, the demographic regime of these countries corresponds to Adolphe Landry’s “contemporary regime” (1934) or Frank Notestein’s “incipient decline” (1945), i.e. regimes characterised by a negative natural balance (regime b in Fig. 4.1).

### **4.3.2 *Type 5: Transition with Pseudo-Equilibrium in the 2000s (Serbia, Bosnia-Herzegovina)***

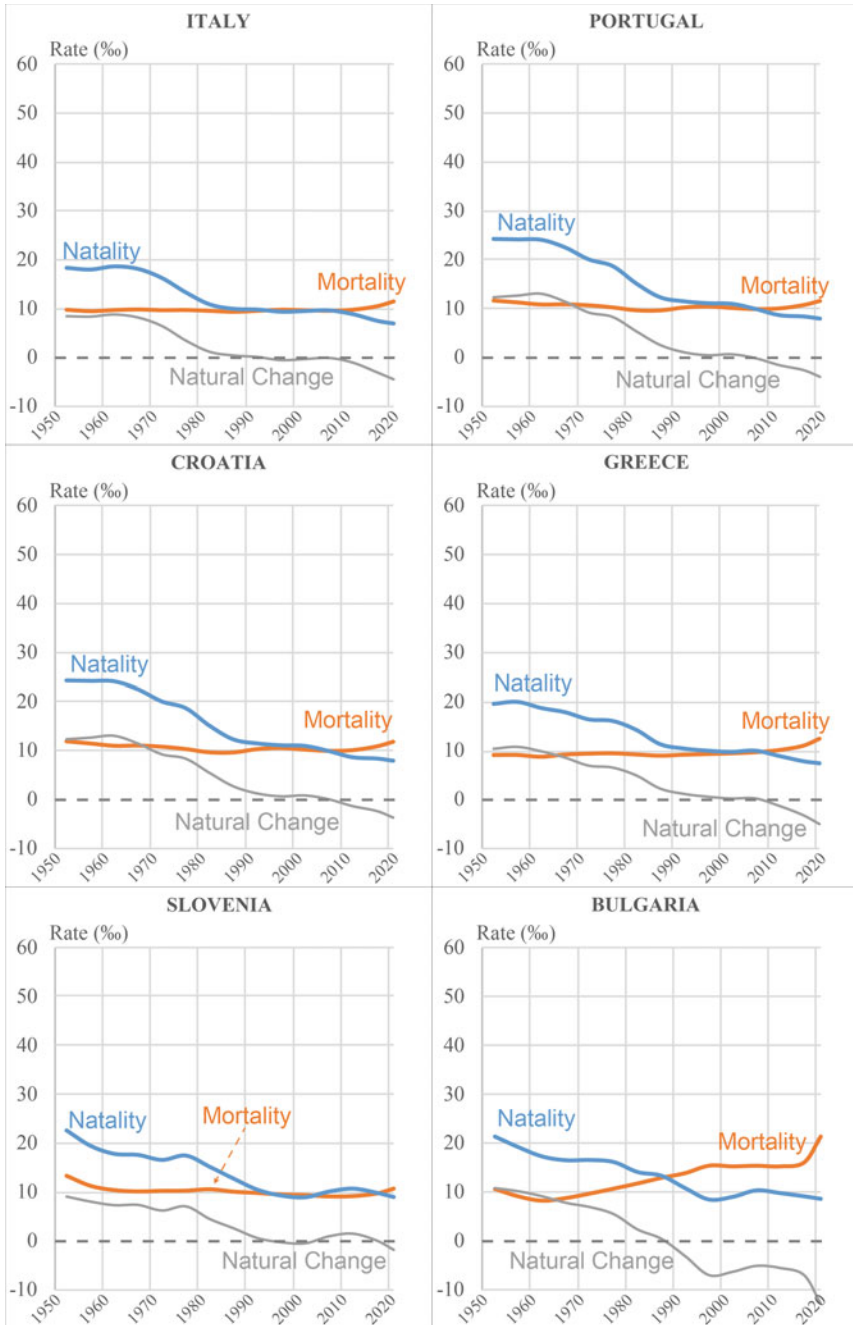
Such demographic transitions were in the middle of third step in 1950, with a still relatively high CBR (28–38‰). The inversion of the CDR and CBR and their pseudo-equilibrium can be observed in the 2000s (Fig. 4.6). These transitions differ from those of the previous type in two respects: a post-transitional regime of decline reached somewhat later, and a generally lower RNC. The temporary increase in the CDR in Bosnia-Herzegovina in the 1990s was due to the war in Yugoslavia.

