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WORKING PAPERS

ON POPULATION, FAMILY AND WELFARE

Nº 32

CONCEPTUAL FRAMEWORK GROWING UP IN HUNGARY – COHORT ‘18 HUNGARIAN BIRTH COHORT STUDY

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HUNGARIAN DEMOGRAPHIC
RESEARCH INSTITUTE

ABSTRACT

Hungarian Demographic Research Institute launched a birth cohort study entitled 'Growing Up in Hungary – Cohort '18', which follows children born in Hungary in 2018 and 2019 on a large nationally representative sample. The main objective of the research program is to provide a comprehensive overview of child development and its influencing factors in Hungary. Conceptual framework of the Cohort '18 study presents theoretical and methodological background of the research.

Keywords: Cohort '18, birth cohort study, child development

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INTRODUCTION

Growing Up in Hungary – Cohort '18 is a longitudinal study initiated and conducted by the HCSO Hungarian Demographic Research Institute that aims to shed light on the development of children born in Hungary in 2018-19.¹ Data collection started during the prenatal period with pregnant women in early 2018. Subsequent follow-up surveys will then record further data on the approximately 10,000 children born to these women at age six months, 18 months, and 36 months. Ultimately, the HDRI intends to follow the children throughout their lives and into adulthood.

Cohort '18 is social research in the classic sense, but in addition to serving academic purposes, the results can also provide information that can be of assistance to professionals, service providers, governmental bodies and civil organizations in the field of the care system, child protection and development to work effectively and make decisions. The study will also yield results that will inform the public. Therefore, setting up the research framework required extensive academic, professional and policy coordination.

Cohort '18 is a cutting-edge social scientific research initiative in Hungary in terms of scale, methodology and the width of its usability. Its Hungarian precedents include a research entitled “Terhesek és Csecsemők Egészségügyi és Demográfiai Vizsgálata” [Health and Demographic Study on Pregnant Women and Infants] and its continuation, the “Országos Longitudinális Gyermekek-növekedés-vizsgálat” [National Longitudinal Child Growth Study], which also collected data during pregnancy.² At the same time, birth cohort studies have a 60-year old tradition in Great Britain, where four cohort studies have been underway since 1958, the results of which can be used in policy preparations and impact assessments.³ In the last ten years, Scotland⁴ and Ireland⁵ also launched their own birth cohort studies. In France, a study was started in 2011,⁶ while other substantial European birth cohort studies are underway in Denmark⁷ and in Norway⁸. Certainly, similar studies are conducted not only in Europe but in all parts of the world – Australia,⁹ the US,¹⁰ in New Zealand¹¹ etc. – and several are underway with reduced geographic coverages.¹²

Compared to the previous Hungarian studies, Cohort '18 is unique in its breadth and in the diversity of research questions that it can answer. Cohort '18 is multidisciplinary in nature, gathering information on several aspects of the child's (and eventually young adult) well-being and its influencing factors. The Hungarian collection is unique regarding the sampling, since most cohort studies begin after the birth of the child due to difficulties and the expenses of prenatal sampling and data collection. Cohort '18, in contrast, begins by contacting pregnant women using traditional primary data collection techniques and supplements the primary data collection by incorporating databases from administrative systems. Eventually, the research also is planned to involve additional actors (e.g. father, grandparents, caretakers/instructors) in addition to the child (mother of the child) as the primary data provider.

1 The research is financed within the framework of the EFOP 1.9.4. – VEKOP-16 invitation (Renewing methodology and informatics in the social sector) issued by the Hungarian Ministry of Human Capacities.

2 Joubert, K. – Gyenis, Gy. (2016): The Hungarian Longitudinal Growth Study: From birth to the age of 18 years. Working Papers on Population, Family and Welfare, No. 23, Hungarian Demographic Research Institute, Budapest.

3 Centre for Longitudinal Studies: <http://www.cls.ioe.ac.uk>.

4 Growing Up in Scotland: <http://growingupinscotland.org.uk>.

5 Growing Up in Ireland. National Longitudinal Study of Children: <http://www.growingup.ie>.

6 Étude Longitudinale Française depuis l'Enfance (ELFE): <http://www.elfe-france.fr>.

7 Danish National Birth Cohort: <http://www.ssi.dk/English/RandD/Research%20areas/Epidemiology/DNBC/>.

8 Norwegian Mother and Child Cohort Study (MoBa): <https://www.fhi.no/en/studies/moba/>.

9 Growing Up in Australia. The Longitudinal Study of Australian Children: <http://www.growingupinaustralia.gov.au>.

10 Early Childhood Longitudinal Study (ECLS) program: <https://nces.ed.gov/ecls/>.

11 Growing Up in New Zealand: <http://www.growingup.co.nz/en.html>.

12 For domestic and international birth cohort study practices, see the review of Blaskó 2009.

THEORETICAL AND METHODOLOGICAL FRAMEWORK OF COHORT '18

By Balázs Kapitány, Zsolt Spéder, Zsuzsanna Veroszta

METHODOLOGICAL FRAMEWORK

The model

Cohort '18 is a longitudinal study, in which we track the sample members – in this case, children born in 2018-19 – for a longer time period, gathering information at subsequent contacts. The most important advantages of longitudinal data studies compared to cross-sectional and repeated cross-sectional (several times on various samples, but with the same method) studies is that we can track individual changes and – studying the observed states in interaction – discover cause and effect relationships with greater accuracy than with other methods. Research tracking a specific age group, a cohort of individuals form a special group of longitudinal data collections. Studies focusing on children born during the same time period, and “tracked” since birth are called *birth cohort studies*. The advantage of studying a group that is homogeneous in terms of age is that all individuals in that group will be exposed to similar sets of societal influences throughout their lives, thereby eliminating the possibility that variation within the sample can be explained by changes over time. In addition, we can work with relatively simple measuring tools during the individual data collection steps. Children of the same age can be surveyed with the same psychological and skill measurement tests, and the questionnaires are easier to edit, since there are less life situations to prepare for than in case of a more varied sample.

The sample

The theoretical population of the study consists of children born in Hungary within a one-year period between April 1, 2018 and March 31, 2019 (and their families). With respect to the sampling frame of the the population and the data collection method, the *population of the sampling* in a technical sense includes all those live fetuses at least 7 months old whose parents are included in the Hungarian prenatal care system and whose (based on the appropriate entry of the prenatal care booklet) expected time of birth is between April 1, 2018 and March 31, 2019.

The goals set in the preparation phase of the research included a representative countrywide sample that has enough units to analyze certain groups of society in themselves as well. The data collection period was 12 months long, the size of the population was around 90,000 people, and the initially planned number of sample units was around 10,000 individuals. Taking organizational and financial prospects into consideration, the respondents had to be geographically concentrated. Thus, the *basic unit of the sampling* came to be the *districts of health visitors*. The initial stage of the data collection – including the administering of the prenatal questionnaire – is based on the involvement of local health visitors. This was necessary because fetuses in the prenatal care system do not have electronic records and the prenatal population is consequently only accessible by the health visitors. All of the pregnant women that were identified in a one of the selected health districts were included in the final sample. This reduces the risk of distortion by random sampling on the part of the health visitors and also minimize the number of health visitors to be involved in the work by data collectors as much as possible.

During sampling, we ranked the districts of the country into four categories¹³, corresponding to differences in district concentration, fieldwork organization, state administration, and willingness to respond. In each category, we used somewhat varied procedures (by random starting point systematic sampling of sequences produced along uniform principles) to choose the 628 health visitor districts that came to consist the sample. These uniform principles were: the estimated number of live births in 2018 (according to the average number of live births in 2013–15); the estimated willingness to respond and sample deterioration (where suspecting less willingness to participate, we raised the selection odds); the average social standing, and order by development level.

We invited all of the health visitors working in the health visitor districts included in the theoretical sample to cooperate, and 90.2% of them agreed to it. We sought to compensate for the districts of health visitors not agreeing to participate (61 of them) with replacement districts. We were able to replace 57 districts out of the 61 with additional districts of a comparable size and status, belonging to the same location rank. After the modified sample, upon training and contracting the nurses, 16 additional nurses withdrew from or were removed from the study (e.g. because the employer did not support their participation, because they did not show up for the training, or they did not return the employment contract). As a result, the fieldwork of Growing Up in Hungary – Cohort '18 started in 608 districts (97.9%) of local nurses. A more detailed introduction of the sampling process and the sample is included in a separate methodology paper (Veroszta 2018).

Research requirements during pregnancy

Data collection starting from the time of pregnancy is rare among the birth cohort studies. The importance of the study starting during pregnancy comes from the fact that experiences gained during the prenatal period seem to be in close correlation with the outcome of several life events later on. This approach enables us to gather current (not just retrospective) data about the time of pregnancy. These data include, among other things, subjective opinions or attitudes that are not available from data in the doctor's, the hospital's and the health visitor's records. This first data collection takes place in a unique life period with sensitive questions. For this reason, we completed the task of prenatal data collection with the help of the network of health visitors, a task that is often impossible in many countries. The Hungarian network of health visitors is unique in that it essentially covers the whole country (97% of the pregnant women get in touch with their local health visitor by the time of her 28th week of pregnancy). In addition to access, another reason for including the health visitors is that they are experienced in keeping in touch with the pregnant women, and already have developed a relationship of trust with them. The role of data collection by health visitors is also an important factor. Health visitor summaries assist with planning the sample, and the mandatory data recordings (e.g. data in the prenatal care booklet) form a database that can be connected to the research.

Data collection by the health visitors during pregnancy and at the age of six months is conditioned upon the organizational support of the research and the preparation of the health visitors in the particulars of methodology. Preparations for the prenatal phase of the Cohort '18 are documented in detail in Research Reports 99 published by HCSO HDRI (Veroszta 2018).

The course of the research

Within the current financial framework, the present research can extend until 2022. The related working plan and schedule consists of the following steps:

¹³ The four categories by location: Budapest (23); Budapesti agglomeration (10); country large city – over 150 inhabitants – areas (8); small and medium areas (156).

