Registration form (basic details)

1a. Details of applicant

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Use of extension clause (see Notes): no
(if 'yes', give reasons and calculation)

1b. Title of research proposal

For Richer and Poorer: tackling the enduring puzzle of prosociality.

1c. Summary of research proposal (Max. 300 words) – 299 words.

Understanding prosocial behaviour presents a challenge to both the natural and social sciences, from evolutionary biology to economics to psychology. In particular, we have no firm grasp on why there is such **remarkable variation** in the degree to which people display **prosocial behaviour**. This observed variability runs counter to standard economic theory, but existing studies, based on various behavioural economic games (e.g., the Dictator Game), have **focused only on macro-level** (between society) **and micro-level** (between individual) differences. In addition, the majority of studies fail to consider important contextual factors that might influence people's behaviour. Here, I propose that the ongoing puzzle of prosocial behaviour persists because two key contextual variables have been entirely overlooked: **childhood socio-economic position and neighbourhood socio-economic position**. Specifically, I hypothesise that individuals will calibrate their prosocial behaviour to their childhood socio-economic position and environment, rather than their current socio-economic position. I expect **childhood socio-economic position** to be a more relevant predictor of prosocial behaviour than adult socio-economic position, due to the long-lasting effects of early formative influences on people's social behaviour and attitudes. More importantly, I hypothesise that **meso-level, i.e. neighbourhood level**, effects will exert a large influence on prosociality, and may even outweigh individual level effects, due to a sensitivity to local conditions that is used to calibrate individual prosocial responses. I will test these hypotheses via a series of interlinked studies that systematically investigate their likely effects on prosocial behaviour, using a combination of cross-national and cross-neighbourhood designs, next to experimental and longitudinal designs. Advanced, **state of the art statistical modeling** will be used to ensure that effects at all levels, micro/meso/macro-level, are adequately investigated. This project will provide a fuller understanding of prosocial behaviour, in ways that are of fundamental importance to a variety of disciplines within the social sciences and beyond.

1d. Keywords (Max. five keywords)

Socio-economic Position; Prosocial Behaviour; multilevel approach; meso-level; Neighbourhood effects

1e. Current institution of employment

Leiden University (Nov. 1st)

1f. Prospective host institution (If known)

Leiden University

1g. NWO Division (Choose one)

Interdivisional*	
ALW	
CW	
EW	
GW	
MaGW	X
ZonMw	
N	
STW	

*** Explanation of the interdivisional character of the proposal** (only to be filled out if you have chosen to submit your application as interdivisional, 50-100 words):

1h. Main field of research (see notes)
If applicable: other fields of research, in order of relevance

Code	**Main field of research**
45.90.00	Sociology
40.50.00	Social and Organisational Psychology
38.10.00	Micro-economics
46.90.00	Cultural Anthropology

1i. Public summary of your research proposal
(max. 50 words; preferably in Dutch, see notes) (49 words)

Er lijkt veel variatie in prosociaal gedrag: sommigen helpen iemand, anderen niet. Het blijft echter nog steeds onduidelijk waar deze variatie vandaan komt. In dit onderzoek gaan we het belang na van twee factoren voor prosociaal gedrag: socio-economische positie toen iemand kind was én de buurt waarin iemand woont.

Research proposal

2a.1: For Richer and Poorer: tackling the enduring puzzle of prosociality.

The recent crises over 'Brexit' and the sudden influx of refugees into Europe have brought questions of helping and prosocial behaviour to the fore in political debates across Europe. The origins and maintenance of prosociality are issues that have engaged academics in a variety of disciplines, including evolutionary biology[1–6], economics[7–12], social psychology[13–18], and sociology[19,20]. This **multidisciplinary** research effort has revealed that levels of **prosocial behaviour** are remarkably **variable** both within and between human societies[18,21–26], but has not yet explained *why* such variation exists. I suggest the missing piece of the puzzle here is the influence of factors that operate across different temporal and spatial levels, and which have been neglected in studies of prosociality to date. Specifically, I argue that (i) temporal shifts in **socio-economic position** (SEP), i.e., **disentangling childhood from adult SEP**, and (ii) **meso-level influences** (i.e., factors above the individual level) such as **neighbourhood quality** are vital to understand individual decision-making, as these provide the context in which such decisions are made. I propose a linked series of studies that will test hypotheses on these factors using state-of-the-art statistical techniques.

Much empirical work on prosocial behaviour has relied on **economic games**[21,22,25,27]. These are particularly powerful because of their theoretical and mathematical underpinnings focussing on economic benefits to the individual. Research on these games often markedly contrasts with predictions from traditional economic theory, however. For instance, a meta-analysis[28] of over 20,000 economic decisions found that individuals donate on average around 28% of their allocated funds to another (anonymous) individual (Figure 1), whereas standard economic theory would predict 0%[29]. These results were based on a (single shot, anonymous) Dictator Game (DG)[28], in which one of the two players is randomly awarded a stake, and then has the option to donate between 0 and 100% to the other player[30–32]. There is, however, **considerable variation** in the size of donations (Figure 1). Other economic game research has detected reliable individual and sex differences in prosocial behaviour[28,33–35]. Women tend to donate more than men, and the elderly are suggested to be more likely to donate their entire stake than other age groups[28]. However, these are comparatively small effects[28], and the bulk of **variation in prosocial behaviour remains unexplained**[28].

Notwithstanding a series of studies in non-western societies[36], as well as an increase in online studies[37,38], studies on economic behaviour continue to be conducted in laboratories on university campuses and rely on student samples[28]. While this allows testing under standardized conditions, inferences from such samples are problematic[39–41]. For example, the above meta-analysis[28] found that students were less generous than non-students in a dictator game and also showed stark cross-cultural differences, with hardly any offers of 0% in samples of the Tsimané (Bolivia), Orma (Kenya), and Hadza (Tanzania)[27]. This problem is further exacerbated by the **limited variability in Socio-Economic Position** (SEP) in (U.S.) student samples. SEP has recently (re-)emerged as a likely determinant of prosociality (reviews in[42,43]) and currently there is a lively debate on its role in prosociality[42,44,45]. On the one hand, **psychological research** has argued that **low SEP individuals behave more prosocially** than individuals of high SEP, arguably because low SEP individuals might be more dependent on others (e.g.,[42,43,46–48]). Individuals with **high SEP** have been argued to behave strategically in their **self-interest**, presumably due to associations with entitlement and narcissism (e.g.,[49]). Research from **economics** on the other hand has generally found that **prosocial acts** such as volunteering and charitable donations tend to **increase with higher socioeconomic position**[50–55] **or show a curvilinear pattern**[45,56], with those at the lowest and the highest end of the socio-economic spectrum displaying higher levels of prosociality. The field is also divided in how it explains these patterns[45], and explanations refer to both the economic and psychological costs of prosociality, with greater costs for individuals with a low SEP[44]. Recently, in a series of large scale studies, Korndörfer

and colleagues found largely positive effects of high SEP on a range of measures relating to prosociality[45], such as actual donations. This is in sharp contrast with other data from **psychology**, which **documented negative effects of high SEP on prosocial behaviour** (e.g.,[47]). In summary, the research on the influence of socio-economic position on prosocial behaviour remains inconclusive[43,47,57] and suggests that there are other factors intersecting or interacting with SEP to produce this variety of effects.