## **4.4 Completed Demographic Transition with a Post-Transitional Regime with Sustained Population Growth (Type 6: Israel)**

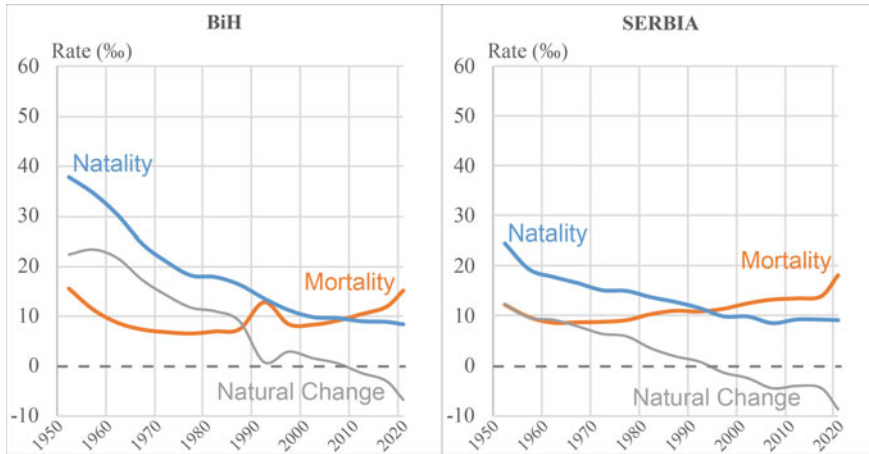
Israel’s demographic transition is very specific. In 1950, the country was at the very end of third step, i.e. mortality was already low and the birth rate was about to stabilise (Fig. 4.7). The transition ended with an early pseudo-equilibrium in the early 1960s. However, the birth rate has been balanced at above 20% for 30 years now; mortality has also been stable at around 6% throughout this period. The post-transitional demographic regime is thus balanced, but with a high RNC (15–20%). This sustained birth rate is often explained by the implications of the Israeli-Palestinian conflict on the demographic patterns of these two territorial entities. Indeed, the preoccupation with being in the majority numerically has led to a “cradle war”<sup>8</sup> between the two populations. Youssef Courbage (2008) describes the very high fertility (more than 7

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<sup>8</sup> This text has been translated into English by the authors. The original text in French is as follows: “guerre des berceaux”.



**Fig. 4.5** Demographic transition in Italy, Portugal, Greece, Slovenia, Croatia and Bulgaria (1950–2022) (Source World Population Prospects [2022]) Calculations made by the authors. *Note* The time units used are five-year periods)



**Fig. 4.6** Demographic transition in Serbia, Bosnia-Herzegovina (1950–2022) (Source World Population Prospects [2022] Calculations made by the authors. Note The time units used are five-year periods)

children per woman in the 2000s) of ultra-Orthodox Jews and religious nationalists as “combat fertility”.<sup>9</sup> Palestinians also engaged in “militant natalism”<sup>10</sup> (more than 8 children per woman in the mid-1980s), during which time Yasser Arafat is said to have advocated that each family should have 12 children, 2 for the couple and 10 for the cause (Courbage, 2006).

