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A life-course approach to fertility

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Abstract

BACKGROUND

The life-course approach as a methodological framework for the empirical analysis of longitudinal individual-level data has fundamentally changed the agenda of demographic research. However, these methodological innovations have not been paralleled by a similarly successful theoretical integration in the life-course field.

OBJECTIVE

We aim to show that the life course is an indispensable framework for demographic research. Social forces, both structural and cultural, are articulated in the life-course dimension, and the individuals who act under their influence conceive of their actions in life-course terms. Thus, theories of fertility need to be set in these terms as well.

RESULTS

In substantive terms, the life-course approach promises to integrate the extra- and intra-individual levels of relevant processes in a *system of interdependent dynamics* that unfolds over time; to conceptualize fertility and family formation as part of a *multidimensional process of welfare production* which requires complex decisions on the proper allocation of time and resources to the different life domains; to examine how *cultural scripts and institutional programs* shape and interact with intentions and preferences; and to highlight the *impact of the past and anticipation of the future* as a framework for the number, timing and spacing of births. In methodological terms, the life-course approach requires a shift in the efforts to identify complex causal mechanisms in empirical research.

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CONCLUSIONS

Even though the life-course approach still lacks the status of a systematic theory, several hypotheses can already be drawn from it, which extend the scope of fertility research, and demonstrate it to be an indispensable framework for studying fertility decisions.

1. Introduction

Since the 1970s, the life-course approach as a methodological framework for the empirical analysis of longitudinal individual-level data has fundamentally changed the agenda of demographic research. It has overtaken classic cohort analysis of age- and period-dependent aggregated data (Ryder 1965) as the method of choice for the study of social change. Building on traditional demographic methods of assessing demographic events (life tables), appropriate methodological tools, such as parametric and non-parametric rate regression analysis, have been developed for use by a wider audience (Tuma and Hannan 1984; Mayer and Huinink 1990; Blossfeld and Rohwer 2002, Courgeau 2007). Today these methods have become standard tools of family demography and studies of fertility behavior. Panel data analysis complements these approaches by allowing one to account for unmeasured heterogeneity and self-selection (Wooldridge 2002; Allison 2009). Moreover, techniques of sequence analysis have gained relevance for identifying patterns of life-course trajectories (Abbott and Tsay 2000, Aisenbrey and Fasang 2010). Using these tools, the life-course approach has improved the clarity of study designs, and the possibilities for causal analysis in demography and its neighboring disciplines.

However, these methodological innovations have not been paralleled by a similarly successful theoretical integration in the life-course field (Mayer 2009, Johnson-Hanks et al. 2011). This does not mean that there has always been a lack of theoretical imagination. Interestingly enough, Ryder (1965) in his seminal article on the cohort as a concept in the study of social change did not only highlight the benefits of aggregate-level cohort analysis but also devoted a considerable part of his paper to the dynamics of personal development. Yet he concluded that the stability of the “cognitive, normative, and even aesthetic design” attained at younger ages and shaping the further life course was strong enough to justify the concept of a non-individualistic cohort approach, leaving the analysis of life-course effects aside (Ryder 1965:856). That this view is too simple was demonstrated by another seminal and theoretically influential study at the origin of modern American life course research: Elder’s study of the children of the Great Depression (Elder 1974). It was an early example of an

integrated view on social context, individual life course and developmental lifespan, which has rarely been emulated since.³

A further important point of departure for theory construction has been the concept of the life course as a social institution. Kohli (1985, 1986) showed that the life course became progressively institutionalized across the last two centuries as a pervasive social timetable for the movement of individuals through the social structure as well as for their biographical horizons. This process was driven by changes in the demography of major life events from birth to death, in the structuring of labor market careers and – related to it – in schooling, welfare programs and retirement, as well as in the cultural codes of individualization and personal development. As a consequence, all demographically relevant behavior is now shaped by and oriented towards the timetables of the life course, and the biographical frames in which individuals find themselves.

While there is still no comprehensive life-course theory that would integrate the relevant approaches, the life course is an indispensable framework for demographic research. Social forces, both structural and cultural, are articulated in the life-course dimension, and the individuals who act under their influence conceive of their actions in – more or less explicit and extended – life-course terms. Thus, theories of fertility need to be set in these terms as well.

The life-course approach to fertility yields a series of propositions and questions, some of which have already been broadly addressed in the empirical literature while others require more sustained attention. Generally, the approach emphasizes (1) fertility's embeddedness in a multi-level array of social and personal factors; (2) its interrelation with welfare production in other life domains, (3) the impact of factors of the past life course as well as welfare-related consequences for the future ('shadow of the future'), given the relevance of (4) temporal 'programs' (time-related structural and cultural patterns) that individuals internalize. We will now go into these points more in detail.

2. Outline of a life-course theory of fertility

2.1 The general model

Fertility behavior takes place across [parts of] the life course. In terms of individual action, we conceptualize the life course as a complex process of personal welfare production (Huinink and Feldhaus 2009). Creating und sustaining subjective wellbeing

³ Among the other important studies which contributed to the emergence of the life course approach we mention Riley et al. (1972) and Clausen (1986).

implies achieving or maintaining satisfying biographical states and everyday life practices (e.g., having children). Addressing the four major dimensions of this complexity outlined above, we assume that:

(1) The life course is embedded in a *multi-level structure* of social dynamics and personal development. At the *societal level*, relatively enduring cultures, structures and institutions, as well as changing political and economic conditions, determine the constraints and opportunities of social action. They are ordered in the temporal pattern of the life course in modern societies – guiding people (or creating incentives for them) to reach educational, occupational, or family related goals on time (Kohli 1985, 2007). Here the interplay between social change and cohort transformation is addressed (Mayer 2004). At the *level of social relationships*, networks, associations, neighborhoods, family, and dyadic intimacy come into scope.

They refer to context- and situation-related interdependencies between 'linked lives' that set additional conditions for individual action (Elder 1994).⁴ At the *individual level* we consider the personal resources that actors can mobilize to achieve their goals. At the *internal level* we address the psychosocial dispositions and orientations of actors, which function as internal conditions of action. This is the link to personal development and developmental control (Baltes et al. 2006; Heckhausen et al. 2010). We finally consider the *biological level* of – more or less genetically fixed – physiological conditions of behavior over the life course (partly based on evolutionarily developed dispositions). Changes in these conditions reshape what personal goals are attainable, and how appropriate or urgent it is for actors at a given age to pursue them.