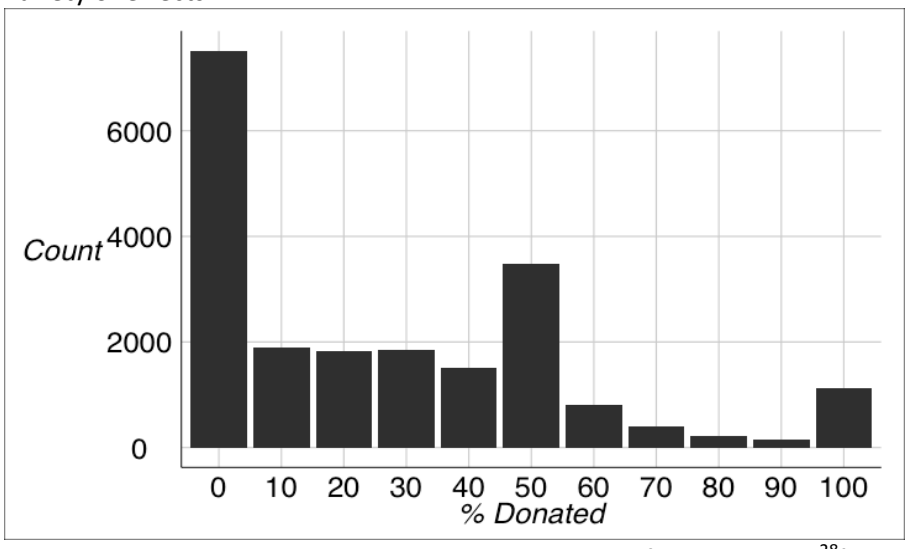


Figure 1: Distribution of 20,813 Dictator Games (redrawn from[28])

Uncovering variation in prosocial behaviour : childhood SEP and neighbourhood level

To reconcile **the mixed findings on SEP**, two gaps in the literature need to be addressed. First, **childhood SEP** should be included in studies of prosocial behaviour given that there may be a significant shift in SEP between childhood and adulthood. As is evident from epidemiological studies[58–63], childhood socio-economic position may have a profound effect on individual outcomes and behaviour, *independent* of current SEP. Recent findings show that childhood SEP influences adult economic behaviour, such as the preference to save or spend[64] as well as how some economic games are played[65]. Given that individuals likely calibrate their behaviour to the SEP environment of their early childhood[66–69], regardless of their current SEP environment, childhood SEP may even matter more than current SEP. Yet, its effect has not been systematically studied. I hypothesise therefore that a potential mismatch between childhood SEP and current SEP can explain many of the current discrepancies in the literature. Our knowledge about the influence of childhood SEP on adult prosocial behaviour remains very limited, and the sparse studies in this area (e.g.,[65]) do not include measures of childhood SEP environment.

Second, factors above the individual level have been entirely overlooked in studies of prosocial behaviour. I argue that the **meso-level, i.e. the local neighbourhood level**, also holds the key to understanding prosocial behaviour. Studies from epidemiology (e.g.,[70–72]), sociology (e.g,[73]), criminology (e.g.,[74]), and educational sciences (e.g.,[75–78]) consistently demonstrate that neighbourhood SEP exerts effects on behaviour, *independently* of individual-based SEP measures. Despite dozens of studies on neighbourhood effects in general, only one study has so far examined neighbourhood effects on individual prosocial behaviour, as measured with economic games. This study covered 16 villages in Central India[26] and, crucially, was the first to demonstrate that differences in prosocial behaviour at the meso-level, between villages, were as large as those observed at the macrolevel, i.e., between societies[27]. Moreover, **village-level characteristics** (e.g., population size) were **more important** for explaining variation in prosocial behaviour **than individual-**

level factors (e.g., contact with markets)[26]. At present, then, the effect of the meso-level is largely unknown, but it seems plausible to suggest that it can account for the observed and unexplained variation in prosocial behaviour in western samples. Thus, the second aim of my project is to fill this knowledge gap via a series of interdisciplinary and multilevel studies on prosocial behaviour, **focussing on meso-level, i.e. local neighbourhood, effects.**

The current state of the literature also prompts the necessity for **methodological innovations**: a true multilevel approach is lacking. Cross-cultural studies comparing prosocial behaviour across societies thus far have typically relied on data aggregation methods (e.g.,[21,27]), pooling individual level data to obtain group estimates for populations, rather than performing **multilevel analyses**. Such aggregate analyses are problematic[79–84], as they reduce the data to a single level. Moreover, they can lead to inappropriate inferences, due to opposite effects at different levels[85]. In addition, previous studies have typically investigated donations in the Dictator Game as a continuous outcome measure, focussing largely on average offers (e.g,[27]), when individuals might arguably make two decisions: whether to donate at all, and once this decision has been made, how much to donate[28,86]. This, then, requires a statistical model accounting for a **two-step decision-making process**, as argued for in a meta-analysis[28]. The mixed results thus far could be due to the lack of differentiation between these two decisions. I will therefore investigate the effect of childhood SEP and neighbourhood level variables on prosocial behaviour using **hurdle models**[87–89] (or Zero-Altered models). This novel approach will allow me to correctly determine whether the effect of SEP at multiple levels is operating on the decision to donate or not, or rather on the amount donated for those who donate, or both but with varying strengths, for example. I recently employed this method for studying the effects of watching eyes on prosocial behaviour and showed that only a hurdle model was an accurate description of the data[90].

General Approach

I propose a series of **7 independent, yet interlocking, studies** that will **test for childhood SEP and neighbourhood effects on prosocial behaviour within a multilevel framework.** The Dictator Game is central to all these studies, and used to assess prosocial behaviour. This game provides an ideal way for gauging prosocial behaviour in a unified framework[28], as unlike for example the Ultimatum Game, it has a straightforward structure and some alternative interpretations can be ruled out[31]. This set of 7 studies will uncover the relative contributions of different levels, i.e. the micro- (childhood/adult SEP), meso- (neighbourhood) and macro-level (national), to variation in prosocial behaviour**.** The first three studies will be conducted using online participants and tackle the **relative contributions of the individual (childhood/adult SEP), neighbourhood, and national level** to DG allocations in a single design. The fourth proposed study is an innovative, **multi-city field study**. In the fifth study, I propose a **novel longitudinal laboratory study** that will establish the relative contributions of different levels (within-individual/between-individual/neighbourhood) to prosociality, the sixth is the first attempt to **experimentally induce neighbourhood effects** on prosocial behaviour, and the seventh study provides an overall synthesis to the field via a **quantitative review**.

Study 1: Establishing the macro-level: Online cross-national study.

Aim: This study aims to establish the **degree of cross-national variation** in the DG and the degree to which national level variables account for DG allocations **relative to individual level variables (childhood/adult SEP)**. As Studies 2 and 3 will examine neighbourhood effects, it is essential to gain an estimate of cross-national differences in order to compare the size of neighbourhood-level effects to an appropriate benchmark.

Method: In this online study[37,91], I will target a minimum of five countries[92] with **150-250 participants per country**, but will aim to collect as many countries as possible. **Multiple indicators of socio-economic position** and inequality at country level (e.g. Gross Domestic Product per capita, Gini coefficient for inequality (and variants), Human Development Index[93](and variants), Multidimensional poverty index[94,95]) will be linked to the data, next to control variables (e.g., population size) obtained via World Bank Data[96] and United Nations Statistics[97]. Participants will provide socio-demographic measures, including a series of both objective (e.g., educational attainment, income) and subjective **adult socio-economic position** (e.g., indicating one's position on the drawing of a ladder with 10 steps representing people with different levels of education, income, and occupational status[47]), next to multiple objective/subjective measures on **childhood SEP** (e.g.,[64]). They will also complete relevant individual differences measures (e.g., personality[98] and the triple dominance social value orientation scale, a measure which reliably predicts prosocial behavior[33,99]). The stake will be a $1, next to a standard fee for completing the survey, which allows benchmarking to other studies[100,101]. The order between survey measures and the DG will be counterbalanced.

Study 2: Testing the meso-level in the U.S.: An online study of local SEP effects.

Aim: For the first time, the effects of **childhood SEP, current individual SEP and neighbourhood SEP** (here: U.S. census tract) on prosocial behaviour are studied in a single study. By combining individual level data collected through an online study and linking these to census-data on neighbourhood factors, this study will provide a unique insight into the independent neighbourhood level effects on prosocial behaviour. In addition, I will also be able to disentangle childhood neighbourhood effects from adult neighbourhood effects.

Method: Via an online survey[37,91], data from 500-1,000 respondents will be collected (sample size based on estimates from Gallup Poll[102] and other polling organisations[103]). Participants will provide their **current zip code and their childhood zip code(s)** (i.e., detailing where they spent the majority of their time living as a child, 0 to 18 years). I will link these zip codes to census-level indicators of socio-economic status (as done by e.g.,[104]). Using census.gov[105], in addition to other available sources (e.g.,[106,107]), I will add neighbourhood socio-economic data from census tracts to our dataset (akin to[104]), next to control data (e.g., population size/density[108]) to investigate if neighbourhood variables exert effects on prosociality, independently of individual level factors. These census tracts have been developed by the U.S. Census bureau and aim to capture a relatively, small geographical unit of around 4,000 individuals (ranging from 1,200 to 8,000 individuals) and allow for comparisons throughout time[105]. Given that there is ongoing debate on optimal geographical predictors (e.g.,[109]), I will also examine higher level indicators (county, state), next to relying on multiple measures of neighbourhood SEP (e.g., those in[104], such as unemployment, % below poverty line). As in Study 1, participants will provide socio-demographic measures including a series of both objective and subjective assessments of adult and childhood socio-economic position. The key outcome measure is a DG played with the same stakes as Study 1. The order between the DG and survey measures will again be counterbalanced.