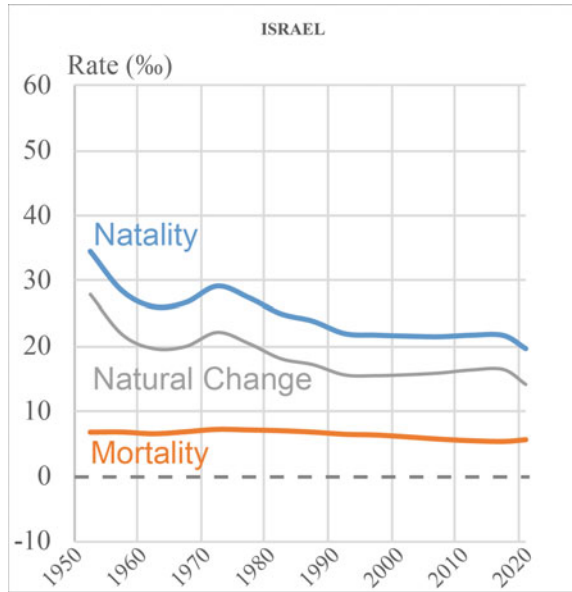
#### 4.5 Recent and Rapid Demographic Transition, Now Being Finalised

This group brings together demographic transitions that have started late but have been occurring at a faster pace than the European transitions. They are also currently being finalised. However, their post-transitional demographic regime could be characterised by a more sustained natural dynamic (RNC above 10%) than that of the Northern shore countries, whose RNC is below 5%. Among this group, we distinguish transitions according to timeframe: transitional processes with declines in the CBR and CDR already underway in 1950 (Lebanon, Turkey) (**type 7**) and later transitions (Libya, Morocco, Tunisia) (**type 8**).

<sup>9</sup> This text has been translated into English by the authors. The original text in French is as follows: “fécondité de combat”.

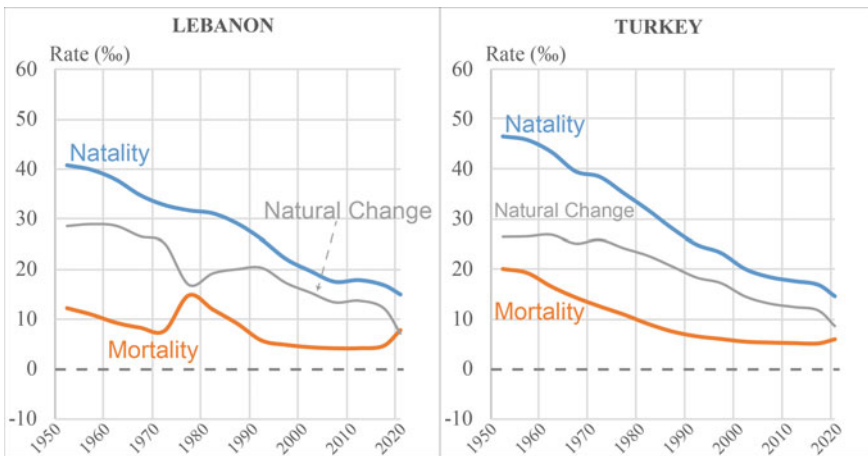
<sup>10</sup> This text has been translated into English by the authors. The original text in French is as follows: “natalisme militant”.

**Fig. 4.7** Demographic transition in Israel (1950–2022) (Source World Population Prospects [2022] Calculations made by the authors. Note The time units used are five-year periods)



**4.5.1 Type 7: Transition Already Underway in 1950 (Lebanon, Turkey)**

In 1950, the demographic transition of these countries was at the beginning of third step, i.e. both births and deaths had started to decline (Fig. 4.8).



**Fig. 4.8** Demographic transition in Lebanon and Turkey (1950–2022) (Source World Population Prospects [2022] Calculations made by the authors. Note The time units used are five-year periods)

The CBR however still remains high. The CDR balances out at around 4–5‰ in the 1990s in Lebanon,<sup>11</sup> and in the 2000s in Turkey. The rate of decline in the CBR has been slowing down since the 2000s, and seems to be levelling off in Lebanon, as in Turkey despite a downward trend. The demographic transition thus appears to be in the process of being finalised. On the other hand, the RNC is close to 10%, i.e. a higher level than in the Northern shore countries. The next 10–20 years will certainly reveal whether the post-transitional demographic regime of these countries will have almost no or low natural dynamics (like type 1 countries) or will be more sustained.