Fertility behavior is thus embedded in a changing multi-level pattern of cultural, socio-structural, and institutional conditions of the life course (external conditions), and influenced by personal and physiological factors (internal conditions).

(2) The life course is composed of highly interrelated life domains (*multi-dimensionality*). Engaging in one domain affects the welfare production in other domains in various ways. First, activities in different domains of life can compete with each other for resources. This is particularly the case for time. Individuals have to decide where to invest their time and other resources for the sake of efficient welfare production. Second, there is interdependency between outcomes of activities in different life domains. Outcomes in one life domain can provide resources needed to pursue goals in other domains (e.g., money). Outcomes in different life domains may substitute or complement each other (Diewald 2012). For example, a successful work

⁴ Even though external conditions are perceived through a cognitive 'filter' of internal states, they may affect actions and their consequences independently of such internal conditions ('structural effects', Blau 1984).

career may compensate for deficits in family life (substitution), or success in work and family relationships may positively impact each other (complementarity or spill-over effect).

Fertility is a key part of this set of biographical domains of welfare production. While it may be conceptualized as a separate field of action, it is its connections to the other life domains that matter most for its explanation.

(3) The life course is characterized by *time-related interdependence* between past, present and future. Life course transitions are shaped by longitudinal programs: institutional programs at the macro- as well as developmental programs at the (intra)personal level (Kohli 2007). Demographic, social and economic dynamics leave their imprint on individual lives. Previous decisions accumulate or deplete future resources and external opportunities (Birg 1987: biographical opportunity costs; see also O'Rand 2002). Socialization, personal experience and learning contribute to the development of cognitive maps, including biographical orientations that a 'normal' or 'successful' life course is expected to follow. Biographical expectations and goals influence current actions. While a purely situational action is possible at the margins, it is unlikely to be the rule for fertility where the 'shadow of the future' looms large. Parents commit themselves over a long time the responsibility for the welfare of their children. This deeply affects their future life plans. Opportunity costs as well as direct costs of supporting a child accumulate over several decades.⁵ Incurring these costs may be the heaviest investment that parents ever make in their lives. Losing one's investment in a child has always been a risk to be anticipated. Today, an anticipated loss is less associated with the risk of the death of a child than with the risk of the child's failure to achieve the expected life goals. Another risk to be considered is that of losing one's investment in a child through loss of contact, e.g., as a consequence of a partnership breakup (Ehrhardt and Kohli 2011). Therefore, the future prospects of the partners' relationship and the compatibility of their life plans also play a major role in fertility decisions.

The traditional male-breadwinner model provided men and women with a clear life course script, including a lifelong program of gender-specific division of labor and a schedule of when family formation and childbirth could and should take place. There is today a tendency towards de-standardization of this script (Elzinga and Liefbroer 2007). However, the temporal structure of the life course is still heavily institutionalized (Kohli 2007). There is considerable variation by gender and social class in this respect; in other words, we find typical differences between the manifest rules or latent

⁵ The concept of opportunity cost is borrowed from economics, but conceived here in more general terms. The costs of restricted options for future life planning because of having children have been termed "biographical opportunity cost" (Birg 1987).

guidelines in institutional programs, which govern the life course of individuals belonging to these different social groups. These programs work as explicit or implicit guides providing certainties for decisions with long-term consequences but also requiring higher efforts (in terms of material and social costs) if actors do not follow them. They evaluate the past and structure the future in setting the conditions for efficient welfare production over the life course. In this way they produce a coherent dynamic structure to follow – in Krüger’s and Levy’s terms, “sequential institutionalization” (Krüger and Levy 2001).⁶

Thus, fertility is strongly affected by time- or age-related programs at different levels, and by experience-based path dependency and resource accumulation. It exerts a massive impact on future life options because of its highly committing character. Individual actors consider this ‘shadow of the future’ both as a limitation for other life goals (opportunity costs) and as a risk of remaining empty-handed by losing their investment.

(4) The life course is based on individuals’ striving for *subjective well-being (welfare production)* as efficiently as they are able to.⁷ Subjective well-being has various dimensions (Lindenberg 2001; Nauck 2001): a *physical-material dimension* comprising health and economic welfare; a *psychological dimension* comprising issues such as emotional gratification, autonomy, competence, and stimulation; and a *social dimension* comprising social approval, affect, behavioral affirmation by others, and the experience of power in social relationships. Gratification need not be purely self-centered; it can be altruistic, in other words, oriented towards the well-being of others – a possibility that seems particularly important in the case of fertility. On the cost side we have mentioned the need to differentiate between direct costs and indirect (opportunity) costs of realizing a goal. Whether and to what extent a welfare goal is actively pursued

⁶ The complementary concepts are “simultaneous institutionalization” which refers to the need for simultaneous engagement in different institutional settings (e.g., family and work), and “adjacent institutionalization” referring to institutions which offer external alternatives to the classical ‘interiorized’ accomplishment of household and family work by its members or put constraints on it (Krüger and Levy 2001:161).

⁷ Individual ‘rationality’ is far from being perfect in the sense of the model of homo oeconomicus. Decision processes are restricted by bounded capacities of actors in processing information (Simon 1959) that are linked to their developmental stage. How efficient different ways of welfare production are depends on personal beliefs and preferences, which simplify decision processes and eventually enable actors to act. Boudon (2003) proposes a broader view of rationality in his ‘cognitivist theory of action’: “It assumes that... in principle, provided the observer has sufficient information, the action of an observed actor is always understandable (understanding); that the causes of the actor’s action are the reasons for him or her to undertake it (rationality)” (Boudon 2003:10) – in Schütz’ terms, a causal [‘*weil*’] motive, as distinct from a final [‘*um-zu*’] motive (Schütz 1962). To be efficient in welfare production roughly means achieving an optimal balance between subjective gains in well-being and the effort (resources) invested to accomplish them.

depends on actors' resources and internal states, as well as on their perception of external conditions, including their perceived chance to actually achieve the goal (Esser 1999; Lindenberg 1990). While these rational choice approaches virtually lack a life course dimension, it is again the latter that makes them most useful for fertility research.

Fertility can be regarded as an instrumental goal for achieving subjective well-being – one among a range of alternative actions that may also be instrumental for well-being. Close relationships are 'instrumental' for enjoying affection, stimulation and social approval, and also often motivated by altruism (Tomasello 2009). On the other hand, it may be argued (as evolutionary scholars do, see Mace 2013) that successful parenthood is a goal by itself, or even the ultimate goal.