Study 3: Testing the meso-level in the U.K.: An online study of local SEP effects

Aim: This study will establish the **relative contributions of the individual level and neighbourhood level** on prosociality, but will also allow for testing the **relative impact of a larger meso-level**: a north-south divide, along which there is a clear socio-economic gradient (e.g.,[110]). A comparative test of neighbourhood level effects versus a larger meso-level effect on prosocial behaviour has never been conducted. Finally, this study also allows for a direct comparison with the U.S. (Study 2), using a sample of similar size (minimum N=500, maximum N=1,000).

Method: The method of this study is comparable to Study 2, but it relies on U.K. **postcodes**. Postcodes can be used to reliably ascertain neighbourhood SEP[111,112] (e.g., index of multiple deprivation[113]), next to other relevant characteristics (e.g., urban/rural status). I will account for potentially confounding variables (e.g., urbanization), and crucially also test for effects of larger units: i.e. investigating how much of variation in DG allocations can be explained by a 'simple' North/South gradient across the U.K.[110].

In conclusion, this set of three studies will for the very first time examine the effects of the **micro- (childhood and adult SEP), meso- (especially, neighbourhood), and macro- (national) level in a unified framework**.

Study 4: Between- and within-city variation in prosociality in the Netherlands

Aim: This study will **establish neighbourhood effects, independent of individual effects (adult and childhood SEP), on prosocial behaviour in a field setting**. It will provide us with valuable insight in how **allocations in the DG vary between and within Dutch cities**. Thus far only one field study, limited to two neighbourhoods from a large U.K. city has been conducted[114]. This study documented a difference in donations between two neighbourhoods (one affluent, one deprived) as large as the difference between a Hadza (Tanzania) and a U.S. sample. This study did not, however, test the relationship at different levels of analysis, and we urgently need a study conducted in multiple cities. Only in this way can we differentiate a neighbourhood SEP level effect from an individual level (adult and childhood SEP) effect. The current study can achieve that goal.

Method: In this field study, the **DG approach will be applied across multiple Dutch cities**. It is based on the previous successful field study[114]. Addresses from neighbourhoods will be randomly selected and individuals will be mailed a self-report survey containing detailed socio-demographic items, including measures relating to both objective and subjective socio-economic status (which I will adapt, see measures in Studies 1-3 and[115,116]) – these will cover **both childhood and adult SEP**. At the end of the survey, participants will be informed that they will receive a sum of money for completion of the survey but they can allocate any of these funds to someone else. It is explained that they can choose to donate any amount to a randomly chosen stranger in their neighbourhood (a DG). This research will not involve any deception and I will mail the allocated money to randomly selected addresses from the register. A stake of €10, similar to[114], will be used.

After conducting a pilot study in 1 city, we aim to collect data from 5 to 8 major Dutch cities (minimum population >100,000). The choice for 5-8 cities is based on feasibility next to statistical considerations (albeit based on countries[117]). The identification of low versus high SEP neighbourhoods will be based on municipal and/or national statistics data (e.g., http://www.buurtmonitor.nl/). I will match the neighbourhoods as closely as possible based on factors other than average SEP (e.g., neighbourhood size). In addition, I will model the relevant neighbourhood variables (e.g., urbanisation), which could confound the relationship of neighbourhood SEP on economic decision-making. Based on the previous study, I will target around 75 addresses from an affluent and 75 from a poor neighbourhood (**n=150 per city**).

Study 5: Do individuals adopt the economic behaviour of the neighbourhood they move to?

Aim: This study aims to quantify the **relative importance of meso-level** (neighbourhood) effects in comparison to macro- (between- and within-nation variation) and micro-level (between- and within-individual variation) effects on prosociality in a **longitudinal setting**. The studies described thus far can identify meso-level associations with prosociality, but cannot assign any causality to any relationships found. One way to potentially address causal influences is to conduct a **novel, quasi-experimental longitudinal study**. I predict that individuals who move to comparatively worse neighbourhoods in the Netherlands will behave less prosocially compared to those moving to a relatively better neighbourhood. These neighbourhood effects are predicted to occur independently of other level variables. In addition, I will test for a **potential mechanism** via which neighbourhood effects could operate: **acculturation**, i.e. individuals likely assimilate more in 'better' neighbourhoods, which in turn increases their prosociality.

Method: This **longitudinal study** will track international Ph.D. students attending university (e.g., via the international connections at Leiden university, which has longstanding collaborations via the Erasmus Mundus programme), and a Dutch Ph.D. student control sample. Data will be collected for 4 measurement moments, during a **period of 24 months** (i.e., at 6 month intervals), during which some will move to different neighbourhoods. Participants will first complete measures on **childhood/adult socio-economic position at the individual level and neighbourhood level** (zip code), individual differences (e.g., social value orientation[33] and personality[98]), next to a multidimensional acculturation measure. This measure consists of a series of scales measuring the degree to which an individual takes on the attitudes, norms, and behaviours of a host culture[118,119]. This acculturation measure will be pilot tested, as there is considerable debate about the measure(s) best capturing acculturation[118,119]. Allocations in the DG are the outcome measure. The instructions, stake, and experimental setup will be piloted in the psychology laboratory, which allows for double blind experimentation in a cubicle setup. Given that participants will provide details on **the neighbourhood** in which they currently reside, I can link this to **Dutch census data** to obtain meso-level neighbourhood measures (e.g., buurtenmonitor.nl). In addition, I will add **home country-level indicators**[96], and, where possible, finer-grained measures (e.g., province-level) to the dataset. A minimum of 180 participants will take part (30 participants of 5 different nationalities with a diverse geographical spread (e.g., Indonesian, Brazilian)) and a control sample of 30 Dutch Ph.D. students).

Study 6: In your own eyes: Can we induce a neighbourhood effect on individual prosocial behaviour?

Aim: In this study, I aim to experimentally test if **brief exposure to a particular neighbourhood influences prosocial behaviour**. Based on a previous study which found that individuals' trust and paranoia levels already changed after a brief visit to a low SEP neighbourhood[120], we expect that exposure to a low SEP environment will lower prosocial behaviour but contingent the participant's SEP.

Method: This study has a **mixed longitudinal design**. A non-student sample of minimum 160 individuals will take part. When signing up, individuals will complete relevant measures on childhood and adult SEP and individual differences (see Studies 1-5). Individuals will take part in two sessions one month apart, for which they will be **randomly assigned to a high SEP vs. low SEP neighbourhood** (from Study 4). With a GPS tracker, I will verify that individuals have completed a 30 minutes walk, after which they play a DG. The procedure will be piloted with a student sample.

Study 7: Synthesis: Estimating variation at multiple levels and SEP effects at various levels in the DG.

Aim: The final study provides a synthesis of both the proposed studies and previously published work, and will quantify both the **degree to which each analytical level accounts for variation** in prosocial behaviour as well as the **strength of the effects of both adult and childhood SEP.**
Method: My studies, next to other published studies (reviews in[25,27,28]), will allow me to **estimate the size of the variances at the different levels of analysis** that potentially can explain behaviour in the DG. A quantitative review (meta-analysis) will cover all available studies. This will allow me to produce estimates for the partitioning of variances at various levels, as well as the contribution of socio-economic position at these various levels.

Taken together, this project will thus provide a **global overview of the importance of SEP at multiple levels**, and further our understanding of the proximate factors and possible ultimate explanations that can account for prosocial behaviour in modern western industrial settings[121].