Preparation (i.e. forming the sample, questionnaire, testing, training): April–December of 2017

Prenatal data collection (i.e. health visitor's interview with the pregnant woman at week 28–31): January 2018–February 2019

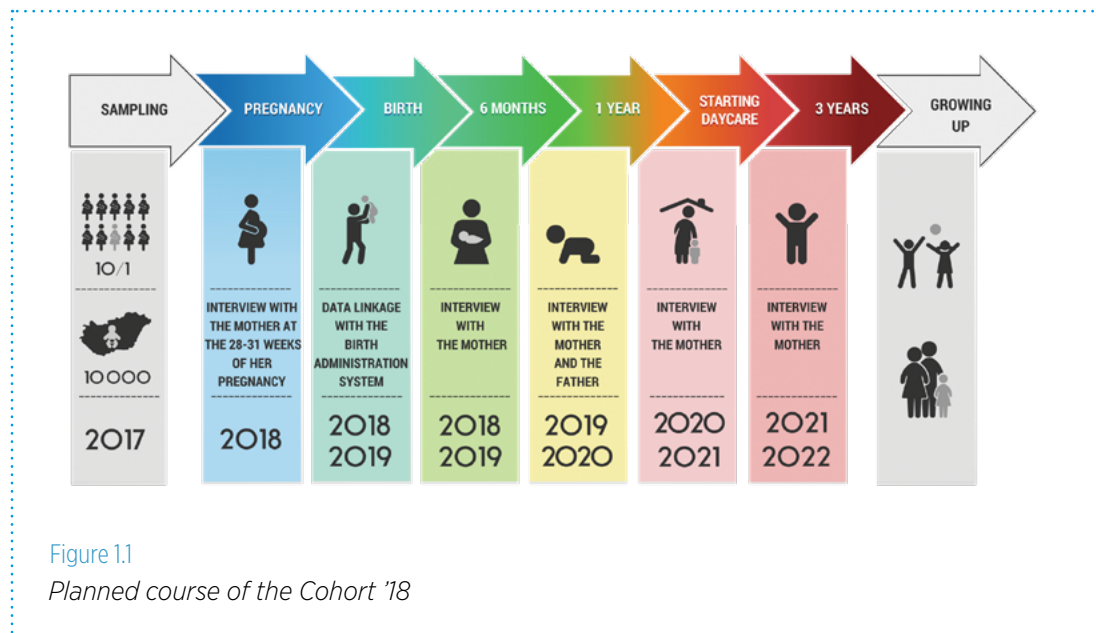
Data collection at six months (i.e. health visitor's interview with the mother at six months): August 2018–October 2019

Data collection from the birth notification system: June 2018–June 2019

Data collection at 18 months (i.e. interview with the mother, father's questionnaire): August 2019–October 2020

Phone interview at 27–30 months conducted with mother upon either the child's entering into institutional day care or the mother's entering into employment: March 2020–May 2021

Data collection at three years (i.e. interview with the mother): February 2021–April 2022



GENERAL THEORETICAL APPROACH

As most birth cohort studies, the Growing Up in Hungary - Cohort '18 is inherently interdisciplinary, seeking to answer interrelated research questions from the fields of (developmental) psychology, health sciences, sociology, population science and economics. Thus, the research program had to draw from all of the above disciplinary traditions, making it possible to answer research questions relating to child development in the various fields. In the coming pages, we will present some of the theoretical approaches that transcend the individual research areas involved in this study and provide the guiding principles of the research. The subsequent chapters will present more detailed discussions on discipline-specific theories and their respective research questions.

The research focuses on the development of the child growing up and becoming an adult. In the chapter dealing with developmental psychology, we will present in detail

the standard age-specific and role-specific indicators we use to measure the biological, cognitive and psychosocial development of the child. Our research falls in line with the ecological model of child development (Bronfenbrenner – Morris 2006), which states that the development of the child evolves in interaction between proximal and distal factors, not independent from the biological and genetic components of the child. *Family, the local environment, the care system, and the system of social provisions* have a key role in this (bio)ecological model. While the Growing Up in Hungary – Cohort '18 is explicit about its limits in taking the environmental factors into account, it puts a special emphasis on:

- the life course approach,
- the reproduction of social inequalities,
- the social policy interventions.

The *life course approach* plays a key role in population research and sociology, fits developmental psychology, and provides an appropriate framework for understanding human capital accumulation (Elder et al. 2004; Settersten 2006). We find the life course research approach well-suited for understanding child development and the family circumstances, as it allows for understanding child development in *dynamic* circumstances and *changing family relations* (e.g., relationship dissolution and subsequent formation). From this perspective, the family circumstances of child development consist of linked parental life courses (“linked lives”). This means that parallel, interlinked family and employment life courses (i.e. careers) of a woman and a man create the framework of having and raising children. Naturally, as it is inherent to having and raising children, child development is an essential element of partnership development.

The resources, status attainment and status changes, and related behavior of the parents – “parenting” – continue to provide the framework for the development of the child growing up. Research highlighting the importance of the parental impact during certain stages of child development and during the transition to adulthood adult, are easy to interpret within the *dynamic life course* framework. It is well known that material resources (e.g. poverty) have significant effects on the cognitive development and health status of the child, along with the consequences of a divorce (Amato 2010). The advantage of the life course approach is that it highlights the individual courses of the parents, along with the planned or unplanned, inevitable and sudden transitions interruptions in these courses that determine the immediate environment of the child’s development. At the same time, the child is not a passive element in the life course of the parents, since his or her birth, and even the planning of that birth is a vital part of the course of that couple. His or her birth and raising has a contemporaneous effect on the life course of the parents, the child’s temperament can influence the relationship of the parents and the course of their employment.

The life course approach pays special attention to the *individuals actively participating in shaping their lives* (i.e. agency) (cf. Elder et al. 2004: 11). Choosing a partner, the decision on having children, choosing a workplace are key events that should be interpreted as clear choices, as proactive decisions. Even though we consider the options/possibilities offered by the system of social inequalities decisive (see later), we believe that the individual choices are not predestined. Parents develop various behaviors and make choices during childrearing that influence the development of the child. Apart from “intensive mothering” (Hays 1996), “father involvement” (Townsend 2002), and “negligent parenting”, there are several additional parenting models in the relevant literature. In spite of the influence of social and environmental factors on parenting behaviors, surveying parents’ intentions and behaviors enable us to understand social action from an “agency” point of view.

Segmenting the life course by age, another principle of the life course approach, is in close connection with the milestones of child development by age (cf. Elder et al. 2004;

Hagestad – Neugarten 1985; Lábadi – Pohárnok 2016). Capturing and understanding the “within life-course” effects is an important task of the cohort study. Experiences gained in (early) childhood, and even during pregnancy (Barker 1990) affect those involved, significantly influencing their future cognitive performance, health condition, the chance of deviant behavior, and adult outcomes (cf. McLeod – Almazan 2004). People growing up in poverty, with an unhealthy diet, or among negligent parenting conditions, are most likely to underachieve, have higher health risks, and develop deviant forms of behavior.

It would be a mistake to consider the influence of the parent's life events (the quality of the partner relationship, moods, employment career) on child development, and disregard the *inverse relations*. When saying that we interpret the family setting as *didactic relationships* and in a *didactic perspective*, we also highlight the dynamic, interactive nature of the parent–child relationship. The parents establish the framework and climate of how the child is raised, but the child also influences the life course of the parents. As we already mentioned, the birth of the child makes some, formerly feasible options (e.g. working abroad) less likely, while other options become real possibilities. It can also be observed that problematic behavior of the child (or lack thereof) substantially contributes to the satisfaction of the parents, along with the quality of their relationship (Greenfield – Marks 2006). The concept of “linked lives” should not be restricted to the alignment of the couple's family and employment life course, but also the interaction of the child's life with those of the parents as well.

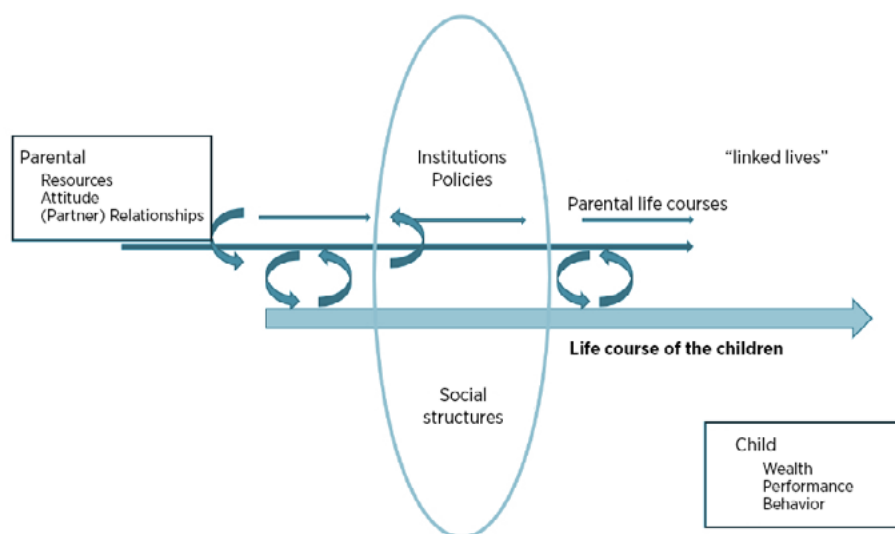


Figure 1.2

Theoretical framework of Cohort '18

The disciplines below recognize the effect of (early) childhood circumstances on (young) adult performance beyond doubt. However, the nature this effect is disputed both within and across disciplines: Is the effect permanent or transitory? Does the strength of it remain the same or fade over time? And what kinds of circumstances and parental behaviors most influence the child's biological, cognitive, psychosocial development, along with the behavior and performance of the (young) adult? (McLeod – Almazan 2004; Liefboer 1999).

Here we have to highlight the research field of *resilience*, dealing with the circumstances, actions and possible interventions that enable people growing up in adverse circumstances become successful in overcoming subsequent life course obstacles. This question receives much emphasis in psychology (cf. Lábadi – Pohárnok 2016), and we

will discuss it in detail later on. However, the atypical life course appears in other disciplines as well: For example, Fassang and Raab (2014) emphasize that atypical life courses can be identified in the transition to adulthood that are contrary to the life courses of the parents.

The systematic mapping of *parental influences* is an essential part of cohort studies, and as we already highlighted, the main perspective of the Cohort'18 study is to define and track parental influences in their *dynamics*. In other words, we assume that parental influences – whether they are resources, or parenting styles or intensity– change over time, and their degree may differ at various developmental phases. This perspective makes it possible to grasp the extent of the role parents play in achievements during childhood or young adulthood (Amato 2000; McLanahan – Sandefur 1996). The consistent use of the intergenerational perspective also enables us to analyze the fundamental questions of population studies and sociology, to understand the *transition to adulthood* and the formation of families (Barber et al. 2000; Buchmann – Kriesi 2011) and enables us to study the classical issues of *social mobility* (Bukodi et al. 2015) in a new light.

The crucial role of parental influences on how the child grows up and develops is beyond doubt, but it is also evident that the genetic codes and temperament of the child are undeniable elements in this process, and the development of the child takes place during a certain time of history, in a society with a specific social structure and institutional system. Since our research program does not favor a medical approach,¹⁴ we do not aim for gathering data concerning these kinds of research questions but would like to leave an option for the future to analyze medical/genetic issues as well, even if only to a very limited extent. These questions are not irrelevant from the perspective of psychological, demographical studies either (cf. Mills – Tropf 2016). Nevertheless, our research is primarily undertaken from a social science perspective. Even though the study cannot aim for a comprehensive description of Hungarian society, the social structure and the institutional framework have to be considered. We have already touched upon the *effects of the social structure* indirectly when talking about the crucial role parental resources (e.g. family income, and financial, cultural, and social capital) may play in the development of the child, because we can trace the effects of social inequalities there. Inasmuch as these inequalities have a “systematic” influence on the development of the child, his or her entrance into and participation in the institutional system, and success within that institution, our analysis already contributes to *understanding the reproduction of social inequalities*. The issue of social mobility already mentioned, along with investigating the circumstances of resilience are also related to this.

Certain life-course researchers propose that independent life course regimes that clearly differ due to permanent variations in the institutional setup of advanced societies should be distinguished. The early childhood care systems, education systems, labour market and social care systems vary so much throughout Europe that they offer very different opportunities and obstacles for individuals as they age (Mayer 2001). It is not impossible, but beyond our means to conduct a comprehensive analysis of the social structures and the institutional systems. Our task is rather much more specific: we seek to observe social structure, institutions and controls relevant to child development and the transition into adulthood. As far as the role of the institutional system is concerned, it is important to understand the factors that determine admittance into the institutions, the access to the care system. An equally important question is how much the access principles (means testing, universality, social contribution) prevail, and how much the measures and the institutions are able to reach their goals (cf. Halász 2016). In general, we seek to find out how much the institutional care system in Hungary can alleviate the inequalities related to parental resources.

¹⁴ We know several birth cohort studies that track the health condition of the child for the most part.

