Chapter 7. An interdisciplinary perspective on fertility

7.1. Introduction

The aim of this chapter is to synthesise the conceptual perspectives addressed in the previous chapters into a theoretical framework for fertility. The organisation of this framework, or model, capitalises on the notion of theory as a means to understanding the emergence of fertility patterns, as a framework to locate and interpret relevant aspects for analysis, as a guideline to develop research designs and methodologies, and as an instrument to formulate policies and programmes in the field of fertility and reproductive health. Theory development proceeds here, by and large, in a deductive way.

To a substantial extent this framework draws on existing currents of thought in demography or extends recent trends and new developments in the field. Whereas these theoretical approaches consist of partial representations of the explanation of a demographic reality, the conceptual edifice proposed here integrates them in a more comprehensive framework. Another significant part of this framework draws on theoretical contributions from neighbouring disciplines, which support or extend the notions that have appeared in demography. Like the ideas developed by Coleman (1990) in his Foundations of social theory (see Chapter 2), the synthesis in this chapter wants to contribute to the foundations of demographic theory.

In accordance with the principle of methodological individualism and following the basic layout of the proposition system as proposed by Coleman, the theoretical framework is multi-level in nature. The basic distinction between context and individual is maintained, but is further elaborated and extended, particularly by identifying a level referring to intra-individual processes and structures. The notion of information is applied as a meta-theoretical concept to provide an integrative strength to the conceptual frame. This is expressed in the choice of a cognitive approach underlying the interpretation of the principal notions of choice, context and development. The acknowledgement and elaboration of the concept of time adds a dynamic perspective to various theoretical elements in the multi-level framework.

The first part of the following section (Section 7.2.1) gives an introduction to the framework. It presents the lay-out of the model, the main conceptual elements and their relations and integration, thereby in particular falling back on the theoretical starting points formulated in Chapter 2. The remaining part (Section 7.2.2) is devoted to a summary of the conceptual elements, which particularly refer to the elaboration of the concepts of choice (Chapter 4), context (Chapter 5) and time (Chapter 6). The concluding section (Section 7.3) provides a final evaluation of the framework in terms of its positioning as a theoretical approach in demography, its strengths, weaknesses and promises.

7.2. An integrated framework for fertility

7.2.1. The conceptual framework: levels, concepts and change

The aim of this chapter is to highlight the concepts required for demographic theory building and to present them in an integrated way. Figure 7.1 provides a comprehensive illustration of
the considerations addressed in the previous chapters.

**Multi-level approach**

Despite traditional emphases on either macro or micro elements, a situation that tends to produce a great divide between major social and behavioural disciplines as well as between major theoretical approaches within demography, the requirement of taking a multi-level approach to understand social phenomena is acknowledged by many social scientists, among them many demographers (e.g. Mason 1989, Freedman 1987, Bilsborrow 1985, Wunsch 1995). The theoretical framework presented in Figure 7.1 is an exponent of this view. The representation of the macro and micro levels follows Coleman’s general argument of methodological individualism, which asserts that in order to understand a social phenomenon we need to address the underlying causal mechanisms involved in producing this phenomenon (Coleman 1990). Whereas demographic outcomes such as fertility as well as major determinants are situated at the social level, the processes that link outcomes and determinants are located at the individual level. These considerations focus the theoretical concern (the ‘theoretical primacy’ in Lindenberg’s terms) to the behaviours of individuals and involves the need to formulate a theory of the individual behaviours that produce patterns and level of fertility. Taking the concept of choice as a starting point, Chapter 4 elaborated such a theoretical perspective. The acknowledgement that individual behaviour itself is the outcome of underlying processes, pushes analysis back to another, lower level, which is represented in Figure 7.1 as an intra-individual level. The elements that pertain to this analytical level include internal processes of thought, attention, representation, motivation and emotion (Chapter 4) which shape the personal considerations of individual decision making. Besides these cognitive processes, this intra-individual level also includes physiological processes involved in fertility and fecundity.

Although the theoretical approach advocated here is a micro-approach, this characterisation does not refute the overriding importance of the structure and substance of the social environment at the macro level. It merely prescribes that the theoretical approach to assess the impact of the context of individual behaviour must be in line with the representation of individual behaviour and the way in which context and behaviour are interactively related to each other. The interpretation of context as a configuration of social institutions meets this requirement. The institutional approach also allows a further differentiation of the context into a multi-levelled structure, ranging from global spheres to the local community level.
Figure 7.1. An integrated model of fertility
The intra-individual, individual, and social level are the major layers to characterise the multi-level nature of the theoretical approach. The conceptual model, however, identifies a fourth overarching level. The understanding of the behaviour of individuals and their dependence on the social environment relies on the model of man as formulated in Chapter 2, and these assumptions make up a crucial background of the theoretical approach. Rather than including the fundamental assumptions implicitly, they are manifestly incorporated in the conceptual model by adding a *universal level*, which is considered invariant in time and space. This addition is an explication of the ideas of Hollis (1977), Runyan (1982) and Sugarman (1986), which imply the need to specify the backgrounds of individual behaviour at the personal, structural and universal level (cf. Section 2.3.1).

**Concepts and relations**

The subject of primary interest to demographers is *demographic outcomes*, and in the present study particularly *levels and patterns of fertility*. The measurement and representation of fertility is relatively straightforward and the relation between fertility outcomes at the macro level and the *reproductive behaviours* at the individual level can be assessed through simple aggregation of vital events. Depending on further specific interests, the demographic outcome might be related to other social outcomes, such as reproductive health, population growth, future labour market developments or the status of women. Apart from the identification of the transformation mechanism that relates individual behaviours to social outcomes, Coleman’s *Foundations of social theory* (Coleman 1990; see Section 2.3.2) defined three major theoretical tasks to provide a comprehensive explanation of social phenomena:

1. a theoretical approach to assess the context of individual behaviour;
2. the mechanisms by which the context influences and structures individual action;
3. a theory of individual behaviour.

Although social science has no general theory that adequately encompasses all these concerns, and a seamless integration of complementary approaches seems to be out of reach, the approach presented in Figure 7.1 provides an attempt to bring together a number of theoretical considerations that may comprise the foundations of demographic theory. The elaboration of these theoretical notions is formulated in a integrated way, in which the concept of *information* functions as a common interpretative principle for the theoretical components (Section 4.2.1). Such an approach enhances the compatibility of the different concepts at the macro, individual and intra-individual level, as well as their relationships and the generative mechanisms.

Coleman’s aspects of context and individual behaviour have been developed in terms of *social institutions* and *decision making* respectively. The interpretation of institutions as a structure of rules allows the translation of contextual elements into individually-held mental schemes, which provide the basis of the *personal considerations* that can be considered as an anchor point in the process of decision making. The mechanism involved in this transformation (Coleman’s third theoretical problem) is defined in terms of *social learning processes*. Whereas many theories of individual behaviour include the influence of contextual elements (however context is defined), very few actually specify the mechanisms through which this occurs. The interpretation of *life course development* also relies on learning principles and provides the time-related *individual backgrounds* of the personal
considerations and the process of individual choice. In fact, given the broad conceptualisation of decision making in this study, there is a considerable overlap between choice and learning.