Note that the current level of mortality in these two countries ( $\approx 4\text{--}5\%$ ) is lower than that of the countries on the Northern shore, whose CDR is generally above 8%. This may seem counter-intuitive, but it is not. This difference should not be interpreted as better sanitary conditions in Lebanon and Turkey compared to the countries on the Northern shore. This is because the CDR (and CBR) do not take into account the age structure of the population. These two indicators reflect both the health conditions and fertility of the populations, but also the age structure of countries. Thus, under equal health conditions, fewer deaths will occur in a younger population than in an older population. The fact that the countries on the Southern and Eastern shores are on average younger than those on the Northern shore partly explains their lower CDR.

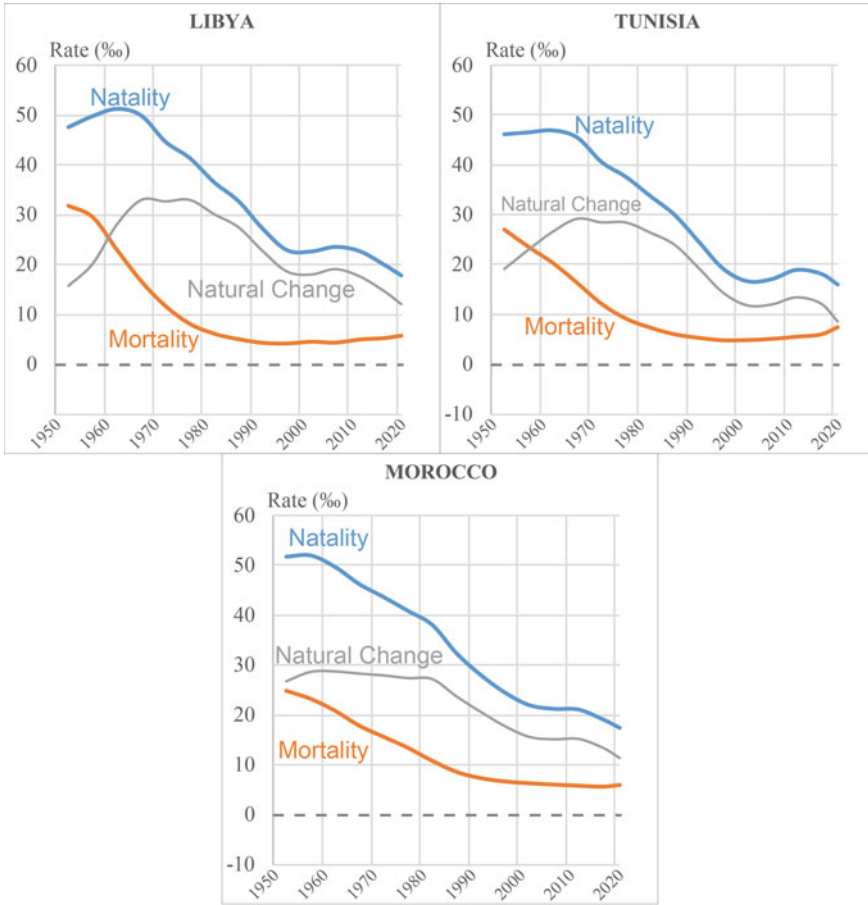
#### **4.5.2 *Type 8: More Recent Transition (Libya, Morocco, Tunisia)***

These are demographic transitions that have occurred relatively late. In 1950, the process seems to be in the middle of second step, i.e. the decline in mortality has started, but not yet for the birth rate (Fig. 4.9).

Libya is unique in that it is the only Mediterranean country where virtually all the step of the demographic transition can be observed over the period 1950–2019. The decline in the birth rate began in the 1960s, thus later than in most Mediterranean countries. The decline in the CBR was very rapid, from almost 50‰ to 20‰ in about 30 years in Tunisia and Libya, and in 45 years in Morocco. In the 2000s, the birth rate stabilised at around 20‰, a level higher than those of the Northern shore countries. A pseudo-equilibrium of mortality and birth rate seems to have been found, and one could conclude that the transition was over. However, the birth rate has resumed its decline since the 2010s for all three countries, and it is difficult to say what kind of post-transitional demographic regime these countries are heading towards.

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<sup>11</sup> The increase in the CDR in Lebanon in the mid-1970s was due to the war (1975–1982).



