ERC Starting Grant 2021
Research proposal [Part B1][1]
(Part B1 is evaluated both in Step 1 and Step 2,
Part B2 is evaluated in Step 2 only)

Complex Contagion of Childcare Strategies amongst Low-Income Parents

CHILDCARE STRATEGIES

Cover Page:
- Tom Emery
- Erasmus University Rotterdam
- 60 Months

Background - High quality childcare greatly improves outcomes in later life. Yet childcare access and usage are distributed unevenly, leading to amplified inequalities in later life outcomes. Parents from low-income households are 50% less likely to use formal childcare services than high-income households and use them when the child is older and less intensely. Research has shown that cost, location, and quality of childcare effects usage, yet policy solutions aimed at removing these barriers have not reduced inequalities in usage.

Aim - In this project, sociological, economic, demographic and social policy perspectives are synthesized within a framework of 'complex contagions' to investigate how the use of formal childcare diffuses across low income populations, with the aim of identifying barriers to uptake in formal childcare.

Approach - This project breaks through the state of the art to more clearly describe why some childcare strategies, that use formal childcare, don't spread to low income households. With a complex contagion, people only adopt a new behaviour if they are repeatedly exposed to it from multiple, diverse actors in their network. Low income households have personal networks with long weak ties and high, multi-layer clustering, that make adopting new childcare strategies unlikely. This project therefore examines how the childcare strategies present in work, family and neighbourhood networks influences the childcare strategies of low income households.

Innovation & Impact - The analysis will draw on unprecedented, linked administrative and survey data to study the diffusion of childcare strategies. Network data are used in combination with multichannel sequence analysis and other longitudinal methods to identify the role of networks in shaping childcare strategies. The project will completely reframe our understanding of not only childcare strategies, but also parallel areas of social policy and the wider study of behaviour diffusion in the social sciences.

[1] Instructions for completing Part B1 can be found in the '*Information for Applicants to the Starting and Consolidator Grant 2021 Calls'*.

Section a: A synopsis of COMPLEXCARE

European Family Policy has had formal childcare at its heart for the last 30 years[1]. *Formal* childcare is defined as care that is provided by an organization (public or private) with a formal arrangement with the parents and excludes childminders [2]. Formal Childcare increases social mobility[2] and improves children's cognitive and emotional development[3], and this is especially true of children from low-income backgrounds[4] and when children are enrolled early in their development[5]. The European Social Investment Model states that high quality, affordable childcare increases female employment, allows couples to realise their fertility intentions and leads to better and more egalitarian outcomes for children themselves[6–8]. Such compelling evidence led to the creation of the Barcelona Targets at the European Council in 2002 and a significant expansion of formal childcare facilities. The Barcelona target stated that 90% of children aged between 3 and mandatory school age, and 33% of those aged under three, should be in formal childcare of high or low intensity.

Despite extensive growth in the availability and use of formal childcare in most countries, the diffusion of formal childcare use has been very uneven[9,10]. High-income households are twice as likely to develop childcare strategies that make intensive and early use of formal childcare as low-income households, raising concerns about a Matthew effect, increasing and reinforcing inequalities rather than reducing them as intended[11]. To explain why observed income gradients in formal childcare use persist even when childcare is heavily subsidized[11], sociological research points to institutional barriers, stubborn gender inequalities and low levels of trust[12] that act as a obstacles to the use of formal childcare and prevent low-income households from accessing its benefits[13]. But these theories are largely speculative and have not been fully tested. It is not well understood *why* low-income households use formal childcare less.

This project answers this question by examining ***Childcare Strategies,*** a broader concept than the cross-sectional definition of formal childcare use. Childcare strategies describe the hours of formal childcare a household uses month-to-month as a child grows from 0 to 5, rather than through a one-time measure. Childcare use cannot be understood at singular points in time, but instead must be viewed within the dynamic context of the household, the parents' employment and the child's own development. I propose a highly ambitious overhaul of the existing research agenda to better describe how childcare strategies based on intensive use of formal childcare diffuse across society and why that diffusion appears to be weaker amongst low-income segments of the population. I deploy an entirely new conceptual framework of ***'complex contagions'*** from network theory and use it to synthesise labour market, social policy and demographic perspectives to describe how childcare strategies are associated with fertility and female employment as described by the European Social Investment model. The re-conceptualisation is enabled by unprecedented, linked network data that draws from administrative records and survey data. Complex, interlinked data enables the network analysis methods to be deployed to better understand inequalities in childcare strategies. The project is structured around three objectives:

1. ***To describe childcare strategies of parents with children aged 0 to 5 in Europe***
2. ***To identify the degree to which childcare strategies are dependent upon the childcare strategies of colleagues, neighbours and families***
3. ***To identify the degree to which the childcare strategies of colleagues, neighbours and families are associated with differences in fertility behaviour and employment trajectories.***

STATE OF THE ART

Formal childcare for young children is central to the social investment model which has dominated social policy discourse in Europe for the last two decades[16]. Yet despite being heralded as a strategy to reduce inequalities, childcare and other family policies disproportionately benefit those who are not socially excluded more than those who are[17–19]. One consequence has been the reversal in the socio-economic gradient in fertility such that high educated couples are now having more children than their lower educated peers[20]. Shifts in fertility behaviours have been brought about by family policies that are especially supportive of relatively high income, university educated couples[21]. The absence of appropriate social policies leads low income couples to defer parenthood or opt out altogether[22]. Esping-Andersen and Billari[13] explain low fertility levels by integrating gender equality theory in social policy and second demographic transition theory. They argue that individuals adapt their norms to a gender equal, dual earner household but institutions and policies lag behind[23,24]. Institutions and policies prevent low-income households from realizing gender egalitarian norms, with childcare a particular obstacle for low-income couples.

[2] For Eurostat definition of Formal Childcare see: https://ec.europa.eu/eurostat/web/products-datasets/-/tps00185

The mismatch between gender egalitarian norms and institutions creates significant strains in organising care for young children and trust in childcare strategies that are reliant on formal childcare is low[12]. Poor access to formal childcare leads to either deferred fertility or significant well-being or career impacts on the parents, particularly mothers[25]. When formal childcare is available, gender equality can be achieved, childcare strategies become sustainable, and couples actively try to become parents or have further children[26]. The qualitative evidence on childcare strategies points to diverse practical obstacles that prevent lower income households from using formal childcare[27,28]. Childcare strategies for low-income households are particularly complex, expensive and fragile. The nature of work conducted by lower income households ,which is more commonly orientated around shift-work, irregular work patterns and atypical schedules, is particularly problematic[29,30]. Access to quality, affordable childcare is also regularly cited [31,32]. Quantitative analysis supports this and there is a large body of evidence suggesting that childcare strategies differ greatly by occupation. Location, costs and quality of childcare are all positively associated with usage, as well as fertility and female employment levels[33,34].

The literature is now highly saturated and has spawned a plethora of policy recommendations and subsequent initiatives[35]. Whilst there is a strong consensus that lowering costs is necessary for increasing use of formal childcare by low-income households, it does not appear to be sufficient. If it was a matter of costs, then there would be no income gradient in childcare use in countries where it is highly subsidised, but these gradients persist even in Nordic countries where subsidies are high. In addition, when low-income households use formal childcare, children start to attend at a much later age than those from high income households. These patterns cannot be fully explained by cost barriers. Usage of formal childcare remains stubbornly low amongst low-income households in a large and diverse number of European Countries[10,36].

Current methods and data appear unable to provide sufficient insights on why low-income households are opting for the childcare strategies that they are and the current state of the art needs to be disrupted[37]. The existing research has clearly identified this persistent income gradient and this project sets out to test a compelling theory on why such a gradient is so stubbornly persistent and how it might be mitigated. To overcome the shortcomings in the literature and address these new challenges, this project radically reframes our understanding using complex contagions of childcare strategies and uses new perspectives, data and methods to advance the demographic and sociological literature and deliver novel solutions and practical policy interventions.

Complex Contagions: Network theory suggests that ideas spread through the population just like a virus[38]. Ideas can easily become pervasive as they spread rapidly through the 'small worlds' created by the long weak ties in society[40]. But new 'ideas' only lead to a new equilibrium if behaviour and institutions also change[13]. This idea is not new, second demographic transition theory [39] and gender equity theory[23] describe value changes spreading through the population as people embrace ideas of gender equality and dual earner households. Behaviours move across networks very differently to ideas. Behaviours are generally only adopted after multiple exposures in what is called ***'complex contagion'***[41]. With complex contagions an individual only adopts the behaviour if exposed via multiple relationships, multiple times or through multiple types of relationships (i.e. through friends, colleagues and family) so that the behaviour is reinforced. This is commonly seen in hard to adopt ideas or behaviours that come with considerable cost such as new technologies or unorthodox approaches[42]. When contagion is complex like this, the likelihood of an individual exhibiting a new behaviour, such as changing their childcare strategy, is dependent on the structure of their local network and institutions. Behaviours spread more slowly than ideas and find it hard to penetrate some sub-populations. The differing speed in diffusion between ideas and behaviours is why 'the Gender Revolution' is incomplete[21]. Individuals of all income levels change their own attitudes about gender equality, but adapting careers, fertility plans and childcare providers is harder unless such changes are pervasive in one's own personal network. Diffusion of new behaviours into various neighbourhoods of a network can be limited by the topography of the network and specific characteristics of local subpopulations [43].