Although reproductive outcomes in terms of number and timing of births may be an immediate concern in individual decision making, the model in Figure 7.1 allows for the situations where this is not the case or where fertility is an unintended consequence of other behaviour. Following Hull (1983) and Bulatao (1984), the decision making perspective does not take reproductive behaviour as the sole focus, but also includes as the subject of choice a number of *intermediating determinants* as defined by Bongaarts (1978) and Davis and Blake (1956).

**Time perspectives**

A time perspective has been built in in the theoretical framework by including different dimensions of time, especially referring to elementary, individual and institutional-historical dimensions of time (see Section 6.2.2), which largely correspond to the intra-individual, the individual and the social level of analysis.

The element of time is incorporated in the framework in several, partly overlapping, ways. First, by considering expectations about future states of the world (as related to historical and institutional change) and about future life course development (as related to individual change) which includes expectations about reproductive choice outcomes (in terms of reproductive behaviour or higher-level outcomes). These expectations translate anticipated futures into present-day considerations. Figure 7.1 represents these influences of the future as inputs in the personal considerations.

Secondly, time is reflected by recognising knowledge and choice as processes rather than states or events. People’s mental schemes and salient considerations are susceptible to continuous change owing to new information input, varying levels of attention to specific pieces of information and shifting perceptions because of differing combinations of information elements from various sources. The concept of choice that corresponds to this perspective relies on procedural and expressive types of rationality rather than on the standard substantive rationality (cf. Section 2.4). The interpretation of choice applied in this study relies on ideas of different choice theorists, such as Simon (e.g. H.A. Simon 1978, 1987), Etzioni (1992), Janis and Mann (1977), Esser (1993), Leibenstein (1980) and Hargreaves Heap (1992). They contribute to the argument that the particular nature of information selection and information processing determines people’s considerations, not only about behavioural options and decision styles, but also about goals and perceived future consequences of behaviours.

Thirdly, a dynamic perspective is added to the theoretical model by introducing life course development as an evolving source of information at the personal level. Personal considerations related to reproductive behaviour or its proximate determinants depend on the cumulating experiences of people’s lives in time, which shape and reshape the cognitive schemes held by individual agents, including valuations, cause-and effect relations, decision styles and perceptions of personal control (cf. Chapter 4 and 6).

Lastly, the time dimension relevant to the social level refers to institutional change and in a broader perspective to historical change. Depending on the balance between conservative and challenging forces, social institutions transform in an evolutionary way owing to the interactive processes of learning, and of acknowledgement of and adherence to institutional rules (cf. Section 5.3). Institutional change is provided for in Figure 7.1 by representing the
relevant institutional structure at different points in historical time (past, present and future). Despite a substantial degree of interdependency in the development of different institutions, within the transformation process of the contextual structure each single institution may develop along its own specific evolutionary path, at a different speed and in a different direction.

7.2.2. The components of the conceptual framework

The interpretation of the different components of the conceptual model in Figure 7.1 refers to the discussions in the previous chapters, in particular Chapters 2, and 4 to 6. Successively, these include the model of man for demography, the social context, the principles of learning, the individual backgrounds of personal endowments and life course development, the concept of choice, reproductive behaviour and its intermediate determinants, and social and individual outcomes of decision making. The aim of this section is to summarise the treatments of these concepts within the framework of Figure 7.1.

**Demographic model of man**

Like any social theory, demographic theory relies on specific assumptions with regard to the people who cause, through their behaviours, the emergence and change of demographic phenomena. Since the focus of this study is on understanding and conceptualisation, rather than on quantification and formalisation, it has more freedom and indeed the need) to be guided by realistic assumptions about human beings (Section 2.2). The development and use of demographic theory is enhanced by an explicit reference to such a realistic model of man for demography.

The issue of the model of man does not enter the conceptual scheme as a proper variable that can take any specific value or shape. Instead, it constitutes a set of basic premises that are relevant for understanding human behaviour in general and fertility behaviour in particular. They represent propositions with respect to human capabilities, constraints and characteristics that are assumed to be independent of contextual conditions or personal specificities. The premises of a demographic model of man, coined as BMMRSDM in Section 2.2, relate to the underlying biological dimension of demographic behaviour, the role of mental agency in human behaviour, the importance of motivation and rationality in decision making, the social embedment of individuals, and the time-dependency involved in personal development.
Biological relevance

Reproductive behaviour comprises an important biological component. The prominence of this characteristic is a major rationale for distinguishing a *homo demographicus* from the models of man identified in other social and behavioural sciences. The timing of pregnancies, the pace of childbearing and the number of children depend partly on physiological processes that are not, or not entirely, influenced by intended action. Under normal conditions fecundity, the duration of a full-term pregnancy and the maximum reproductive span are not subject to social or individual control. The intermediate determinants tradition of Bongaarts and Davis and Blake recognise this role of biological components alongside that of social or behavioural components. They furthermore perceive marriage as an indicator of the probability to engage in biological process of fertility and acknowledge that behavioural actions that influence fertility outcomes (e.g. breastfeeding, use of contraceptives, abortion) do so through their impact on physiological processes (Section 3.3.3, cf. Section 4.3.3).

To formulate a generally applicable conceptual framework of fertility behaviour, the intermediate fertility determinants must be included. Especially in situations where people lack extensive knowledge, means, motivation or control to determine their reproductive behaviour, the full range of proximate determinants is indispensable to explain individual fertility outcomes. The introduction of proximate determinants denotes a further intermediate component to the basic conceptual framework.

Mental agency

The faculty of the human mind (the ability to form mental representations) is a crucial principle in behaviour formation. Behaviour involves consciously or subconsciously cognitive processes of attention, perception, interpretation and storage of information in mental schemes. This relates to the capacity of abstraction of knowledge from examples of categories of things, actions and situations, and the application of these generalisations to new circumstances (Section 4.2.3). Such generalisations on the basis of mental schemes include the capacity to anticipate through expectations of cause-and-effect relations, as well as the capacity to assign values to actions and the consequences associated with them. While the cognitive faculty of human beings is crucial, it is nevertheless limited. Research on information-processing has demonstrated that the capacity to address an amount of information is restricted (e.g. G. Miller 1956, H.A. Simon 1957, 1978, 1979a). Depending on the problem they are confronted with, people apply different procedures and heuristics to select and organise salient information as part of the behaviour-formation processes.

Motivation

Human behaviour is assumed to involve motivational aspects in the sense that behaviours represent subjectively functional values to the individual in terms of maintaining and possibly improving the quality of life (cf. De Jong and Fawcett 1981, p. 49). This is not the same as saying that every behavioural outcome has been planned or is positively valued. Fertility-related outcomes might be willingly or unwillingly accepted by-products of certain behaviour, or the unintended and unconceived consequences of acts pursued on the basis of decision making processes with inaccurate or incomplete information. The contents of motivation in specific situations is largely a matter of socio-cultural and individual specificity. It is assumed, however, that any individual behaviour can be projected on a limited number of final goals with universal validity: physical well-being, material well-being, safety, affiliation, social status, self-esteem, pleasurable inner states and creativity (cf.
Section 4.3.3). Fertility behaviour and its proximate determinants is assumed to derive its meaning in relationship to one or more of these ultimate goals.