Childhood development is not independent of the prevalent *cultural patterns*, the emerging and dominant theories of childrearing or family relations, in particular. Cultural patterns may define specific “prescriptions” and/or “timetables” as reference points (Hagestad – Neugarten 1985). Their effect is barely direct, but they do influence childrearing and the choices he or she makes while “walking” the course of life (Buchmann 1989). To a certain extent, cohort studies agree that beliefs about the family, of having and raising children can be detected in parenting, and noticeably influence the development of the child. In addition, we have good reason to suppose that parental beliefs, cultural resources (capitals) and level of expectations create an ever-present cultural climate that is transmitted to the children, thereby influencing their advancement in the school system, in the transition from school to the labour market, and will be detected even when the young adults create their own families (Barber et al. 2000).

In this introduction, we have highlighted the theoretical considerations underlying the framework of our approach in the Growing Up in Hungary – Cohort '18 and helped us in aligning the questions of various disciplines. They do not define the questions of developmental psychology, population studies, economics, and social politics, since these are to be framed on the basis of discussions and theoretical approaches specific to the respective disciplines, which we will discuss and specify below. However, these general theoretical considerations help to integrate the relevant questions in the different disciplines to be discussed later on.

RESEARCH TOPICS

The main objective of the research is to provide a comprehensive overview of child development and its influencing factors in Hungary.

In the complex study about how children grow up, we measure *various indicators of childhood development*, including:

- physical development,
- cognitive development,
- socio-emotional development,
- health status,
- well-being,
- performance,
- indicators of social mobility.

The research also seeks to identify the *determinants* of development, including:

- family context and social environment, socialization,
- resources and social differences,
- institutional provisions,
- health conditions,
- labour market and parents' positions,
- lifestyle, expectations and plans of family members.

The dominant approach of the study is to examine the various aspects of growing up (including their reasons and relatedness), focusing on and seeking to reveal the differences surfacing in the above circumstances and achievements of life.

While favouring the interdisciplinary feature of the research, we organized the theoretical preparation work of the study into three main areas:

- demographic features,
- health and child development,
- social background.

In presenting the more specific theoretical background of the research below, we will refer to this classification, although these areas interconnect and overlap. The questionnaires of the investigation originate from the three research fields designated above and are presented below in a subsection (Chapter 2: Demographic features; Chapter 3: Health and child development; Chapter 4: Social inequalities and institutions).

The richness of the potential research fields and topics made it necessary to map out the theoretical and research antecedents and lay down principles of selection in defining the research topics. In this process, we considered three main *aspects of selection*:

- The study should include the *main basic variables* and background variables of the above-mentioned research fields – child development and developmental psychology, population science, sociology, health.
- In specifying the research issues, we took some unique methodology characteristics of Cohort '18 into account. First of all, it is important to exploit the opportunities offered by its *longitudinal* nature, highlighting questions that can be observed mostly or only through time. Data collection starting *during pregnancy* is also unique opportunity that should be capitalized as much as possible. The research is thus connected with the Hungarian cohort study traditions, which became an important aspect in selecting the research topics. Since the research follows a *large sample*, it is worth to consider topics that can be investigated using such samples.
- The *international and country-specific relevance* of the research also directed the topic selection. Of course, selected topics that may be of scientific interest on the international level, and boast of a rich research antecedent. However, we highlighted also areas that in Hungary may be poorly covered, and where information gathered by this research hopefully turns out crucial.
- *Fieldwork-related aspects*, namely, that the success of data collection depends on the mother's willingness to participate, on their interest being held, and on their involvement was also prevalent while constructing the questionnaire program. We aimed to include questions that were deemed to be important from the point of view of the target group.
- Finally, it is obvious that the scientific interest of the researchers also prevailed.

Upon all these considerations, we laid out the following research questions in the framework described above during the preparation phase of Cohort '18:

Key issues of child development and health:

- How do health conditions and health-related behavior during pregnancy affect childbirth, fetal and child health and development?
- Which factors influence the risk of preterm birth?
- Which factors influence reproductive health, in general?
- How does the mother's psychological well-being affect childbirth and the health and development of the child?
- How do the couple's subjective features affect the health and development of the child?
- What are the effects of parenting on the health and development of the child?

... related to population science:

- What are the circumstances of having and raising children in specific demographic groups?
- Are there correlations between having children and partnership stability?
- Which factors influence the birth of a sibling?

... related to social inequalities and social background:

- How do inherited inequalities affect the health and development of the child?
- Which factors determine the life plan and the fulfillment of plans?
- What are the employment circumstances of women with small children and what are their effects?
- Are there differences in accessing and using the health care system?
- How are social benefits used under various employment contract conditions?

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DEMOGRAPHIC RESEARCH QUESTIONS OF THE HUNGARIAN BIRTH COHORT STUDY

By Balázs Kapitány, Adél Rohr, Zsolt Spéder

APPROACH

The role of the demographic focus within the research

In understanding the population science related research program of the Cohort '18, it is important to underline that gathering and using demographic data has several, substantially different goals.

First, various kinds of basic demographic data (pertaining the mother, the child, and the father) are used as *background variables* in each analysis, across all fields within the social sciences. This is the basic use of demographic variables, such as gender, age, marital status, etc., in each research. Basic demography data would be collected and used this way even if the Growing Up in Hungary – Cohort '18 was not conducted by the Hungarian Demographic Research Institute – the responsible institution of demographic studies in Hungary.

Second, demographic features/behaviors (or some elements of these) will serve as *explanatory variables* in special analyses of other subject areas. For example, in examining the question of how the family environment influences the educational career of the child later on, demographic data is needed, which includes information on the number, age, and gender of siblings. We hope that the demographic information gathered will serve these kinds of research needs without restrictions.

According to our plans, the intense use of demographic data will yield analyses that primarily work with a set of demographic variables – analyses that could be called “family sociology, family demography” research topics as well. (These may include analyses on the employment of women with small children, or the division of labor within the family, for example.)

In relation to these kinds of research questions, however, there may be researcher needs for which the database will not be perfectly suitable. For example – due to time limits – we do not collect full partnership or dwelling histories of the pregnant women/mothers with small child during the health visitor’s stage of the study. Thus, we do not have data on how many stable relationships/marriages the respondent had earlier, or the amount of time she has lived in an independent household, apart from the home of the parents. Naturally, these kinds of data would be of interest for a family sociology study. In preparing the questionnaire, our operating guideline was that all demographic variables and data necessary for the analysis of our priority research questions shall be available already in the dataset of the health visitor’s stage.

This data will also be used to produce the more specific *demographic analyses* from the database. This group of analyses aims to explain demographic phenomena, and to describe, represent and interpret demographic trends. Naturally, these types of analysis may also include some topics for which the explanatory variables are multidisciplinary in nature (e.g. the effects of the division of labor within a family with young children on partnership stability), or others that try to explain demographic trends with variables that are mainly demographic (e.g. how the quality of relationship effects plans for having more children). Applied family policy, population policy studies and analyses also belong to this demographic group, inasmuch as the research focuses on the effect of certain policy measures on demographic trends.

The theoretical framework of the demographic focus

In selecting demographic data, we took into consideration the interdisciplinary frameworks that may fit the full research program. The life course approach is one of these

theoretical frameworks (for example, see Elder 1998; Levy et al. 2005), especially the concept of linked lives (e.g. see Settersten 2015), as well as the ecological systems theory (e.g. see Bronfenbrenner 1979) and the resilience theory. These theoretical frameworks guided the selection of survey questions and also generated expectations during the creation of the demographic research questions.

For example, the *linked lives* approach demanded that we gather parallel data from the both biological fathers and the “social fathers” from the time of pregnancy. Accepting the theoretical foundations of this approach, it would be hard to understand the development of the child without knowing when and to what extent the lives of the people in the immediate environment are linked with that of the child.

While the life course approach fits the question program of the basic demographic research, it is less so with the *ecological systems theory* used in Anglo-Saxon birth cohort studies. The latter is based on a complex mapping of the effects of the social environment on child development, which is challenging for the traditional demographic approach, because demographers often believe that demographic variables/attributes are primary causes. This is not only a theoretical question, but a practical one, as the following example indicates.

The negative correlation between environmental instability in early childhood and subsequent development of the child (cognitive and otherwise) is supported empirically (see Waldfogel – Brooks-Gunn 2010). In this case, the demographic approach holds that in understanding this correlation, the ideal “default” explanatory variable is demographic (the relationship instability of the mother). As such, its measurement should be prioritized. The rest are consequences: family structure instability raises stress from the perspective of the child, adaptation challenges arise, the family borders, family roles and responsibilities became unstable, changes in the place of residence or institution occur, and all these can endanger the development of the child (see Cooper et al. 2009; Fomby – Osborne 2017). From an ecological perspective of the same phenomenon, we can say that instability *per se* is a danger to development for the young child; the instability of the residential environment, changes in the mother’s employment, changes in the family structure (e.g. the birth of a sibling or the death of a cohabiting grandparent), or changes in the mother’s relationship status are coequal dimensions of this environmental instability (see Fomby – Mollborn 2017).

In a way, this seems to be a difference in approach between various theoretical frameworks or fields of science, where it is no easy to do justice in an objective way. Obviously, both approaches are valid and empirically relevant, and one would think that it is the researcher’s preference chooses the theoretical framework in which the concrete correlation is to be interpreted. However, in reality we see that first author of the two above references is the same: Paula Fomby, publishing the articles about the same social correlation, based the same type of birth cohort study data. In addition to using different theoretical frameworks, the database is also different. The Fomby and Osborne (2017) paper, using data from the Fragile Families and Child Wellbeing Study, uses a theoretical framework that bases its causes on classical demographic events. The Fomby–Mollborn (2017) paper, based on data from the Early Childhood Longitudinal Study, uses the ecological model.

In this example, it is presumable that the database defines the theoretical framework that can be used. The Fragile Families and Child Wellbeing Study (from 1998)¹⁵ includes detailed data on family structure, changes in the family structure, and the demographic behavior of the mother. However, the Early Childhood Longitudinal Study (from 2001)¹⁶ data reveals much less about the demographic behavior of separated fathers, for ex-

15 Fragile Families and Child Wellbeing Study (FFCWS): <https://fragilefamilies.princeton.edu/>.

16 Early Childhood Longitudinal Study. Birth Cohort (ECLS-B): <https://nces.ed.gov/ecls/birth.asp>.

ample, whereas changes in the number of relocations or the number of hours children spend in the care of people other than their parents are easy to measure here.

As we have illustrated above, the *theoretical base of a multidisciplinary study* – even in case of an “objective”, fact-based research focus, such as demography – influences the question program, and the question program now established will – maybe decades later – in turn influence the kinds of theoretical frameworks used in empirical analyses on the specific database.

Principles in preparing the question program

In assembling, the demographic elements of the question program, in addition to the main variables, the following principles were kept in mind:

- The general theoretical framework of the research should be laid out (see the earlier details).
- The demographic topics should cover the topics of classical international demographic studies with regards to fertility and couple relationships. In this regard, we took the Generations and Gender Survey (GGS)¹⁷ and its basic conceptual text (Vikat et al. 2007) into consideration in the first place, the Fertility and Family Survey (FFS)¹⁸ in the second, and the questionnaires of the Population Policy Acceptance Study (PPAS)¹⁹ in the third.
- With the help of the database, we should be able to analyze our prioritized demographic research questions/topics.
- Demographic data are needed to analyze other priorities of the multidisciplinary research group (discussed in later chapters). As such, they should be part of the data collection.

In addition, we also took the following into consideration:

- Data gathered should cover the demographic topics in birth cohort studies used as references.
- The data collection should be comparable with the demographic data of former cohort-type studies in Hungary as much as possible (especially with the precedent birth cohort study called the The Hungarian Longitudinal Growth Study (HLGS): see Joubert – Gyenis 2016] and the Longitudinal Study on Adolescents Mothers, see I. Pongrácz – S. Molnár 1994]).

