Laura Antonia Langner

Nuffield College

Department of Sociology

University of Oxford

What Makes Dual Career Couples Successful?

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Abstract

I use the German Socio-Economic Panel to explore three dimensions of couples' career success: career input (hours), career output (wages) and happiness. I focus on West German parents because, until recently, they faced low levels of state-level childcare support and adverse attitudes towards maternal employment.

I investigate the extent to which couples specialize in paid work in the long term. Previous approaches – even those using couple-level longitudinal data – failed to explore this fully, instead examining men and women separately, or a single transition. I develop a "dual curve" approach and find that even among the 1956-65 female birth cohort (which faced low state-level support for dual employment) only a fifth of all couples adopt full specialization in later life. A sizable proportion – a third – moves into dual full-time employment, while half of highly educated couples adopt such employment. Highly educated women are not only *less* likely to permanently specialize but also *more* likely to try working full-time, possibly because their partners' comparative advantages are lower.

I explore whether the take-up of work hour flexibility relates to rises in both the respondent's and their partner's wages. Men and women benefit from working flexibly, even when controlling for selection into work hour flexibility with growth-curve and fixed effects analysis. Moreover, there is a positive cross-partner wage effect, which is particularly pronounced for mothers, suggesting that men – the main users of the policy – use this measure to support their wives' careers.

Are dual career couples (equal human capital investment) happier than specializing couples? I create a human capital measure to account for differential human capital during periods of non-employment, which has been ignored in past analyses. I find that women in dual career couples are unhappier when the child is young but happier later in life. Conversely, women who give precedence to their partner's career in terms of human capital investment grow unhappier.

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Chapter 1: Introduction

"Anything that makes life harder for women makes life harder for families."
—President Obama 23rd June 2014

1.1 Research background

Across the Western world, female labour market participation has been on the rise. At the same time, women have been obtaining equal levels of education, which have enabled them to enter formerly male-dominated occupations (Scott et al., 2008, Blossfeld et al., 2001). In West Germany the labour force participation rate of women aged between 25 and 64 has risen considerably: from 66.2% to 77% between 2000 and 2013. Similarly, the employment/population ratio rose from 60.7% to 73.3% (OECD, 2014). Hence it is highly likely that Germany will reach its Euro2020 target of 75% employment not only in general but also for women (European Commission, 2013: 5).

Yet both across the Western world in general and in West Germany in particular a higher participation level has not been reflected in more equitable long-term career development for men and women. Even nowadays, women have a higher likelihood to curb their work hour investment or drop out of the labour market (Blossfeld et al., 2001: 60, Blossfeld and Drobnič, 2001).

This development has led researchers to conclude that the women's revolution is "incomplete" – either because the revolution has come to a permanent halt or because it has stalled (Esping-Andersen, 2009, Sullivan, 2004). This incompleteness of the women's revolution is in turn "provoking serious disequilibria in our society" such as ageing and fertility decline (Esping-Andersen, 2009: 3). As a result of this incomplete or partial revolution, on the macro-level, countries cannot achieve the level of life course labour market participation needed to sustain social security systems whose costs are exploding due to rising living expectations and lower fertility levels (Brewster and Rindfuss, 2000). On the micro-level, in old age, women who have taken time out or reduced their hours receive lower pensions and are consequently faced with a potentially financially precarious retirement period.

Across the Western world, childless women – irrespective of their status in the couple – fare better in the labour market than mothers (Sigle-Rushton and Waldfogel, 2007). This suggests that the problem of maintaining dual earnership is not a gender problem per se. Instead, mothers struggle in particular. Or, alternatively, as Obama has stated, "[a]nything that makes life harder for women makes life harder for families". Hence not individual women but couples struggle at the point of entering parenthood. Parenthood increases the demands on couples' time, which is associated with couples' decisions to opt out of the dual career path and instead move into a single (oftentimes male) breadwinner model, or a one career, one job model. The decision regarding which partner's career takes precedence has been markedly gendered both in terms of career investment (working hours) and in terms of career output (wages), reflecting the traditional attitudes of West Germans (Steiber and Haas, 2010: 258). Motherhood is still associated with a wage penalty, some of which is associated with the time they spent out of the labour market after childbirth (Scott et al., 2008, Avellar and Smock, 2004, Aisenbrey et al., 2009, Budig and England, 2001). Conversely, fathers have been found to experience a wage boost (Killewald and Gough, 2013: 495).