The temporal dimension also applies to fertility decision-making itself. Simple heuristics may do without it (cf. Todd et al. 2013), but formal decision processes always have a temporal structure. They can be long-lasting or short. Short decisions point to effects of predetermination, self-selection, and reutilization. Long decisions can be modeled as a sequence of steps over time. In analogy to the Rubicon model (Heckhausen and Gollwitzer 1987), there may first be a phase of considering a certain transition or goal without strong commitment. If the appropriate individual and structural conditions are met, one proceeds to the planning status – the Rubicon has been crossed. Developmental control processes play a role here (Brandtstädter and Rothermund 2002; Heckhausen et al. 2010). Finally one starts with the necessary activities to achieve the goal. All steps have consequences for decisions in other life domains.

In the following three subsections we elaborate upon this general model, so as to explain the number of children, the timing and spacing of childbirth, and the amount of parental investment. Among the four points discussed above, we focus particularly on the interdependence of life domains (2) and time-related interdependence (3). The multi-level interdependence (1) and action-theoretic assumptions (4) make up the general foundation of our argument, and are not addressed separately anymore.

2.2 Number of children

In accordance with the Value of Children approach, some approaches of family economics, and the theory of social differentiation, life-course theory postulates that in the modern individualized culture of developed societies, children provide a special type of close social relationships which are instrumental to improve and sustain the psychological dimension of one's well-being. However, other 'instruments' have gained importance for providing subjective well-being, particularly regarding the

economic dimension, and may therefore substitute children as a source of welfare.⁸ Moreover, close relationships are possible – and may even be more easily attainable – with fewer children. As a consequence, the number of children is restricted, and is unlikely to increase back to traditional levels.

2.2.1 Interdependence of life domains

Given the interdependence of life domains and the fact that the options for producing well-being have increased during modernization, fertility behavior may be a case for the application of Gossen's Second Law (Gossen 1998, orig. 1854) which was at the origin of the marginal utility approach in economics. It postulates that individual actors decide on the allocation of their resources to alternative ways of welfare production by following a simple rule: to continue investing in a specific good – or goal – as long as the marginal welfare gain (enjoyment) is bigger than it would be by investing in alternative goods. Equilibrium is reached when the marginal welfare gain is the same with regard to all possible goods providing individual welfare. The crucial question in this approach is to what extent (and under what conditions) the welfare gains of different goods are substitutable. Only as far as they are, Gossen's utilitarian framework can predict that instead of investing in children, resources will be spent on alternative options to create well-being, as long as their marginal welfare gains are larger than those of a (or another) child. This assumption of complete substitutability is hardly acceptable in light of our argument that parenthood provides specific experiences, which cannot be had in other domains of life.

Nevertheless, the idea of competition between different routes to well-being may be retained in a less restrictive framework⁹ – one that concurs with the notion that the costs of children have increased over the course of societal modernization (Leibenstein 1957; see also Ehrhardt and Kohli 2011). First, the indirect costs of

⁸ According to Caldwell (1982) the transition to low fertility has been driven by the shift from positive to negative material returns for children. The VOC approach and the economic approach by Leibenstein (1957) concur with this but emphasize that the primary welfare dimension to which children contribute has changed over time: from economic utility to their contribution to psychological well-being. The latter may be true because parent-child relationships provide a particular quality of a non-strategic, trustful social relationship (Claessens 1979). People in contemporary societies need social contexts in which they can interact as a 'whole person', receive authentic responses, experience self-efficacy, and reconsider their full personal identity. This cannot be achieved in formal organizations, but only as a by-product of non-formal, non-strategic, in other words, dialogical social interaction (Huinink 1995). The family can be characterized as such an action system, facilitating a joint production of this particular kind of 'goods' over the life course.

⁹ As early as 1909, Brentano had pointed out the relevance of Gossen's theory for explaining fertility decline as a consequence of the increasing competition of alternative instruments to produce enjoyments, even though he also observed a refinement of the love for the child (Brentano 1909) – a statement that is reminiscent of our notion of the specific social relationship between parents and their children.

children (opportunity costs) depend on the degree to which parenthood detracts women and men from work or participation in other non-family activities over the life course. This has been discussed extensively for women, in terms of the compatibility of motherhood and gainful employment (work/life balance). Meanwhile the opportunity costs for men also rise, because men are under pressure to intensify their engagement in parenting and housework if they want to persuade their female partners to engage in motherhood. Given this aggravation of the opportunity-cost issue for men, it may be expected that they will have a larger part in decisions against fertility. Moreover, higher rates of divorce or separation, combined with parental custody regulations in favor of mothers, mean that men face a higher risk of losing their parental investment (Ehrhardt and Kohli 2011). Second, the direct costs of children rise as well because the efforts involved in raising children increase with higher levels of aspiration with regard to what Becker calls the 'quality' of children (Becker 1991). Children now have a broader array of legal rights and legitimate claims towards their parents. This means that societal norms and expectations with regard to parenting have changed, thus changing the aspirations of the parents themselves – for example, in terms of education and the quality of leisure-time activities. Parents now 'owe' their children the highest possible amounts of educational, cultural and social capital. This may lead potential parents to think that their risk of not being able to fulfill the requirements of the parental role is too high. The more couples are subjectively bound to these requirements, or expected by their social environment to do so, the higher is the likelihood of this kind of considerations.

Third, education and household income have strong (though inhomogeneous) effects on the decision process. The higher parents' education, the higher are their aspirations with regard to the 'quality' of offspring (Breen and Goldthorpe 1997), and the higher are the anticipated direct and indirect costs. At the same time, the capability to bear these costs and to avoid disagreeable opportunity costs improves with increasing income.

