A.   Object of Research

Over the last century, marriage and the family have undergone dramatic transformations, both in industrialized and less developed countries. Within a few decades, new patterns such as blended families or same-sex couples have emerged, divorce rates have increased, and fertility has gone down. This is also the cause and the outcome of value changes. This joint project aims at leading to new insights onto the mechanisms that drive family transformations as well as to a better understanding of their consequences.

The guiding theme follows the life-cycle of the family: marriage (mating) and family formation (Section 1), followed by development through fertility (Section 2).

Since our project studies topics that are in most cases essentially unexplored, further questions, ideas and additional directions of research - concerning for instance the dissolution of the family, child custody, illegitimacy, etc. - are very likely to emerge throughout the development of the project. We believe that the members of our team have both the skills and the relevant knowledge necessary to transform these new ideas into coherent parts of the project.

1.   Family formation (Main: Mariani, Rizzi - Secondary: Pensieroso)

A first research domain concerns family formation, the main questions being whether people decide to marry (or start a family), when and with whom. Within this broad research area, our team proposes the following lines of research.

1.1   Homogamy in mate selection

Assortative mating across socio-economic status, ethnicity and religion has been extensively studied by social scientists. A modern feature of the observed union and marriage patterns is a higher degree of homogamy, with mating less determined by inscribed characteristics as social class, race or religion, or hazard and more based on educational level. In this part of the project we are interested in understanding how recent transformations in society concerning gender roles affect union and marriage partner. In particular, we will consider as starting point the gap between the women's massive entrance in tertiary education and labour market, and the unequal division of household labour and care. Our hypothesis is that mating selection can become a strategy to reduce this gap.

More precisely, we have three objectives. The first objective is to describe recent trend in homogamy. Secondly, we want to improve our understanding of the mechanisms favouring homogamy, by considering as casual factors both incentives and norms in a gender perspective. Our hypothesis is that, in developed countries, high educated women might prefer high educated men as they usually have more egalitarian gender attitudes. The third objective is to focus on consequences of homogamy. In particular, the following hypotheses will be considered. (i) Homogamy favours the stability of union and marriage. (ii) Homogamy favours changes toward gender equity as couples where both partners are highly educated have more egalitarian practices and they become forerunners of a diffusion process of "good" practices.

1.2   New and old forms of marriage: who is afraid of homosexual marriage, polygyny, and polyamory?

Only a few years ago, marriage in Western societies involved one woman and one man at a time. Recently, some countries have started recognizing same-sex unions. Moreover,

immigration from polygynous countries and changing economic conditions has called for a reconsideration of polygyny, which had long disappeared. At the same time, demands to recognize poly-amorous unions have emerged. Our objective is twofold: on the one hand, we aim to understand which groups of people (women vs men, rich vs poor, young vs old) may lose or gain from the extension of marriage rights. Second, we will question whether a liberalization of civil marriage would bring a loss of value of civil marriage, in favour of religious marriage (still restricted to heterosexual couples).

1.3 Endogamy and comparative development

One major transformation that took place over the last two centuries concern the progressive decline of endogamy and marriage between close kin. We would like to understand why this happened, and whether the differential prevalence of endogamy (in marriage) might have played a significant role in giving rise to differential patterns of economic development across the World. Our hypothesis are that, (i) as early as the 6th century, Western Europe was the first region to experience a rapid decline of endogamous marriage and kin-based social structures, and (ii) the implied liberalization of the marriage market accelerated the take-off towards modern economic growth, while a high prevalence of endogamy limited the ability of Malthusian leaders (e.g. China) to adapt to a new technological paradigm that prioritizes human and physical capital over fixed resources (like land), thus delaying industrialization.

2. Family development (Main: de la Croix, Rizzi. Secondary: Mariani, Baudin)

After addressing the problem of family formation (who marries whom), our attention will shift to the major decisions that newly formed families face, i.e. fertility choices: partners choose whether or not to have children, how many they will have, and when. We will offer a new perspective on each one of these issues, giving particular attention to the gender dimension, i.e. how fertility choices result from the possibly different preferences and incentives of the two spouses.