Naturally, a significant disparity existed between the wants of the multidisciplinary research group and the opportunity to implement them during the fieldwork, which became evident during the pilot study. While the researchers reviewing the questionnaire persistently suggested extensions, both the workers conducting the fieldwork and the respondents called for a substantial abridgement of the survey instrument.²⁰

Below we briefly present the demographic research questions/topics that we plan to analyze within the framework of the Cohort '18 research program. It is important to emphasize that the list is a mixture of short-term and long-term research topics. For some of the questions, even the early stage of data collection (based on results from the prenatal data collection, for example) may yield results, while other topics require longitudinal database. As such, their analysis is not possible until much later.

¹⁷ Hungary participated in the international Generations and Gender Programme (GGP) study series with a panel study of HCSO HDRI called The Turning Points of our Lives (Életünk fordulópontjai). For details, see www.demografia.hu/hu/ef.

¹⁸ See <https://www.unece.org/pau/ffs/ffs.html>.

¹⁹ See http://www.bib-demografie.de/EN/Research/Surveys/PPAS/ppas_node.html.

²⁰ For a detailed summary, see the methodology description of the preparatory phase of the study (Veroszta 2018).

THE CIRCUMSTANCES OF HAVING AND RAISING CHILDREN IN SPECIFIC DEMOGRAPHIC GROUPS

The size of the Cohort '18's sample enables a comprehensive study on some smaller, but *demographically significant childbearing groups* that previously required specific studies.

When planning the study, we designated the following as demographically significant childbearing groups from an academic, social policy, or other perspective.

- large families (mothers with three or more children),
- singles mothers (women who have children without a cohabiting partner),
- young mothers (women bearing children under the age of 20 – 8.7%),
- children born into or growing up in mosaic families,
- older mothers and their families (e.g. first child born to mothers over age 35 – ca. 7%).

The groups listed above may – with the use of appropriate definitions – constitute such a large proportion of the total sample that makes them eligible for separate analysis.

The question program included subjective or value-related questions on specific topics that aim to help us better understand the demographic behavior of the respective groups. Together with the general variables, these enhance the scientific value of the study in several aspects. On the one hand, they can provide valid descriptive analyses on these interesting social phenomena that contribute to our understanding of demographic trends in Hungary more accurately. On the other hand, these phenomena themselves may serve as explanatory variables from the perspective of child development.

Analyses aimed at some demographically limited groups have longstanding traditions in demography both internationally and in Hungary. For example, one of the very first longitudinal demographic studies (the Princeton Fertility Study) was specifically about couples with two children deciding to have a third child (e.g. Westoff et al. 1963). Based on birth cohort studies, Elsa Ferri (1976) conducted a classic analysis on single parent families, while Kathleen E. Kiernan (1995, 1997) conducted some on people having children at a young age.

In the years surrounding the regime change in Hungary, several – somewhat longitudinal – studies were conducted by the Hungarian Demographic Research Institute about families having children that live among special demographic conditions. We can also build on these studies, because the hypothesis and the results of these may be considered antecedents of the cohort study and may provide a basis for comparison. In addition, the population of these earlier studies always consisted of the pregnant women, while the sample selection and the data collection came the responsibility of the network of health visitors. These studies can thus be considered antecedents of the cohort study not only in terms of research questions and also in their fieldwork solutions.

One such study, which was first administered immediately at birth in the hospital with a subsequent follow-up survey ten years later, focused on adolescent pregnancy (Longitudinal Study on Adolescents Mothers 1983) and its consequences for both the parent and the child (1993) (for a summary, see Pongrácz – S. Molnár 1994).

The 1996 single parent study (Birth Out of Wedlock Study), in which cohabiting relationships were also considered part of the sampling population, was also built on a longitudinal data collection design to a certain degree. Sampling took place during pregnancy with the help of the health visitors, but the personal interviewing was conducted after the delivery – typically when the baby was around 6–9 months old –, which allowed for a thorough mapping of family structure changes around birth (see S. Molnár et al. 1998; Pongrácz-S. Molnár 2003).

The Large Family Study of 1985 took place among women giving birth to their third or more child in 1981, and they were interviewed when the children were 4 years old (in 1985). The fieldwork was carried out by the health visitors (see Pongrácz – S. Molnár 1991).

In relation to these research topics, our primary aim is to publish Hungarian publications, especially research reports and some studies. Due to its relation with earlier studies, a comparison with the former “study on adolescent mothers” seems most logical. In planning the prenatal questionnaire, we thus sought to include as many overlaps between the studies as possible.

In planning the six-month data collection, we sought to make comparisons possible between the data of the unmarried respondents and the results of Birth Out of Wedlock Study, and we planned to do a large family analysis in the 2022 data collection wave to compare it with the results of the former Large Family Study. In relation to the other research topics – lacking specific antecedent studies –, census and micro-census data, along with data from the demographic register could be added to provide a framework for results from the cohort study.

CHILDBEARING AND PARTNERSHIP DYNAMICS

A classic topic of demography is the effect of having children (Breitenbach 2013; Cox et al. 1999), and its consequences (e.g. the mother leaving the workforce), or the effects of children themselves on the *quality and stability of the partnership*. For example, what could be the reason behind the empirically supported result that the first child being a girl raises the chances of divorce (Hamoudi – Nobles 2014)? Naturally, these analyses cannot be narrowed down to those living in a marriage relationship, as partnerships include cohabiting relationships as well, which may also break up or become a marriage (Lundberg – Rose 2003).

Apart from the partnership status changing, the output variable of the analysis can also be attitudinal/subjective, such as relationship satisfaction.

In reality, these research questions can be researched by follow up studies, and the prospects of birth cohort studies are especially outstanding in this regard. For this reason, although there is no domestic antecedent for such a study, we included the topic in the prospective demographic research questions of the Cohort ‘18. Lacking an immediate antecedent, results partially suitable for comparisons in time can be taken from the – total of three – Hungarian Longitudinal Marriage Surveys (HLMS) carried out each decade since the 1960’s (e.g. Kamarás 1984, Kamarás 2003). At the time of these studies, a much stronger correlation could be observed between marriage and the decision to have children, and that database is available to us. Based on these databases and relying on the 10 year follow up phases, event history models comparable to the results of the Cohort ‘18 could be employed.

FACTORS FORECASTING, ASSISTING OR HINDERING THE BIRTH OF A SIBLING

In planning the questionnaire, putting together a database that will enable us to reveal and analyze the factors predicting future births was an important goal.

One of the most important demographic process in Hungary (and in the CEE region too, see Frejka 2008) is the weakening of the once dominant two-child family model. To understand this process, researching second-birth decisions is very important. Inasmuch as the present 17–18% rate of childlessness (the increase of which largely due to postponement) will continue to increase alongside the rising share of one-child families, the fertility level needed for population replacement will be unattainable on the long run in the society (Kapitány – Spéder 2015). The birth cohort study does not enable us to study the spread of not having children, but it is perfectly suitable for understanding moving on from the first parity as a family decision in contemporary Hungarian society. In assessing the potential explanatory factors, Hungarian publications explaining the

birth of the second child can be used very well (Matysiak – Szalma 2014; Bartus et al. 2013; Drjenovszky 2009), along with their ample international counterparts (Kalmuss – Brickner Namerow 1994; Kreyenfeld 2002; Gerster et al. 2007; Van Bavel – Nitsche 2013; Kreyenfeld et al. 2017). At the same time, the majority of these use retrospective surveys, and those that use longitudinal approaches are based on general cohort studies. A true follow-up approach, based on a birth cohort, would not only increase the explanatory power of the models, but also provide a methodological novelty, which could give rise to international publications. Naturally, examining the research question has significant population policy relevance as well.

PLANNED OR UNPLANNED PREGNANCIES

Surveying the *plans for having children* involves several scientific disciplines relating to the pregnancy and the birth of the child. Relevant literature differentiates between planned children– where the pregnancy was planned and took place at the time expected – and unintended pregnancy, which could be either due to lack of contraception or conceptive failure. The latter usually has two subtypes: mistimed pregnancy, when the parents would have put the ideal date generally later than it actually happened, and unwanted, which was actually not planned (Musick et al 2009).

The relevant literature indicates that unplanned, unintended pregnancy has social, economic and health impacts as well, it influences the behavior of the mother during pregnancy, the (physical and mental) development of the child, and the formation of the family (Kaufmann et al. 1997; Kost et al. 1998; Joyce et al. 2000). The international studies usually ask the mother about the nature of the pregnancy (planned or unplanned), only after the child is born. Our preliminary hypothesis is that mothers may retrospectively modify their actual pregnancy intentions after the birth of a child. Thus, it would be important and novel to ask about plans for having children during the prenatal period, and repeat the questions later, after the birth of the child.

Measuring the intentions in relation to the present pregnancy (not in relation to future children or retrospectively) could answer demographic questions such as the measure of consciousness in family planning in Hungary, how often children are conceived earlier, just in time or later than planned, and how an unexpected pregnancy affects the development of the relationship or the plans for having children later as well as their realization.

RELATED DEMOGRAPHIC ISSUES

The framework of the cohort study allows the study of additional demographic research questions as well. We will now outline a few topics that came up as “demographic research questions of secondary importance” while planning the questionnaire.

The birth cohort study is not suitable for measuring the effect of *population policy*, as its population consists of only those who already have children. However, the follow-up design enables us to better understand the effects of certain kinds of family support on fertility, their possible fertility and background factors. The follow-up design will reveal how the plans compare with real practice later on, and how they affect decisions to have additional children. Upon establishing the question program, we primarily sought to answer the above questions.

The *demographic situation of Roma communities* receives much attention nowadays, because they are disproportionately influencing the general population trends of Hungary. At the same time, very few well established studies and reliable data collection that would truly be suitable to present the attitudes to having children

and the fertility features of the Roma people in Hungary has been conducted since the last study carried out by Kemény (Kemény 2004; Janky 2007). The major part of studies in this topic are – understandably – either qualitative in nature, only touch upon the topic of fertility, or use a sample of selected areas only (Husz 2011).

Our hope is that the database of the Growing Up in Hungary – Cohort '18, with the help of appropriate sampling and a large number of samples, will yield a research report that describes the general situation, and presents the overall attitudes towards having children, along with the circumstances in which fertility decisions are made in Roma families. This would enable us to present features of Roma fertility in relation to data from the rest of the country: the fertility level, the timing of having children along the life course, the social and demographic situation of childbearing families, their considerations etc.

Our goal is to have the question program of the birth cohort study open up the possibility to study the effects of *the family structure at birth* – a classic issue in demography – on various dimensions of child development with modern instruments. The effects of non-traditional families and family circumstances at birth and onwards on the subsequent life (development, well-being, educational success etc.) of the child is a topic that has been present in the science of demography ever since it emerged. As such, there have been several redefinitions of what “*nontraditional*” means and changing interest with respect to the variables to be explained. With this research direction, we hope to align our study with the current international trends of using birth cohort studies in demographic analyses. (In leading demographic periodicals, the topic is discussed by e.g. Mariani et al. 2017, using the database of the Millennium Cohort Study (MCS); by Bernardi – Boertien 2016a, using the 1970 British Cohort Study (BCS70); and by Bzostek – Berger 2017, using the Fragile Families and Child Wellbeing Study- (FFCWS).)