Some blame the lack of coupled employment on the "career myth," in which a career is perceived as a

> "*lock-step life course* that, for workers, is patterned after traditional male career paths (e.g. first education, then continuous full-time employment, then the continuous full-time 'leisure' of retirement)" (Moen and Sweet, 2004: 212).

This notion of a career may be compatible with a sole breadwinner model. After all, male full-time employment is easy to maintain, if the wife takes care of the domestic duties. However, this conception of a career is potentially incompatible with a dual career. Couples struggle because, the more societies move away from the male breadwinner model towards dual earner families, the fewer employees will have a partner

who is a fulltime homemaker (Moen, 2010, Moen and Sweet, 2004). Overworked families may, against their will, have to react to both employers' high time demands by giving up their dual career dream and instead pursuing a single career (Cha, 2010). Family policies such as childcare arrangements could in principle counteract such developments. Unfortunately, in the past there has been a mismatch between the support that couples require to help them maintain careers and the policies offered in many countries, which has resulted in a call for new social policies to "accelerate the maturation of the female revolution" (Esping-Andersen, 2009: 9) or, alternatively, as this thesis would argue, to accelerate a dual career revolution.

For instance, the public provision of childcare for the very young has been lagging behind couples' needs. If the state fails to provide a viable childcare alternative to parental childcare from an early age onwards, couples must search for private solutions to raising their child. With no Kibbutz or "children's house" to take care of the child (Bettelheim, 1969), couples are left to their own devices to arrange private childcare arrangements. These private childcare arrangements may in the short term be more expensive than the gains in terms of a dual income. This in turn may make couples decide that maternal care is to be preferred over state or private childcare arrangements (European Commission, 2013: 12).

Similarly, family-friendly company policies could help women in their career pursuits. These could include work hour flexibility or telecommuting (Weeden, 2005).

1.2 Research question and contribution

Past research has tended to focus on the narrower and, as I suggest, mis-specified women's problems in maintaining a career, rather than the broader and more appropriate issue of identifying solutions and, in particular, solutions for couples (Grzywacz and Demerouti, 2013). In comparison to men, few women have succeeded in pursuing a

career, which may explain the empirical focus on women's problems. The thesis intends to move away from analysing individual women's problems towards analysing

What makes dual career couples successful?

Couples' success is not a one-dimensional outcome. Instead couples' success can be viewed through at least three dimensions: work investment, work output and satisfaction. Consequently, couples' success is analysed from these three different angles in the thesis. First, work hour input is analysed assuming that this is a pre-condition for career success (see for example Dex and Bukodi, 2012 for the detrimental effects of part-time work on subsequent careers in Britain). Thereafter, the thesis examines the returns on this investment. These returns are deliberately not measured via each partner's earnings. Instead, wage is used as an outcome. This allows the researcher to distinguish input from output measures (earnings are also determined by the numbers of hours worked). Even if both partners succeed in investing a large number of hours in the labour market and even if the investment is rewarded with high wages, a couple may nevertheless be unhappy with this outcome. When discussing the need for equal participation of both partners, one should not forget that some couples may instead prefer to succeed within the happiness/satisfaction dimension – which for some may mean leaving the dual career path – rather than slaving away for ever-steeper joint career success. After all, investing heavily in both partners' human capital may leave little time for other activities. Consequently, specialization may be the more satisfactory option for couples, even if it implies that one partner cannot "Lean In" (i.e. pursue a career), as Sheryl Sandberg would put it. Monetary input/output measures can easily hide this very personal dimension of couples' careers. Thus, the thesis' fifth chapter directly addresses such considerations by analysing changes in satisfaction/happiness and how they relate to a couples' human capital investment patterns.

The most commonly deployed definition of "career" implies a progressive and continuous path of increased social mobility. Yet the term career also refers to "a job or profession that you have been trained for, and which you do for a long period of your life." An additional definition of the term is "to move forwards quickly, without control, making sudden sideways movements" (Longman, 2009: 252)—a marked departure from the word's more common implication, which involves an upwardly mobile progression. Wilensky distinguishes six career types:

1. One job for the entire working life
2. Orderly horizontal progression
3. Disorderly horizontal movement
4. Orderly vertical progression
5. Borderline orderly vertical progression
6. Disorderly vertical movement (Wilensky 1961: 525).