This project examines whether Low-income households have network structures that prevent such diffusion. *Long, weak ties, clustering* and *multi-layered clustering* are specific features of networks which prevent new behaviours diffusing and are commonly found amongst low-income households due to their low mobility and extensive social segregation[47].. This increases clustering, especially multi-layered clustering and contacts with individuals from outside of that network tend to be 'weak'[48].

BEYOND THE STATE OF THE ART

There is a clearly defined societal problem such that ***formal childcare is used least by those that could benefit most.*** This project proposes a bold new conceptual framework that aims to understand *why* this is the case. Costs and persistent inequalities do play a role, but it is clear that this not merely a matter of costs. The conceptual framework here offers 4 new insights into childcare strategies.

1) Unlike current analysis, childcare strategies are formed in an intermate context incorporating a complex meso layer that incapsulates institutional and cultural constraints on behaviour. Childcare strategies have already been shown to be sensitive to employment context, neighbourhood context and geospatial constraints. These are too often lacking in analyses of childcare in the general population.

2) The conceptual framework is highly dynamic and reflects that there is significant endogeneity and path dependency in childcare strategies as they evolve over the child's early life (0-5). This dynamic approach is exceptionally important as it is known that lower income households encounter greater uncertainty and instability, and it has been observed that they defer use of formal childcare until later and use it less intensely.

3) The conceptual framework, as with all network analysis, is appealing because it reflects a general truth about social behaviour in that it is learnt and adapted from others. Empirically this truth has been masked by random samples in surveys and the assertion in traditional frequentist statistics that all observations are independent. This is commonly known as the Stable Unit Treatment Value Assumption (SUTVA). The complex contagions framework corrects this and recognises the interdependency between individuals.

4) The conceptual framework inherits a further advantage from network analysis in that its dynamic nature allows for the modelling of population dynamics such that thresholds can be identified at which behaviours can be become pervasive and reproduce themselves within a population. Such a conceptual framework has high potential for policy analysis as it allows for targeted and efficient policies that ensure certain behaviours to become established and widespread. It is a conceptual framework that allows for analysis that ascends the other side of Coleman's Boat [51].

DATA

Administrative Data: ***Measuring Childcare Strategies:*** Monthly data on childcare hours is available for France, the Netherlands, Sweden and the UK. *These countries were selected as representing four distinct welfare regimes and childcare systems*[49] *and for whom the data was available*. In each country, childcare is treated as tax exempt to some degree and childcare usage is therefore imprinted within the tax records. From this it is possible to derive when formal childcare services are being engaged and with regards to which child, which is crucial for understanding the dynamic and perpetually revaluated nature of childcare strategies. Nevertheless, each country has a markedly different childcare regime[35]. This will provide high frequency, comparative data on childcare strategies which will allow for more accurate measures of how childcare usage varies across households. The project will utilise existing infrastructure provided by ***ODISSEI (NL)***, the ***ONS/ADR (UK), MONA (SE)*** and ***CASD (FR)*** and the ***IDAN*** network which supports cross-national analysis of such data. The administrative data also provides information on employment trajectories and fertility and relationship histories. ***Creating Networks:*** To capture people's networks in a way that will allow for the measurement of their personal networks, a ***Whole Population Network File*** will be used which links all individuals in a population with all their current and former neighbours, colleagues, classmates, family members and housemates. Such a network file has already been constructed and used by the PI for analysis in the Netherlands[50] where it consists of 17 million individuals and more than 1.4 billion ties between them[15]. As part of the project, the approach will be extended to administrative data facilities in Sweden, France and the UK using the same framework. The whole population network file allows for behaviour to be observed moving across the latent structural networks within society for the first time. The development and application of whole population networks is truly ground-breaking, and the project will document and publish the applications of social network methodologies to whole population networks.