Studies on *the role of fathers within the family* have been receiving more and more emphasis lately, with the number of related publications on the rise. This trend has not yet evolved that much in Hungary. In the first stage of our study, the mothers will be the main source of information about the fathers. The first data to be directly collected from fathers will be when the child is 18 months old. Either by modelling based on the reports on the Australian birth cohort study (Baxter – Smart 2012; Baxter et al. 2012), or possibly by merging two related topics (not separating “traditional” and “nontraditional” fathers), we plan to publish a general report on the situation in Hungary. This would be a descriptive presentation on the role of fathers in families with young children. The detailed report could be published after data collection from the fathers takes place, which places a special emphasis on this data.

A classic research topic of demography is the *intergenerational transmission* of reproductive behavior (number of children, family relations, age for having children; see Barber 2001; Stanfors – Scott 2013; Liefbroer – Elzinga 2012; Beaujouan – Solaz 2016; Kolk 2014). This is not simply an interesting phenomenon in itself but understanding its details helps us understand present demographic trends (e.g. the polarization of society according to the number of children or having children very early) and how the system of society works.

The cohort study – on the condition of some additional retrospective questions, and by measuring partnership dynamics in the follow up period – enables us to map out the correlations between changing attitudes towards marriage and the decision to have children more accurately. This research question also influenced the question program.

SOURCES

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European Fertility and Family Study [Európai Termékenységi és Családvizsgálat]
(Hungary, HCSO)

Generations and Gender Survey [Életünk fordulópontjai kutatás / The Turning Points of our Lives Study] (Hungary, HCSO HDRI)
 Hungarian Longitudinal Growth Study (HLGS) [Magyar Gyermekeknövekedési vizsgálat] (Hungary, HCSO-HDRI)
 Hungarian Longitudinal Marriage Surveys (HLMS) [Házasság nők longitudinális vizsgálata] (Hungary, HCSO)
 Longitudinal Study on Adolescents Mothers [Serdülőkorban szült anyák társadalmi, demográfiai jellemzőinek longitudinális vizsgálata] (Hungary, HCSO HDRI)
 Large Family Study [Nagycsaládok társadalmi hátterének és összetételének vizsgálata] (Hungary, HCSO HDRI)
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CHILD HEALTH AND DEVELOPMENT IN COHORT '18

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APPROACH

Birth cohort studies tend to focus on a variety of topics, but questions about health have proven to be of vital importance. *Describing the health of the child* to be born and analyzing the relationships between health factors and one's sociodemographic background is a key element in the Cohort '18 as well. Prior to tracking the health of the child, the health of the parents also needs to be examined. Thus, the prenatal questionnaire has to include several questions about the health condition and the health behavior of the mothers to be.

The health question set of the Cohort '18 has to include the following three main topics in line with the general practice: *health status, health behavior, and access and use of the health care system*.

The research questionnaire will also have to be prepared to study several related subtopics which we consider to be part of the health and development set of questions. With the average age at first birth rising in developed countries, including Hungary, the importance of various *assisted reproductive technologies* is becoming increasingly important for population fertility. Although this topic receives much emphasis abroad, in Hungary we have no significant data about who seeks medical help to conceive, when they seek help, and what the results of the treatments are. However, this plays a major role both in the trends in birth numbers and in the fulfillment of individual fertility plans. As was already mentioned in the previous chapter, the question of planned or unplanned nature of the child arriving into the family influences how the pregnancy is handled, how the child develops, the quality of the couple's relationship, and the future of the family, all of which are also important for health and development. Our goal is to find out if the parents of children born within the framework of the Cohort '18 had planned the pregnancy, and if they used medical assistance for the conception. In case it was not planned, we seek to determine if the pregnancy was mistimed (the pregnancy was before or after the time planned for) or entirely unintended.

In relation to the field of health – but as a separate element both in content and in methodology –, the questionnaire also measures *psychological factors*. The related concept was established by two studies with a psychiatric and a psychological focus written in preparation of the Cohort '18 (Döme 2016; Lábadi – Pohárnok 2016). The precise and detailed study of peripartum depression in the form Dr. Péter Döme suggested was beyond the scope of this research and will be replaced by a set of items on problems related to perinatal mood- and anxiety disorders. In their preparatory study, Dr. Beatrix Lábadi and Dr. Melinda Pohárnok suggested the survey of the following maternal factors *during pregnancy*: mental health, pregnancy-related anxiety, resilience, social support, satisfaction with couple relationship, couple relationship conflicts and conflict solving methods, and emotional connection with the fetus. These variables are at the focus of the research, although their measurements may differ from what was suggested.

HEALTH STATUS

Several theoretical approaches are adopted relating to health status. In the traditional *biomedical model*, the health of an individual is best described characterized by the presence or absence of illnesses, but nowadays the *functional-adaptive health model* (Ádány 2011) has also become more and more important. It states that some-

one is healthy if one is able to carry out one's regular activities and fulfill one's social function regardless of one's limitations or disabilities.

The well-known definition in the preamble of the 1946 WHO constitution states that health is "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO 1946). Although this is a positive, holistic definition, it is also somewhat idealistic and difficult to implement. It does manage, however, to extend beyond the lay definitions of health.

In 1984, the WHO introduced a new definition: "The extent to which an individual or group is able to realize aspirations and satisfy needs, and to change or cope with the environment. Health is a resource for everyday life, not the objective of living; it is a positive concept, emphasizing social and personal resources, as well as physical capacities" (WHO 1984).

The new definition did not become common knowledge as much as the 1946 version did, and yet newer concepts continue to appear in relevant literature.

According to Larson, four models of health continue to rule the definition of health, and they exist in parallel of each other (Larson 1999).

The first of these is the well-known medical model, which focuses on illness with some refinement: health can be defined by not only the presence of illness, but also by the lack of limitations/disabilities. We should also emphasize here the difference between "disease" and "illness". "Disease" is an objective description noted by a physician about a malfunction of the body, while "illness" is the subjective perception of the individual. The two do not overlap in all cases: someone may have physical symptoms, that he or she does not perceive as limitations, and can have a full life and feel healthy, while another may believe he or she is ill without evident physical symptoms (as in the case of several mental illnesses).

The medical model is certainly an oversimplification, which undervalues social and economic factors relative to biological factors in the definition of health. However, this model has greatly contributed to the development of medical science and to finding cures for many illnesses.

As the second model, Larson highlights the first WHO definition, which is outdated in many aspects, but managed to embed the holistic approach in common knowledge.

Third is the wellness model, which also builds on a holistic foundation (i.e. the unity of body, mind and spirit) and builds on the criticism of the medical model by viewing illness and health not as counterparts but as parallel dimensions. According to the wellness model, health is an inner experience or feeling; that of living a full, fruitful and creative life (Goldsmith 1972, quoted by Larson 1999), a power and an ability, some kind of a reserve that could assist in overcoming illnesses. A high level of wellbeing includes progress towards a high level of functionality, faith in our own prospects and an optimistic view of the future, and the full integration of one's personality into the operational process (Neilson 1988, quoted by Larson 1999). According to Sartorius, health is a state of balance that is established within that individual, and between oneself and his or her social and physical environment. This means that someone can feel healthy regardless of disease symptoms, and health is a dimension of human existence, which can co-exist with the presence of a disease. Thus, the presence of a disease does not unequivocally define the condition of health, although it does affect it to varying degrees (Sartorius 2006).

Larson presents the environmental approach as the fourth model. In this model, health is an adaptation to the physical and social environment, a state of balance that is free of excessive pain, discomfort and limitations. This model has many variants. For example, Talcott Parsons defined health as "the optimum capacity of an individual for the effective role and tasks for which he has been socialized" (Parsons 1972: 117). The stress theory of János Selye belongs here as well. He sees the cause of several illnesses developing as the non-adaptive reaction to environmental stress (Selye 1965).

The Meikirch health model balances between the wellness and the environmental model (Bircher – Kuruvilla 2014). This model defines health as a state of well-being emerging from conductive interactions between an individual's potentials, life's demands, and social and environmental determinants. According to this model, health has three main components: the individual factors (the individual's inherited and acquired potentials and life expectations – these can be biological, mental or environmental, where non-satisfactory individual responses lead to illnesses); the social determinants of health; and the environmental determinants. These factors interact with one another and can influence the individual factors as well. We may talk about health when the individual uses his or her biologically given or personally acquired potentials to satisfy the demands of life in a way that it creates as sense of well-being. This process reoccurs throughout the life course, embedded within social and environmental factors. Thus, the Meikirch model looks at health as a complex, adaptive system. Its advantage is that it is compatible with the health care system and the public health aspirations; built on biological and anthropological foundations it includes the area of balance between resilience, individual integrity and well-being, abilities and goals; and takes the somatic, psychical, social and semiotic dimensions into consideration.

However, the model is limited in other aspects. Due to its theoretical buildup, its components are hard to measure and the instruments presently available need refining, both with regards to measuring health at an individual and population level, not to mention measuring the social-environmental background variables.

Having reviewed the previous studies, we opted for using a mixture of *the biomedical model and the functional adoptive approach* in the Cohort '18. This means that the starting point will be the presence/absence of specific illnesses, but while taking subjective aspects into account. We will ask about limitations/disabilities as well, and consider a generalized approach of health condition too. Because the topic is unique, and the basic goal is to track the children to be born, the health of the mothers is a background factor, and reproductive health receives more emphasis.

HEALTH BEHAVIOR

In 2002, the WHO annual report focused on health behavior, showing that in developed industrial countries over 30 percent of the overall burden of disease results from smoking, alcohol consumption, high blood pressure, high cholesterol and overweight (WHO 2002).

A report by Marc Lalonde about the health of Canadians was among the first major documents that called attention to the importance of health behavior. The Lalonde report emphasized that early death and disabilities can be decreased by prevention. Lalonde introduced a health prevention theory stating that health was influenced by biological, lifestyle and environmental factors to different degrees (Lalonde 1974).

The report highlighted our own responsibility for our health, since our health behavior, including harmful or beneficial lifestyle practices, may lead to the development or prevention of several kinds of disease. Health behavior influences the leading causes of death and the major illnesses, including their development, the effectiveness of treatment, and the quality of life (Behrens et al. 2013; Fisher et al. 2011). Now it seems obvious that the majority of the most common illnesses can be controlled by changing the health behavior (Alwan et al. 2010).

Next to the Lalonde report, the Ottawa Charter (WHO 1986) laid down by the WHO is one of the most important health policy documents. This charter allowed for a positive and holistic approach to health, and laid down a social model of health, calling attention to correlations between health and socioeconomic factors in addition to the individual lifestyle.

In a somewhat narrower sense, Gochman defines the concept of health behavior as the sum of all those behavioral patterns, actions and habits that contribute to sustaining, restoring or improving health (Gochman 1997).

Becker defines health behavior as steps taken in favor of our health, influenced by the context of knowledge, attitudes, practices, norms, available choices and the given situation. Health behavior may contribute to sustaining good health or improving it on the one hand or lead to illnesses on the other (Becker 1974).

Kasl and Cobb (1966, quoted by Glanz – Maddock 2002) identified three types of health behavior: *preventive health behavior*, *illness behavior*, and *sick-role behavior*. Preventive health behavior includes all those activities undertaken by an individual who believes himself to be healthy for the purpose of preventing illnesses or health problems (such as wearing a helmet while bicycling). Illness behavior, however, includes activities of individuals who feel unwell and aim at defining their illness and look for a cure. Sick-role behavior is also related to ill individuals, but its aim is to recover from the illnesses (including participation in various treatments).

We may define health behavior as behavior in relation to or towards health (Glanz–Maddock 2002). The former does not usually target health, but influences the health condition as an unintentional consequence, while the latter always seeks to sustain or improve health in particular.

Health behavior can have several forms, including self-care, use of the health care system, dietary habits, sexual behavior, the use of addictive substances, or risk-taking behavior.