One conclusion from these three arguments about the indirect and direct costs of children pertains to social stratification, with those of higher (but not the highest) status more likely to restrict the number of their children or to remain childless altogether. This is corroborated by the empirical observation that middle class men and women today show lower fertility than lower class individuals. A special case may exist for those who are not concerned with cost issues with regard to children, i.e. members of the upper class. They can afford larger numbers of children, and may additionally be driven by dynastic motives favoring higher fertility. However, the empirical evidence

shows that today, fertility among the wealthy is no longer higher than in the middle classes (Skirbekk 2008).¹⁰

The primary field of potential substitution between different domains of welfare production is that between family formation and labor force participation. Under the male breadwinner model that dominated Western societies up to the 1970's both as an empirical fact and as a normative point of reference – and is still apparent in many of them – the constraint to choose between the two domains fell squarely on women. Meanwhile, men increasingly also face some elements of choice. Employment is first of all interesting as a way of gaining income. Money not only opens up consumption, it is also a source of status and power, both within and outside the family. But employment provides other benefits as well. It may support a sense of self-efficacy and carry a public identity that may be difficult to attain for non-employed housewives (and house-husbands). It also provides specific forms of social interaction with peers. Relations among workers in firms have often been likened to those of a family. While such metaphors are losing ground with the demise of paternalistic entrepreneurs and stable work careers, some authors argue that in an age of increasingly unstable family relations, for some, the workplace may become the true 'home' (Dahlin, Kelly, and Moen 2008).

Still, the limits of substitution are obvious here. As argued above, being successful in one or the other life domain yields different kinds of welfare. In many ways, the benefits (and costs) of fertility, as compared to other domains of welfare production, are incommensurable. The emotional affection and personal commitment created by parenthood are difficult to emulate through employment. This engenders a situation of non-decidability. Men and women therefore have a strong interest in an infrastructure allowing the pursuit of both life goals at the same time. Where this is well developed, employment and fertility rates should both be relatively high (Brewster and Rindfuss 2000). Another way out of the work/fertility dilemma is to reduce investment in work by working part-time (Gomes et al. 2012). This usually entails losses in work career prospects, and as such, is an example of downgrading aspirations in one life domain (employment) to save the non-substitutable benefits from another (family).

2.2.2 Impact of the past and anticipation of the future

Through the transmission of values and orientations from parents and other socialization agents, and through the accumulation of one's own experiences, beliefs and preferences emerge in earlier life phases, and establish a selective pattern of

¹⁰ Skirbekk (2008) provides an informative review of the relationship between social class indicators and fertility, including an international and historical comparison.

biographical orientations that impacts on the further life course. Earlier decisions, moreover, shape one's opportunities, resources, and restrictions in the current situation (path-dependency).

Biographical orientations and life course norms may offer a way out of the above-mentioned situation of non-decidability, by making the decision in favor of one or the other life domain self-evident or mandatory (Surkyn and Lesthaeghe 2004). In traditional social milieus, having children has been a self-evident part of becoming an adult; it has ratified the couple's union as a 'love marriage' (Burkart and Kohli 1991). Biographical orientations may become stable properties which drive fertility behavior over the life course. Hakim's 'preference theory' follows this perspective by again distinguishing among the preferred life concepts of social milieus (Hakim 2000). Some studies show that self-selection may play a role in the decision between work and family (Schröder and Brüderl 2008). Individuals develop a family- or work-focused script that drives their behavior in both spheres in a consistent way. With a strong family script, the choice of occupation and labor participation is subordinated to the family-related demands, and vice-versa. Thus, studies of the effect of educational attainment and educational choice on family behavior face a problem of endogeneity: the choice may already have been the result of a specific biographical orientation (Martin García 2005). To the extent that these orientations remain stable, future fertility is decided early in life.

Fertility decision-making is heavily influenced by expectations for the future, as it implies a particularly strong and long-term commitment for actors. Other things being equal, the 'shadow of the future' is the longer, the larger the number of children. Actors want to be sufficiently sure that the consequences of current actions are compatible with what they will try to achieve in the future. In periods of economic insecurity, the shadow of the future may loom especially large (Sobotka et al. 2011). This primarily affects the timing of children (see next section) but is likely to have an impact on their number, as well.

2.3 Timing and spacing of children

The 'multi-optionality' of contemporary societies (Gross 1994) emphasized above has multiplied life goals and instruments to achieve them, and higher aspirations for parenting lead to increasing awareness of requirements which have to be fulfilled before starting a family. As a consequence, the age of transition to parenthood has risen in contemporary societies, and will probably not decline considerably in the future.

2.3.1 Interdependence of life domains

Compared to other life course tasks – such as education and work – the formation of a family is widely at actors' disposal. Individuals and couples can be flexible with fertility decisions; and having children may no longer seem essential for mastering the future life course. However, there are obvious constraints in choosing the right time for parenthood. First, individuals – men more so than women – need a suitable partner for fertility projects. With increasing age, the opportunities on the partner market and the time-span to establish a satisfying relationship are shrinking. Second, there may be social norms with regard to the suitable age at family formation, and to the best fit with other dimensions of the life course, such as partnership and career (Gustafsson 2001, Settersten 2004). Third, there are constraints of biological infecundity, and these constraints become generalized with advancing age – for women more so than for men. Behavioral control over the actions to be taken not to have a child has been greatly increased in the wake of the 'contraceptive revolution' of the 1960's, while the success of positive decisions is less certain;¹¹ the exact timing of fertility thus remains a failure-prone exercise.

In a short time span, young adults have to cope with different, often competing biographical demands. Some authors speak of the "rush-hour of life" (Bertram et al. 2005). Because there is more time flexibility for family formation than for education and occupational careers, the problem of timing is particularly virulent in the case of fertility. Having children too early means a potential threat to achieving an autonomous and economically independent life. As the time that young adults spend in the educational system and finding a stable position in the labor market has increased, postponing long-term family commitments (or even avoiding them) is rational. On the other hand, waiting for too long may produce unintended consequences. The aspects to be considered are usually so manifold, and the pros and cons of having a child so difficult to set up clearly, that the actors are unable to produce unequivocal decisions (Burkart 1994). There are several ways out of this situation.

One keeps to the schedule provided by one's biographical orientations or by the social norms on life course timing of family formation (for the latter see Settersten 2004).

The 'veil of undecidability' makes actors receptive to relevant events or influences (e.g., from close peers) that may push them from one side to the other of the decision (Bernardi and Klärner 2014), and to simple heuristics (Todd et al. 2013).

Instead of positively deciding when to have a child, one follows a 'laissez faire' strategy of sexual behavior and commits to the result (pre-commitment and self-

¹¹ Some behavioral control has been gained through the development of assisted reproductive technologies (ART), but their success rate is generally overestimated (Beier et al. 2012).

constraint; see Elster 1979). Strategies of developmental control (Brandtstädter and Rothermund 2002; Heckhausen et al. 2010) may be used.¹²

One decides to forget about the long-term implications of fertility (to 'bracket' them, in phenomenological parlance) and to 'just do it'.