Survey Data: There are three main sources of survey data which will be used to conduct analysis. 1) The ***EU-SILC*** contains cross-sectional data on formal childcare usage and is currently used to provide aggerate EU statistics. 2) ***The Generations and Gender Survey,*** which is in the field at the time of writing, provides cross-national and comparative data on childcare strategies, work histories, fertility intentions and work-life balance indicators and will be used across work streams. The data will be available in early 2022 for at least the Netherlands, Germany, France, Czech Republic, Finland, Norway, Sweden and Denmark, with a sample of approximately 5,000 respondents aged 18-49 in each country. In at least the Netherlands and Sweden, the data will be linkable with the administrative data in the project. 3) Finally, a highly ***innovative survey experiment*** in the Netherlands will be conducted using network sampling. Network sampling means drawing a random individual from the population, and then using the whole population network and a random walk process to sample relevant individuals across the initial persons, immediate network[51,52]. In this case 750 women with

children aged 0-2 will be selected in the first instance and then for each woman selected, a random walk procedure will be used to select 30 other women within their network. Both the core sample of women and the network sampled women will then be approached and asked to complete a 20-minute online survey about childcare strategies. The questionnaire itself will include questions on childcare strategies including whether they perceive their colleagues, family members and neighbours as having desirable childcare strategies as well as their perceptions of childcare facilities that are closest to them.

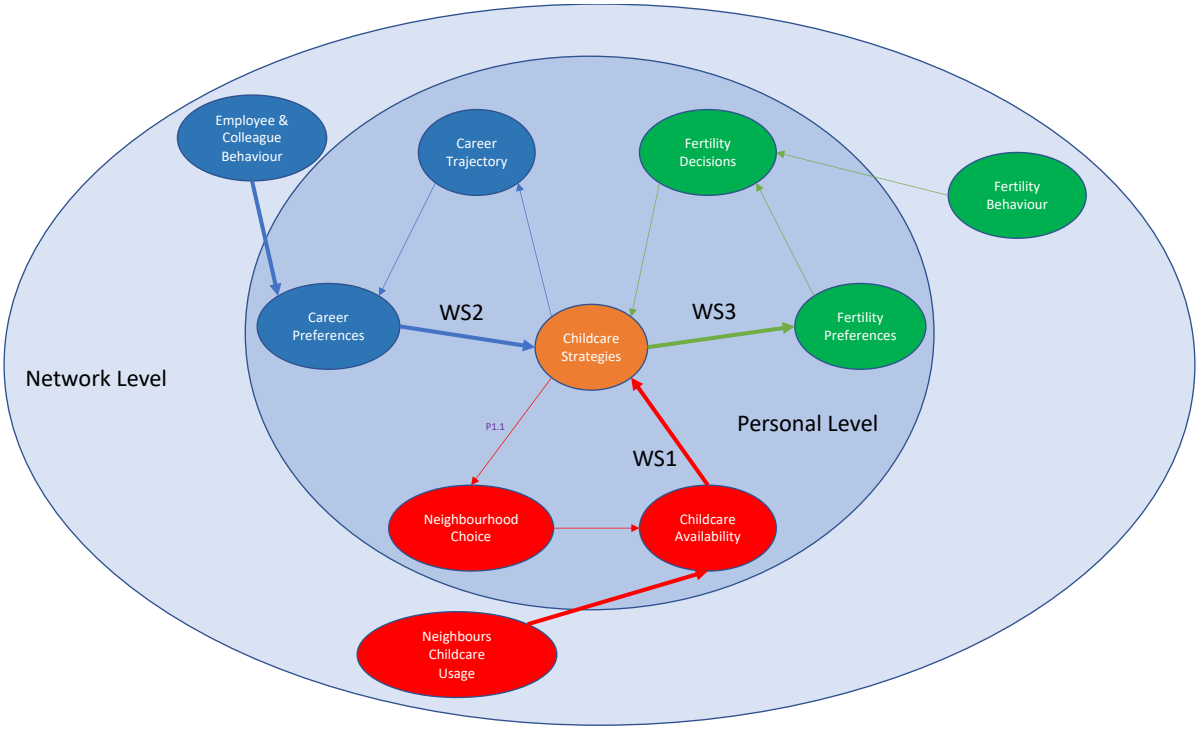

Figure 1 - Dynamic Model of Childcare Strategies

WORK STREAM OVERVIEW

To achieve these innovations, three PhD students will work across four work streams to deliver the projects objectives. The final work stream ***initiates and integrates*** the other work streams by defining and operationalising childcare strategies, integrating methodological innovations and synthesising the results of analyses. The second work stream will look at how ***neighbourhoods*** shape childcare strategies. Neighbourhoods are more than geospatial entities and reflect shared communities that reflect and reinforce social inequalities[52]. Existing research views childcare access as a geospatial issue but here access is reconceptualised as having neighbours that also access that facility, helping identify invisible social barriers to childcare. The third work stream will examine ***labour market trajectories*** impact on childcare strategies and the degree to which specific childcare strategies spread across various organisations using advanced social network analytics. In the fourth work stream the dynamic relationship between ***fertility decisions*** and prevailing childcare strategies will be explored, examining the extent to which the diffusion of specific childcare strategies through a network are associated with fertility intentions and behaviour.