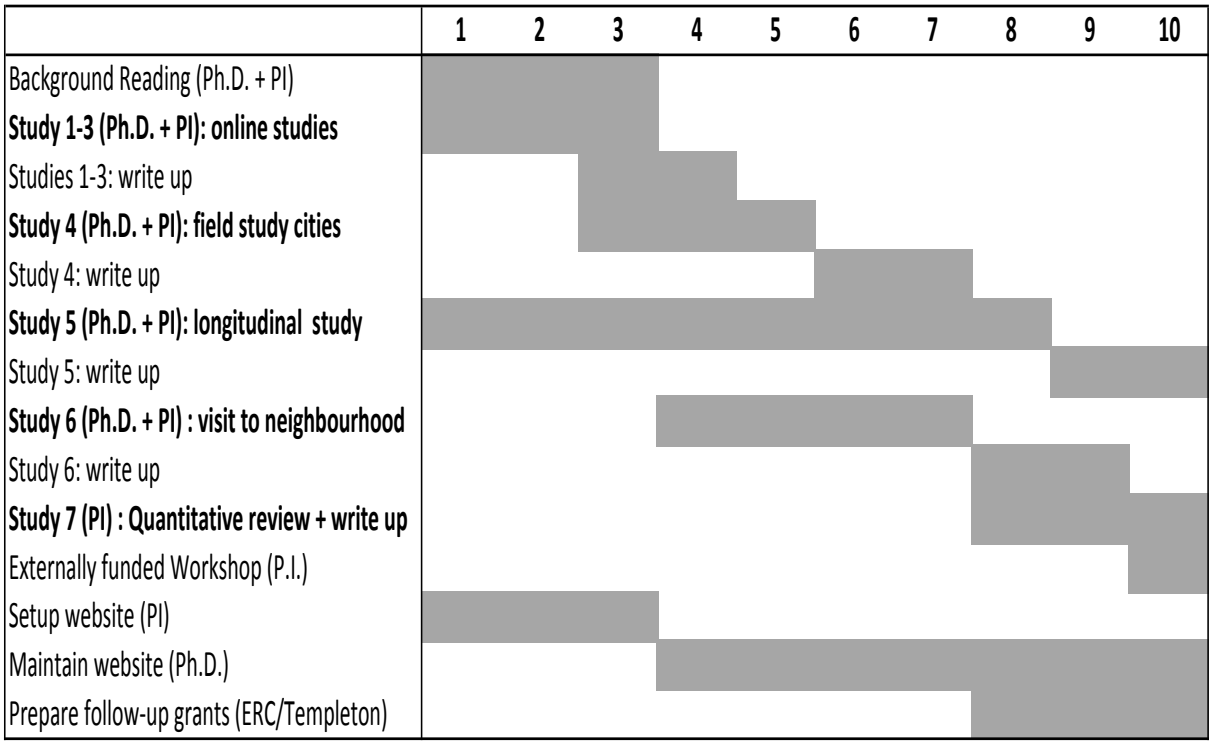
Analytical strategy

The innovative multilevel studies I propose require **state of the art analyses**. The data will therefore be analysed using a recently developed Bayesian generalized mixed-modelling framework (MCMCglmm/glmmADMB) in R[117,122,123], via hurdle models[28,88,89,124,125]. It is clear that the data from Figure 1 have a very peculiar distribution and this alone prompts the use of novel methods. Indeed, I have analysed the data from Figure 1, which made clear that a hurdle model outperforms other candidate distributions (e.g., Gaussian/Poisson/Tobit)[126]. In addition, I have previously employed hurdle models in studies of prosocial behaviour[90]. I opt for **Bayesian statistics** as they have been used in this research area before[26] and appear to have **better properties for estimating random effects** in multilevel models[81,127]. Moreover, it has been argued recently that this matters for cross-national comparisons[117]; a point that applies similarly to neighbourhood effects. The evidence for each statistical model will be quantified via fit statistics[89,128–131] and, rather than a single outcome/result, I will describe the **relative strength of competing models** (e.g., with and without a neighbourhood level effect). Various weighting procedures will be employed for Studies 1-3, in order to ensure the representativeness of the data sampled. Non-response could be a cause for concern, particularly for Study 4. Therefore, I will ensure I also model non-response, instead of assuming 'missing at random'. Study 5 has a longitudinal component which can also be analysed via MCMCglmm/glmmADMB with a pre-specified covariance matrix[132]. In addition, structural equation modelling, in particular latent growth curve modelling in R (Lavaan[133,134]), will be used to assess longitudinal changes. Study 5 potentially may have selection biases (i.e. individuals selecting themselves into certain neighbourhoods), but I will model such scenarios (e.g.[135,136]). In Study 7, the meta-analysis, can be accommodated in MCMCglmm/glmmADMB as well[122,123,125], next to analyses via 'metafor'[137,138] in R.

2.a.2 Planning and collaboration

Figure 2 summarizes the timeline for the studies and the division of the work packages. Throughout this project I will collaborate with international experts, and I can draw upon my large international network of collaborators, for example in Oxford (e.g., Burton-Chellew/Dunbar), UCL (e.g., Raihani), Newcastle (e.g., Nettle/Roberts), Lethbridge (Barrett), as well as across disciplines (psychology, anthropology, economics, sociology). In addition, I am embedded in a research group at Leiden University, which is world-leading on the topic of economic games and prosocial behaviour (De Dreu, E. Van Dijk, W. van Dijk) and in turn has connections with world-renowned experts in this field (e.g., Fehr, Gächter, Henrich, Rand).

Figure 2: Gantt chart summarizing planning



***Notes**: number corresponds to 6 month block; Data collection periods bolded (includes piloting)*

Studies 1-3 will be combined into a larger paper

Studies 4-7 will be stand alone papers

2b. Knowledge utilisation

Scientific impact

The origins of human prosociality represents one of the most vibrant and dynamic interdisciplinary research topics across the natural and social sciences. To give but one example, a paper in *Nature* on human altruism attracted 900+ citations in Web of Science in little more than a decade[12]. The reasons why are not hard to see: human prosocial behaviour captures the broad interest of a large and multidisciplinary research community. Despite this tremendous research effort, however, we know remarkably little about the factors that underpin the variation seen in human prosocial behaviour. By focusing on two key, but neglected factors, **childhood socio-economic position and neighbourhood socio-economic position** (2a1), this project will fill that gap. This set of seven novel, interlinked studies will significantly advance our knowledge across a whole range of disciplines, from psychology and economics to anthropology and evolutionary biology.

As the findings of this project will be of interest to researchers from such a diverse array of disciplines, I aim to publish this work in broad-based, **interdisciplinary journals** (e.g., *Proceedings of the National Academy of Sciences, Behavioral and Brain Sciences*). Results will also be **presented at large interdisciplinary conferences** such as HBES (www.hbes.com). Finally, my work typically receives attention on widely-read **academic blogs** (e.g., Psychology Today).

Toward the end of this project, I will also organize an **interdisciplinary workshop supported via external funding** (e.g., via www.ehbea.com and/or Templeton Foundation). In addition, we will develop a series of **podcasts** in which we discuss our findings, next to conducting interviews with renowned sholars in this area.

Societal impact

The insight generated by this project has potentially important **implications for policymakers, managers of non-profit organizations and charities, and the general public**. The most obvious societal impact is via **knowledge transfer**. Questions regarding human prosociality and cooperation lie at the heart of public life in all societies, and there are ongoing debates about the damage caused by social inequality and a lack of prosocial, other-regarding behaviour. Understanding what prompts people to show strong preferences for the welfare of others, and what leads them to display strong individualist tendencies, is vital to good policymaking. For example, there have been a number of heated debates about the (dis)honesty of bankers in the Dutch media[139,140], as well as discussions of solidarity within Europe more generally (e.g.,[141]). The issue of European solidarity is also seen as a key issue in tackling the current Syrian refugee crisis[142] and Brexit. Despite the central importance of such discussions, we lack the data needed to explain why prosociality varies across space and time: we currently have no means of identifying which factors exert the greatest effect, and at which level (individual, meso- or macro-) they occur. For example, the framing of the debate over prosociality in Europe tacitly assumes that differences in prosocial behaviour are much larger between the Greek and Dutch population than differences within the Dutch population (e.g.,[143]). However, there is no hard evidence to support such an assertion, either within or across the Netherlands and other nations. As the correct framing of this debate is crucial to deriving suitable policy recommendations and ensuring good governance, we urgently require data at multiple levels within and across different societies. This project can supply the required data in an integrated fashion. The findings of this research, especially the results of the final synthesic study (Study 7), are thus highly relevant to policymakers and other stake-holders. These data will provide the necessary insight into the levels at which policy initiatives would be most productively targeted in order to increase prosocial behaviour

within society and foster it between societies.