**Rationality**

Rationality is a major concept in the comprehension of individual behaviour. The notion of rationality attributed to the model of man suggested here entails a broad conceptualisation. It encompasses much more than the selective notion of optimal use of means to achieve well-defined goals, which underlies most decision making approaches to human behaviour. The extension of the concept of rationality alludes to Weber’s subjective rationality (Weber 1949, 1968, Section 2.4.2). The further elaboration of this notion importantly relying on the work of Simon includes the psychological idea of salient information with regard to agents’ means (bounded rationality, see Section 2.4.4) and the role of the involved procedures of attending and processing subjectively relevant information (procedural rationality, Section 2.4.5). Additionally, expressive rationality refers to the role of agents’ self-reflection in determining the goals and preferences that enter into the behaviour-formation process (see Section 2.4.6). The acknowledgement of the relevance of these notions of rationality has major implications for the elaboration of choice as the theoretical principle to address and understand individual behaviour.

**Social embedment**

Whereas the model of man outlined in this study emphasises the role of (intra-)individual processes of behaviour formation, it does not imply that individual agents are completely detached and unconstrained elements acting alongside one another. It decisively locates them within a social environment. To fulfil their basic needs, people crucially depend on other people. This dependency may arise in the direct relationship to identifiable other people (parents, partners, friends) or within the contexts of more impersonal social institutions, such as firms, gender systems or labour markets. Moreover, individual agents depend on their social context in terms of the transfer of social knowledge. This relates to both the amount of information available and the socio-cultural interpretation of behaviours, events, facts or situations that people learn during their lives while performing and seeing others perform in particular social contexts.

**Development**

At the start of people’s lives there is a wide array of directions for their life courses to unfold. Partly, their life course development seems restricted or preset by the confines and pressures contained in the social environment. To a different extent, the evolvement depends on particular events, circumstomces and the history of the life course (e.g. Mayer and Tuma 1990). Whereas the first perspective may account for the explanation of an age-related life structure, it fails the dynamic understanding of the life course contained in the second perspective. This last viewpoint interprets a person as involved in a continuous process of ‘becoming’, a process in which the individual is dynamically and functionally related to his or her cumulative history (cf. Section 6.3.2). The same perspective can be applied to the fertility career: the onset, pace and termination of the fertility career can be interpreted as the time-dependent results of cumulating individual experiences and events.

The aspects distinguished in this model of man are not observable variables that enter into the conceptual scheme as the other components. They, do, however, represent the
fundamental assumptions required to interpret the various components appearing in the model at the individual level. In particular they underlie the elaboration of the different processes distinguished in the theoretical approach: life course development, learning, choice and biological processes.

Social context: institutional organisation
The exposition of social context relies importantly on different institutional and interactionist approaches in sociology, anthropology, economics and psychology. The backbone of the notion of context in the conceptual framework is formed by the comprehension of social institutions as information-containing bodies, made-up of more or less coherent sets of rules that influence behaviour in different ways. The conceptual strength of this cognitive-institutional approach lies in its ability to provide an interpretative framework for the structure and contents of a social environment, to provide part of its understanding in the historical evolution of the institutional configuration and to provide the links between structure and agency.

Many social demographic studies indicate the crucial relation between levels and patterns of fertility and social, cultural, economic and political backgrounds situated at a macro-analytical level. The considered macrolevel entities are phrased in such terms as the status of women, culture, social structure, family planning services, labour markets, religion, education, family systems, et cetera. While these constituents of the macro context may have an undeniable influence on fertility, the relation is an indirect one and can only be specified by incorporating the level of the individual behaviours that produce the fertility outcomes at the social level. Therefore, the theoretical challenge to establish the role of context in the explanation of fertility lies in an appropriate interpretation of the influence of contextual elements on individual reproductive behaviour. This implies that the social environment must be expressed in terms that bear relevance to the individual agents (cf. Alexander 1987, Gerstein 1987, Mason 1989).

The representation of context as a universe of information meets this demand. To the individual agent, the environment provides a broad range of information which is either explicitly acknowledged (without necessarily being agreed upon) or implicitly acquired and internalised. Although to a certain extent physical or material environmental constraints have an autonomous impact on behaviour, it is largely the meaning attached to contextual characteristics that sets agents on some course of action. This subjective information pertains to behavioural options, resources and restrictions, to personal control, dependency, power and sanctions, and to the meaning of a phenomenon or behaviour, including events, statuses and behaviours related to fertility. Thus, having children (or not), being married (or not) and using contraceptives has specific connotations which crucially depend on the social environment. In deciding upon marriage, fertility or contraceptive use, people are guided by information about available and acceptable options, about the role and influence of others in such choices and personal control, or about the consequences of following certain behavioural routes.

This information is social information in the sense that it is shared among social groups and transmitted between its members, either by direct communication or by sharing experiences and observing them with others. The ‘social construction of reality’ (Berger and Luckmann 1966), is a main source of the structure of the social environment and of the structure of knowledge on which people’s behaviour depends. The interpretation of context as a
structured information environment can be adequately represented by an approach that relies on cognitive-institutional orientations in economics, sociology and anthropology (e.g. Denzau and North 1994, Langlois 1986a, Burns and Flam 1987, D’Andrade 1984). In this line, the theoretical framework of Figure 7.1 casts social institutions in terms of information-containing bodies. They consist of more or less coherent sets of rules which provide individuals not only with guidance for behaviour in recurrent situations, but also with meanings to interpret the world and their own position in it (see Sections 5.2).

The different institutional forms existing in a society create a social fabric by the effect of their filtering, interweaving, mutual reinforcement and conflict. These processes differentiate people, status positions and events according to a multitude of rules and the nature of the institutions involved. With regard to the explanation of fertility, a listing of relevant institutions would in general have to include the family, the local community, the local dimension of public administration, the stratification system and the labour market (McNicoll 1994, Section 5.4.4). As elaborated in Section 5.4, the structuring impact of social institutions can be related to:

- the various contextual levels that are involved in the operation of institutions, ranging from the community to the global perspective;
- the social, cultural, political and economic dimensions of institutions, which analytically organise the substance of institutional rules;
- the specific life domains to which institutional rules apply;
- the distinction between formal and informal institutions.

It is possible to analytically distinguish social institutions at the supra-individual level, but they are usually also experienced by individuals themselves as forces that are to a greater or lesser degree beyond their own authority. The mutual strengthening and coherence of institutions and rules, the mere acknowledgement of and the repeated compliance with rules by many people, the sanctions and consequences involved in adherence to or deviance from rules, and the perceived practical value of their implementation turn institutions into social entities that people may experience as ‘realities’ or ‘givens’.