The thesis uses a subset of these various definitions and defines career success in a technical sense: A career succeeds on the various dimensions if there is either a stable development on a high level or an upward movement from a lower level. The author thereby does not make any normative judgements with regards to which career should be pursued.

Analytically, the thesis makes use of the advantages of prospective panel data whenever possible. The German Socio-Economic Panel dataset (SOEP) is used throughout the thesis. This focus on the advantages of panel data is first reflected in the three outcome measures: because the same individuals are surveyed annually in prospective panel data, these datasets allow for a more precise measurement of working hours (rather than the cruder categorical measure of employment states) and earnings (people do not have difficulty remembering their current income, for instance). In

contrast, retrospective data, which requires survey participants to recall their entire lives in a single interview, makes measurement of past working hours and income very unreliable. An additional advantage of the concurrent interviewing schedule is its ability to tap into subjective measures. One of these measures which only prospective data can capture longitudinally is satisfaction. As with income, it may be impossible to recall how happy you were 20 years ago but you can reasonably indicate how satisfied you are currently with your life.

Secondly, the German Socio-Economic Panel is not only a prospective dataset but also a very mature prospective dataset, capturing up to thirty years of peoples' lives. Hence in using the three outcomes above, the entire thesis takes a longitudinal approach to capture the career aspect. As a career is most commonly defined as an upwardly mobile or at least stable trajectory, the thesis does not employ any transitional approaches such as event history analysis, which has been employed for the analysis of careers in the past (see for example Blossfeld and Drobnič, 2001) or sequence analysis to model long-term life course patterns (Aisenbrey and Fasang, 2010). Instead, the analysis takes advantage of working with repeated measurements of a continuous variable by employing curve analysis to model the trajectories.

Thirdly – as the question already suggests – the household structure of the data is exploited by focussing on the couple rather than the individual in the analyses. After all, in comparison to the Panel Study of Income Dynamics, for example, the SOEP does not only survey one partner but both partners in the couple, allowing for a precise measurement of each partner's outcome. The couple dimension is captured by modelling either cross-partner effects and/or within-couple dependencies with a dual curve or dyadic index approach. This couple-level approach, in combination with the examination of developmental trajectories rather than transitions between two time points, is what

distinguishes the thesis from most other work in the area (Stier et al., 2001, Steiber and Haas, 2010, Dex and Bukodi, 2012, Blossfeld et al., 2001). By combining couple-level analysis with longitudinal approaches, the thesis addresses recent calls by Bianchi and Milkie and Aisenbrey and Fasang to link lives as well as addressing life-course researchers' concerns of "bringing the 'course' back into the life course" (Aisenbrey and Fasang, 2010: 420, Bianchi and Milkie, 2010: 715).

Additionally, the thesis' aim is to contribute to and re-frame the current academic debate to reflect the current shift in the public debate. In 2013 women were asked to "Lean In", to "sit at the table" and to shift from thinking "I am not ready to do that" to "I want to do that – and I'll learn by doing it" (Sandberg, 2013: 62). In 2014, the debate has shifted toward acknowledging that families, rather than women alone, need to be the focus of policies – as evidenced by this year's US White House Summit on Working Families. The UK has introduced an additional 26 weeks of paid paternity leave (as opposed to the 2 weeks which were offered before). Parents of children born from April 2015 onwards have the option to share the leave (take it simultaneously) (Department for Business, 2014, gov.uk, 2014). In Germany, this shift is evidenced by the introduction of paid paternity leave and the Elterngeld Plus and the Partnerschaftsmonate aimed at a more equal division of labour within couples. The measures will be discussed in detail in chapter two.

1.3 Structure of thesis

This thesis comprises a total of six chapters (including this introduction). After this first introductory chapter, chapter two reviews the literature which examines how couples interact and how this in turn shapes the relationship between the three dimensions of success which are analysed in the thesis. It further identifies the gaps in the literature which motivated the research questions or chapters. The final section of chapter two

explains why West Germany is of particular interest for an analysis of couples' careers. The three empirical chapters following the literature review will also have shorter, more focussed reviews of the literature, complementing the larger literature review in chapter two.

Chapters three to five are comprised of empirical analyses.