Knowledge transfer of my findings will be achieved as follows. First, I will ensure a wide dissemination via **coordinated press releases,** in collaboration with the Leiden press office and NWO. Previous work has been covered broadly in the **national** (e.g., de Telegraaf) **and international press** (e.g., The Guardian, The Economist). Over a 100 popular press articles have been written on work which I have (co-)authored. I have no doubt that findings from the current project will receive **broad media exposure**. Second, to reach a broader, non-academic audience, **podcasts** will also cover the findings from the current project. These outlets attract a large lay audience (e.g.,[144]). Third, I will maintain a **website**, containing accessible summaries of the research and open access papers. Fourth, I will use **social media** to maximize exposure of the findings of this project. I actively **twitter** on recent research activities in my field, and press releases on research are actively promoted via the university's twitter account.

The knowledge gained from this project will also be made available to **non-profit organisations, and can be used as part of their fund-raising initiatives**. For example, in our Templeton Foundation-funded project, 'watching eyes and charitable donations', we have been collaborating with local and national volunteering and charity organisations (e.g., Amsterdam Cares, Giro 555 (Typhoon victims), Voorlees express) to better design interventions that nudge people towards charitable giving options. In the project outlined here, I will continue to work with these organisations, and I will also make use of the NIBUD (National Institute for Family Finance Information), which provides an excellent interface with numerous charities. I will actively collaborate with such bodies in order to maximize knowledge dissemination, as well as gather input and ideas from charities themselves. By partnering with these charities and devising **better strategies and interventions for** eliciting **prosocial behaviour**, we can implement initiatives that allow them to more effectively achieve their long-term goals, to the benefit of society as a whole. In particular, insights into the relative effects of individual versus neighbourhood variables will provide these organisations with crucial information on whether their **strategies should be individual or community based**. The aforementioned interdisciplinary **workshop** will be **open to** both scientists as well as practitioners from the **public**, in particular charities.

In summary, this project delivers tangible insights on human prosocial behaviour which will benefit, **the public, policymakers, charities, and, as a consequence, society at large**.

2c. Number of words used: section 2a _____3,988____ (max. 4000 words)

Number of words used: section 2b _____998____ (max. 1000 words)

2d. Literature references

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142. Nieuwsuur (NOS). Vluchtelingencrisis groeit Europa boven het hoofd [Internet]. 2015. Available from: http://nos.nl/nieuwsuur/artikel/2056100-vluchtelingencrisis-groeit-europa-boven-het-hoofd.html

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Cost estimates

3a. Budget

The maximum amount of a Vidi grant is € 800,000 spread over a period of 5 years. If the proposed research is of shorter duration, the maximum amount will be reduced accordingly.

	Description			Year 1	Year 2	Year 3	Year 4	Year 5	Total
Staff		**FTE***	**Months***						
WP*	Applicant	1.0	60	100,684	102,697	104,751	106,846	108,983	523,962
	PhD	1.0	48	41,388	49,171	52,513	56,149	0	199,222
Total Staff				142,072	151,869	157,264	162,996	108,983	**723,184**
Equipment	2 GPS trackers			250	0	0			250
Total Equipment				250	0	0	0	0	**250**
Materials	Studies 1-3 (each +/-1,000 participants at around 12.5 euro)			12,500	12,500	12,500			37,500
(materials incl.payments as well as printing costs, etc)	Study 4 (8 cities with 150 participants each, around 15 euro per participant)				6,000	6,000	6,000		18,000
	Study 5 (210 participants (taking part 4 times) at 50 euro total)			2,625	2,625	2,625	2,625		10,500
	Study 6 (160 participants, at 12.5 euro)					1,000	1,000		2,000
Total Materials				15,125	21,125	22,125	9,625	0	**68,000**
Travel	Travel			1,000	1,500	1,500	1,500	1,500	7,000
Total Travel				1,000	1,500	1,500	1,500	1,500	**7,000**
Grand total				**158,447**	**174,494**	**180,889**	**174,121**	**110,483**	**798,434**

3b. Co-financing 'in kind'

Cofinancer/party	Description	Estimated value in Euro
n/a	..	..

3c. Co-financing 'in cash'

Cofinancer/party	Description	Euro
na.	..	..

3d. Totals

Grand total	798,434
Requested budget	798,434

3e. Intended starting date (see Notes)

1 October 2017

3f. Have you requested any additional grants for this project either from NWO or from any other institution, and/or has the same idea been submitted elsewhere? No (if 'yes', see Notes)

Curriculum vitae

4a. Personal details

Title(s), initial(s), first name, surname: Thomas V. Pollet
Date of birth: 17-11-1981
Nationality: Belgian

4b. Master's ('Doctoraal')

University/College of Higher Education: University of Liverpool (UK)
Date (dd/mm/yy): 13/12/2005
Main subject: MSc. Evolutionary Psychology (note that I also obtained an MA. In Sociology from Ghent University (Belgium) in 2004)

4c. Doctorate

University/College of Higher Education: Newcastle University (UK)
Starting date (dd/mm/yy): 01/09/2005
Date of PhD award (dd/mm/yy): 03/12/2008
Supervisor ('promotor'): Prof. Daniel Nettle
Title of thesis: *'Tests of Predictions from Kin Selection Theory, Life History Theory and the Evolutionary Psychology of mate choice in Modern Societies'*

4d. Work experience since completing your PhD

Current and previous positions. Specify per appointment: period, number of fte, type of position and institution.

Position	**Period (date-date)**	**Number of fte**	**Type of position** (fixed term, permanent, tenure track, other)	**Institution**
Asst. prof. (UD 2)	**1-10-2008 – 1-5-2011**	**1**	**Tenure Track**	**University of Groningen**
Asst. prof (UD 1)	**1-5-2011 - 1-11-2016**	**1**	**Tenure Track**	**VU Amsterdam**
Fellow	**1-9-2015 – 1-7-2016**	**1**	**Fixed term**	**NIAS-KNAW**
Asst. Prof. (UD 1)	**1-11-2016 – current**	**1**	**Fixed term**	**Leiden University**

Months spent since completing your PhD : 97 months

Experience	**Number of months**
Research activities	53
Education	37
Care or sick leave	-
Management tasks	5
Other, please specify	2 (conference organization – EHBEA 2013)

Calculation: Started as Asst. Prof in Oct. 2008 (note: only graduated Ph.D. in December 2008): 85 months total. + 12 months Research fellow at NIAS.
I was on .5fte research contracts (Period of NWO Veni .52 on average - therefore just decided to round .5fte up (43 months)). Of the research fte around 2 months were devoted to organizing a large international conference for which I was the lead, therefore 2 subtracted (EHBEA 2013). → 41 months research + 2 conference organization.
Remainder: 42 months consists Teaching + Management (around .1fte at VU: (around 5 months (+/-4.88 rounded up)), none formally at Groningen). This leaves 37 for teaching.
No noteworthy periods of sick leave or care.

4e. Academic staff supervised

	Give names or numbers	**Please indicate/specify your role (for PhDs, mark one role)**		
PhDs		Promotor (formal supervisor)	Co-promotor (formal co-supervisor)	Role as (co-) supervisor
Ongoing		Zoi Manesi Jill Knapen	Lara Hallam	(I am the formal external supervisor for Lara Hallam who is at University of Antwerp)
Successfully completed		Kelly Cobey	Nancy Blaker Gert Stulp *(cum Laude)* Liga Klavina	(Gert Stulp and Kelly Cobey were supervised until I left the University of Groningen in 2011)
Subtotal PhDs		*3*	*4*	

Postdocs		
Subtotal postdocs	*N/A*	*N/A*
Master students		
Subtotal master students	*16*	*5*
Other		
Subtotal other	*5*	*Research assistants involved in data collection, coding etc.*

Role description for Ph.D. supervision. (chronological order):

Liga Klavina: I acted as co-promotor when I joined the University of Groningen, at that time Liga was a couple of months into her Ph.D. I took over the role from Dr. Justin Park who left Groningen when I joined. The lead supervisor (promotor) was Prof. Bram Buunk. Nonetheless, as a junior staff member, I provided supervision and guidance on a daily basis. I also was Liga's first point of contact for all queries, which we then discussed together with Prof. Bram Buunk. I provided input throughout her project, especially with regards to analyses, but also more broadly in terms of writing and theory. I would therefore say I was very closely involved in the entire Ph.D. process, even when not acting as lead supervisor.