There is a debate on the extent to which intentionality and rational planning play a role in timing fertility. Theoretical arguments and empirical evidence support the assumption that only a minority of couples would skip this completely (Liefbroer 2005). Exceptions may be groups following the third or fourth of the above-mentioned patterns, and social milieus where traditional norms are still so strongly entrenched that they leave no room for personal decisions (Burkart and Kohli 1991).

It is likely that actors want the costs of parenthood not to overshoot a certain threshold. They also want to be sure that they are able to sustain a certain level of goal attainment in other life domains contributing to their individual well-being before they are ready to start with parenthood. This means that successful education and labor market entry will have the temporal priority over fertility. Extended periods of education thus delay family formation and shorten the time available for fulfilling the wish for children (Blossfeld and Huinink 1991). Delayed transitions in other life course domains, such as leaving the parental home, may have a resource effect: they may delay family formation because they inhibit economic autonomy and other preconditions for parenthood (Hagestad and Call 2007). There are again problems of endogeneity here, however; the direction of causality needs careful attention.

If family formation is delayed for reasons of education or other biographical events, the window for fulfilling the wish for children obviously gets smaller because the fertile period is biologically and normatively limited. This means that, as women grow older, family formation may become more urgent in relation to other life goals (Heckhausen et al. 2001). In this case the preconditions perceived as necessary for family formation, the aspiration level and the anticipated consequences of parenthood may be relaxed. The lack of adequate panel data has so far precluded the empirical study of whether women indeed lower their aspiration level and the anticipation of consequences of parenthood as they hear their biological clock ticking.

Alternatively, a couple may consciously decide to remain childless. Steadily delaying family formation may lead to a stronger emphasis on the obstacles of having children and the advantages of childlessness. In this way, couples that originally had a desire for a child may change their mind step by step and finally slide into childlessness.

¹² This raises the more general issue of selection and adaptation over the life course (Lesthaeghe 2002). Selection operates through the effects of individual dispositions (orientations and preferences) on transitions such as marriage or childbearing. On the other hand, these transitions are likely to reshape the family-related dispositions of actors (adaptation). Achieved life course decisions and biographical statuses in turn affect the individual dispositions that influenced them, often in the direction of cumulative reinforcement.

An important predictor of fertility timing is the interaction of the partners. Not surprisingly, if they disagree on the number, timing or spacing of children, the birth of a child tends to be delayed (Kurz 2005; Miller et al. 2004; Bauer and Kneip 2012). Postponement is also likely when two employment careers have to be synchronized.

2.3.2 Impact of the past and anticipation of the future

As with the number of children, the timing and spacing of births is affected by previous experiences of individuals over their life course, especially as they result in relevant biographical states and orientations. Empirical research is still poor in this respect, primarily because of the lack of appropriate data.

Some approaches in economics have developed models of the optimal time to start a family. Following the principles of human capital theory, they posit that the optimal time is a function of the integrated expected future benefits and costs depending on different ages (Gustafsson 2001).¹³ While these models yield interesting hypotheses regarding the issue of timing, their assumption of far-sighted actors with full calculating abilities is problematic. Nevertheless, it may be safely assumed that actors know that a decision in favor of children implies far-reaching consequences for the whole life course. Therefore, actors want to be sure about their (common) future biographical expectations and plans in general, before having their first child (Oppenheimer 1988); sure that they can afford to take the responsibility and the material burden connected with parenthood (Easterlin 1980); confident that they are able to combine non-familial engagements with parenting to a satisfactory extent (Becker 1991).

Being sure about these issues requires appropriate information. The best way to gain such information is by observing others who are in a similar situation. The social context is thus relevant, not only as an instance of social influence, but also as a learning environment (Kohler 2001; Bernardi et al. 2007, Bernardi and Klärner 2014).

Alternatively, actors may want to have a child in order to commit themselves to their parenting intentions, and reduce uncertainty with regard to future life planning. This is particularly attractive for persons who do not have good alternatives (e.g., employment prospects) (Friedman et al. 1994); who have a child in order to gain status that is not available through other means (as shown, e.g., in teenage childbearing); or

¹³ There is a decisional asymmetry here: the “yes” decision (if successful) produces a child – the “no” decision produces another decision situation (until time runs out). Modeling this situation might be informed by the standard model of retirement timing (e.g., Gruber and Wise 2004) in which, for those still working, the decision to leave depends on the expected pension income stream and preference for leisure. The situation is repeated every year. However, undertaking a repeated yearly decision is an abstraction ill-suited to the reality of fertility decisions.

have a child to induce a partner to make a commitment, thus hoping to save the marriage (Friedman et al. 1994): who do it alone (for mothers) because no appropriate partner is available or because partners are too unreliable. The likelihood of doing so depends on individual dispositions and social norms as well as on available resources.

An important issue is the effect on fertility of the de-standardization of work careers in globalizing economies (Blossfeld et al. 2005). On the one hand, this may make childbearing more likely because of the lack of an attractive alternative. On the other hand, it may lead to further postponement (or even childlessness) because the risk of failure with both work and family will seem too high. Again, knowledge regarding this issue is poor and inconsistent.

As to the birth of a second and third child, parents may just follow the preferences developed during late adolescence. The experience with the previous child or children also plays a role in the decision process, and may lead to a revision of the 'value' of another child. The young parents experience the impact of a child on all life domains and the constraints it places on their present opportunities and future life plans. Becoming a parent leads to a major shift in the balance of investments among different life domains and in the division of labor between the partners (Kühhirt 2012). The more expectations before family formation diverge from what they now experience as parents, the more reluctant they should be to have an additional child. While it is already common sense that models of fertility transitions have to be differentiated by birth order (Huinink 1995), research on this issue is very poor so far. Most studies attempting to explain the transition to a second or third child fail to adequately include previous experiences of the parents with their new family life and how it changes their relationship with each other. Thus we do not know to which extent the birth of a child is due to stable life scripts (selection), and to which extent to new life-course experiences (adaptation).