It would be unrealistic, however, to consider social institutions solely as impregnable social constructs. Notwithstanding the many situations, especially among vulnerable groups, where the information provided in social institutions is accompanied by compelling pressures, the concept of institutions comprises a connotation of plasticity and transformation. Individual people often have to find ways out of the problems posed by institutional rules that represent inconsistencies between alternative realities and social expectations, or that leave room for substantial uncertainty. Moreover, people can strategically exploit apparent inconsistencies between rules in order to gain individual benefit. Lastly, institutional rules seem less adamant if it is acknowledged that, as specified in social learning theory, the transformation of rules into action requires the satisfaction of a number of constituent processes, such as attention to relevant information, abstraction into generalised rules which can be evoked at appropriate situations, motivation to comply with rules and actual implementation (Sections 5.2.1, 5.3.2, 5.3.3). If one of these processes is absent or insufficiently inducing ) for example if personal interests run counter to rule compliance) alternative interpretations of the surrounding world come to the fore and institutionalised behaviour might be halted unless severe sanctions are applied.

This conceptualisation of social institutions rests on the interactionist idea that individual
agents are not only rule followers, but also the producers, carriers, and transformers of rules and social institutions (e.g. Burns and Flam 1987, D’Andrade 1995, Giddens 1984, Hammel 1990). This assumes a close affinity between the contextually defined contents of rules and their institutional organisation on the one hand, and the contents and organisation of knowledge into cognitive schemes in individual agents on the other. The mechanisms producing this close (but imperfect) relation between social institutions and mental schemes are considered by advancing the perspective of social learning theory.

The notion that from the individual perspective the institutional context may be differently perceived addresses the dynamic perspective underlying the conceptual model of this study. If many people are placed in a position where they read their social environment differently and turn to deviant behaviour, social institutions and rules will in the longer run be transformed or supplanted by alternative ones. The evolutionary perspective adopted in this study (Chapter 6) interprets institutions and social context not as static entities, but as evolving processes each with its own rate of development. An institutional time dimension relates to the rate of change of single institutions within a larger social setting, and the modifying conjuncture of the combined institutions generates the historical time dimension that is related to the change of the social context at large (Section 6.2.2). This dynamic perspective is introduced in Figure 7.1 by incorporating a time scale T and representing the present (t) institutional setting and the institutional constitutions in the past and the future. The introduction of time is not only a crucial element for the representation of the actual institutional configuration, but also crucial to the explanation of reproductive patterns and the understanding of the individual behaviours that underlie these social outcomes.

Learning: linking mechanisms

The concept of learning as developed in Bandura’s tradition of social learning theory provides a crucial theoretical attribute in the behavioural model of fertility. The central argument is that the learning concept is an appropriate interpretation of the mechanisms through which individuals’ mental schemes are adapted over time. This interpretation provides the theoretical background for a number of issues considered in this study: the elaboration of personal development (Section 6.4), the processes involved in the translation of institutions and rules into individual cognitive schemes (Section 5.5), and the subsequent processes involved in the emergence and change of personal considerations in decision making (Section 4.2.3).

The adaptation of the internal organisation of knowledge in the face of new information and ongoing experience is considered to be a perspective that substantiates life course development. By elaborating this perspective, social learning theory appears as a developmental theory that orders the life course of people in terms of their time-related view and understanding of the world and their own position and possibilities (Section 6.4.3). Social learning theorists distinguish four sources for acquisition of new information and learning: observational learning, verbalisation by others, personal experience and arousal (Bandura 1977b, 1986, Rosenthal and Zimmerman 1978). On the basis of the information gained from these sources, people can inductively develop rules for behaviour and situational assessment which can be applied in future choice situations to designate the range of acceptable behavioural alternatives, predict likely outcomes or assess their abilities to perform adequately.
• **Observational (or vicarious) learning** refers to the observation of models (especially people with whom one can easily identify) and the evaluation of their behaviour, its consequences in the particular situation and the abilities of the models involved to perform adequately.

• **Learning through verbalisation** (or through written or visual communication) acknowledges that people are susceptible to the explicit messages conveyed by people in the social context (e.g., parents, peers, religious leaders, teachers, healthworkers, politicians) or via communication channels like radio, television, cinema, newspapers, school curricula, artist groups, et cetera.

• **Personal experience** refers to a person’s reflection on his or her personal history of performance and behaviour and related consequences.

• **Emotional arousal** is another source of learning that has an informative and motivating function. Feelings of contentment, fear, love, shame, et cetera, that are experienced with particular events, behaviours or situations can develop into emotional associations with broader classes of events, behaviours or situations.

Empirical studies indicate that personal experience and observational learning are in general the strongest mechanisms of learning. Social learning theory further elaborates the concept of learning into the constituent processes of attention, retention and motivation. Through **attentional processes** people regulate the exploration and perception of new information: they determine what is selectively observed in the abundance of input and what information is extracted from behavioural models, messages from others and personal feelings and experiences. **Retention processes** convert this information into generalised rules and symbolic conceptions for storage thereby adapting prevailing cognitive schemes (Bandura 1986, p. 51 ff., see Section 4.2.3). It is through these processes of selection and translation against the background of existing knowledge structures that apparently objective information attains a subjective interpretation. **Motivation processes** determine whether or not learned and acquired competences will be put to use and whether people will persist in certain behaviour. These motivation processes can be expressed in terms of cognitive anticipation of outcomes of behaviour and setting of aspiration standards (Section 4.3.3).

The representation of the different information sources and corresponding learning processes is in accordance with the conceptualisation of the human as a product of social embedment and individual development. The **learning** component in Figure 7.1 covers the processes involved in the extraction of information from the social context by referring to observational learning and learning through verbalisation. Through reflection on personal experience agents’ mental organisation is related to their history of life course development. The specification of observational experience and verbalisation, together with the processes of attention and retention, are particularly relevant concepts to identify the mechanisms that link the social context and individual behaviour. They establish a conceptual bridge between the macro and micro level by relating individual agents to the structure of social institutions through their positioning among models and messagers who are the carriers and producers of institutional rules (Section 5.5).

**Individual backgrounds: stability and change**

Besides the assumptions outlined in the model of man underlying the conceptual framework, and the influence of the social context, behaviour is shaped by a background that is inherent in individuals themselves. This individual background distinguishes two separate aspects that
fuel the processes of behaviour formation: *personal endowments* and *life course development*. Considering the relative stability of personal endowments and their emergence early in life, they are interpreted as a determinant of life course development.

**Personal endowments**
From the outset of life, and more particularly after the formative years and around the onset of the reproductive career, people hold a number of personality characteristics. These personality characteristics refer to relatively stable orientations such as risk seeking versus risk aversive orientations or family versus working orientations. Such basic preferences and other enduring personal idiosyncrasies (including biological qualities related to fecundity) form the initial endowments of an individual agent.
In the study of behaviour these endowments are particularly relevant if explanation is sought for the behaviour of specific individuals. From a social and demographic point of view they only gain importance if individuals acquire more power vis-à-vis the external and structural forces of society. The great variety of life courses in many Western societies (for instance expressed in terms of relationships and family-building careers) reflects a situation of relatively individual autonomy and room for the impact of personality characteristics.
However, as of yet psychological studies on the relationship between fertility and personality traits have not come up with straightforward support of this idea. The impact of personality traits in societies characterised by strong social control, such as many developing countries remains even more circumstantial and speculative (cf. Bogue 1983).