2.1 Childlessness

Childlessness can either be a voluntary, utility-enhancing life choice for those who decide not to have children, or a heavy burden for those who face the impossibility to experience parenthood. Voluntary and involuntary childlessness are concept that have already been defined and studied by social sciences, with special reference to women. In a recent research, members of our team have stressed that involuntary childlessness can depend on biological constraints (leading to sterility or sub-fecundity), either innate ("natural sterility") or acquired ("social sterility"). Our hypothesis here is that social sterility can be regarded as a measure of poverty and a consequence of underdevelopment. Voluntary childlessness is instead prevalent in richer and more gender-equal societies. Along the development process, involuntary childlessness is expected to shrink and voluntary childlessness to increase. This hypothetical framework can be analysed looking both at the past of developed societies (e.g. through US censuses) and the recent development in the emerging countries (harmonized censuses in IPUMS). A related, and less investigated, topic is the childlessness of men. If rich men can monopolize young women because of explicit or implicit (i.e. induced by divorce and remarriage) polygyny, some poor men may have difficulties to reproduce. The broad objective of this part of our project is to understand the relative importance of voluntary vs involuntary female childlessness by using quantitative theory, and confronting results with social-demographic surveys. We also aim to measure the incidence and the variation of male childlessness, over time and across countries.

2.2 Optimal age for pregnancy

In the last decades the age at parenthood has increased in all developed countries. The phenomenon raises new questions in biodemography and social sciences. Given the limited reproductive span, especially for women, what is the optimal age to have the first child, in order to achieve the desired number of children? Although the major biological constraint concerns the reproductive span of women, the study of likelihood of conception should account of both partners' age (older males may suffer from a declining sexual drive and quality of sperm). The question of optimality can be tackled from the individual point of view, and from the society point of view, although it raises tricky philosophical problems as changing the age of reproduction also changes the identity of who will end up being born. Outcomes of late parenthood should also be evaluated, since it may affect partners' career, health and wealth, as well as child outcomes, in terms of health and schooling.

2.3 Religion and fertility

Couples' fertility choices can be heavily affected by the partners' religion and/or religiosity, as shown by a vast empirical literature. The first issue we address is the identification of the effect of religion on fertility. Various data sources can be used, and a special attention should be devoted to endogeneity problems. Moreover, a key question that is rarely asked is the following: if religion affects fertility, does it do so through because parents belong to a religious group or community which alters their system of economic incentives (for example, through providing help to parents), or because of the norms and values inherent to their beliefs? Our hypothesis is that both might matter, but we are so far agnostic about the relative weight of both mechanisms. Reverse causality can also be investigated: how does parenting affect religious practices and beliefs? Does childbearing increase the degree of religiousness of parents? Finally, we will also study the gender-specific aspects of the religion-fertility link? Our hypothesis to test is that in households where men are the main breadwinner, men' religiousness can attenuate their feeling of being financially responsible and can make transition to parenthood more likely.

A second, different but interrelated question concerns the effect of religion on macroeconomic outcomes such as the pace of the demographic transition, the rise in education and the growth take off. The experience of East Asia illustrates well our research question. In fact, East Asian countries have followed dramatically different growth trajectory since the 50's (for instance, Philippines and South Korea started from similar initial conditions in 1950 but ended growing at very different rates). Religion may be crucial in explaining this kind of divergence. From the family economics literature, we know that there is a tradeoff between fertility and education (quantity vs quantity of children) if religion (or religiosity) increases fertility, it may also slow down human capital accumulation, thus hampering growth.

B.   Presentation of the Team

The team is composed of three promoters: David de la Croix (IRES, porte-parole), Fabio Mariani (IRES) and Ester Rizzi (DEMO). Two junior professors, Thomas Baudin (DEMO) and Luca Pensieroso (IRES), will also be actively involved.