2.4 Parental investment

In his account of the 'asymmetric society', Coleman (1990) painted a gloomy picture of the consequences of modernization for the family, assuming that the willingness of people to invest in children would steadily decline. Therefore, the social capital of the fewer children that are born would decrease as the family would disintegrate and parents would give up authority and responsibility for the children. According to our own assumptions about the specific benefits from children, Coleman's hypotheses are not plausible. One can perceive at least two other patterns instead:

(1) Following the assumption that partners try to maximize expected psychological benefits from parenthood we would expect – in accordance with VOC theory, Leibenstein’s hypotheses, and Brentano’s as well as Becker’s approach – that parents today invest more effort in a smaller number of children. Parents should be interested in a successful child because psychological satisfaction from raising children and the special social interaction with them are both likely to be positively correlated with the level of parental investment. That parents should provide their children with optimal means for being successful in society is not only a legitimate claim by children, it also enables parents to enjoy the success of their children.

(2) An alternative view follows Coleman’s statement of disengagement. Parents optimize their resource allocation without taking into account potentially evolving detrimental effects on the children’s socialization. They do not have to be aware of that or do it by intention. Seeking to optimize their welfare production, they give priority to the imperatives of what Coleman calls the ‘purposeful social structure’ of the modern society, in which primordial ties are replaced by purposefully constructed social relationships (Coleman 1990).

From the perspective of the institutionalized life course, one might expect parental investment in children to be concentrated in their childhood and adolescence, and to cease when children have reached full adulthood. The conventional story of modernization posits this as the result of a basic historical change (Kohli 1999): in the pre-modern society the transmission of status and capital occurred fully in the family. Life chances were directly inherited, on the one hand through affiliation with an estate (‘Stand’) and the corresponding range of possible economic positions and marriage partners; on the other hand, through the inheritance of productive capital. In exchange for the transmission of status and capital, children had an obligation to care for their aged and disabled parents. In the modern society, so the story continues, all this has changed. Life chances are now determined by participation in the individualized labor market and marriage market. Entry into the labor market is regulated by school credentials. The influence of the family is reduced to the period before and during schooling; family strategies of children’s status maintenance or status improvement must become educational strategies. Status is acquired meritocratically, through achievement only. The risks of work and of old age are no longer covered by the family, but by the newly developed welfare state. By this, the economic value of children for their parents has shifted from positive to negative.

As mentioned above, this shift is one of the prominent explanations for the demographic transition to low fertility (Caldwell 1982). However, the assumption that parental investment ceases when parents have successfully launched their children into adulthood has been broadly falsified (Kohli 1999). Intergenerational transfers today

continue across all the joint lifetime of parents and children. Parents remain net givers over most of this time, and with bequests, even beyond their death (Kohli et al. 2010). Various explanations for this state of affairs have been proposed. One is the basic evolutionary argument that parental investment is functional for offspring survival and success and has thus been selected for, and that this selection applies even to post-menopausal women in their role as grandmothers (Volland et al. 2005). Another is simply to assume a generalized tendency of parents to be altruistic towards their offspring (Becker 1991). A similar argument is made by the “intergenerational stake” hypothesis (Bengtson and Kuypers 1971), according to which parents have a stake in the well-being of their children, while the latter have a stake in gaining autonomy. This life-long continuity of parental investment may be seen as a further cost of children. To the extent that potential parents are aware of it they must seek the future benefits of children even more in the non-material realm.

3. Empirical research

The life-course theory of fertility explains fertility-related individual behavior as one of several interdependent dimensions of the production of individual welfare over time – embedded in institutional and cultural programs, changing economic and socio-structural conditions and options, and path dependencies.

There is rich empirical research on fertility in the social sciences, which is broadly based on a life-course perspective. However, this has not been backed up by an integrated framework of life-course theory, such as presented here.¹⁴ In many cases, the life course has simply been referred to as the conceptual background of a longitudinal approach (which is by now mandatory in fertility analysis). In other cases, single elements of a life-course theory have been acknowledged. The multidimensionality of the individuals’ status space has been considered by applying event history models, including time dependent covariates (Mayer and Huinink 1990; Blossfeld and Rower 2002) or multi-equation models (Lillard 1993). For example, the relationship of education and work to childbearing behavior or intentions has been investigated (e.g., Blossfeld and Huinink 1991; Brewster and Rindfuss 2000; Kreyenfeld 2001; Liefbroer 2009). Konietzka (2010) studied fertility as an integrated part of the transition to adulthood. The interdependence between fertility and spatial mobility is now also part of the research agenda (e.g., Kulu and Milewski 2007; Meil 2010a; Huinink and Feldhaus 2012). The connection between the past, present and future of

¹⁴ For a recent comprehensive overview over fertility research in developed countries see Balbo, Billari, and Mills 2013. The authors follow the multi-level scheme, and thus do not explicitly address the embeddedness of fertility in the life course nor refer to life-course theories.

the life course is recognized in analyses of the effects of individual life experiences (e.g., Booth and Kee 2009; Hakim 2000; Hayford 2009; Noordhuizen, de Graf and Sieben 2011; Schröder and Brüderl 2008; Thomson 2002) and of perceived future risks for the household's welfare situation (e.g., Bernardi et al. 2008; Kreyenfeld 2010; Sobotka et al. 2011) on childbearing behavior or intentions. The multi-level embeddedness of the life course in societal structures has been emphasized as well (Mayer and Huinink 1990). What is still missing, however, are studies of fertility behavior, which explicitly consider time-dependent structures and regularities at higher levels than that of individual behavior. In most regional or international comparative studies, multi-level data are time-independent (e.g., Kravdal 2004; Mills 2010); other models are based on aggregated time series only (e.g., Hank 2002; Hank and Kreyenfeld 2003).

In the following discussion, we single out some studies dealing with the two main issues of a life-course theory of fertility that we have focused on so far: the interdependence between life domains (in other words, the horizontal embeddedness of fertility in the life course) and the interdependence between past, present and future (in other words, self-selection, structural or situational impact, and anticipation).