**Life course development**

Life course development refers to the development of different careers in people’s lives and the concurrent development of the structure and contents of their mental representations. These two developments are mutually dependent. People’s mental schemes include the changing perceptions about the desired, appropriate and possible progression in specific careers such as the marriage and fertility career and they provide the cognitive input in the decision processes that induce subsequent behaviour in the relevant life domains. On the other hand, developments in different careers may provide new information or activate specific considerations, for instance with regard to behavioural options, goals and personal control.

The major value of the incorporation of a life course approach consists in the introduction of the dynamic perspective along the individual time dimension. This views fertility behaviour and fertility decision making as a function of specific phases in the continuous course of personal development. These phases are patterned by the combination of positions in different careers at certain moments in life and the translation of their meaning into people’s cognitive frameworks. In this respect it is considered relevant to conceptually distinguish the life course as an organisational framework on the one hand, and the underlying developmental mechanism that situates choice and behaviour in this dynamic perspective on the other (see also Figure 6.1).

- **Life course organisation.** A life course approach offers an appropriate framework to situate events and behaviours over life time and across life domains. The *synchronic* organisation of the life course (Section 6.3.3) arranges life into different parallel careers and considers their interdependent relations (cf. Elder 1985b, Heise 1990, Willekens 1991). Careers tend to be hierarchically arranged in the sense that some receive a larger share of time and energy than others, or in the sense that some significantly influence the development of other careers. During recurrent transitional periods in the life course these career hierarchies can be redrawn. Such periods are characterised by the closing of an era in life, a thorough reassertion of relations and meanings, and the emergence of new challenges. In the study of fertility the reproductive career is the focus of attention, but dominant influences are usually exerted by careers related to work and the family, importantly including the marital career. In addition, educational and health careers may play prominent roles as well. Lastly, the representation of career dependency may require the influence of careers of specific others to be taken into consideration, in particular those of close relatives (Hagestad and Neugarten, 1985).

The *diachronic* interpretation of life course organisation (Section 6.3.2) views careers as conditioning processes in which events and behaviours are sequentially ordered. This perspective suggests a causal relation over time as personal experiences and conditions earlier in life exert an influence on behaviour at later ages. Different phases within careers are characterised by the temporal propensity for and the coherence of specific events and behaviours. New phases emerge especially after transition periods in which persons reassert their position in life and may reformulate the hierarchy of careers and the
important issues of the life course stage (cf. Hagestad and Neugarten 1985, Havighurst 1972, M.W. Riley et al., 1972, Trice and Morand 1989, Willekens 1991). The integration of synchronic and diachronic perspectives views the unfolding of the life course as the result of the interaction of developments in different careers. With regard to a life course interpretation of contraceptive and reproductive behaviour, Forrest’s five-stage framework provides a relevant starting point (Forrest 1988, Section 6.3.5).

- **Personal development.** The interpretation of the mechanisms involved in personal development relies in particular on the cognitive orientations of Piagetian theory and social learning theory. It asserts that the structuration of life in terms of the interdependency of careers and their temporal integration is not so much inherent in the events and behaviours that characterise the life course, but in the meanings attached to these behaviours and events by individual agents. These interpretations are contingent on the cognitive schemes that represent these agents’ internal organisation of knowledge. These mental frameworks, in turn, can be considered as stages in the dynamic process of adapting existing cognitive schemes to new information and the assimilation of this information into the existing mental frames (Bandura 1991, cf. Section 6.4.2). The occurrence of specific life events, such as marriage, menarche, childbirth, retirement or divorce, may invoke major adjustments of frames of reference: they are likely to reformulate a person’s salient set of information about restrictions, options, personal control, responsibilities and motivation for behaviour. The cognitive adaptation that occurs through such personal experience is one major source of learning and development. Another major source is social learning, through which people acquire information about shared life course related rules for behaviour and meaning. Social learning theory explicitly distinguishes these individual and social grounds of personal development. So do the staging theories of Erikson and Havighurst, which furthermore mention the processes of physical maturation as a (person-related) source of development (Sections 6.4.2, 6.4.3).

**Choice as a concept of behaviour formation**

**Situating choice**

The conceptual basis for a theory of individual behaviour in this study is provided by a theory of choice. The rationale to adopt a choice approach is situated in its potential to contribute the components for understanding individual behaviour formation. This potential is located in a broad conceptualisation of choice, which relies on a realistic model of man. It incorporates a number of behavioural considerations that go beyond the standard interpretation of decision making in psychology, economics and sociology: it is better embedded in the decision making context, it is more heuristic and it focuses on choice processes, rather than on outcomes of choice. The approach retains the basic elements of choice (such as options and expectations) but it adds subtleties of bounded, procedural and expressive rationality, ignorance and reduced perception, limited information processing, routine and institutionalised decision making, and other heuristic processes that widen the concept of choice into a process of general significance to behaviour formation, instead of being confined to explicit decision making behaviour in the narrow sense. In this respect, the concept of choice underlying the model of fertility tackles the three major, and partly overlapping, conceptual problems of mainstream decision theory: the detachment of decision makers from the larger social context, the static representation of decision making, and the
unrealistic, normative assumptions attached to the concept of choice. In Figure 7.1 the choice concept is condensed into a set of personal considerations, which are summarised in this section. These considerations pertain to the concepts of problem space, motivation, personal control and styles of decision making. The interpretation of these considerations, and thereby the abatement of the conceptual problems of decision theory, relies to a great extent on their conceptualisation in relation to the other components of the model.

With regard to situating choice in the theoretical framework, the model of man provides the basic assumptions about people as decision making agents. It renders the portrait of a person whose considerations in decision making are grounded in a selective and subjective organisation of information. It also poses that personal considerations and their underlying cognitive schemes are not objective givens, but time and situation dependent constructs of subjective learning processes. These learning processes substantiate the mechanisms involved in the relations between the social context, individual backgrounds and personal considerations as outlined in Figure 7.1. They explain how meaning-giving and behaviour-guiding rules prevailing in the institutional environment are abstracted and incorporated in the mental schemes of decision makers. They also explain how considerations change in a lifetime perspective due to the incorporation of information from the continuous flow of past experiences.

The dynamic character of choice considerations is not only related to this individual time dimension, but indirectly also to historical and institutional time, at least to the extent that it parallels the time span covered by the individual life course (cf. Section 6.2.2). Via individual life course progression and concurrent development of cognitive representation, present considerations reflect the institutional rules that prevailed in the social context at earlier points in life. The historical-institutional and individual time dimensions stretch out into the future as well, dynamically relating personal considerations to changing future situations. The mechanism involved here primarily concerns the agents’ capability of forethought or anticipation: people are able to formulate expectations about future worlds, and about outcomes of decision making processes and future life course development, including marriage, becoming pregnant, having children, and their associated consequences. Such anticipations function as a kind of cognitive feedback mechanism and are represented in Figure 7.1 by (thin) arrows.