Chapter three re-investigates whether couples of the 1956-65 female birth-cohort predominantly specialized in paid work in the long-term. The rationale for focussing on this particular cohort is both theoretically and data driven. Theoretically, this cohort has faced particular challenges due to childcare for young children not being widely available, and also due to both primary school and high school only covering part of the working day. Instead of supporting dual earner families, policies supported the division of labour according to the male breadwinner model (see chapter two for details). From a data perspective, this cohort allows researchers to follow couples for a long period after the birth of the youngest child. A comparison of a number of cohorts who raise their children under different economic conditions would have been possible, but only at the cost of reducing the observation window and/or the sample size in the other cohorts. In future, one could do a cross-cohort comparison using shorter observation windows (e.g. ages 1-12), which would allow researchers to include younger birth cohorts. Alternatively, one could focus on the later life course of the youngest child, allowing for the inclusion of older birth cohorts. This would enable the researcher to compare how different parental life course stages relate to different policy environments in different historical periods. Moreover, it would enable a comparison of work hour investment strategies in different business cycles – i.e. recession versus boom periods. The 1956-65 birth cohort could have been split – following Manzoni and colleagues – to reflect different labour market entry conditions between the seventies (oil crisis) and the eighties

and nineties (recession after reunification). After all, the 1959-61 female birth cohort has been found to enter the labour market in lower positions due to the above-mentioned unfavourable labour market conditions. The splitting of the cohorts would have resulted in subsamples that were much too small. Moreover, whilst the mid-section of the cohort is different, the early- and late-born women within this cohort are fairly similar (Manzoni et al., 2014: 1304). The chapter is not interested in the average development among couples but instead focusses on the heterogeneity between couples' joint work hour trajectories via a dual curve approach. Subsequently, the chapter seeks to understand the extent to which couples' joint educational levels are related to each of the work hour patterns/strategies.

Chapter four focusses on wages. Many past analyses have focussed on either the partner's or the welfare state's effect on wages or financial incomes. However, companies may also play a vital role in enabling work-family compatibility. Recent German initiatives acknowledge the importance of companies' efforts in that regard – such as the audit for work-family compatibility, which rates companies according to their family friendliness and is supported by the German Federal Ministry for Family Affairs, Senior Citizens, Women and Youth (berufundfamilie, 2014). Similarly, companies have understood that such measures are vital in recruiting and retaining qualified employees. Indeed, in a recent study by the Bundesministerium für Familie, Senioren, Frauen und Jugend (Federal Ministry of Family, Senior Citizens, Women and Youth, BMFSFJ hereafter) 93.2% of surveyed companies identified this as the motivation for offering work-family compatibility measures (BMFSFJ, 2010: 26). Despite acknowledging their importance, curiously, the effects of some of these measures have been both unexplored and underexplored. Consequently, the fourth chapter explores how employers may foster wage progression by analysing the effects of work hour flexibility on West German

couples' wages. Past US studies analysed the effects of work hour flexibility on the flexible employee. This study has the additional benefit of being able to also analyse the effects on the partner.

Whilst fostering dual careers may make economic sense for policy makers, it is unclear whether couples are actually happier when pursuing a joint career. Recent debates on the Betreuungsgeld (paying the parent who stays at home), which has also been dubbed the "stove premium" (Herdprämie), and which is paid to parents who decide to take care of their child themselves, demonstrate that there may be no common preference for dual employment. Possibly, specialized couples are even happier. Accordingly, chapter five analyses whether dual career couples are happier than couples which eventually specialize (mainly invest in one partner's human capital).

The concluding chapter summarizes the main findings and the contribution both to family research and to the methodological literature. Thereafter, the implications for couples, policy makers and companies are discussed. The thesis concludes with avenues for future research and an overall conclusion.

1.4 Research approach

Overall, rather than working with a single analytical approach throughout, for each question raised in the three empirical chapters, the most suitable longitudinal approach is chosen. After all, each longitudinal method has its particular strengths and weaknesses, which should be carefully weighed against one another. In this section, I would like to discuss the reasons for the choices made in each chapter.