3.1 Interdependence of life domains

With regard to the interdependence of life domains, a topic of first importance in current fertility research is the interrelation of work career (including interruptions such as unemployment) and family on the backdrop of job insecurity. For Germany, Kurz et al. (2005) have demonstrated negative effects of job insecurity on fertility for men but not for women. Some more recent studies of the effect of anticipated economic uncertainty on fertility decisions yield mixed evidence for women (Kreyenfeld 2010; Hofmann and Hofmeyer 2013; Kreyenfeld et al. 2012). The impact of labor market insecurity on family formation varies strongly among countries (Sobotka et al. 2011; Adsera 2011; Kreyenfeld et al. 2012). In general, Sobotka et al support the hypothesis of a negative relationship between economic recession and fertility. At the aggregate level, they show a negative correlation between the strength of the recent economic recession and the change in fertility rates. From a life-course theory point of view, this could of course mean postponing births rather than abandoning them; which of these alternatives is valid remains to be seen. Contradictory results have been obtained as well regarding the effects of unemployment. While the evidence is still fairly consistent for men – except that significant negative effects have not always been found – the effects of unemployment for women vary strongly. Presumably they depend on women's qualification levels (Kreyenfeld 2010), the labor market structure, historical

and cultural peculiarities, and the family and welfare policies in the various countries. Less-educated women with strong worries have higher birth rates when unemployed, supporting the hypotheses of Friedman et al. (1994) (Kreyenfeld 2010; Schmitt 2012). This finding also shows that subjective indicators are important, even though those usually included do not cover the whole range of uncertainty. This may be one reason for the weak findings.

In trying to explain differences in fertility behavior between East and West Germany, Bernardi et al. (2008) propose an interesting approach to how people ‘implement’ fertility in the life course, and which scripts they can follow. In their qualitative study, they compare the life courses of East and West German men and women at age 30. From vital statistics we know that East Germans still have their first child at an earlier age than their West German counterparts. East Germans also remain childless less often. A plausible argument is that combining work and family in the East is an easier task than in the West because the day-care infra-structure is more generous. Therefore, the medium- and long-term opportunity costs of raising children are lower in East Germany. However, this seems to be only part of the story. Bernardi and collaborators argue that the difference that still exists between the two regions is also a result of the fact that young adult East and West Germans have different scripts in mind, in other words, different attitudes on how work – including coping with job insecurity – and family life should be related to each other over the life course. They show that in East Germany the interrelatedness of job career and family formation is more characterized by the idea of ‘parallelism’: a “balance of job security, job satisfaction, and leisure time” in which children are an integral part of the life course as well. Family planning does not depend on work, and occupational choice may be determined by prospects of parenthood (Bernardi et al. 2008:304f; see also Martín García 2005). In West Germany the authors find a sequential pattern: job career and job stability first and children afterwards – otherwise children could become a threat to occupational success and the aimed-for lifestyle in general.

More research on this peculiar relationship between the work and the family sphere in the life course would be important in order to shed more light on how the relevance of these life domains may change over time, and affect the motivation to have a child (Dahlin et al. 2008; Diewald 2012).¹⁵

A second issue gaining relevance is the relationship between migration (i.e., spatial mobility) and fertility (Kulu 2008). Several studies show that the interrelation is twofold: On the one hand, family formation and development has an impact on the propensity to move. Childbearing can induce moves – primarily over a short distance – because of the aim to optimize the living conditions of children, but migration rates

¹⁵ Some research on the mutual influence between childbirth and other life domains and their contribution to individual well-being is presented by Balbo et al. (2013).

decrease with the number of children (Kulu and Milewski 2007:572; Vidal et al. 2013). On the other hand, migration has an impact on childbearing. Different models may be proposed here: Migrants can stick to the fertility behavior of their region of origin (socialization hypothesis), adapt to the fertility behavior in the region of destination (acculturation hypothesis), make up a particular group in their region of origin with regard to fertility behavior (selection hypothesis), or have lower fertility because of the stress of migration (disruption hypothesis) (Kulu and Milewski 2007:573, Basten et al. 2011). However, the analysis of the interdependence between fertility and residential mobility is complicated by the fact that not only the events per se but also biographical orientations and intentions in one or the other dimension have effects on each other. Research on this is virtually non-existent to the best of our knowledge (Vidal et al. 2013).

Research on the relationship between circular spatial mobility and fertility shows that commuting and other kinds of job mobility (such as regularly staying somewhere else overnight) have no or only small effects on men but clear effects on women (Meil 2010a, 2010b): The fertility of mobile women is considerably lower than that of non-mobile ones. Again, there is little research addressing the interdependence at the level of events and intentions. In Germany, the relationship between circular mobility and the intention to have a child is weak for both men and for women; long-distance commuting seems not to be a deterrent to planning a family (Huinink and Feldhaus 2012). Obviously there is a gap between what mobile couples intend and what they are able to realize in this case.

3.2 Time-related interdependence between past, present and future

Past experiences affect current fertility decisions, leading to self-selection over time as a consequence of coherence, self-referentiality and path dependence in individual life courses (Huinink and Feldhaus 2009). Little progress has been made in analyzing these phenomena explicitly – that is, not just considered as unobserved heterogeneity one has to account for – in fertility research. Therefore, the effects of the current conditions are likely to be overestimated (Schröder and Brüderl 2008). After their ‘formative years’ young adults may follow a life-course script expressed in preferences emerging from their specific socialization experiences (Hakim 2000). This script is not only about fertility; it integrates and balances all other aspects of the life course in the preferred order. Using a latent-class methodology and panel data on family-related attitudes, Moors (2008) shows that among persons aged between 18 and 30 there are typical clusters with similar attitudes and with higher or lower levels of fertility – whatever their origin. Moors in his study ends up with six latent classes based on attitudes

about the meaning of marriage and children, the importance to fulfill one's role in the family as mother or father, the division of domestic work, and the relevance of employment as a source of approval; individual autonomy and personal freedom (Moors 2008:43f). These dimensions provide a more differentiated view than the simple distinction between home-centered, work-centered and adaptive lifestyles of women proposed by Hakim. Moors finds a group of persons emphasizing the "quality of family relationships" combined with a non-traditional view of marriage and family, a consistently "traditional family oriented" group, a group emphasizing "equivalence of roles", and a group favoring an "egalitarian" regime. The fifth class emphasizes the relevance of marriage and work but not children, and the last class is termed "ambivalent" because it shows an inconsistent pattern of attitudes. Having identified these classes, Moors analyses the correlation of belonging to one of them with the likelihood of motherhood, accounting for other important factors. "Taken together, these findings indicate that there is no single class of young women that stands out as a pro-motherhood class, rather there are different latent classes with almost equal likelihoods of becoming a mother" (Moors 2008:53). This holds true for the first, the second, the third and (surprisingly) the fifth group. The study uses data from the 1980s, showing that there is a lack of adequate empirical information to model processes of self-selection in a proper way.