In the conceptual model, the principal subject of choice and the personal considerations is reproductive behaviour (starting, spacing and stopping childbearing, and the number and sex composition of children). But the model also acknowledges the direct antecedents of fertility (such as contraceptive use, sexual intercourse and breastfeeding) as possible targets of decision making. This causal complex of reproductive behaviour and intermediate variables provides, therefore, an objectified frame of reference for the interpretation of fertility decision making (cf. Hull 1983, see Section 4.3.3).

**Problem space**

The lives of individuals can be perceived as a continuous journey through a sequence of situations that offer a number of alternative courses of action. At the same time, individuals are engaged in efforts to achieve certain goals which they try to attain by taking appropriate actions. The combination of the complete set of behavioural options and goals define an agent’s ‘task environment’. The choice situation as perceived by the individual agent does not, however, consist of this encompassive task environment. It consists of a subjectively
constructed and salient part of the task environment: the agent’s problem space (Payne 1980, Newell and Simon 1972, Rutherford 1988, see Section 4.3.2, Figure 4.1). This notion of problem space suggests that options and goals are not objective ‘givens’, but time and situation dependent constructs which are only selectively attended in decision making. Its introduction as the subjective basis for considerations about behaviour alters the conceptual focus; partly away from the determination of means and ends proper, and more towards the individual and social processes whereby selected aspects of reality are noticed and enter personal considerations as salient aspects (H.A. Simon 1987, p. 26).

By incorporating the notion of problem space, the concept of choice becomes a relevant principle to interpret the large majority of behaviours. It covers the situation where people decide upon a course of action on the basis of complete, valid and explicit information about options and goals. But it also covers situations that are characterised by complete ignorance of behavioural options, or where they are selectively or incorrectly represented, or where behaviours are only minimally related to the set of pursued goals. There are many situations where people do not have exactly circumscribed goals, where behavioural alternatives are completely blocked from conscious deliberation and where, instead, people rely on routines or standard rules for behaviour and seemingly their only motivation is the ‘normalcy’ of such standards. By perceiving the problem space as a narrow and subjective representation of the task environment, these kinds of situations and ensuing behaviours can easily be interpreted from a choice perspective. In such situations the concept of choice may be robbed of its authentic meaning, but it still renders a valid and valuable analytical approach.

Motivation
Motivation for behaviour is an explicit element in the definition of the problem space, since it is directly related to options and goals. However, it deserves separate attention within the set of personal considerations because of its central position in understanding behaviour, not only in view of the model of man outlined in this study, but in almost all theories of human behaviour. In the attempt to identify the crucial aspects of motivation in the process of behaviour formation, its elaboration in Section 4.3.3 distinguished contents, structure, and sources and mechanisms of motivation.
• **Content of motivation.** The substantiation of the empty concept of motivation is largely a matter of situational specificity. Nevertheless, it is assumed that at a very general level people strive for maintenance (or avoidance of loss) and improvement of the quality of life. Without sacrificing too much general validity, this notion is further specified in terms of a limited number of goals: physical well-being, material well-being, safety, affiliation, social status, power, self-esteem, pleasurable inner states and creativity. A Maslowian hierarchy might underlie this array of more or less universal and ultimate goals, which gives an additional interpretive perspective. The empirical record, however, supports by and large only the distinction between material and immaterial motivation.

• **Motivation structure.** The achievement of one of the ultimate goals usually requires the performance of certain behaviour or the occurrence of certain events. These behaviours and events represent, in turn, goals that are instrumentally positioned in relation to the final goals: they ‘produce’ the ultimate goals (Lindenberg 1989). In this way motivation structures evolve, sometimes including multiple levels of instrumental goals and behaviours. These cause-and-effect structures may become intricate, since specific instrumental behaviours can contribute to several higher positioned goals, and one specific goal can be achieved by pursuing several lower instrumental goals (see Figure 4.2).

With regard to fertility behaviour, motivation structures can be further substantiated by considering the extent to which intermediate fertility determinants are part of these structures. This assessment is particularly relevant with regard to the instrumental position of these determinants relative to reproductive behaviour. In turn, fertility can directly or indirectly be related to the set of ultimate goals (see Figure 4.3). Paraphrasing McNicoll (1992, p. 409), understanding of reproductive behaviour not only depends on the assessment of what an agent perceives of the objective causal relation between intermediate determinants and fertility, but also on what the agent does not perceive.

• **Sources and mechanisms of motivation.** The notion of motivation structures relies on the idea that people can symbolically foresee the outcomes of behaviours because of the associative rules that are stored and organised in memory. These outcome expectations are motivating (leading to the intention to perform certain behaviour) to the extent they represent a functional value to the actor (Bandura 1986, p. 68). While this cognitive process of anticipation is recognised in social learning theory as the major motivation process, it also forms the backbone of decision theory. An additional mechanism of motivation is located in the principle of defining certain aspiration levels on the basis of personal experience or social comparison.

A main challenge for research in the field of fertility is to assess the motivation structure and to discover those parts that are salient when people are in positions where they embark on courses of action with respect to fertility and intermediate fertility determinants. A major theoretical starting point to comprehend the contents and origins of these outcome expectations is provided by the four mechanisms (observational learning, learning through verbalisation, personal experience and emotional arousal) distinguished in social learning theory. These learning processes stress that motivation is dependent on the experiences and history of the lives of individuals. And they stress that to a large degree motivation is a social product, which is closely related to the social structure and the larger systems of meaning through the exchange of messages and the observation of people behaving according to rules of meaning and normative guidance (or opposing them).
**Perceived personal control**

Behaviour depends not on awareness and motivation alone, but also on non-motivational factors such as opportunities and personal resources and abilities. The notion of perceived control concerns a behavioural mechanism that incorporates such non-motivational factors in the concept of choice. Perceived control can be associated with two mechanisms which are conceptually different, but empirically difficult to distinguish. One relates to Rotter’s (1966) concept of *locus of control*. This posits that people evaluate the weight of their personal influence (internal control) in a cause-consequence relationship against the weight of other forces or chance (external control). The more an outcome is perceived as contingent on one’s own behaviour, the greater its motivating effect to pursue the outcome through that behaviour.

The second interpretation of perceived control derives from the work of Bandura (1977a, 1982, 1991) and is elaborated in the concept of *self-efficacy*. This asserts that people judge their capability to adequately perform the instrumental behaviour that causes certain desirable outcome. Research in the field shows that efficacy beliefs are often strongly related to what people choose, how much perseverance is attached in order to succeed and how much stress is experienced during the implementation of choice.

The notion of personal control (and particularly its efficacy-related interpretation) is an essential extension of the concept of choice. Especially in situations where behaviour is not, or only partly, under volitional control, it can be an important behavioural mechanism that operates independently of motivation processes. In many circumstances, the decision making outcome in terms of *what* people actually do does not depend in first instance on how much they *want* to do something, but on the (perception of the) *possibility* to perform in a specific way. In this sense, the concept of perceived control can more adequately incorporate the constraints for behaviour into a decision making model (Ajzen 1991). Thereby it alleviates the voluntaristic emphasis that inheres in standard choice theories and the concept of man as a decision maker.