Work Stream 1 – Initiate and Integrate

Research Question "To describe how childcare strategies evolve between the ages of 0 to 5 for parents in Europe" [Objective 1]

The project will be initiated through an operationalisation and detailed descriptions of childcare strategies using the *linked administrative data* from four countries and validated against the *EU-SILC*. This analysis will take place in the first year of the project and will provide the methodological and technical basis for the work conducted by the PhDs'. The analysis describes childcare strategies for children aged 0-5 and how they vary by the household income of the parents, as well as across countries, parities and regions. Throughout the project, the team will synthesise the methodological innovations deployed across work streams into demonstrations and publications, especially on network sampling and whole population network analysis. Finally, this work stream will work across the project to examine how childcare strategies diffuse across networks and whether this explains the low uptake of formal childcare amongst low-income households.

Work Stream 2 - Neighbourhoods

Research Question: "Is the use of specific childcare facilities dependent on an individual's network proximity to parents who already use that facility?". [Objective 2]

The proximity to high quality and affordable childcare has been identified as the main obstacle for parents, especially those with low incomes[53–55]. This work stream builds on these findings to investigate whether an individual's network proximity to a childcare provider moderates the observed effect of geospatial proximity and determines their childcare strategy. This is vital for an understanding of 'access' as barriers to using particular facilities can be as much social as geospatial and methods of analysing access must reflect this [56]. A PhD student will use *whole population network* analysis to assess whether individuals only use childcare providers that are already used by others in their personal network. This will then be supplemented by the *innovative survey experiment* using network sampling to identify individuals within the same communities. Their preferences with regards to specific, named childcare facilities will be measured that helps identify how childcare preferences are structured by local community usage and perceptions over time.

Work Stream 3 - Childcare Strategies

Research Question: "To what extent do childcare strategies diffuse between colleagues and determine employment outcomes for individuals?" [Objectives 2 & 3]

Existing research on childcare strategies and their relationship with maternal and paternal employment is focused on macro and aggregate levels of analysis due to the rarity of high-frequency measures on both childcare and employment that are linkable at the individual level[57–59]. This work stream will utilise high frequency, *linked administrative data on employment and childcare usage* from four countries [FR, NL, SE, UK] using multistate sequence analysis to examine in detail for the first time how the work and childcare strategies of the parents evolve over the first five years of a child's life. These will then be combined with a *whole population network analysis* approach to examine how combined career and childcare strategies diffuse across organisations dominated by employees from low-income households such that there are established shifts in work place norms that accommodate feasible childcare strategies[35].

Work Stream 4 - Fertility Decisions

Research Question: "Is the presence of specific childcare strategies associated with an individual's fertility intentions and behaviour?" [Objective 3]

The decision to remain childless or to reduce the number or children is a legitimate and increasingly undertaken childcare strategy amongst Europeans[60]. Not only that but the reversal in the SES differential in fertility such that high income households have higher fertility than low-income households, suggests that high income households have identified sustainable childcare strategies whilst low-income households are deferring or reducing the number of children in the absence of credible childcare strategies[61]. To examine the relationship between childcare strategies and parity progression, this work stream will use data from the *EU-SILC*, *The Generations and Gender Survey* and *linked administrative data* to examine the extent to which fertility intentions are shaped by exposure to and complex contagion of sustainable childcare strategies.

IMPACT

The project delivers 5 significant innovations: **1)** it provides a theoretical framework that integrates multiple perspectives from sociology, economics, demographics, and social policy. **2)** it provides the first detailed cross-national, longitudinal analysis of childcare strategies at the microlevel. Studies have examined usage of childcare using cross-national survey data such as the EU-SILC[14] but because this stage in life is very dynamic and fluid, this study goes much further to use high-frequency measures from administrative data to see how they shift month to month, using the IDAN network (https://idan.network/) and linking it to comparative survey data. **3)** The project is the first usage of *'whole population networks'* for the study of behavioural diffusion[15]. Whole population networks are multi-layered and large-scale networks of individuals linked to their colleagues, neighbours and family through administrative data. They have huge potential for understanding the evolution of social dynamics and diffusion of behaviours and this project will break new ground in this area. **4)** The project is the first application of *'network sampling'* for the understanding of behaviour diffusion in society. The network sampling uses the aforementioned whole population network as a basis for sampling. An individual is sampled, and then further individuals from the initial individual's network are also sampled using a random walk approach. This allows the interdependency between people's perspectives within the same network **5)** The project also provides a first look at how long-term childcare strategies have reacted to the punctuated equilibrium of COVID-19. Childcare practices have been dramatically affected by the pandemic and it will be vital to closely monitor how parents readjust to life post COVID as current strategies have been completely disrupted by social restrictions.