Gert Stulp: I was a co-promotor for Gert Stulp, who had two official promotors (Prof. Bram Buunk and Prof. Simon Verhulst). As a junior staff member I was the first point of contact for Gert, and acted as his day-to-day supervisor (except for one day a week when he was based in the dept. of biology). My supervisory tasks involved providing feedback on designs for studies, helping to implement those studies, as well as providing advice on statistical analyses and writing up research findings in order to turn these into academic papers. In short, I was involved closely in all aspects of Ph.D. supervision, even though I was the junior staff member in his supervisorial team. I fulfilled this formal role up until I left the University of Groningen, which was around 6 months before Gert submitted. However, I continued to provide feedback on his work, albeit not in my formal role as academic supervisor.

Kelly Cobey: I met Kelly when she was finishing her MSc. at the University of Liverpool and I

introduced her to Prof. Bram Buunk. I guided her with the application to the Ph.D. studentship programme at the University of Groningen. The task division was as follows: I was the day-to-day and lead supervisor of Kelly Cobey, with Prof. Bram Buunk as second supervisor. In the Dutch system, an Asst. Prof. does not have ius promovendi, Prof. Bram Buunk therefore fulfilled the role of promotor in the faculty. In addition, Prof. Craig Roberts (Stirling) was a co-promotor. He took over my role as day-to-day supervisor when I left Groningen, around midway through Kelly's Ph.D. project. In addition, we closely collaborated with external companies (Dinox/Pantarhei Bioscience), who provided medical and pharmacological expertise. Up until I left, I fulfilled all duties of a lead supervisor, including daily supervision and I was heavily involved in planning, design, analytical strategy and writing. While I formally resigned as a supervisor when I left Groningen, my collaboration with Kelly continued and I provided feedback on statistical analyses and writing, for example.

Nancy Blaker: Nancy Blaker had started her Ph.D. around 4 months before I joined the VU Amsterdam. Prof. Mark van Vugt is her lead supervisor and promotor, I was the secondary supervisor. Nonetheless, as junior faculty, I acted as a first point of contact and provide day-to-day supervision for Nancy. This implies providing daily guidance on all aspects of her Ph.D.. As described above, this ranges from theoretical design of studies to writing up findings.

Jill Knapen: I am Jill Knapen's daily and lead supervisor. Jill was hired as Ph.D. student on a post which came attached to my tenure-track position at VU Amsterdam. I lead the search committee and selected her as a candidate to work with me on the topic of body size. Prof. Mark van Vugt is listed as promotor for our faculty, as asst. professors do not have ius promovendi. I have been very closely involved in the outline of the entire Ph.D., this involves all supervisorial tasks, as described above.

Zoi Manesi: I am Zoi Manesi's daily and lead supervisor. Together with Zoi, I wrote the first draft which ultimately led to the the Templeton Foundation funding for her Ph.D.. Prof. van Lange provided feedback on the proposal and acts as formal Principal Investigator for liaising with Templeton. Prof. Paul van Lange is listed as the official promotor for the faculty, as asst. professors do not have ius promovendi. As with, for example, Jill Knapen, my supervisorial

duties cover all aspects of Ph.D. supervision, ranging from feedback on theory and design of studies to the implementation and write up of these studies for academic publications.

Lara Hallam: Lara Hallam's lead supervisory team consists of Prof. Charlotte De Backer and Prof. Michel Walrave, both at the Communication Sciences Dept. at the University of Antwerp. Lara is now in the second year of a 4-year trajectory. My role as an external, but formal, Ph.D. advisor is peripheral in this project and my role currently consists primarily of providing advice on study designs for studying online dating. I also help with the implementation of data collection (i.e., the use of crowdsourcing sites). I will also provide assistance with statistical analyses and will be involved in the write up these studies and the overall successful completion of her Ph.D. trajectory.

4f. Brief summary of your research over the last five years
(max. 250 words) – 250 words.

Over the last five years, I have developed a broad range of research topics anchored on the question of how we can **understand human social behaviour** from (mostly) an evolutionary perspective. This has led to over **eighty** (co-)authored articles on an extremely broad range of topics. It is next to impossible to describe all the topics accurately here, but I am particularly interested in understanding the wealth of **social relationships** people have (e.g., romantic relationships, friendships, family relationships) and testing the role of **individual differences** (e.g., personality, height, hormones,…) for these social relationships in an **interdisciplinary framework**. I follow a truly topical approach usually guided by a specific, addressable research question, informed by close collaboration with leading experts in the field. I believe that research strongly benefits from such a collaborative, interdisciplinary approach. In terms of methods, I conduct survey, observational, simulation, and experimental studies, next to analysing secondary datasets. Furthermore, I am interested in (improving) **methodology and statistics**. One recent research question, which has captured my attention, is where do the origins of the astounding observed variation in prosocial behaviour lie, and how can we study this from a multidisciplinary framework. This has been prompted by our recently funded work by the Templeton Foundation in which we examine the impact of social cues on prosocial behaviour. After overcoming some challenges such as

statistically modelling individual economic decisions, I am now fully prepared to tackle the larger and more complex problem of determining the sources of variation in prosocial behaviour.

4g. International activities

During the academic year 2010-2011, I was a **visiting lecturer** at the Institute of Cognitive and Evolutionary Anthropology at the **University of Oxford** (Magdalen College).

From 2012 to 2015, I resided as an **international expert on the FWO council** (Foundation for Research Flanders, GM3 panel, www.fwo.be).

Here I have just chosen to list some examples of **international presentations**. All my (recent) **presentations are open access** and can be viewed and downloaded at https://prezi.com/user/tvpollet/
I am regularly **invited as a speaker at various universities** and actively present my work at **international conferences and workshops** (e.g., EHBEA, Helsinki). On average I take part in and present at multiple international conferences each year across a very broad range of disciplines.
Presentations over past years include:

- 'Automatic for the people' – The strengths and weaknesses of Machine Learning for analyzing various types of data in the field of evolution and human behaviour. EHBEA, London School of Hygiene and Tropical Medicine 2016.
- Which variables predict being chosen on a speed date? A random forest approach. Invited seminar at Family and Population Studies, KULeuven. Sept. 2015.
- The grey area surrounding the red effect. EHBEA Helsinki 2015 & International Society for Human Ethology 2014, Belém, Brazil.
- What can Cross-Cultural Correlations Teach us about Human Nature. EHBEA Bristol 2014.

International collaborations (among others, alphabetical order)
Past and present (apologies for any omissions). I am continuously expanding my national and international network:

Louise Barrett (Lethbridge)
Charlotte de Backer (Antwerp)
Lynda Boothroyd (Durham)
Andrew Clark (Brunel)
Kelly Cobey (Ottawa)
Carolyn Declerck (Antwerp)
Robin Dunbar (Oxford)
Tim Fawcett (Exeter)
Bernhard Fink (Göttingen)
Peter Henzi (Lethbridge)
Markus Jokela (Helsinki)
Tony Little (Bath)
Mark Nelissen (Antwerp)

Daniel Nettle (Newcastle) (continued)
Toko Kiyonari (Aoyama)
Ian Rickard (Durham)
S. Craig Roberts (Stirling)
Sam Roberts (Chester)
Mirre Simons (Sheffield)
John Skelhorn (Newcastle)
Michael Stirrat (York St. Johns)
Sigal Tifferet (Ruppin Academic Center)
Martin Tovée (Lincoln)
Roger Whitaker (Cardiff).

4h. Other academic activities (See Notes)

Teaching: Since 2006 I have been teaching various courses at Bachelor and Masters Level (e.g., Group Dynamics, Methodology III, Evolutionary Processes in Social Behaviour, etc.). I have obtained two teaching certificates. Sample lectures can be viewed here: https://prezi.com/user/tvpollet/. Feel free to contact me if you have any queries.

Faculty Ethics Review Board (2011-2016)

FWO council member (2012-2015; www.fwo.be, see above).

Reviewer for funding bodies: Katholieke Universiteit Leuven (Belgium), Agence Nationale de Recherche (France), FWO (Belgium).

Lead organizer of EHBEA 2013 conference at VU University Amsterdam (www.ehbea2013.com; >200 attendees). Co-organizer of various other, smaller workshops.