For chapters three and four, event history analysis could have also been chosen. One advantage of event history analysis is that it can be used to analyse incomplete/censored data (Mills, 2011: 11). The aim of chapter three, "Within-couple specialization in paid work: a long-term pattern?" is to arrive at a detailed picture – both

on the over-time and at the couple-dimension – of the particular joint work hour patterns that couples are pursuing. To arrive at a rich description of the longitudinal dimension, an analysis of trajectories rather than transitions between states is required. As such, event history and sequence analysis techniques are not used. For trajectory analysis, multilevel models and their variants (e.g. econometric fixed effects models) could have been chosen. Indeed, recent research on careers has employed multilevel growth-curves (econometrically random effects models) and the more specific variant of a fixed effects model (again using the econometric usage of the term) (Kühhirt, 2012, Manzoni et al., 2014). For the following reason, these approaches are initially not chosen. In a first step, neither the average development nor the effects of independent variables on the average development of the dependent variable are of interest. Instead, I would like to first gain an understanding of the different career patterns couples pursue. Group-based trajectory models, which group trajectories into several trajectory types, allow for analysis of the heterogeneity in the dependent variable (this model is described in: Nagin, 2005). However, their grouping algorithm is only an approximation: e.g. a person, who is mostly working part time but full time in one occasion, may be grouped into the permanently working full time group. Theoretically, a person trying to work full time is very different from a person who always works part time. Moreover, group-based trajectory models group individual trajectories but not joint trajectories and their relationship to one another. To be able to distinguish couples (rather than individuals, or a single curve) based on their joint patterns (i.e. a dual curve) and to enable the division of groups into theoretically sensible categories, a researcher-driven classification based on visual inspection is chosen. Growth-curves are run in a second step with the above groups as an independent variable. Unlike Manzoni et al (2014), the chapter's aim is to describe couples' joint careers rather than one individual's career development. Multivariate

hierarchical linear models – which allows for the modelling of two growth-curves, rather than one at the same time – are subsequently used to model how the different groups' trajectories (categorized based on their development on the dependent variable) develop over time (Please refer to Snijders and Bosker, 2012 for a detailed description of the model, Raudenbush et al., 1995).

Unlike chapter three, chapter four, "Flexible men and successful women: the effects of work hour flexibility on German couples' wages", is mainly concerned with understanding the effect of a change in the independent variable – work hour flexibility – on subsequent changes in the dependent variable (wage). In contrast to the previous chapter, a comparison between groups based on their characteristics on an independent variable (e.g. parenthood, part-time worker) is of interest. In particular, when trying to discern the effect of work hour flexibility on the flexible partner, unobserved heterogeneity is a major issue (e.g. flexible workers being more likely to be offered flexible hours and a higher wage). At least the time-constant unobserved heterogeneity can be cancelled out in a fixed effects model (which subtracts the over-time mean of an individual on a certain variable from its current observation at t). In addition, a growth-curve analysis is run in order to understand the extent to which flexible workers may differ in their wage development. Unlike fixed-effects analysis, which purely focusses on within-individual developments (aiming to arrive at the treatment effect onto the treated), growth-curve analysis (referred to as random-effects analysis in the econometrics literature) enables the comparison between the treated (flexible employees) and the untreated (non-flexible employees) groups. In particular, this analysis helps to discern whether the two groups may have had a different wage development even in the absence of working flexibly by examining the pre-treatment outcomes.

Unlike chapter one, which works with two changing dependent variables over time and categorical measures of education as an independent variable, the third empirical chapter in essence works with four key variables which change over time: the male and the female satisfaction change over time as dependent variables, and the male and female human capital change over time as independent variables. Because working with four curves allows for too many possible combinations, this complexity has to be somewhat reduced by re-categorizing the joint human capital change trajectories (the independent variable) into groups. Chapter three proposes a way of arriving at couple-level work investment categories. Moreover, it proposes a way of dealing with missing wage data over time to capture periods of non-employment in the career trajectories.

1.5 Data

This thesis' analysis uses the German Socio-Economic Panel Study (SOEP),[1] which is an annual household panel study. It started in 1984 for the Federal Republic of Germany/West Germany. The study questions household members on an annual basis. This allows the researcher to follow individuals and their immediate household members over time. The following analysis uses version 28 of the SOEP (years 1984-2011), which consists of 57,049 individuals, of which 45,658 are West German (i.e. currently living in West Germany). The survey consists of a multi-step random sampling process, with various subsamples (in this version ranging from A-J) having been added to the survey in various years (some of these subsamples focus on particular subgroups e.g. migrants whereas others are refreshment samples). This is done to ensure representativeness as well as a sufficient sample size (Frick and Grabka, 2014: 8). Table 1 shows the wave-response rate of each subsample (excluding all individuals who currently live in East

[1] The data used in this publication were made available to me by the German Socio-Economic Panel Study (SOEP) at the German Institute for Economic Research (DIW), Berlin.