Section b: Curriculum vitae

PERSONAL INFORMATION

Emery, Thomas
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Date of birth: 25/01/1986
Nationality: British
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- **EDUCATION**

2014 PhD
School of Social and Political Science, University of Edinburgh, United Kingdom
Alison Koslowski, Jochen Clasen
2019 MBA Research Infrastructure Management
EMMRI, University of Bicocca Milano, Italy
2010 MSc Policy Analysis, KU Leuven, Belgium
Department of Government, University of Essex, United Kingdom
2008 MA Global and Comparative Politics
Department of Government, University of Essex, United Kingdom

- **CURRENT POSITION(S)**

2020 – Associate Professor
Department of Public Administration and Sociology, Erasmus University Rotterdam, Netherlands
2017 – Executive Director
ODISSEI, Erasmus University Rotterdam, Netherlands

- **PREVIOUS POSITIONS**

2013 – 2020 Deputy Director
Generations and Gender Programme, NIDI, Netherlands

- **FELLOWSHIPS AND AWARDS**

2017 – 2019 EMMRI Scholarship, Executive Masters in the Management of Research Infrastructures, University of Bicocca Milano, Italy
2018 Basis Kwalificatie Onderwijs (BKO), Erasmus University Rotterdam
2013 Editor's Choice Award, Demographic Research

- **SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS**

Jing Zhang
Grandparenting in China
CSC PhD Grant, Erasmus University Rotterdam, 2017-2021

Damiano Uccheddu
Gender inequalities in health among older adults. A longitudinal and comparative study
Part of the multi-country project "Care, Retirement & Wellbeing of Older People Across Different Welfare Regimes" (CREW) - funded by a Joint Programming Initiative, More Years Better Lives 2017-2021

- **TEACHING ACTIVITIES**

2016 – 2018 Lecturer – Comparative Research Methods, Erasmus University Rotterdam, Netherlands
2015 – 2018 Lecturer – Advanced Quantitative Methods, University of Groningen, Netherlands

2011-2013 Tutor – Research Design, University of Edinburgh, United Kingdom
2010-2013 Tutor – Quantitative Methods, University of Edinburgh, United Kingdom

- **ORGANISATION OF SCIENTIFIC MEETINGS**

2019 GGP User Conference – Paris, France
2019 ODISSEI Community Day – Utrecht, Netherlands
2017 GGP User Conference – Berlin, Germany
2015 GGP User Conference – Vienna, Austria
2013 GGP User Conference – Milan, Italy
2012 The European Network for Social Policy Analysis Conference, Edinburgh, United Kingdom

- **INSTITUTIONAL RESPONSIBILITIES**

2021 – Working Group Member for SHARE 2.0, SHARE
2019 – Advisory Board Member, Netwerk Digitaal Erfgoed, Netherlands
2017 - Consultant, UNFPA
2016 – ODISSEI Management Board, ODISSEI, Netherlands
2013 – 2020 Management Board, GGP, Netherlands
2013 – 2020 Questionnaire Review Board, GGP, Netherlands

- **REVIEWING ACTIVITIES**

2013 – 2015 Editorial Assistant, European Journal of Population

- **MEMBERSHIPS OF SCIENTIFIC SOCIETIES**

2013 – Member, European Association of Population Studies
2016 – Member, International Union for the Scientific Study of Population
2012 – Member, The European Network for Social Policy Analysis

- **MAJOR COLLABORATIONS**

ODISSEI Roadmap Funding:
Lead Author and Co-PI in Dutch Consortium
NWO, Grant Number: NRGWI.obrug.2018.008
€9,300,000 for the period 2020-2024

Social Science and Humanities Open Cloud (SSHOC):
Lead Participant for NIDI-KNAW in European wide consortium
Horizon 2020, Grant Number: 823782
€14,455,594.08 for the period 2019-2022, €448,335.00 of which is allocated to NIDI-KNAW

Generations and Gender Programme: Evaluate, Plan, Initiate (GGP – EPI):
Primary Investigator
Horizon 2020, Grant Number: 739511
€1,996,667.50 for the period 2017-2019, €1,218,335.00 of which is allocated to NIDI-KNAW

Synergies for Europe's Research Infrastructure's in the Social Science's (SERISS):
Lead Participant for NIDI-KNAW in European wide consortium
Horizon 2020, Grant Number: 654221
€8,494,397 for the period 2015-2019, €345,625 of which is allocated to NIDI-KNAW

- **CAREER BREAKS**

May 2019 – Sept 2019 Parental leave for birth of second child.