**Fig. 4.9** Demographic transition in Libya, Morocco and Tunisia (1950–2022) (Source World Population Prospects [2022] Calculations made by the authors. Note The time units used are five-year periods)

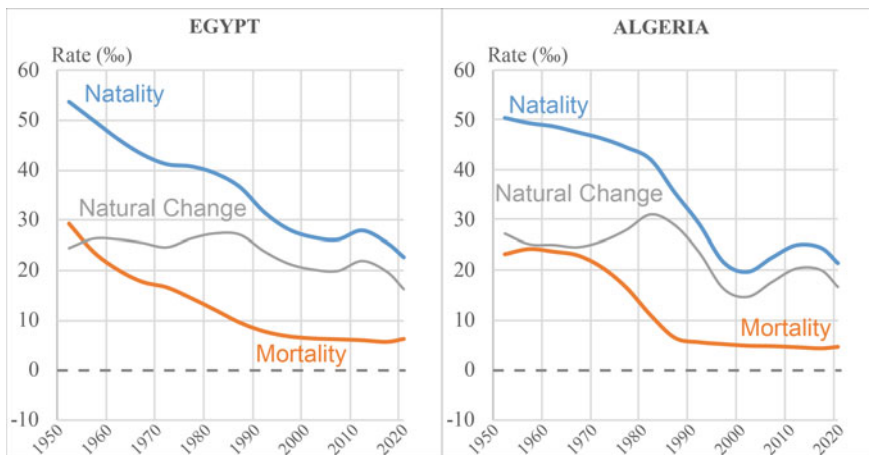
Indeed, the RNC in the 2000s was quite high (between 10 and 20%), but it has been continuously decreasing to now around 10%.

#### 4.6 Possible Demographic Counter-Transitions (Type 9: Egypt, Algeria)

This type of demographic transition is an exceptional case which, like the previous one, is found only in North Africa. Like the countries of type 8, the transition was late, since 1950 the transition was at the beginning of third step (Egypt) or in the middle of second step (Algeria) (Fig. 4.10). The demographic transition of Egypt and Algeria are singular, but currently share a sustained natural dynamic, as the RNC remains around 20%.

Egypt is considered a “demographic exception” (Ambrosetti, 2011). The process seems rather slow and hesitant in the sense that the decline in the birth rate has been disjointed. The demographic transition was interrupted between 1970 and 1985, during which time the CBR even increased, before picking up again in the late 1980s (Doignon et al., 2021). By the end of the 1990s, the CBR stabilised at a high rate ( $\approx 25\%$ ) before increasing again from the late 2000s (Al Zalak & Goujon, 2017; Goujon & Al Zalak, 2018). During this period, the CDR remained at a low level. Between 1995 and 2010, a pseudo-equilibrium was reached for mortality and birth rates. This would seem to be a pause in the downward movement of the birth rate, and not a post-transitional equilibrium with a more sustained natural dynamic, since the birth rate had been falling again since the beginning of the 2010s.

Algeria shows a later, but less hesitant and more rapid decline in the birth rate. The CBR started to fall sharply in the 1970s. At present, there is no equilibrium in the birth rate, unlike for the death rate. The CBR reached the 20% threshold in 2000–2005, but then increases to 25% in 2010–2015, only to decrease again since the late 2010s.



**Fig. 4.10** Demographic transition in Egypt and Algeria (1950–2022) (Source World Population Prospects [2022] Calculations made by the authors. Note The time units used are five-year periods)

These particular trajectories, whether a hesitant decline or a significant increase in the birth rate,<sup>12</sup> raise questions about the process of demographic transition. Are these erratic trends, i.e. a temporary rise before a future fall, as was the case for Egypt in the 1970s? Or is it rather a real increase, where the post-transitional birth rate is stabilising at a higher level than theoretically expected? As this rise in the birth rate calls into question the possible equilibrium of the CBR, it is difficult to make a statement on the status of the demographic transition in Algeria, for example.