Editorial board member for *Frontiers in Psychology* *(Evolutionary Psychology and Neuroscience)*

Regular reviewer for journals such as *Proceedings of the National Academy of Sciences, Proceedings Royal Society Series B, PLOS one, Evolution and Human Behavior, Human Nature, Journal of Personality and Social Psychology, Psychological Science, Animal Behaviour, European Journal of Personality Cyberpsychology, Behavior and Social Networking, American Journal of Human Biology, American Journal of Physical Anthropology, Journal of Cross-Cultural Psychology, Journal of Theoretical Biology, Personality and Social Psychology Bulletin, Personality and Individual Differences, Human Biology, Journal of Biosocial Science, Personal Relationships, Journal of Social and Personal Relationships, Social Psychological and Personality Science, Self and Identity, European Journal of Social Psychology, Evolutionary Psychology, Psychological Reports, PeerJ, Evolutionary Behavioral Sciences, Evolutionary Psychological Science, and Journal of Evolutionary Psychology (now: Evolution, Mind and Behaviour).*

4i. Grants, scholarships and prizes

The following have no or negligible monetary awards and are hence not listed in the table below:

* **Best paper finalist** on IPUMS Data (2009), www.ipums.org .

* Nominated as Honorary Belgian American Exchange Foundation **(BAEF) Fellow** (2008).

Please list the research scholarships/grants for which you have successfully applied or prizes that you have won and indicate the amount of money involved.* In case of a consortium grant please specify the amount awarded to your own group.

	Amount	*	**Year of award**
Scholarship/Grant/ Prize Formal applicant			
NIAS-KNAW Fellowship	€20,000 (est. based on FTE)		2015
NWO Veni	€250,000		2011
Newcastle University Ph.D. scholarship	£80,000 (est.)		2005
Lazard Foundation (loan)	€25,000	(not counted)	2004
Subtotal	**€378,000 (est.)**		
Scholarship/Grant/Prize Formal co-applicant			
Various internal Faculty grants	€10,000 (est.)	(half)	2012-current
Various conference Grants for EHBEA 2013	€5,000 (est.)	(all)	2013
Templeton Foundation	$195,000	(all)	2013
French-Dutch Academy	€10,000	(half)	2010-2011
University of Groningen (Ubbo Emmius grant)	€120,000	(all)	2009
FWO Grant for establishing Cross-National Research Network	€62,500	(+/-€9,000)	2009-2014
Subtotal	**€380,000 (est.)**	**€317,000 (est.)**	

Output

5a. Output indicators

The formal criterion most commonly used is the number of articles in the **first quartile (Q1) in Journal Citation Reports (Web of Science)**. This is also the heuristic I employ. Note that I am a true multidisciplinary scholar and my **publication areas range from Anthropology to Zoology**. Rather than therefore relying on single impact factors or a median impact factor, I have indicated which of my papers are published in the **first quartile of a category in the Journal Citation Reports (2015)**, as indexed by Thomson-Reuters. This is a very crude proxy measure. There are multiple ways to assess individual paper impact and my impact as a researcher, such as h-index (**my google h-index is 23, my researcherID h-index= 15**), **my i-10 index= 43** (i.e. 43 papers with minimum 10 citations, as indexed by google scholar). My papers and impact are available here: http://sites.google.com/site/thomasvpollet/home/papers and I am happy to provide additional metrics.

5b. Output

Please number your items consecutively and also indicate the total number per category. For publications: only mention those publications that have been published or have been accepted for publication starting with the most recent publication. Please mark key publications that are directly relevant to the proposed research with an S (the S stands for significant).

Refereed articles (78 articles, 32 first author)

1. Stulp G, Simons MJP, Grasman S, **Pollet TV.** Assortative mating for human height: a meta-analysis. *Am J Hum Biol.* doi: 10.1002/ajhb.22917 **(Q1 Anthropology)**
2. **Pollet TV,** van der Meij L. To remove or not to remove: the impact of outlier handling on significance testing in testosterone data. *Adap Hum Behav Physiol*. 2016. doi: 10.1007/s40750-016-0050-z
3. Morina N., Koerssen R. & **Pollet TV.** Interventions for children and adolescents with posttraumatic stress disorder: a meta-analysis of comparative outcome studies. *Clin Psychol Rev.* 2016;47:41-54. **(Q1 Psychology, Clinical)**
4. Molho C, Roberts SGB, de Vries RE. & **Pollet, TV.** The Six Dimensions of Personality (HEXACO) and their Association with Network Layer Size and Emotional Closeness to Network Members. *Pers Individ Diff.* 2016; *99,* 144-148.
5. Noë N, Whitaker RM, Chorley MJ & **Pollet, TV.** Birds of a Feather Locate Together? Foursquare Checkins and Personality Homophily. *Comput Hum Behav.* 2016; *58,* 343-353. **(Q1 Psychology, multidisciplinary)**
6. Bech-Sørensen, J. & **Pollet, TV** (2016), Sex differences in Mate Preferences: A Replication Study, 20 Years Later. *Evol Psych Sci*. doi:10.1007/s40806-016-0048-6
7. Manesi Z, van Lange PAM, **Pollet TV.** Eyes Wide Open: Only Eyes That Pay Attention Promote Prosocial Behavior. *Evol Psychol.* 2016:*14,* doi: 10.1177/1474704916640780.
8. de Vries, RE, Tybur, JM, **Pollet TV** & van Vugt, M. Evolution, Situational Affordances, and the HEXACO Model of Personality. *Evol Hum Behav.* 2016;37(5):407-421. **(Q1 Behavioral Sciences)**
9. Demetriou AM, **Pollet TV.** Age differences between U.S. Politicians and Their Spouses: Similar to the Super Rich or more like your average Joe? *Lett Evol Behav Sci* 2015;6:29-32.
10. Tifferet S, **Pollet TV**, Bar A, Efrati H. Predicting Sibling Investment by Perceived Sibling Resemblance. *Evol Behav Sci*. 2016. doi:10.1037/ebs0000035.
11. Barrett L, **Pollet TV**, Stulp G. Evolved biocultural beings (who invented computers). *Front Psychol*. 2015;6:1047. doi:10.3389/fpsyg.2015.01047. **(Q1 Psychology, multidisciplinary)**
12. Conway J, Noë N, Stulp G, **Pollet TV**. Finding your Soulmate: Homosexual and heterosexual age preferences in online dating. *Pers Relatsh*. 2015.
13. **S.** Kuppens T, **Pollet TV**. Gender equality probably does not affect performance at the Olympic games: A comment on Berdahl, Uhlmann, and Bai (2015). *J Exp Soc Psychol*. June 2015. doi:10.1016/j.jesp.2015.06.002. **(Q1 Psychology, Social)**
14. **S. Pollet TV**. Grounding the data. A response to: Population finiteness is not a concern for null hypothesis significance testing when studying human behavior. *Front Psychol*. 2015;6:1169. doi:10.3389/fpsyg.2015.01169. **(Q1 Psychology, multidisciplinary)**
15. **S. Pollet TV**, Stulp G, Henzi SP, Barrett L. Taking the aggravation out of data aggregation: A conceptual guide to dealing with statistical issues related to the pooling of individual-level observational data. *Am J Primatol*. 2015;77(7):727-740. doi:10.1002/ajp.22405. **(Q1 Zoology)**