Appendix: All current grants and on-going and submitted grant applications of the PI (Funding ID)

Mandatory information (does not count towards page limits)

Current grants (Please indicate "No funding" when applicable):

Project Title	*Funding source*	*Amount (Euros)*	*Period*	*Role of the PI*	*Relation to current ERC proposal*[3]
ODISSEI	NWO	9.4 million	2020-2024	Co-PI	Provides Infrastructure

On-going and submitted grant applications (Please indicate "None" when applicable): None

Project Title	*Funding source*	*Amount (Euros)*	*Period*	*Role of the PI*	*Relation to current ERC proposal*[2]

[3] Describe clearly any scientific overlap between your ERC application and the current research grant or on-going grant application.

Section c: Early achievements track-record (max. 2 pages)

INFRASTRUCTURE

Since receiving my PhD in 2014, I have dedicated my time to developing and building two research infrastructures capable of delivering a new generation of social science research in Europe. I have demonstrated research independence and leadership in developing these infrastructures that make the CHILDCARE STRATEGIES project possible. From 2013 – 2020, I was the Deputy Director of the ***Generations and Gender Programme (GGP)***, a cross-national longitudinal survey on fertility and relationships. I redesigned the technical data collection infrastructure of the Generations and Gender Survey and instigated online fieldwork for a new round of data collection which commenced in 2020. This resulted in the first centralized and pre-harmonized data collection within the GGP in Belarus in 2017. I was also the Primary Investigator for a €2 million grant called *'GGP- Evaluate, Plan, Initiate'* which included a large scale, cross-national survey experiment that sought to test ways of fielding the GGP online. The results of this experiment demonstrated the feasibility of such online data collection for demographic research and have redefined the technical implementation of the survey to allow for it. At the time of writing, a full round of data collection is under way or imminent in 14 countries with more expected to participate in the near future. I served on the *Questionnaire Review Board* and helped redesign the questionnaire to better capture life history data and information on childcare providers. The GGP has more than 4,000 users and more than 300 peer reviewed publications that draw on the data. In summer 2021 it is expected that the GGP will be admitted to the European Strategic Forum for Research Infrastructures based on an application to which I was co-lead author, alongside Anne Gauthier. My greatest research contribution and impact since my PhD has been in developing this infrastructure to enable a new generation of projects, such as this one, to be conducted.

Since 2016 I have been the Executive Director of the ***Open Data Infrastructure for Social Science and Economic Innovations (ODISSEI)***, the Dutch National Infrastructure for Social Science. This culminated in the award of a large-scale infrastructure grant in 2020 of €9.3 million, in addition to a further €5.1 million which has been invested by the 40 member organizations that contribute to ODISSEI. I was the lead author and co-PI of this proposal alongside a diverse and exceptionally talented, senior group of research leaders. The centre piece of ODISSEI is the ODISSEI Secure Supercomputer (OSSC)[62]. The OSSC allows for complex and highly sensitive administrative data held at Statistics Netherlands to be analysed on a high-performance computing environment. I spearheaded the development of the OSSC alongside a diverse consortium including colleges at Statistics Netherlands and the Dutch Supercomputing facility at SURF. Since 2019, I have been working with colleagues from Statistics Netherlands on the construction and use of the world's first whole population networks which use administrative records to create large networks of the population[50]. The network links every individual in the Netherlands to all their neighbours, housemates, classmates, colleagues and family members. This creates a multi-layered network of 17 million people and 1.4 billion links. This new infrastructure has therefore enabled unprecedented analysis. The development of whole population networks will have a large impact on a number of fields in the social sciences as it allows for the observation of network phenomena at a population level. Through the GGP and ODISSEI I have helped establish a new empirical base for a diverse range of research areas, including the study of CHILDCARE STRATEGIES which are the subject of this proposal.