Moreover, this increase in the birth rate is not only explained by a greater proportion of women of childbearing age (structural effect), but also by an increase in fertility (see Chap. 5). Youssef Courbage (2015a, 2015b) calls it a “counter-transition”.<sup>13</sup> Many recent increases in fertility have been observed in some European countries where fertility levels have fallen very low, for example Sweden in the 2000s. Nevertheless, it is atypical that fertility above 2 children per woman would rise significantly. From this point of view, Algeria and Egypt are not global exceptions. Let us not forget the *baby boom* in Europe, for example. In France, the total fertility rate rose from 1.85 (1941) to 3.03 (1947), before falling back to 1.82 in 1976. However, at the time, the *baby boom* was not seen as a ‘counter-transition’ because it calmed fears about the population’s decline. For Egypt, it is difficult to conclude on the significance of the rise in birth rate, as it is very recent and only cover a relatively short period of time before falling again. In the case of Algeria, the trend has lasted longer. Is this increase in fertility comparable to the European *baby boom*, in a post- “Black Decade”<sup>14</sup> context? Could this be a data-related effect? Did the latter underestimate fertility until the early 2000s due to poor recording quality? The current increase would then be a consequence of improved civil registration. Zahia Ouadah-Bedidi et al. (2012) believe that a decrease in the age at marriage is partly responsible for the rise in fertility (see Chap. 6), that also suggest that couples may be moving towards a three-child model rather than the two-child model of Morocco and Tunisia. One could also envisage that Algerian fertility reached a minimum in 2000–2005. The rise would then constitute an adjustment towards the post-transitional level, in the same way as in Eastern Europe where some countries are currently seeing a rise in fertility.

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<sup>12</sup> Increases in fertility are also observed in other Mediterranean countries, such as Kosovo and Tunisia in the 2000s. However, the intensity of the increase and its duration are not of the same order of magnitude as in Algeria.

<sup>13</sup> This text has been translated into English by the authors. The original text in French is as follows: “contre-transition”.

<sup>14</sup> The “Black Decade” is a term used to describe the Algerian civil war (1991–2002).



### 4.7 Recent and Ongoing Transition, Slower Decline in Birth Rate (Type 10: Jordan, Palestine, Syria)

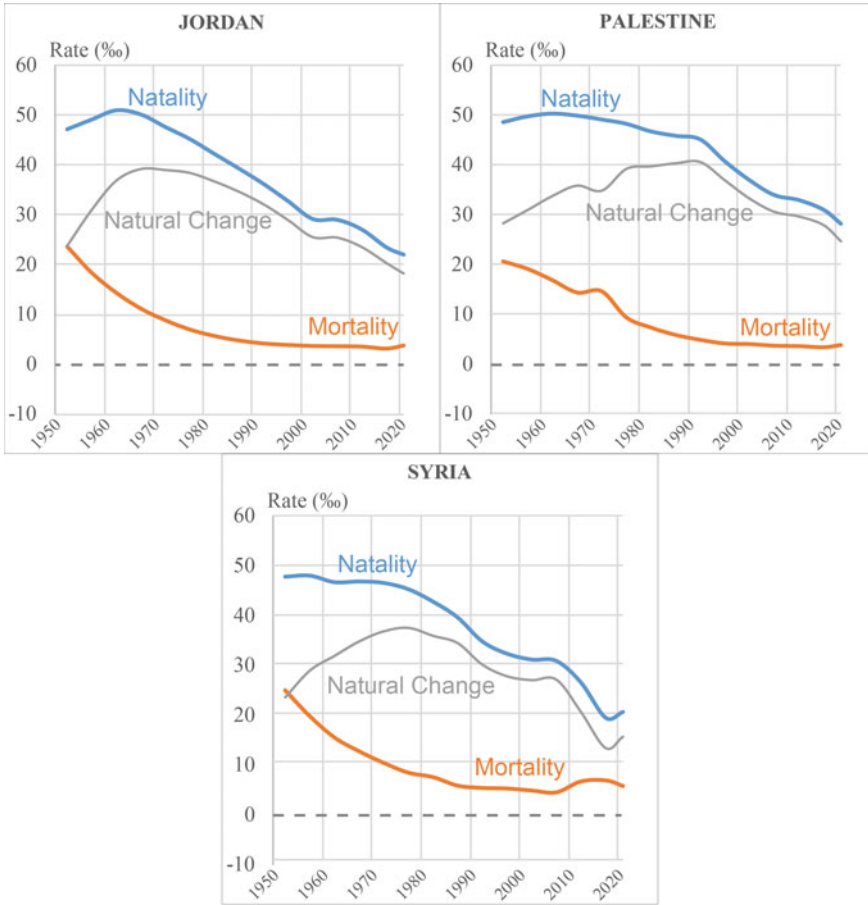
These demographic transitions have started late and have only occurred in the Near East (Fig. 4.11). In 1950, these transitions were at second step, i.e. falling mortality, but note for the birth rate. The latter was high ( $\approx 50\%$ ) and the decline was less rapid than the other late transitions (types 8 and 9). In fact, the CBR was still strong in 2015–2019 ( $\approx 20\text{--}30\%$ ), producing an even higher RNC (between 20 and 30%) as the CDR is very low (4–5%). Only mortality reached a balance in the 1990s. The demographic transition is therefore still underway, as the birth rate continues to fall. Palestine’s demographic transition has been disrupted by the political situation and continued to be characterised by a high birth rate (although it has been declining since the early 1990s), despite a significant level of female education. The birth rate in Syria had slowed in the 1990s and stabilised at around 30% in the 2000s. This development is similar to that of Egypt or Libya in the same period. However, given the political situation in Syria, UN data after 2010 should be interpreted with great caution. The decline in birth rate, for example, from 30‰ to 20‰ in less than 10 years, should be attributed more to the Syrian conflict than to any possible rapid progress in the demographic transition.