The perspective of (perceived) control over behaviour is particularly relevant with respect to fertility behaviour (cf. Bogue 1983, Levinson 1986, Van Luijn 1996). Due to the physiological and probabilistic nature of the processes involved in fertility, volitional control over reproduction is far from complete. Having a child and its timing can be determined only to a limited extent, although the prevention of births is, in principle, under complete control. There are, however, situations where even the prevention of childbearing is to a substantial degree out of the range of personal control; for instance, situations characterised by widespread ignorance about the actual physiology of fertility or by misconceptions about the involved locus of control, or where people do not have a secured supply of reliable methods to prevent conception at their disposal, or where they do not have the power to determine sexual intercourse in accordance with the aim to prevent conception.

Given the direct causal relation between fertility and the intermediate fertility determinants, the explanation of reproductive behaviour in terms of perceived control should not only focus on the control over fertility, but should also encompass the interpretation of control over these instrumental behaviours. As theorists in the field of efficacy beliefs indicate (Ajzen 1991, Bandura 1991), perceived control can be very different for the various behaviours covered by the complex of fertility and its proximate determinants. The conceptualisation of efficacy perceptions and their emergence and origin is the subject of Bandura’s work over the past two decades. His interpretation is largely integrated in his
social learning orientation, as he asserts that efficacy expectations are shaped by the learning processes of model observation, personal experience, verbalisation and emotional arousal.

**Style of decision making**

Styles of decision making constitute the fourth aspect of personal considerations distinguished in the model. This aspect of personal considerations consists of a rather heterogeneous collection of processes and procedures related to decision making, including decision rules, institutionalised behaviour and the interpretation of choice as a staging process (Section 4.3.4). What they have in common is that they emphasise aspects of choice that deal with how information is attended and processed, rather than which information is involved.

For various reasons and causes, people apply simplifying choice procedures to determine a course of action, which may be inconsistent with assumptions underlying standard rational choice theories and other value-expectancy models. This limitation of effort involved in decision making may be related to ignorance, unawareness, uncertainty, information-processing capacity, costs inherent in the process of decision making itself or the obvious value of existing behavioural patterns. The avoidance of elaborate and explicit calculation is usually a sub-conscious process, although it might also be the outcome of explicit calculation itself (cf. Esser 1993). But even if people engage in explicit decision making, they can apply a range of alternative decision rules and evaluation criteria. Although many decision theorists acknowledge the crucial importance of such heuristics for the outcome of decision processes, problems related to conceptualisation and operationalisation have thus far impeded the development of a coherent theoretical basis within choice theory. Only very few propositions have been worked out in theoretical terms to a sufficient degree and have also passed the empirical test. Among these, Simon’s ‘satisficing’ principle poses an interesting and widely accepted alternative to the cognitively burdening rule of maximisation.

Apart from considerations about these calculative evaluation rules in decision making, a major source for understanding of choice is situated in the insight into people’s organisation and selective activation of information. In many situations (related to both minor decisions and major life decisions) people engage only minimally in the evaluation of behavioural alternatives. A certain course of action may be (cognitively) presented and selected without further inquiry into alternative options.

The causes and reasons that play a role in cutting short the choice process at this early stage are largely similar to those mentioned for the simplification of decision rules: the efforts (expressed in terms of time or mental stress) associated with the search for alternatives, their evaluation and the need to select one, forbearing the others; ignorance about alternatives; very negative consequences or high uncertainty associated with deviance from standard behaviour; the (perceived) inherent positive value of existing behavioural patterns; or the dominance of one option in the cognitive representation and, complementarily, the suppressed awareness of others. The acknowledgement of habitual and routine or institutionalised behaviour provides an important conceptual perspective on the interpretation of such truncated decision processes. Habitual behaviour may be perceived as being related to behavioural rules that are abstracted from repeated personal experience, while institutionalised behaviour is associated with rules that are abstracted from social repetition and transmitted by other members of society.

The representation of choice as a staging process provides an additional contribution to the understanding of behaviour formation. An appealing staging model is suggested by Janis and
Mann (1977), who distinguish five sequential phases in decision making. This framework provides a useful background for situating and interpreting various choice aspects, such as decision rules, routine and institutionalised decision making, attention processes and the effects of perceived control.

Reproductive behaviour and its intermediate determinants
The representation of reproductive behaviour and the intermediate determinants of fertility relies on the analytical framework of intermediate fertility variables of Davis and Blake (1956), and on Bongaarts’ model of proximate determinants (Bongaarts 1978, Bongaarts and Potter 1983) (Section 3.3.3). However, the conceptualisation of this complex of fertility in Figure 7.1 is different from the original formulations in the sense that the model is translated to the individual level.

A second theoretical background of the representation of reproductive behaviour and its intermediate determinants is provided by its situation in a decision framework. In this respect, the intermediate determinants play a dual role, which is recognised in the work of, for instance, Bulatao (1984) and Hull (1983). Whereas fertility behaviour might be the principal subject of decision making, people cannot directly determine the desired reproductive outcome. They can only influence fertility by managing one or more of the intermediating determinants, which implies decision making with respect to these instrumental behaviours. On the other hand, decision making with respect to the intermediate determinants may occur independently of a (correct) recognition of their causal relation to reproductive outcomes (see Section 4.3.3).

In accordance with the models of Bongaarts and Davis and Blake, the intermediate determinants distinguish a number of factors that are either purely biological by nature (permanent sterility and intra-uterine mortality) or biological and behavioural. These partly behavioural factors (marriage, contraceptive use, abortion, sexual intercourse and breastfeeding) are represented separately in Figure 7.1, since they provide the anchor points for decision making considerations, either related or unrelated to fertility outcomes. All the mechanisms involved in the relationship between any of the intermediate determinants and the outcomes in terms of reproductive behaviour, refer to biological processes, such as conception, foetal growth, amennorhea and intra-uterine mortality. The specification of reproductive outcomes not only addresses the number of children, but importantly also aspects related to the timing of fertility: starting, spacing and stopping of childbearing. Lastly, the sex composition of offspring may be an aspect that requires explanation in terms of the model.

Outcomes: social and individual
The remaining two boxes of Figure 7.1 consider consequences of individual fertility behaviour, but are very different in nature and magnitude. The individual outcomes refer to the elaboration of the concept of motivation in decision making considerations. The distinguished aspects substantiate a set of goals with a more or less universal validity, and which can be perceived as the ultimate motivation for behaviour. As such they feed back into the considerations in fertility decision making if reproductive behaviour is considered to contribute to the achievement of these goals. This part of the conceptual framework is particularly relevant if the main thrust of an application of the model concerns the design of programmes and intervention strategies directed at individual people.
The social outcomes comprise the aspects for which the fertility model can provide a theoretical basis for explanation, understanding and possibly policy development. These aspects concern first and foremost the levels and patterns of fertility in certain situations. By and large, such levels and patterns are considered to concur with an aggregation of individual fertility behaviours. These social-level outcomes may loop back into individual fertility decisions through the expectations about the future constitution of the social context. The explanation of fertility levels and patterns may further contribute to the explanation of other social phenomena, such as reproductive health, population growth or the status of women.