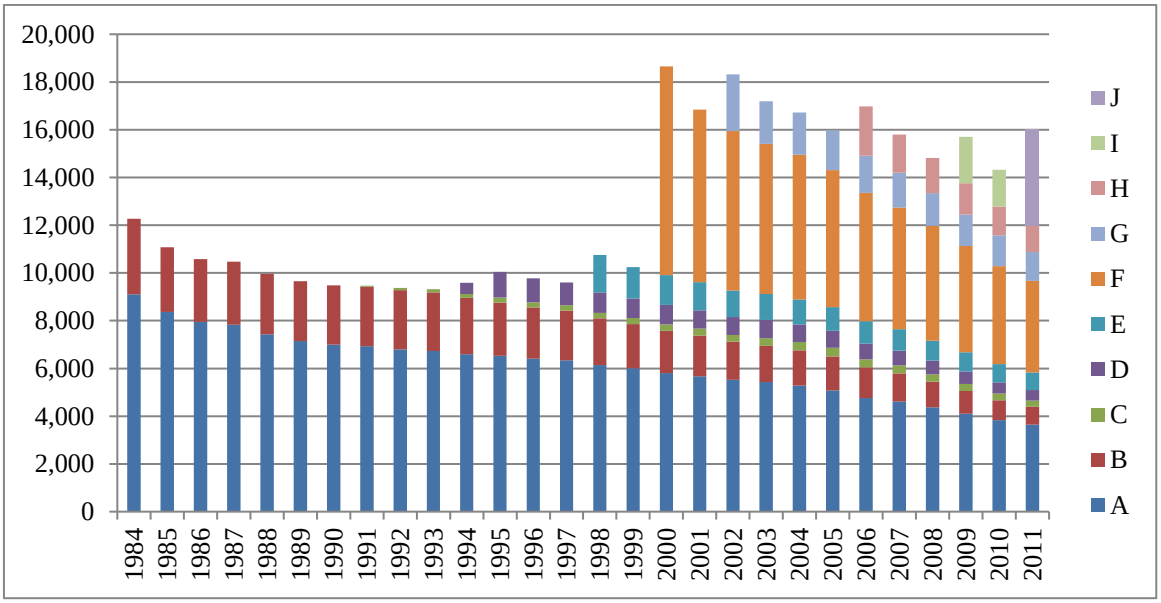
Germany). For further details about the nature of the panel and the response rates of the various subsamples please refer to (SOEP, 2010, Kroh et al., 2014, Siegel et al., 2014).

Table 1: Wave-1 response rates by subsample

Sample Type	Starting Year	Wave-1 response rate
A – Germans (West)	1984	60.6
B – Foreigners (West)	1984	68
C – Germans (East)	1990	70
D – Immigrants 1984-1993	1995	55
E – Refreshment	1998	54
F – Refreshment	2000	51
G – High Income	2002	44.4
H – Refreshment	2006	40.2
I - Incentivising	2009	27
J –Refrehsment	2011	32

Source: SOEP v28

Figure 1: Respondents by subsample and survey year



Source: SOEP v28 (excluding those currently living in East Germany)

In contrast, the microcensus- a one percentage point subsample of the population . due to its mandatory nature, achieves a response rate in about 97 percent (GESIS, 2015).

The main variables of interest (working hours, earnings, satisfaction) have the following missing data patterns. For working hours, 50 percent of the sample have been observed for at least 5 times, 25 % of the sample have been observed for at least 12 times. With regards to agreed hourly wages, 50% are at least observed for four and 25% have been at least observed for nine times. On the satisfaction measure, 50% were at least observed for six and 25% have been at least observed for 12 times.

The German Socio-Economic Panel is used throughout the thesis. Alternative data sources would have been the German Life History Study, the IAB Employment Sample or the Panel Analysis of Intimate Relationships and Family Dynamics (PAIRFAM). The former was not chosen because of the interest in prospective measurements such as wages and satisfaction. An advantage of the IAB Employment Sample would have been the large sample size (2% random sample of the social security records for 1975-2004) (Schönberg, 2009: 69). One precondition for its use would have been that women were attached to the labour market (Schönberg, 2009: 49). As I am also interested in periods of non-employment, it is not the best dataset for this thesis. Moreover, the IAB Employment Sample 1975-2001/2004 is based on a 2% random sample of individuals and therefore would not have allowed for a household-level data analysis. One interesting alternative for future analyses is the IAB PASS. It combines register data with survey data (collected from 2001 onwards). In wave one it consisted of 18,954 individuals living in 12,794 households (Antoni and Bethmann: 13). Another alternative data source would have been the Panel Analysis of Intimate Relationships and Family Dynamics (PAIRFAM), which explicitly focusses on partnership dynamics and samples cohorts, allowing for a large enough sample (4000 respondents and their partners) of each cohort (1991-1993, 1981-1983, and 1971-1973). However, the prospective dataset has only been collected since