The added value of the project is greatly enhanced by the strong complementarity between researchers in economics and social demography with some input added by philosophers (Axel Gosseries at ETES being associated to the project). While each of these disciplines devotes special attention to the family, they follow different methodologies. Economists pursue a unifying approach, as to time and space, to individual behavior, and look mainly at

how it is shaped by incentives. Often, they consider that the historical experience of today's developed countries is informative about developing countries. Social demographers rely more on the analysis of special cases and micro data, with a strong specialisation into either developed or developing countries, trying to disentangle economic and non-economic determinants of demographic behavior.

In particular, the economists involved in this project are specialists in the fast-growing field of population and family economics. They have the ability to use simple and abstract, yet rigorous, models and analyse the available data using quantitative methods. The social demographers in our team have an extensive knowledge of the available data (strengths, weaknesses of datasets), advanced statistical methods, and related subjects of study such as biodemography.

C.   Organization and Workflow

Economists and demographers are expected to interact at all stages of the project. Family transformations are analysed following the *fil rouge* of the family cycle: from the formation of the couple to the development of the family and its enlargement. In most cases, the interaction between researchers takes the following form. Economists and demographers address a relevant aspect of family changes according to their competences, interests and disciplinary approach, but being nourished by the theories and empirical evidence highlighted by the other field. They build the appropriate framework of analysis, to describe, interpret and explain family transformations. Then, philosophers identify the associated major challenges for social justice, and from the viewpoint of policy makers. Economists and demographers can in turn address ethical issues, by offering new evidence and analytical tools.

Part 1 on marriage is under the lead of Mariani and Rizzi. In part 1.1 they are interested in explaining assortative mating through new lens. Economic crisis, demographic changes and gender attitudes are the main considered explanatory factors of the assortative mating. Part 1.2 is focused on consequences of the raising exogamy in marriage on development, with a broad approach both in time and space. Gosseries will intervene in 1.1 where legal and philosophical aspects of marriage will be elaborated in connection with the other members of the team. The different parts do not need to follow a specific order across time. 1.1 and 1.2 being the largest, we expect them to take the whole four years to complete.

Part 2 on fertility will be led by de la Croix and Rizzi, with key interventions of Baudin for childlessness (2.1), Pensioroso on religion and growth, and Gosseries on religion and pro-natalism (2.3). We will rely on external collaborators for several parts (for example, we plan to involve Aude Pommeret to help us with the option theories used in the optimal age at pregnancy section). About timing, part 2.2 is shorter and more specific, while the two others will last over the whole duration of the project.

A significant part of the budget is devoted to finance three doctoral positions in economics and demography. These grants will not necessarily be attributed to three persons for three years, but, instead, to help forming a larger team of students, being partly financed by other sources. The project will therefore coordinate Ph.d students around one theme.

There is no precise mapping between themes and doctoral students, as we know that such a mapping would not necessarily be sustainable. Depending on their skills and preferences, they will work in one or more topics.

The project has also a strong post-doc component, with two hires for two years. Our experience shows that the post-docs are essential in inter-disciplinary projects, as they have

the maturity to foster collaborations across disciplines. All the hires (docs and post-docs) will be made at the international level. We will try to find persons having a formation in two of the three disciplines represented in this project. This might be optimistic though, in which case we will have a close attention to their openness and interest for inter-disciplinary work.

WP1 : Family formation	2015	2016		2017		2018		2019
Semestre		1	2	3	4	5	6	7
1.1 Homogamy in mate selection								
1.2 New and old forms of marriage: who is afraid of homosexual marriage, polygyny, and polyamory?								
1.3 Endogamy and comparative development								

WP2 : Family development	2015	2016		2017		2018		2019
Semestre		1	2	3	4	5	6	7
2.1 Childlessness								
2.2 Optimal age for pregnancy								
2.3 Religion and Fertility								