A different approach is chosen by Hayford (2009). She applies latent growth curve models to fertility intentions between ages 18 and 40, trying to identify groups with similar trajectories, controlling for important factors, which might change the desire for children over time. She identifies four groups: the largest one follows what Hayford calls a "normative trajectory of fertility intentions", meaning that the members of this group stay fairly close to the mean number of 2.3 children wanted during the full observation period. The second group starts with more than 3 children wanted at age 18 and increases this number over time; and the third one starts with 2 children at age 18 and experiences a decline to 0.5 children by age 40. The fourth group starts at 1.6 and ends close to zero. The difference between the fertility intentions of the various groups increases over the life course, which supports the ideas of self-selection or of reinforcement in the non-normative groups (Hayford 2009:775).

Selection could be caused by intergenerational transmission. Liefbroer and Elzinga (2012) find evidence for the resemblance of family-life trajectories between parents and their offspring. Booth and Kee (2009) provide another example for testing transmission effects based on the hypothesis that fertility is positively correlated with the size of the family of origin. Proxies for parental characteristics and family-related norms are included in addition – such as parents' religion, ethnicity, age at birth of the respondent, education, and labor force participation. In models considering both partners, Booth and Kee consistently find that the size of the family of origin of both

partners has an effect on their fertility. This is in line with previous studies. However, we know of no study of the transmission process itself.

In the example of Bernardi et al. (2008) we saw that the legacy of two previously different cultural, economic and institutional structures in the two former German states still has a major impact on how people conceive the relevance of different life domains over the life course. The legacy of the GDR is the script of parallel engagement in work and family for both men and women and a particular importance of the family as the sphere of sheltered privacy. The legacy of the former FRG is the gendered life-course script which included the expectation that men – and in recent years also women – must have achieved a stable and reliable economic basis of family life in a secure occupational position (Kurz et al. 2005). This shows that when realizing a multi-level approach in a life-course framework, we have to go beyond aggregated time series of region-specific indicators or the institutional programs which drive life courses in terms of sequences of social positions – the “external ‘generative grammar’” (Krüger and Levy 2001). We need to include the “cultural framing” of fertility histories and the notion of pathways. In an older study Krüger shows how female life courses in West Germany are connected with fertility in a typically different way compared to men – guided by gendered institutional structures (Krüger 2001). The shadow of the future arising from fertility thus has a different meaning for women compared to men because the interdependence of fertility with other life domains and its weight relative to them are different. The analysis of the German case shows that one has “to differentiate between people’s minds and the norms incorporated into the organizational levels that standardize life-course patterns” (Krüger 2001:418). Krüger assumes that younger generations in Germany become more and more aware of this contradiction between egalitarian gender norms and the institutions forcing couples into traditional patterns after the first child has been born.

Complementary to the issue of path dependency and pre-determination is the question of adaptation of preferences and values to current circumstances of the life course (Brandstädter and Rothermund 2002; Huinink and Feldhaus 2009). Couples may change their fertility-related preferences through significant changes of their life, including the experience with a previous child. Lesthaeghe and Moors address the interplay between processes of selection and adaptation empirically and find evidence for both processes (Lesthaeghe and Moors 2002). In another of the few analyses dealing with this issue, Thomson shows that values affect transition rates to motherhood and fatherhood and vice versa (Thomson 2002).

This short overview demonstrates that there has indeed been progress in analyzing fertility in a life-course theory framework. However, we have so far found no study capable of disentangling the diachronical and synchronical interdependencies between fertility and other life-course dimensions. One reason may be the highly complex

nature of this task that presupposes a more fully developed theoretical model of fertility in the life course; another reason is the lack of data to adequately model fertility decisions empirically.

4. Promises and challenges for the future

In this paper we looked at the essential concepts of a life-course theory and spelled out their relevance for the theoretical and empirical study of fertility. We were able to show that the input of life-course theory is much more than just the idea of observing and analyzing age-related processes.

During the ‘golden age of marriage’ of the 1950’s and 1960’s, the strongly institutionalized life course showed a clear pattern in which fertility found its well-determined place. As soon as the requirements for a marital union between partners with its well-defined division of labor and responsibilities had been fulfilled, parenthood was the expected next step. The interdependence between the life domains was clearly regulated as part of the broader institutional pattern of modern society. The same was true with regard to time-related interdependence.

Today, these modern institutionalized patterns of the life course have lost relevance – particularly in the domain of family development. Union formation and parenthood is an increasingly contingent dimension of the life course. They are less predetermined and increasingly a result of individual decision-making. On the other hand, they are still embedded in the patterns of the life course because the other (still more institutionalized) life-course dimensions – especially the educational and work careers of the partners – have a strong impact upon the opportunities for union formation and fertility. The interdependence between the domains has become more complex, however. This means that a life-course approach is not less but more relevant for an adequate analysis of fertility.

In substantive terms, the life-course approach thus promises to integrate the extra- and intra-individual levels of relevant processes in a *system of interdependent dynamics* that unfolds over time; to conceptualize fertility and family formation as part of a *multidimensional process of welfare production* which requires complex decisions on the proper allocation of time and resources to the different life domains; to examine how *cultural scripts and institutional programs* shape and interact with intentions and preferences; and to highlight the *impact of the past and anticipation of the future* as a framework for the number, timing and spacing of births.

In methodological terms, the life-course approach requires a shift in the efforts to identify complex causal mechanisms in empirical research. It highlights the importance of going beyond the analysis of time-related events. Instead, the dynamics of and the

interdependencies between intentions and preferences regarding life goals in the various life domains need to be studied.

Even though the life-course approach still lacks the status of a systematic theory that would yield a full and coherent set of explanatory propositions on the various dimensions of fertility behavior, several hypotheses can already be drawn from it that extend the scope of fertility research. It thus shows its promise as an indispensable framework for studying fertility decisions, and it is hoped that such studies will in turn help to build the life course approach into a systematic theory.

In addition to the need for theory development, there are also problems of data availability. More adequate data is needed to model the processes which are conceptualized by the life-course approach in other words, to examine fertility decisions as part of the complex interdependency across the life course: between levels of analysis, between areas of the life course, and between past, present and future. Moreover, we need data on the subjective dimension – biographical orientations and life plans – with the same detail as on manifest behavior and life course events. Such data will allow more comprehensive research designs, and by this, for a paradigmatic shift in fertility research towards an integrated life-course framework.

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