7.3. The conceptual framework in broader perspective

The aim of this last section is to evaluate the conceptual framework proposed in this study. This evaluation falls back on the suggested requirements for social theory (Chapter 2, and in particular Section 2.4) and on the discussion about the state of the art in theoretical demography (Chapter 3, and in particular Section 3.4). The leading questions are which theoretical gaps does this framework fill, and what are its main strengths and weaknesses? The principal aim of this study was to contribute to the theoretical fundament of the discipline of demography. Theoretical conceptualisation in demography is relatively weak, at least relative to its statistical and mathematical accomplishments. Moreover, theories and models prevailing in current demography) valuable as they may be in themselves) remain isolated conceptions, each tending to cover only part of the demographic landscape. The result is that the discipline lacks a coherent conceptual guidance to interpret and understand its subject matter, even if this is confined to the domain of fertility. This capacity to understand is particularly required in attempts to formulate programmes for reproductive health and family planning.

The theoretical challenge that this situation implies is taken up with the development of the fertility framework in this book. The surplus value of this framework is largely derived from its coherence and encompassiveness and its incorporation of different time dimensions. But also the elaboration of a number of elements themselves provides new contributions to the conceptual basis of demography; either by introducing aspects from neighbouring disciplines which have up to now remained largely unattended or by differently interpreting existing aspects within the perspective provided by the model.

An encompassive interpretation of fertility is accomplished in two related ways. First, by bringing together a wide range of social and behavioural theories and insights, derived from both within and outside demography. Second, by presenting a multi-level approach through the incorporation of the social context, individual behaviour and intra-individual processes underlying behaviour, and, in addition, through the acknowledgement of the social context itself as a multi-level structure. The basic rationale for the adoption of a multi-level approach is that only a realistic interpretation of individual behaviour and its constituent intra-individual processes can answer the questions of how and why structural forces and elements at the macro level determine observed patterns and levels of fertility.

The coherence of the various conceptual elements identified in the model presents a second strong point of the conceptual framework. This coherence is acquired by specifying and substantiating the connecting causal mechanisms, and by the consequent use of a cognitive interpretation of the elements and processes. This ensures a better translation between
different concepts and an easier positioning vis-à-vis one another. An important contribution in this respect is the reliance on social learning theory. In combination with a cognitive-institutional interpretation of the social context, it provides an acceptable solution to the structure-agency dilemma. Furthermore it offers a valuable extension of a theory of choice and is an appropriate starting point for the interpretation of life course development and for a dynamic interpretation of fertility behaviour.

In several aspects the model expresses recent developments in areas of social demography, or contributes to the alleviation of conceptual lacunae. The theoretical model, and its underlying model of man, give some body to McNicoll’s suggestion that “there is considerable scope for narrowing what is tenable as theory on the subject of demographic change” (McNicoll 1992, p. 404). The elaboration of the choice concept and the introduction of learning principles concern notions that counter his complaint that behavioural demography “has let itself become increasingly distant from the frontiers of psychology and from the cognitive sciences in general” (ibid., p. 405). The decision theories that currently prevail in studies of fertility contribute only to a limited extent to the conceptualisation of choice. Major contributions are derived from other sources, particularly originating in areas of psychology that are by and large ignored by demographers: mental framing of decisions, motivation, personal control and choice procedures. These extensions fill out the concept of choice into an encompassive theory of behaviour and tackle the three major problems associated with decision theory: the detachment of decision makers from the larger social context, the static representation of decision making, and the unrealistic rationality assumptions. This conceptualisation also allows the integration of choice and an individual-level version of the fertility model by Bongaarts and Davis and Blake.

With respect to the representation and influence of the social environment including its cultural, economic and political connotations the model’s conceptualisation relies on modern cognitive-institutional orientations in sociology (Burns and Flam 1987, Cicourel 1973, Giddens 1984), anthropology (Archer 1996, D’Andrade 1984) and evolutionary economics (Denzau and North 1994, Nelson and Winter 1982, North 1994). This conceptualisation concurs with and partly extends the recent developments in the field of institutional demography, in particular the work by Greenhalgh and McNicoll. The approach is responsive to the richness and differences of environmental influences on reproductive behaviour in specific situations, and it is well equipped to understand the specific timing of change in levels and patterns of fertility, not merely in the unilinear downward fashion proposed by transition theory, but also with regard to reversals and fertility increase. An important feature of institutional approaches is that they attribute part of the understanding of fertility to the historical evolution of the specific amalgam of institutions, and that they view this social context as an evolving process at every point in time, rather than only during a transition phase (cf. Greenhalgh 1994, McNicoll 1994).

The interpretation of institutions as information containing rules reflects an interactionist perspective, which allows an expedient connection between behaviour of individuals and institutions as social constructs. A special role in this respect is attributed to social learning mechanisms, which may also account for some of the needed theoretical content of diffusion of behaviour and considerations (Bongaarts and Watkins 1996, McNicoll 1992, Pollak and Watkins 1993). Where most institutional approaches limit the representation and influence of social institutions to normative rules, the incorporation of meaning-giving rules also emphasises the role of perception and understanding of the world and the self, which are to a
large degree culture-based mechanisms. Lastly, demographic behaviour is put in a dynamic perspective by the incorporation of a life course perspective, which draws on various orientations in sociology, anthropology and, in particular, psychology. In this regard, it provides a theoretical underpinning of three explorative articles from the early 1980s about sequential fertility decision making (Namboodiri 1980, Bulatao and Fawcett 1981 and, again, Namboodiri 1983) which emphasise the position of fertility behaviour within a lifetime context of individual development and changing patterns of social relationships and obligations.

Whereas the conceptual framework’s encompassiveness can be considered a main strength, at the same time it represents a main weakness. At no time will a single study cover all dimensions of the model. Furthermore, despite its comprehensiveness and coherence, there are no grounds to assume that the model represents the grand unifying theory of fertility or a seamless integration of ideas. With regard to the methodological perspective, the framework includes several flaws. Despite years of research in the field, there is, for instance, still no systematic knowledge about the selection of decision rules. All that has been generated is a list of heuristics without any substantial theory of when any particular heuristic will be used.
Other theoretical constructs, such as perceived control, have been put to the empirical test, but often only in laboratory conditions. Particular problems can also be expected for the attempts to discover the actual problem spaces and motivation structures on the basis of which people make decisions about fertility. Observation and questioning while choice processes are going on may be appropriate remedies, but such methodologies do not overcome problems of interpretation and rationalisation. Although the interpretative and heuristic nature of the framework will thwart the attempts to translate all elements and processes into measurable entities, the model does fulfil the aim it was developed for in the first place: a contribution to the theoretical fundament of demography by offering a structured guidance and several integrated conceptual tools for the interpretation and understanding of fertility.