

# Social Change in the 21st Century

The Institute for Futures Studies (IF) conducts advanced research within the social sciences. IF promotes a future-oriented research perspective, and develops appropriate theories and methods. In addition, IF contributes to the public debate through its seminars and publication activities.

IF is an interdisciplinary research institute, and the research is guided by a research program established by its board of directors. The research described in this document is the seventh research program in the history of IF, and it covers the period 2012–2018.<sup>1</sup> The program builds on IF's previous research, but new topics, methods, and theories are introduced.

The research program consists of a theoretical and methodological core and a number of research modules that focus on social processes that appear particularly important from a futures perspective. During this research program's initial phase, special attention will be devoted to the following three areas:<sup>2</sup>

1. Integration and segregation processes.
2. Demographic aspects of economic development.
3. Value changes and value conflicts.

The theoretical and methodological core makes IF unique, both nationally and internationally. In this document, special attention therefore will be given to the theoretical and methodological approach.

This document is organized as follows: First a brief description is given of the kind of futures research that gives IF its unique identity.<sup>3</sup> Then short concrete examples are given of how the methodological approach will be used within each of the three areas mentioned above.

<sup>1</sup> See <http://www.iffs.se/eng/previous-research-programs/> for a description of the previous research programs.

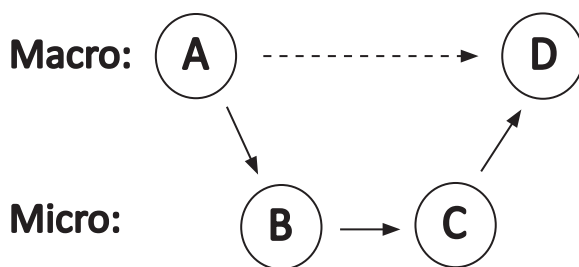
<sup>2</sup> The modular structure gives flexibility and makes it possible for IF to address new issues if called for.

<sup>3</sup> Thus, this document focuses almost exclusively on IF's research activities, but it is important to also emphasize the importance of IF's seminar and publication activities directed at the public at large.

## Futures research as simulation-based social research

IF is a multidisciplinary institution and the theories and methods that we use have their origins in disciplines such as sociology, economics, political science, statistics, mathematics, and computer science. Futures research does not differ from other social-science research in terms of its methodological and theoretical foundations, but often it requires more empirical, methodological, and theoretical rigor. To be able to say something reliable about the future it is essential to understand in detail the mechanisms and processes that bring about the outcomes being studied. In order to do this, it is essential to have access to data of very high quality and to be able to analyze the data in great detail. The type of futures research conducted at IF can be described as simulation-based social research. Based on the results of detailed empirical analyses, simulation models are developed which can be used to assess likely future scenarios.<sup>4</sup>

There is no intrinsic value in using advanced methods, but if the study objects are complex one often needs advanced methods to understand their dynamics. Futures research is complex not only because it attempts to explain and predict large-scale social change, but also because the changes we focus on are macro-level changes, but the mechanisms that explain them are not found at that level. The graph below, based on Coleman (1986), illustrates the relationship.



For example, if we are interested in explaining how the support for xenophobic parties in Sweden have developed over time, D, it seems reasonable to assume that this is partly explained by changes in the level of unemployment and the number of immigrants, A (see e.g., Biggs and Knauss 2011). However, to directly relate A to D would lead to a rather superficial understanding. We must instead consider the links between macro and micro as indicated by the solid arrows in the figure. First we must show how the unemployment rate and the percentage of immigrants in an individual's environment (A) affect the individual's life situation and perceptions of reality (B), and how this, in turn, affects the individual's political preferences and attitudes (C). Finally, we must analyze how individuals' political preferences and attitudes collectively generate the support for xenophobic parties that we want to explain (D).