Needless to say, health behavior may change over time, but this change is usually a process, not a one-time, sudden event – even though one may stop smoking from one day to the next –, change usually takes place in smaller steps. Then there is the issue of how permanent that change will be, or how much the individual will revert back to previous habits. According to the rational decision-making theory, the latter is greatly influenced by the perceived net benefit of the action, or how much the efforts will be balanced by the expected return.

In the Cohort '18 questionnaire, we had certain limitations in taking the theoretical models into considerations when formulating questions about health behavior, similar to what we saw in the health chapter. In designating the topics, we focused on smoking and alcohol consumption, exercise and diet, and the body mass index.

RESORTING TO THE HEALTH CARE SYSTEM

In addition to health condition and health behavior, the questionnaire also deals with another health-related field, which is *resorting to the health care system*. Although the Lalonde Report (Lalonde 1974) ranks the effects of the health care system on health rather low, placing it after lifestyle, genetics and the environment, its role is not negligible. Still, this area receives the least emphasis, because using the health care system is well documented during the work of the health visitors.

DEMOGRAPHIC SIGNIFICANCE OF ASSISTED REPRODUCTION

The framework of the birth cohort study also allows us to find out how many children born in a year came into existence through some medical assistance, and what the circumstances of intervention were.

It is a much researched but still undecided question whether or not the delivery circumstances, health condition, and cognitive-intellectual development of children conceived in consequence of assisted reproduction procedures differ from those of naturally

conceived children (Bay et al. 2014; Kettner et al. 2015; Leslie et al. 2003). For example, it has been observed that these children have a lower average weight, and a higher risk of preterm delivery. How much do the mother's higher average age and the higher rate of twin pregnancies – which is among the major risk factors of early delivery– explain this? When checked against these factors, the difference does not always seem to be significant (Ceelen et al. 2008; Kondapalli – Perales-Puchalt 2013).

The cohort study could also study the long-term effects of natural vs. artificial conception and the difference it may make in the health condition and development of the child. If the parent's plans for having children was difficult to realize, how does that influence parenting?

PSYCHOLOGICAL ASPECTS

According to the modern theories of development (e.g. interaction, transaction, ecological and system approaches), the biological and the learned, acquired skills and personality of the child, as well as the family- and wider environment, work in conjunction to shape the development of that child (Bronfenbrenner – Morris 2006; Sameroff – Fiese 2000). One of the psychological theoretical starting points of the Cohort '18 is that several *proximal and distal bio-psycho-social factors* may influence the development of the child in a positive (protective factors) or in a negative (risk factors) direction, and the *vulnerability* or the *resilience* of these children to the risk factors vary. In addition, the differential susceptibility theory may also provide a valuable theoretical framework (Belsky 1997; Boyce Ellis 2005), stating that certain individuals are more sensitive than others on the whole, and thus the positive and the negative environmental factors shape their development in a greater degree. The large-sample longitudinal arrangement may provide a unique opportunity to study these complex interactions.

In the first research wave, we will observe the variables of the *pregnant women*, potentially influencing *the development of their unborn child*. Pregnancy can be thought of as a developmental crisis, which provides an opportunity for identity reorganization (Labossa – Tényi 2017). According to Lederman and Weis (as cited in Pohárnok 2017), the following psychosocial factors affect the outcome of this process: acceptance of pregnancy and adjustment to pregnancy; the development of parental role and parent-child relationship; quality of current and past relationship between the pregnant woman and her own mother; the pregnant women's relationship with her partner affecting her adjustment to pregnancy; knowledge about and sound preparation for the delivery; and the pregnant woman's expectations about how much she will be able to overcome her fear of pain, of helplessness, and of loss of control and self-esteem during pregnancy. All of these factors may influence the well-being of the pregnant woman and the development of the child, and prenatal data collection will allow us to have a glimpse into this exciting process.

In relation to adjustment to pregnancy, we assess the pregnant women's sense of control, mental health and pregnancy-related anxiety. In relation to the development of the parental role and the mother-child relationship, we look at maternal-fetal attachment, and the concepts of breastfeeding and the role of fathers. We also assess the quality of the partner relationship, social support, plans about and preparations for the delivery, and the frequency and sources of prenatal orientation. Examining trans-generational influences would go beyond the framework of the first waves of the Cohort '18.

The *mental health of the pregnant mother* and her distress is a defining variable in relation to the development and well-being of the fetus, and we will try to track it by measuring: general anxiety, pregnancy-related anxiety, depression, and illnesses related to mood and anxiety, diagnosed by a physician. International data indicates the proportion of serious prenatal depression to be around 12.7% (Faludi – Döme 2016), while an-

xiety problems during pregnancy – based on various kinds of research – range between 14–54% (Madhavanprabhakaran et al. 2015). Prenatal depression and anxiety often come together, in comorbidity (Andersson et al. 2006), but we do not have much relevant literature available on this subject. The Edinburgh Postnatal Depression Scale (Cox et al. 1987), a popular depression screening tool, includes anxiety-related items as well – indicating that it is difficult to differentiate between the two during the prenatal period. Previous results suggest that pregnancy-related anxiety is a phenomenon separate from general anxiety and depression as well (Huizink et al. 2004), which can in some cases strongly and more accurately predict subsequent outputs in mother and child (Bayrampour et al. 2016). Several research reports support the negative effects of prenatal distress on the unborn child (Bussi res et al. 2015; Dunkel Schetter –Tanner 2012; Evans et al. 2007; Grigoriadis et al. 2013; Hollins 2007; Togher et al. 2017), including the increased risk of preterm delivery, low birth weight and a lower breastfeeding rate in particular. Pregnancy-related anxiety, and especially fear of delivery correlates with pain perceived during the delivery and having an elective caesarean (Haines et al. 2012). Results of the ALSPAC cohort study indicate that prenatal anxiety significantly affects the neurological development of the child and his or her 4-year-old emotional and behavioral problems (Glover – O’Connor 2002; O’Connor et al. 2002). The review of Bussi res et al (2015) indicates that in studies in which the effects of prenatal stress on children was measured on the basis of pregnancy-related stress and anxiety, stronger connections were found than in studies where the level of stress was indicated by trait-based assessments, life event measures or exposure to natural disasters. Although untreated psychiatric disorders and certain psychotropic medications may influence the outcome of a pregnancy (Labossa – T nyi 2017), a detailed psycho-diagnostic and pharmacological assessment is not feasible.

We will analyze the pregnant women’s sense of control, preparation for and gaining information about the delivery as environmental risk or protective factors for the unborn child. The ALSPAC results indicate that an internal locus of control in the parents corresponds to positive outputs for the children (Nowicki et al. 2017), and it is related to seeking information about pregnancy and breastfeeding. Several studies highlight the importance of obtaining information: the parent’s proper knowledge of child development negatively correlated with parental stress, depression, anxiety, child abuse and child behavior problems (Reich 2005); and parental knowledge or information supply decreases the use of risk factors during pregnancy (Esposito et al. 2015) and affect the delivery outcome (Morton et al. 2010).

Parenting and the parent-child relationship are important drivers of fetal and child development. The lack of an adaptive relationship between parent and child can cause a range of disadvantages during child development, which can lead to emotional deprivation. In the long run, this results in lower performance, more difficult socialization, less independent lifestyle and lower human capital for the child (Amato – Fowler 2002; Bono et al. 2016; Ermisch 2008; Flouri et al. 2017; Gutman – Feinstein 2010; Williams et al. 2010). Parenting starts during gestation, with prenatal attachment and conscious prenatal behavior and investments (Glover – Capron 2017). Growing Up in Australia (Lucas et al. 2010) defines parenting as a complex system of parental behavior that characterizes the daily relationship between parent and child, including the beliefs, attitudes and feelings that underline their everyday communication. During pregnancy, the study of parental behavior focuses on attitudes towards being a parent, with its affective (the feelings of the mother for the child), cognitive (the kinds of thoughts, ideas and plans she has in relation to her child to be born), and behavioral (what the mother does during her pregnancy: diet, exercise, lifestyle) dimensions. We will ask about the actual parent-child relationship and the key variables of the parenting style in subsequent data collection waves. Based on the research results, we expect that parenting attitudes, ideas and plans

will affect the outputs of parents and children later on. Thus, plans for breastfeeding connect with breastfeeding in practice later on (Morton et al. 2010), and ideas about control affect the mother's vulnerability to depression in case of babies with difficult temperaments (Muscat et al. 2014). We will measure the quality and intensity of the relationship between the pregnant women and her child by the psychological construct of maternal-fetal attachment. The results of Andrek, Hadházi and Kekecs (2016) indicate that bonding with the fetus correspond to gestational age and the marital status of the mother; while Sz. Makó and Deák (2014) indicate correlations between the planned nature and acceptance of the pregnancy, prenatal depression and anxiety, and partner relationship adjustment, in addition to gestational age. Longitudinal studies reveal that maternal-fetal attachment predicts postnatal bonding (Rossen et al. 2017) and postnatal maternal sensitivity (Maas et al. 2016).

We also plan to analyze the *social support and the couple relationship quality of the pregnant women* as environmental factors. Social support is an especially important variable in terms of physical and mental health, and it also leads to increased resistance to stress (Ozbay et al. 2007). As a consequence, the social support and conflicts of the pregnant women also correlate with the subsequent development of the child (Collins et al. 1993) and with the level of prenatal depression (Westdahl et al. 2007). Emmott and Mace (2015) highlight the complex impact of social support, and their results indicate that breastfeeding tendencies were higher among mothers of the MCS if they lived in a two-parent household (single mothers were less inclined to breastfeeding). However, a higher level of practical support from partners and grandparents raised the likelihood of an earlier weaning.

In the social block of questions, we will also survey the extent of and financial support from the pregnant woman's network, in addition to her perceived social support. For pregnant women living in a relationship, the form, quality and durability of the relationship is also significant. A committed and happy relationship, especially marriage, shows correlations with subjective well-being (Dush – Amato 2005). In turn, the partnership and possible divorce of the parents also influences the well-being of their child (Amato 2010). The ALSPAC research concludes that prenatal conflicts between the parents and depression are correlating variables that influence subsequent child development independent of each other as well (Hanington et al. 2012). In the Cohort '18, we will survey the partner relationship characteristics in terms of satisfaction with the relationship, the level of commitment, and the frequency of positive and negative partnership interactions.

As much as possible, we also plan to analyze different aspects of father involvement, since the practical and emotional involvement of the father in childrearing is of great importance in the development of the child. Cohort studies in the UK provide several starting points for this topic. On the one hand, it has been concluded that the absence of the biological father during childhood leads to less favorable emotional and behavioral outcomes. Data from the ALSPAC indicates that father absence in the first five years increases the risk of pubertal depression (Culpin et al. 2013). The departure of the biological father during childhood also led to disadvantages among the MCS participants (Fitzsimons - Villadsen 2018), while simultaneously increasing the likelihood of internalization and externalization problems. Both studies underline the importance of socio-demographic and socio-economic variables, along with the significance of the child's gender.

The impact of stepfathers can be another research aspect. In families in which the biological mother's partner present was not the biological father, both the stepfather and the biological mother were less involved in the activities of the child, leading to more unfavorable educational achievements and behavior on the part of the child as opposed to families complete with a biological father (Emmott - Mace 2014). In intact families, early father and child relationship, along with feelings and attitudes about fatherhood (Opondo et al. 2016), positive views on parenting, and the frequency of creative play (Kroll et

al. 2016) proved to be relevant to the subsequent adaptive behavior of the child. In other words, the subsequent well-being of the child was determined more by the psychological aspects of father involvement than by his participation in childcare activities. Naturally, several other background variables can influence father involvement. For example, the mood of the father is of utmost importance. The results of Ramchandani et al (2008) indicate that the early childhood depression of fathers increase the risk of emotional and behavioral problems of children in early childhood, as well as the likelihood of psychiatric problems at age seven.