RESEARCH

My research has been defined by two interdependent themes: the complexity of family relationships and the limitations of data that measure them. My work on family complexity and intergenerational relations started with my PhD which focused on intergenerational, intervivos transfers. This led to several single author publications. The first was published in Demographic Research and looked at the effect of birth order and the number of siblings on the receipt of intergenerational transfers[63]. This showed that both mattered greatly, even more so than parental income or wealth. The second was published in European Societies and looked at how intergenerational transfers responded to public transfers through social policies and showed that parents transferred more money to their children when they received money from a 'social investment policy' and less money when it was from a 'passive labour market policy'[64]. Since then, my research has continued to focus on the complex interplay between policy contexts and internal family dynamics. I have shown that the receipt of support from parents to their adult children enabled them to have a child[65]. This marked a shift in my research to include the transition to partenthood. I showed that the work intentions of stay at home mothers where very sensitive to policy context in a paper with Anne Gauthier and Alzbeta Bartova on mothers return to work after a child[66]. In work that inspired the design of this project, I then examined how childcare availability shaped the working hours of mothers in the Netherlands using complex linked geospatial data from the Netherlands Kinship Panel Study[59]. I also continued to explore families in a variety of contexts and wrote several papers

on China as part of a collaborative project with Yu Xie (Princeton University), Tak Wing Chan and John Ermisch (Oxford University) and Bernard Nauck (Chemnitz University). In this project, we examined parent – child relationships in China varied depending on the migratory and life history background of individuals and as in my PhD it was clear that meso level contexts had the ability to completely realign family relations[67]. We also saw this in parallel research which we published in the Chinese Journal of Sociology[68] and Ageing and Society[69].

I have pursued a parallel research agenda aimed at improving the quality of data for research on family behaviours that has been closely aligned with my work on various research infrastructures. I have examined the comparability in measures of intergenerational support[70] across international datasets and demonstrated the limitations in comparability and how they can be dealt with. In work published in Community Work and Family with Alzbeta Bartova, I have also put forward innovative new ways of conceptualizing and operationalizing family policy systems in order to better integrate them into fertility decisions[71]. Alongside this I have worked with the OECD to publish their family policy calculator as an Application Programming Interface (API). I have also written and published extensively on survey methods in the field of family sociology and demography as part of my role in the Generations and Gender Programme including assessments of data quality and comparability[72], the implementation and impact of new fieldwork procedures[73] and the impact of COVID on fieldwork and fertility intentions[74]. More recently I have been working with Statistics Netherlands on using whole population networks for measures of segregation between various sub-populations[50] and I'm now working on enhancing the measures of family relationships within these family networks.

In addition to my own research on family complexity and the methodological challenges it entails, I have also supervised two PhD's, both of whom will defend their theses in summer 2021. ***Damiano Ucchedu*** was co-supervised with Anne Gauthier and Nardi Steverink as part of the Care, Retirement and Wellbeing project[4], led by Bruno Arpino. I was Damiano's day to day supervisor. Damiano's thesis investigates gender and socio-economic inequalities in health among older adults, from a comparative and longitudinal perspective. His first paper on the gender differences in later life health across Europe was published in the European Sociological Review[75]. His second paper on the transitions into and out of caregiving in later life and their impact on health was published in Social Science and Medicine[76] and the third paper on joint labour market and family trajectories and their impact on health in later life is currently under revision at another major international journal. The final paper in his thesis is co-authored with Ruben van Gaalen from Statistics Netherlands and uses the facilities at ODISSEI and linked survey and administrative data to study the impact of an adult child's divorce on parental health.

Since 2017 I have also been supervising ***Jing Zhang*** with Pearl Dykstra under a scholarship from the Chinese Scholarship Council. Jing's first paper examined the differences in the demography of parenthood between Europe and China and was published in Advances in Life Course Research[77]. Her second paper examined the complex interdependencies between grandparental cognitive decline and child development amongst grandparents as primary caregivers in China. This paper is forthcoming as part of a collected works edited by Merill Silverstein. Jing's third paper is on the impact of grandparental caregiving on the transition to a second child in China and is under consideration at a major international journal. Her fourth paper is co-authored with Tineke Fokkema and Bruno Arpino and focuses on grandparenting and loneliness in China. It is under consideration at an international health journal. As of summer 2021, I will be supervising my third PhD student who will examine how the decentralization of formal care in the Netherlands has affected informal care provision. This will be co-supervised by Pearl Dykstra and Martin van Hees as part of the SCOOP program[5] on Sustainable Cooperation. The focus on the interactions between policies and individuals within meso level contexts in SCOOP fits well with the CHILDCARE STRATEGIES approach.

I have a proven track record of publishing in leading journals and supporting my PhD students to achieve the same. I have improved data infrastructure and data quality in support of ground breaking research in family sociology. CHILDCARE STRATEGIES builds on this infrastructure to stimulate new research agendas in family sociology, demography, social policy and the wider social sciences. Only I know this infrastructure so intimately and can train a new generation of researchers to exploit it.

[4] crew-more-years-better-lives.org

[5] https://www.scoop-program.org/

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