As noted by Coleman, the link from micro to macro (C→D) has proven particularly difficult to handle. Data and methods exist to analyze how individuals' actions, perceptions of reality, etc. are influenced by their own characteristics as well as various social, cultural and economic environmental factors, but theories and methods for analyzing the collective outcomes that result from the actions of large numbers of individuals is not nearly as developed. The link from micro and macro is particularly difficult to handle when individuals interact and influence each other. In such situations, the observed macro outcomes say little or nothing about the micro processes that generated them. Thomas Schelling's (1978) classic study of segregation processes exemplifies this. He showed that in such situations, even individuals who prefer to live in integrated neighborhoods unintentionally can bring about extremely segregated

<sup>4</sup> See Hedström and Udéhn (2009) for a detailed discussion of the "middle-range" approach that characterizes the research within this program.

markets. The extent of segregation then says little or nothing about the individual motives that generated it.

For futures research, it is essential to understand in detail the intricate relationships that exist between micro and macro, as this affects the reliability of the scenarios that the research produces. The research conducted within this program is based in significant parts on register data on the Swedish population as a whole. We follow millions of individuals over long periods and we examine how their lives evolve and how their life courses are influenced by various social and economic factors and by other individuals' behavior. Our primary interest is not in actions and circumstances of single individuals (B and C in the figure above), but in the collective outcomes that their combined actions bring about (D).

Experimental research is at the core of much of science, but experiments are of limited use when it comes to determining which factors influence different types of macro outcomes (D). We cannot, for example, experimentally alter individuals' attitudes toward foreign-born individuals, and then examine how the prevalence of xenophobic attitudes affects the segregation of the labor market. Other techniques must therefore be used.

In this research program, we use different types of large-scale simulation models (mainly so-called agent-based models) to examine such issues. On the basis of detailed empirical research, we create virtual societies in our computers. The goal is to build simulation models where virtual individuals behave like real people do. When the simulation models have been empirically calibrated, they can be used to derive different

future scenarios. In these virtual worlds, it is also possible to conduct large-scale experiments that for practical and ethical reasons we could not implement in reality. The principle idea is that we make an "experimental intervention" and change some aspect of the causal  $A \rightarrow B \rightarrow C$  process. We then run the simulation again under these altered conditions and examine how the macro outcome, D, is changing. Using such an approach, many policy-relevant issues can be addressed. One example, at the heart of this research program, is how quickly and to what extent the ethnic segregation of workplaces would change if individuals were slightly less likely to move to workplaces with many employees from their own countries of birth than they actually are (and everything else operated in the same manner as in real life).

Within the international scientific community, approaches like this currently receive considerable attention.<sup>5</sup> The empirically oriented part of the research is usually referred to as "computational social science" (see Lazer et al 2009, Giles 2012) and has been made possible by the fact that one now can collect and analyze vast amounts of data about individuals, their actions, and their interactions with other individuals. The data used by these researchers often come from the digital sphere, email, online transactions, Facebook, etc. In this project we will use techniques similar to those used in computational social science, but we will use types of data that are much more relevant for the type of problems that we focus on. An important comparative advantage of Swedish social science is the availability of large-scale register-based data over the entire population, and this advantage will be fully utilized within this research program.

<sup>5</sup> See for example the large-scale EU-based FuturICT project which is supported by IF ([www.futurict.eu](http://www.futurict.eu)). See also Ball (2012).

## Segregation and integration processes

Segregation and integration concerns the extent to which different groups of individuals are in contact with one other, live in the same environments, and participate in the same activities. A high degree of segregation may be a threat to social cohesion and if certain contexts are poorer than others, segregation also implies inequality in living conditions. With increasing international migration, segregation and integration issues will increase in importance and therefore they are particularly important from a futures perspective.

Within the framework of this research program, we study ethnic and gender segregation in a variety of domains such as neighborhoods, workplaces, schools, corporate boards, and occupations. The importance of social networks is a recurring theme in this research. Networks are important for the jobs people get, where they move, how they affect each other, who they marry, etc. In addition to these effects on individuals' life courses, networks also can influence the dynamics of the social system as a

whole. When individuals have close links with each other, cascading effects are likely to be observed and within this research program we will analyze changes in neighborhoods' ethnic composition from such a perspective.