Our hypothesis is that prenatal distress, the sense of control, social support, partner relationship quality, maternal-fetal attachment, plans and ideas about parenting interact with one another and predict subsequent outcomes for mother and child (including low birth weight, preterm delivery, child development, postnatal distress for the mother, breastfeeding, and parenting). In order to analyze these, the psychological module of the subsequent research waves of Cohort '18 will include a full survey of child development, amended by relevant parental variables, such as the mental health of the parents, the experienced negative life events, partner relationship quality, and the characteristics of parenting. In relation to child development, we plan to survey temperament and certain regulation features at the 6-month data collection, and the characteristics of cognitive, emotional and social development in the early childhood phases. Our long-term goals also include the identification of groups of children who prove to be resilient (individuals who develop properly in spite of risk factors), and variables that support resilience, and can provide the foundation for designing intervention programs in Hungary.

In addition to establishing the longitudinal analyses, the goal of the first research wave is to carry out a cross-sectional study of the variables surveyed to that point, reveal relevant correlations in demography and sociology, and provide approximate epidemiological data in relation to the psychological problems of pregnant women in Hungary. Subsequent research phases will also allow for cross-sectional analyses, including the description of typical and atypical child development indicators on a representative sample.

We will collect information on the majority of prenatal psychological variables by self-administered scales. The methodology of the research and the questionnaires used are outlined in detailed in the methodology description of the preparatory phase of the study (Veroszta 2018) and its appendix (Questionnaires of the prenatal research phase).

SOURCES

Avon Longitudinal Study of Parents and Children (ALSPAC) (United Kingdom)
 Norwegian Mother and Child Cohort Study (MoBa) (Norway)
 Life Study (United Kingdom)
 National Longitudinal Study of Children in Ireland (NLSCI) (Ireland)
 West-Australian Pregnancy Cohort Study (Raine) (Australia)
 Growing Up in Australia. The Longitudinal Study of Australian Children (LSAC) (Australia)
 Growing Up in New-Zealand (New-Zealand)
 Etude longitudinale française depuis l'enfance (ELFE) (France)
 Born in Bradford (BiB) (United Kingdom)
 Millennium Cohort Study (MCS) (United Kingdom)
 Danish National Birth Cohort (DNBC) (Denmark)
 Európai lakossági egészségfelmérés (ELEF2009, ELEF2014) (European Union)
 Országos lakossági egészségfelmérések [Countrywide health survey among the population] (OLEF2000, OLEF2003) (Hungary)
 Listening to Mothers (United States of America)

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IDENTIFYING SOCIAL BACKGROUND EFFECTS IN BIRTH COHORT STUDIES

By Anita Halász, Zsuzsanna Veroszta

APPROACH

The following chapter will review the social and economic problems examined in the study. It will also considering the groups of variables that can provide input data for the other previously mentioned main topics of the study (i.e. demography and health), thereby justifying their inclusion in the questionnaire.

We relied on several sources when setting the boundaries of the social science dimensions for the questionnaire of the Cohort '18. Part of the foundation was provided by *international practices* in birth cohort studies. In this case, we did not start off with the set of variables in the questionnaires, but – since we first sought to lay the theoretical foundations for defining the scope of the study – identified the major social science topics and research questions by looking at the publication output of the studies. These studies did not necessarily have a dominant focus on sociology/economics. In several cases, the birth cohort studies focused on questions of health, socialization, development, etc., and their publications were along these lines as well. The Hungarian cohort study, in contrast, sought to include *current issues* from sociology and economics. While setting the boundaries, we also kept the *temporal* aspects of the longitudinal study in mind. Thus, topics and research questions that were especially suited to a longitudinal design were prioritized, though cross-sectional topics were not entirely neglected.

Social inequalities served as the general sociological theoretical framework in the study. (In this regard, the research program relates to the theoretical background of the British Millennium Cohort Study for the most part, as opposed to studies focusing on development (ELFE), health care (NCBI), socialization (Growing Up in Australia) or lifestyle (BiB) in essence.)

Within the theme of social inequalities, the sociological question block of the Cohort '18 surveys their *manifestations, links and impacts* (transmission). The basic question of the social study module is how social inequalities reveal themselves, and how they operate directly or through indirect mechanisms (get transmitted or compensated for) in the early childhood time period. Consequently, the social background module is inherently more focused on long-term factors as studying the role of the social background often requires a very long tracking time, but nevertheless must be established at the start of the longitudinal study.

Other important questions from an *economic* perspective within the social science approach are: How could the processes outlined above be shaped by public policy instruments? How do current Hungarian public policy interventions influence the development of children? What kinds of new recommendations could we make upon finding out the characteristics of child development more precisely? The overarching goal of the economic focus in the Cohort '18 is to get a more accurate picture about how the income and labor market position of families and households influence child development, through which channels and to what extent, and how state policies can influence these. The expected channels of these influences will vary by age, and the range of policies to be included in the survey will become wider as the children grow (Waldfogel 2004; Waldfogel – Washbrook 2011; Albert 2014).

INEQUALITIES IN SOCIAL BACKGROUND

The sociology block of the study focuses on inequalities of social origin. Thus, our goal is to assemble a set of questions suitable for identifying social inequalities and examine

their impacts. Both the inequalities themselves and their social impact (transmission) can be approached from several theoretical viewpoints and empirical directions. In the case of birth cohort studies, social inequalities are essentially equivalent differences in social origin (since we track the child since the mother's pregnancy). In defining these, we can resort to various measurements on the family's supply of capital, employment situation and social status. We plan to select from the set of variables used in stratification and mobility studies to describe inequalities within the cohort study and conduct the explanatory analyses. These are also vital to create the family's social background index, which will play an explanatory role. In measuring inequalities, we also have to be aware that the early research phase will be predominantly descriptive, but we shall prepare the questionnaire for mobility and social reproduction surveys in the long run. Measuring social origin inequalities, and mobility in particular, will require a sufficient amount of data on institutionalization – which will in some cases mean a longer educational path.

We will approach the *measurement of social origin inequalities* from two directions. In our case, this will be an approach suitable for an integrated (complex), but primarily vertically oriented study (Róbert 2015). The social block of the questionnaire will survey *(parental) employment-based inequalities* (Huszár 2013) and the *parental supply of various capitals*. In terms of the set of variables, measuring the social origin will essentially align with the social class survey scheme developed by Savage et al (Savage et al. 2013), although its methodology and processing method will not follow the research design they developed. Instead of revealing the social class structure, our goal is to put together a set of questions that will capture several dimensions of inequalities in a systematic way.

Measurements based on employment will rely on the exact recording of the (last) employment of the parents (according to the Hungarian Standard Classification of Occupations – FEOR – for ISEI, for example), of economic activity, ownership and the type of employment. The variable set of the EGP classification (Erikson et al. 1979) or the ESeC pattern (Rose – Harrison 2010) can be used for the employment structure itself (Róbert 1997). In a technical sense, the measurement of employment situation will take place with the same set of questions used in the Turning Points of Life Course study, which is suitable for identifying the status of occupations (Ferge 1969). This set can also be used to measure current employment during pregnancy, but it may be beneficial later on as well. Subsequently, other variables will be added to the employment classification of the parents, such as education and income, or even consumption and lifestyle (Bukodi et al. 2005; Kolosi – Pósch 2014).

In surveying inequalities in various forms of capital, we follow the traditional threefold classification: economic/cultural/social (Bourdieu 1983). With regard to economic capital, this means surveying the financial situation, the housing and life circumstances as well, along with income (Fábián 2015). The survey may also collect information on loans and the level of indebtedness. In case of the cultural capital, measurement will be focused on educational attainment, cultural consumption and the extent of what is available. At the same time, measurement of the professional nature of the education level or the quality of the consumption may also occur here. In addition, we will also measure the use of information technology and online tools. In measuring social capital, current Hungarian stratification research works utilizes network analysis and the position generator method for the most part. This measurement tool is suitable for recording both quantitative and qualitative aspects of networks (Tardos 1995). In this research phase, however, we decided on using the basic measurement of social connections, because we have strong expectations about its changes over time (Albert – Dávid 2016).

In addition to revealing various social origin dimensions, the social background block of the questionnaire should also provide variables necessary to create a family background index as an explanatory variable. Obviously, the index can only be formed once the data measured is already available. Nevertheless, the kinds of variables taken from

competence tests in the public education system (proven to be relevant in that sphere) can serve as a basis for its calculation. The background questionnaire of the Hungarian Competence Test includes the parents' level of education, the number of books at home, computer supplies and the recorded disadvantaged status in the Family Background Index (Balázsi et al. 2013). The PISA index of economic, social and cultural status deals with the parental ISEI variable, the educational instrument supplies, the number of books and the family's economic situation (OECD 2014).

Based on this block of questions, the social background inequalities of the children to be born, the distribution of cultural/financial/social capital, plans to have children and family constructions, the it will be possible to investigate the relationships between these inequalities. This will enable the formation of groups, including the identification of disadvantaged groups at birth in families having children.

IMPACTS OF SOCIAL ORIGIN

Because this is a longitudinal study, the sociology block enables us to look at the effects of the above inequalities as well. Here, we aim to *identify the impact of inequalities on children and revealing their related mechanisms* as a long-term research goal.

The inequality dimensions revealed earlier can therefore serve as *input* in identifying the impacts of social origin, while differences in different forms of development and, in subsequent phases, performance can serve as *output* (Sabates – Dex 2012). Looking at the study in a wider perspective, we can certainly enlarge the framework to include studying the relationship between social background and mobility (Bukodi – Goldthorpe 2009; Bukodi et al. 2015). In the long run, the will research enable us to study the processes of capital conversion, (self) selection, resilience, and meritocracy in detail.

In creating the questionnaire, we should provide *output variables* that support the study of both the impact and the process itself (although these are not sociological in essence). Based on the cohort study topics we reviewed, such development outputs can include several variables in the health care block (e.g. birth weight, BMI, height, preterm delivery, nursing, early development and health indicators). As performance outputs, the measurement of cognitive and other skills, competence tests and educational achievement will receive emphasis. Although it does not necessarily belong to this block, connecting early development and later achievement values is also attached to inequality impacts.

Based on the question block, questions such as the relationship between social origin, development and health (Watt – Kelly 2005), birth weight (Joffe 1989), preterm delivery (Snelgrove – Murphy 2014) and thinness/obesity (Pearce et al. 2015; Goisis et al. 2016), and their impact on cognitive development and performance (Sullivan et al. 2013) can also be examined in the medium and long run. When the child enters an institution, all these will reveal themselves as educational and qualification inequalities (Bukodi – Goldthorpe 2013; Breen et al. 2009). At the same time, the impacts of entering an institution can also be analyzed (Esping-Andersen et al. 2012). Examining changes in the inequalities over time will reveal their interconnections, strengthening or weakening mechanisms, and conversion methods (meritocracy and reproduction effects, mobility, resilience, self-selection, selection, glass ceiling, glass floor).

LIFESTYLE AND LIFE PLANNING

In planning the questionnaire of the Cohort '18, the following sociological phenomena may be classified as "soft variables": way of and plans for living, timing, division of labor, satisfaction, consumption, values, perceptions, well-being, life-work balance. Although these factors do not necessarily form a coherent set of phenomena, we treat them as one content unit due to the method of their analyses and their strong subjectivity.