16. Stulp G, **Pollet TV**, Barrett L. The not-always-uniquely-predictive power of an evolutionary approach to understanding our not-so-computational nature. *Front Psychol*. 2015;6:419. doi:10.3389/fpsyg.2015.00419. **(Q1 Psychology, multidisciplinary)**
17. van Prooijen J-W, Krouwel APM, **Pollet TV**. Political Extremism Predicts Belief in Conspiracy Theories. *Soc Psychol Personal Sci*. 2015;6(5):570-579. doi:10.1177/1948550614567356. **(Q1 Psychology, Social)**
18. van Toorenburg M, Oostrom JK, **Pollet TV**. What a Difference Your E-Mail Makes: Effects of Informal E-Mail Addresses in Online Résumé Screening. *Cyberpsychology, Behav Soc Netw*. 2015;18(3):135-140. doi:10.1089/cyber.2014.0542.
19. **S.** Barrett L, **Pollet TV**, Stulp G. From computers to cultivation: reconceptualizing evolutionary psychology. *Front Psychol*. 2014;5:867. doi:10.3389/fpsyg.2014.00867. **(Q1 Psychology, multidisciplinary)**
20. **S.** Hill JM, Jobling R, **Pollet TV**, Nettle D. Social capital across urban neighborhoods: A comparison of self-report and observational data. *Evol Behav Sci*. 2014;8(2):59-69. doi:10.1037/h0099131.
21. **S.** Hill JM, **Pollet TV**, Nettle D. Disorder affects judgements about a neighbourhood: police presence does not. *PeerJ*. 2014;2:e287. doi:10.7717/peerj.287. **(Q1 Multidisciplinary Sciences)**
22. **S.** Kuppens T, **Pollet TV**. Mind the level: problems with two recent nation-level analyses in psychology. *Front Psychol*. 2014;5:1110. doi:10.3389/fpsyg.2014.01110. **(Q1 Psychology, multidisciplinary)**
23. Ludwig YS, **Pollet TV**. When men appear smaller or larger than they really are: preliminary evidence that women are fooled by size illusions in attractiveness judgment tasks. *Anthropol Rev*. 2014;77(3):299-329. doi:10.2478/anre-2014-0023.
24. **S.** Mo JJY, Cheung KWK, Gledhill LJ, **Pollet TV**, Boothroyd LG, Tovée MJ. Perceptions of Female Body Size and Shape in China, Hong Kong, and the United Kingdom. *Cross-Cultural Res*. 2014;48(1):78-103. doi:10.1177/1069397113510272.
25. **Pollet TV**, Riegman BR. Opponent left-handedness does not affect fight outcomes for Ultimate Fighting Championship hall of famers. *Front Psychol*. 2014;5:375. doi:10.3389/fpsyg.2014.00375. **(Q1 Psychology, multidisciplinary)**
26. **Pollet TV**. A re-analysis of the relationship between "parasite stress" and authoritarianism. *Front Psychol*. 2014;5:638. doi:10.3389/fpsyg.2014.00638. **(Q1 Psychology, multidisciplinary)**
27. **S. Pollet TV**, Tybur JM, Frankenhuis WE, Rickard IJ. What can cross-cultural correlations teach us about human nature? *Hum Nat*. 2014;25(3):410-429. doi:10.1007/s12110-014-9206-3. **(Q1 Anthropology)**
28. Stulp G, Mills M, **Pollet TV**, Barrett L. Non-linear associations between stature and mate choice characteristics for American men and their spouses. *Am J Hum Biol*. 2014;26(4):530-537. doi:10.1002/ajhb.22559. **(Q1 Anthropology)**
29. Tybur JM, Frankenhuis WE, **Pollet TV**. Behavioral immune system methods: Surveying the present to shape the future. *Evol Behav Sci*. 2014;8(4):274-283. doi:10.1037/ebs0000017.
30. Cobey KD, Buunk AP, **Pollet TV**, Klipping C, Roberts SC. Men perceive their female partners, and themselves, as more attractive around ovulation. *Biol Psychol*. 2013;94(3):513-516. doi:10.1016/j.biopsycho.2013.09.011. **(Q1 Behavioral Sciences)**
31. Cobey KD, Stulp G, Laan F, Buunk AP, **Pollet TV**. Sex differences in risk taking behavior among Dutch cyclists. *Evol Psychol*. 2013;11(2):350-364. 2014.
32. Dalley SE, **Pollet TV**, Vidal J. Body size and body esteem in women: The mediating role of possible self expectancy. *Body Image*. 2013;10(3):411-414. doi:10.1016/j.bodyim.2013.03.002. **(Q1 Psychology, multidisciplinary)**

33. **Pollet TV**, Cobey KD, van der Meij L. Testosterone Levels Are Negatively Associated with Childlessness in Males, but Positively Related to Offspring Count in Fathers. *PLoS One*. 2013;8(4):e60018. doi:10.1371/journal.pone.0060018. **(Q1 Multidisciplinary Sciences)**
34. **S. Pollet TV**, Roberts SGB, Dunbar RIM. Going That Extra Mile: Individuals Travel Further to Maintain Face-to-Face Contact with Highly Related Kin than with Less Related Kin. *PLoS One*. 2013;8(1):e53929. doi:doi:10.1371/journal.pone.0053929. **(Q1 Multidisciplinary Sciences)**
35. **S. Pollet TV**. Much ado about p. What does a p value mean when testing hypotheses with aggregated cross-cultural data in the field of evolution and human behavior? *Front Psychol*. 2013;4:734. doi:10.3389/fpsyg.2013.00734. **(Q1 Psychology, multidisciplinary)**
36. **Pollet TV**, Peperkoorn LS. Fading Red? No Evidence that Colour of Trunks Influences Outcomes in the Ultimate Fighting Championship (UFC). *Front Psychol*. 2013;4:643. doi:10.3389/fpsyg.2013.00643. **(Q1 Psychology, multidisciplinary)**
37. **Pollet TV**, Pratt SE, Edwards G, Stulp G. The Golden Years: Men From The Forbes 400 Have Much Younger Wives When Remarrying Than the General US Population. *Lett Evol Behav Sci*. 2013;4(1):5-8. doi:10.5178/lebs.2013.25.
38. **Pollet TV**, Stulp G, Groothuis TGG. Born to win? Testing the fighting hypothesis in realistic fights: left-handedness in the Ultimate Fighting Championship. *Anim Behav*. 2013;86(4):839-843. doi:10.1016/j.anbehav.2013.07.026. **(Q1 Zoology)**
39. Stulp G, Buunk AP, **Pollet TV**. Women want taller men more than men want shorter women. *Pers Individ Dif*. 2013;54(8):877-883. doi:10.1016/j.paid.2012.12.019.
40. Stulp G, Buunk AP, **Pollet TV**, Nettle D, Verhulst S. Are Human Mating Preferences with Respect to Height Reflected in Actual Pairings? *PLoS One*. 2013;8(1):e54186. doi:10.1371/journal.pone.0054186. **(Q1 Multidisciplinary Sciences)**
41. Stulp G, Buunk AP, Verhulst S, **Pollet TV**. Tall claims? Sense and nonsense about the importance of height of US presidents. *Leadersh Q*. 2013;24(1):159-171. doi:10.1016/j.leaqua.2012.09.002. **(Q1 Psychology, Applied)**
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- **Non-refereed articles (N/A)**

- **Books (N/A)**

Book chapters (3, 1 first author)

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- **Patents (N/A)**
- **Other (N/A)**

5c. Top publications (see Notes, **max. 5**)

Pollet TV, Roberts SGB, Dunbar RIM. Going That Extra Mile: Individuals Travel Further to Maintain Face-to-Face Contact with Highly Related Kin than with Less Related Kin. *PLoS One*. 2013;8(1):e53929. doi:doi:10.1371/journal.pone.0053929.

Pollet TV, van der Meij L, Cobey KD, Buunk AP. Testosterone levels and their associations with lifetime number of opposite sex partners and remarriage in a large sample of American elderly men and women. *Horm Behav*. 2011;60(1):72-77. doi:10.1016/j.yhbeh.2011.03.005.

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Roberts SGB, Dunbar RIM, **Pollet TV**, Kuppens T. Exploring variation in active network size: Constraints and ego characteristics. *Soc Networks*. 2009;31(2):138-146. doi:10.1016/j.socnet.2008.12.002.

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5d. Median impact factors for your own field

Median impact factors are not an ideal way to assess interdisciplinary research, as the impact factors fluctuate heavily between fields. I have therefore indicated which papers are in the **first quartile as indexed by the Journal Citation Reports in 2015**. Note that there is year-to-year fluctuation in these and perhaps these measures are best treated as a proxy for multidisciplinary impact.

Statements by the applicant

Ethical aspects

	Not applicable	Not yet applied for	Applied for	Received
Approval from a recognised medical ethics review committee	X			
Approval from an animal experiments committee	X			
Permission for research with the population screening Act	X			

By signing this form I endorse the code of conduct for laboratory animals and the code of conduct for biosecurity/possibility for dual use of the expected results and will act accordingly if applicable.

X I have completed this form truthfully
X By submitting this document I declare that I satisfy the nationally and internationally accepted standards for scientific conduct as stated in the *Netherlands Code of Conduct for Scientific Practice 2012*[1] (Association of Universities in the Netherlands)
☐ I have submitted non-referees.*

Name: Thomas V. Pollet

Place: Amsterdam

Date: 4/10/2016

* It is possible to indicate non-referees (a maximum of five names) **in ISAAC** (or, if applicable, directly to ZonMw). The non-referees will NOT be asked to assess your application. Please do **not** incorporate their names anywhere in your application.

Please submit this application form to NWO in PDF format, using the ISAAC system, which can be accessed at isaac.nwo.nl.
NB: Applications to the Medical Sciences division (ZonMw) should instead use a similar system called ProjectNet, which can be accessed through the division's website: www.zonmw.nl.