In most studies, the type of computational approach outlined above will be used. We take our starting point in detailed analyses of register data to better understand the processes through which men, women, and different ethnic groups are sorted, or sort themselves into different environments and activities. Then we build agent-based simulation models on the basis of these results and conduct various virtual experiments in order to better understand how different factors affect the extent of segregation.

In addition to analyses of the causes of segregation, we will also study some of its more important effects such as the link between the ethnic composition of neighborhoods and the support for xenophobic parties within them.

## Demographics and economics

Population changes are at the core of many key issues that Sweden and other industrialized countries will face in the future. The composition of the population is constantly changing, but there is a high degree of inertia, which means that we can predict with considerable certainty how the population will develop in the coming decades. For futures studies, this is essential. Individuals' needs and resources vary over the life cycle, which means that the age distribution of the population plays an important role in economic growth, savings, demand patterns, labor supply, etc. Not the least, the age distribution is an important factor for the size of both public spending and revenues.

At the IF, a demographic focus has long been central for understanding the economy and the welfare state, and this will also be the case

during this program period. Register-based empirical research and agent-based simulations will be used to better understand the interdependencies that exist between demographic and economic change. The research will build on the already extensive empirical studies of the relationship between demographics and economics conducted at IF as well as on the modeling work behind IFSIM – an agent-based simulation model developed at IF for the analysis of demographic-economic interactions.

IF participates in an international research collaboration that aims to produce comparable data on generational accounts for many countries (known as the NTA project). Such data are crucial for understanding the impact of the aging population. An important part of the project concerns gender differences and the

need to consider domestic production in order to obtain a better understanding of the processes that give rise to existing patterns in the data.

Within the framework of this research program, IFSIM will be used for innovative

analyses of the processes that give rise to observed differences in generational accounts. The interdisciplinary nature of IF is a strength in this context because the social mechanisms at work are such that they usually do not lend themselves to classical economic modeling.

## Value change and value conflict

Increasing international migration as well as the decreased importance of geographic distances for social interactions and information diffusion result in increased contact between people from different cultural backgrounds. As part of an increasingly globalized world, understanding value changes and value conflicts becomes increasingly important.

The international secretariat of the World Values Survey (WVS) is housed at IF since the beginning of 2012. Standardized questionnaires and nationally representative surveys have made it possible to use WVS data to study values and attitudes in more than 100 countries, which together include nearly 90 percent of the world population. Surveys have been carried out since the beginning of the 1980s, which makes it possible to study shifts in social, political, and cultural values over long periods of time.<sup>6</sup>

In this research program, WVS data will be used in a large number of studies. Some studies, for example, link up with the aforementioned integration theme and explore how the core values of the majority population and first and second generation immigrants in different countries differ from one another, and the extent to which these differences depend on the cultural distances between origin and destination countries.

Other sub-projects will connect closely to the research program's methodological core and develop models to better understand and predict global value trends. One example is a project in which the so-called development-space model (see [www.dev-space.org](http://www.dev-space.org)) is used to visualize, model, and predict value change at a global scale.

## Publication and information activities

The research results will be published in leading scientific journals since the referee controls of these journals are crucial for guaranteeing the quality of the research. Scientific quality is of special importance when it comes to policy-relevant research since such research may directly affect individuals and the way in which limited financial resources are used.

In addition to purely scientific publishing, occasionally IF will in its own name publish books written for a wider audience. These books pre-

sent key research results without going into technical details that are of less interest to others than the researchers working in the field.

IF will also host a large number of seminars where research results are presented and discussed. Some of these seminars are intended primarily for other researchers, while others mainly target people outside the research community. Finally, we will also organize short courses that focus on research results and analytical tools of particular importance to practitioners and analysts in various public agencies.

<sup>6</sup> See [www.worldvaluessurvey.org](http://www.worldvaluessurvey.org) for a detailed description of WVS and see Inglehart and Welzel (2005) for extensive research findings.

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