A more precise charting of the social background may make a *consumption and life-style*-based survey necessary, the data of which can be processed according to employment groups as well (Bukodi et al. 2005). In addition to the supply of material assets, the parameters of time management (free time, cultural activity) and the use of housing should also be analyzed. However, most of these data sets are covered by the measurement of capital forms mentioned previously. In addition to measuring supplements and consumption, measuring the lack of these also belong here, the same as they are provided by the measuring instruments of the Turning Points of Life Course study. Based on these, consumption or lifestyle groups can also be categorized.

During the prenatal phase of the study, we would like to lay the foundation of the lifestyle survey with a set of questions about the *division of labor within the family*, opening up a possibility for analyzing realignments in the division of labor with the birth of the child in later phases (Dribe – Stanfors 2009; Kühhirt 2012).

The examination of *plans and their realization* can have an especially important role in the cohort study, due to its longitudinal approach. This method makes it possible to study the relationship between plans and their subsequent realization, with special emphasis on identifying the individual-specific elements of the life course against social-economical differences and impacts. The topic may also include examining the process of life planning itself. The timing of having children, life-work balance and the effects of planning to have children late will accompany these (Miller 2009) and complement the demographic question block. It also would be worthwhile examining planning itself and its influencing factors. Here we will analyze how various ethnic, religious, cultural, economic, heritage, etc. background factors or changes in the marital status affect planning itself (e.g. its time frame) and the specific plans. These research aspects will require a demographic, sociological or psychological approach on the one hand, and allow for the ample use of standard measuring tools on the other (value and attitude scales, well-being or time balance measuring tools etc.).

EMPLOYMENT OF WOMEN WITH YOUNG CHILDREN

This topic of the cohort study analyzes the circumstances and determinants of childhood development. It primarily focuses on the effects of the parents' employment, especially the mother's employment situation, and plans and strategies on having and raising children, on child development (Verropoulou – Joshi 2009). This section of the questionnaire should be formulated in a way that follows the employment aspects of the life course along with questions relevant to the child.

The thematic questionnaire block provides data for studies revealing the employment patterns, determinants, circumstances of *women who decide to have children*, and how those affect child development. The timing of events will be an important aspect in these questions (Hawkes – Joshi 2011). In the first interviews during pregnancy, the most recent employment and some retrospective life course elements will be recorded. As time passes, it will be beneficial to record plans, strategies, and needs/opportunities for later employment, as the longitudinal study allows for their monitoring.

Using *human capital theory* with an economic focus may be more relevant in terms of strategies, investment decisions and returns (Mincer – Ofek 1982; Neidell 2000). This data allows for the analyses of not only the timing of having children across the life course (Jenkins et al. 2008; Spéder 2006) and the subsequent planning of life course elements, but also for the strategic analysis of the decision to have children and complete (further) education (Spéder – Bartus 2017; Engler 2007). The economical approach may also focus on employment plans (and their realization) on a macro level, on identifying standard patterns of employment life cycles and the various structural characteristics of the employment of women (educational differences, employment structure differences,

position, working hours and income differences). The basic aim of this will be to recognize their impact on having children, raising children and child development (Waldfogel et al. 2002; Gregg et al. 2005; Benedek 2007).

In relation to this topic, the examination of the *control and support system* will also be appropriate. As far as its content, this may include the analyses of the relationship between flexible forms of employment, unregistered or atypical employment, the child care system and taking employment and childcare (Blaskó – Makay 2012; Makay 2008; Lakatos 1996).

This database can also yield much relevant data for other studies with a demographic orientation. These may include the relationship between the employment of women and the family structure, its stability, plans for having children, the roles of women etc. (Pongrácz – S. Molnár 2011; Tóth 2000). The employment consequences of having children late, the impact of family structure change on employment (and the other way around), and the issue of planning/taking/dividing employment and work within the family may also belong here (Blaskó 2006; Pongrácz – Murinkó 2009).

MEASURING HUMAN CAPITAL

The economic approach of child development analysis seeks to unravel the production of human capital, where the human capital stock can at all times be characterized by the current measurable outputs of child development²¹ (Cunha – Heckman 2007; Cunha et al. 2010; Heckman – Mosso 2014; Attanasio 2015). This approach examines the way human capital investments (on the part of both the parents and the child) in certain periods during the development of the child shape that development.

During pregnancy, *human capital investment* can go towards the health of the child for the most part (Currie 2009, 2011; Currie – Almond 2011). At birth, one indicator of human capital is health at birth. Economical, public health and psychological research indicates that health at birth is determined by the health of the parents, the physical and mental health of the mother, her health behavior during pregnancy (physical activity, diet, smoking, alcohol consumption), exposure to stress and environmental harms, and the level of social support (Abrevaya – Dahl 2008; Aizer – Currie 2014; Larsen et al. 2013; Raat et al. 2011; Bödecs 2010). In addition, access to the health care system, and the use of health care services are also important factors. These pregnancy circumstances themselves are also determined by the income and employment situation of the parents.²² Thus, the cohort study aims to paint an accurate picture of these circumstances of fetal development.

During gestation, investment into the pregnancy can be interpreted as an investment into the development of the child, and this can be surveyed by psychological measurements about the bonding between mother and fetus. In addition, efforts to gain information about the physical and mental development of the fetus and the small child, and about parental behavior during pregnancy may also be important related variables.

21 Subsequent waves of the Cohort '18 will provide data on the cognitive, emotional and social development of early childhood, including the quality of home environment and the parenting behavior of the parents (Kalil 2015; Kalil – DeLeire 2004; Enslinger et al. 2003).

22 The same variables may also be important input variables for other sociological, public health, and psychological analyses with a theoretical foundation (analyzing the determinants of stress and mental health, along with parental behavior) (Duncan – Murnane 2011). Cognitive and other skills of the parents may affect their income status, employment position, and social status (Brunello – Schlotter 2011). These skills can be surveyed in subsequent waves of the Cohort '18.

MEASURING INCOME

In measuring the income status of the child, collecting a rather wide range of information has to be balanced with the need for a short interview time. Overwhelming respondents with excessively long questioning may negatively influence participating in the study, which can affect both the duration of the longitudinal aspect of the study as well as the scope of studies to follow (Hauser 1994; Duncan – Petersen 2001; Duncan – Magnuson 2003; Micklewright – Schnepf 2010; Canberra Group 2001). Income questions are sensitive questions. In addition, pregnancy affects household income at the time of the interview. Upon considering these aspects, we decided to record both open-ended and categorical data about the *household income from last month*, and the *net total income before pregnancy*. In addition, we will ask about the amount of household income from the past year, along with the kinds of social and welfare benefits received. Regarding the income of the mother, the research will measure the proportion of the mother's income within the total household income in the pre-pregnancy month. In addition to objective, numeric income questions, there are questions about the subjective financial situation and about deprivation experienced by the household.

ACCESS TO PUBLIC POLICY DURING PREGNANCY

As already indicated in the health and development chapter, we have to highlight a specific practical aspect: *low birth weight* as an important determinant in the health, cognitive and emotional-social development, and the educational career of the child later on (Case – Paxson 2006; Figlio et al. 2014; Oreopoulos et al. 2008; Currie 2009, 2011; Waldford et al. 2012). These themselves are our selected indicators of early childhood human capital. Thus, examining these questions is important from not only a public health, but also from an *economic point of view*. Low birth weight determines the cost of state interventions later on, and can lead to substantial social costs (Alderman – Behrman 2006). The fetal origins hypothesis states that during the prenatal stage, important health outputs are determined, and these are less influenced by environmental features later in life (Almond – Currie 2011; Almond – Mazumder 2011). It is still debated whether or not the cognitive impacts of low birth weight weaken over time (Kalmár 2011). By learning about the life circumstances of pregnant women and their health behavior, and by revealing the characteristics of prenatal care, the Cohort '18 can contribute to improve our understanding of the social reasons of low birth weight in Hungary.²³

Right now, three main *public policy instruments* serve to improve the circumstances of pregnant women and their families in Hungary: the system of prenatal care, labor market regulation, and the system of family support.²⁴

The *Hungarian health visitor system* is unique when compared internationally to other programs of *prenatal care* (Ódor 2007): it is universal and covers all children; in several aspects it resembles what international research defines as a successful program (health care professionals reach out to families in their home environment, provide information and offer possibilities that families may find valuable). However, inequalities in access and in quality characterize certain areas of the universal system. Finding out about these and then analyzing their impact requires the study to gain information about the patterns of care and access right from the prenatal period.²⁵

The aim of *labor market regulation* is to prevent discrimination against pregnant women

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 23 For Hungarian research related to this topic, see Balázs et al. 2012.

24 Surveying the impact of the RSZTOP program (Operative Program Supporting Needy People) using EU funds on the life circumstances of pregnant women may also be relevant here.

25 Other possible research in the next wave would be to ask the parents about their experiences in the health visitor system and analyze the quality of it.

and women with young children in the labor market. This includes adapting the work conditions for the pregnant mother (decreasing physical and emotional burdens, environmental strains and the risk of infection), and helping mothers with young children return to employment. The study can analyze how health at birth is influenced by how long pregnant women continue working, what kind of work they do, and when, why and under what circumstances (with what amount of family support) they stop working during pregnancy.

The only *benefit available* during pregnancy, related specifically to the pregnancy itself, is the family tax allowance for the fetus. The study does not attempt to find out the exact amount of family tax allowance, due to the complexity of both the form and the timing of its claim, and because the questionnaire form would not be likely to yield reliable information.

The aim of the study is to facilitate linking the data from the questionnaires to data in administrative databases. To accomplish this, we ask the mother to provide her social security number and give us permission to anonymously link her answers with administrative data for scientific research. The social security number and tax number of the child may also be linked to the social security number of the mother, providing a wide range of administrative data that can potentially be linked to the questionnaire data, which can make additional research possible.²⁶

SOURCES

Life Study. Pregnancy Component, Mother Pregnancy Module (United Kingdom)
 Avon Longitudinal Study of Parents and Children (ALSPAC) (United Kingdom)
 Millennium Cohort Study (MCS). First, Second, Third, Fourth, Fifth and Sixth Survey:
 CAPI Parent Questionnaires 2003, 2006, 2009, 2012, 2015 (United Kingdom)
 Generations and Gender Survey [Életünk fordulópontjai kutatás / The Turning Points of our Lives Study, Wave 5.] (Hungary, HCSO HDRI)
 PISA 2012 Student Questionnaire (OECD)
 Országos Kompetenciamérés tanulói kérdőív 2012 [National Assessment of Basic Competencies, student questionnaire] (Oktatási Hivatal)
 Magyar Osztálykutatás kérdőív 2014 [Hungarian Class Study questionnaire] (Oktatási Hivatal)
 Miből élünk? KSH Lakossági felmérés a háztartások életkörülményeinek feltárására [HCSO population survey to reveal the living conditions of households] (HCSO)
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 Mikrocenzus 2016. Személyi kérdőív [Microcensus 2016. Personal questionnaire] (HCSO)
 Mikrocenzus 2016. Lakáskérdőív [Microcensus 2016. Housing questionnaire] (HCSO)
 KSH Háztartási és Költségvetési Életkörülmény Adatfelvétel kérdőívei [HCSO Household and Budgeting Life Situation Data Collection questionnaires] (HCSO)
 TÁRKI Magyar Háztartás Panel Háztartáskérdőív [TÁRKI Hungarian Household Panel Household questionnaire] (TÁRKI)
 TÁRKI Magyar Háztartás Panel Egyéni kérdőív [TÁRKI Hungarian Household Panel Individual questionnaire] (TÁRKI)
 TÁRKI Háztartás Monitor kérdőív [TÁRKI Household Monitor questionnaire] (TÁRKI)
 Born in Bradford (BiB). Mother's Questionnaire (United Kingdom)

²⁶ For example, the environment pollution load experienced during pregnancy may be measured with the connection of external databases.

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