### 4.8 A Diversity of Demographic Transitions Despite a General Convergence

This typology of demographic transitions in the Mediterranean highlights two essential characteristics. The first is a general convergence of births and deaths towards low rates. All Mediterranean countries are engaged in this transitional process. However, and this is the second characteristic revealed by the typology, this generalised convergence of mortality/birth rates towards low rates masks great diversity. The process does not take place in the same way in all countries: there is no single model of demographic transition in the Mediterranean, but several models. Finally, few countries have a “model” transition with almost zero population growth. The diversity of transitions is striking, whether in their form, pace, timing or the nature of the post-transitional regime.

The transitions of the Northern shore countries are those that best fit the theoretical descriptive model. Indeed, these transitions are different in terms of timing and pace, but their mortality and birth rates all stabilise at levels that result in low natural dynamics, whether positive or negative.

Countries on the Southern and Eastern shores, on the other hand, tend to have a higher RNC, due to a higher birth rate and lower mortality. This can partly be attributed to a younger age structure. With the inevitable ageing of the population, mortality is likely to increase, and the birth rate and RNC to decrease structurally. It is also possible that the countries on the Southern and Eastern shores will achieve



**Fig. 4.11** Demographic transition in Jordan, Palestine and Syria (1950–2022) (Source World Population Prospects [2022] Calculations made by the authors. Note The time units used are five-year periods)

different post-transitional demographic regimes from those on the Northern shores, with, in particular, higher natural growth and an increasing population (without taking into account migration). Some of these countries, such as Israel and Tunisia, have achieved (or have nearly achieved) a pseudo-equilibrium in mortality and birth rates, but at levels that generate rather sustained natural growth. On the other hand, most of the countries on the Southern and Eastern shores have not reached a pseudo-equilibrium at present, either because the transition is ending or because the transition is still ongoing. On the other hand, there have been some rather unexpected trends, such as in Egypt or Algeria, with a recent and sometimes prolonged increase in the birth rate. It is therefore difficult to determine the type of post-transitional regime for most of the countries on the Southern and Eastern shores, i.e. whether it is a

regime with weak but positive natural dynamics, or a regime characterised by more sustained natural growth than the Northern shore countries, as has been the case in Israel for more than 30 years.

Finally, it should be remembered that these broad trends observed at the country level also conceal a variety of local dynamics. Transitions can vary regionally in timing and intensity, and differences between urban and rural areas often exist (Coale & Watkins, 1986).

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