2008 (Huinink et al., 2011). It is consequently not yet mature enough for a long longitudinal analysis of couples' careers.

Chapter 2: Literature review

2.1 Introduction

This review aims to provide a broad understanding of (1) how partners within couples are thought to interact and (2) how the variables central to these interactions are shaped by individual- and couple-level characteristics as well as outside constraints and opportunities, and (3) why West Germany is a good case for studying couples' careers.

Consequently, in section two of the literature review I will lay out how the three variables central to the theories which are analysed in this thesis – working hours, wages and utility/happiness – are thought to be interrelated. It is of course well understood that lying behind these instrumental objectives may well be an understanding of norms or social desirability. There is a tension between sociologists' tendency to over-socialize and economists' tendency to under-socialize human's actions (Granovetter, 1985: 481, Wrong, 1961). As such, instead of looking at the economic measure of utility, I could have also analysed how norms or, on the micro-level, each partner's attitudes towards the division of labour, relate to working hours and wages. I do, however, integrate normative expectations into the three-way interaction of the variables. The theories are divided according to the type of cooperation couples are thought to engage in: non-cooperative individualistic (2.2.1), cooperative star player (2.2.2) and cooperative egalitarian player strategy (2.2.3). Thereafter, I will briefly discuss these theories in light of recent discussions on multiple equilibria (2.3). Subsequently, in section four, I will look at each of the three dimensions of career success separately to understand how each of the three dimensions of success is affected by further mediating factors (e.g. partner's education, family policies). In section 2.4.1 I will explore career input in terms of working hours and in section 2.4.2 career output (wages) is discussed. Section 2.4.3 examines how various measures of utility relate to working hours and wages before looking at other factors which influence utility. The review will be followed by a critique of the research and will

point to the gaps in the literature which this study seeks to address in section 2.5. The final portion is devoted to explaining why West Germany is a particularly revealing case for analysing dual career success.

2.2 The division of labour: micro-level theories on the interrelationship between couples' career input, career output and their associated utility

At the very heart of my thesis lies a new way of categorizing couples' divisions of labour. Whilst the economists' discussion has been mainly focussing on the dichotomy of cooperation (defined as maximizing a single utility function in light of the other's given properties) and individualism (maximizing two utility functions), Sociologists have come to more complex conclusions. One example would be Pahl's "Divisions of Labour" study which, when Becker's first articles on the topic emerged, already pointed towards the importance of other factors such as norms. It further established empirically that an unequal division of household labour may only be a temporary state and found other divisions of labour and shifts in the division of labour across the life course (Pahl, 1984 ch.10). Nevertheless, the over-simplified economic theory – which did not allow for such shifts across the life course to happen – emerged as the dominant theoretical foundation to engage with within the context of an analysis of couples' divisions of labour. Its appeal may have lied in its systematic reflections on the topic and its simplicity. I see the dichotomy between individual and joint utility maximization as being not only simple but over-simplified, particularly in light of the various sociological theories which cut across this dichotomy and may be seen as refining and extending this distinction. I would therefore like to propose a new theoretical classification of couples' divisions of labour which allows us to integrate both economists' and sociologists' theories on the divisions of labour into one overarching framework. I hope that this more systematic categorization, which allows us to relate these various theories to one another, will enable

future researchers to engage not just with one set but with the multiple set of theories which engage with couples' divisions of labour.

Whilst economists argue that there is an individualism / cooperation dichotomy, in light of sociological discussions and findings, I would categorize couple-level outcomes – both in terms of career investment and in terms of their resulting career rewards – as emerging via three types of utility maximizing behaviour: (1) both partners pursue their own individual goals (non-cooperative individualistic strategy); (2) partners establish a joint goal by maximizing the outcome of the player with the comparative advantage (cooperative star player strategy); (3) both partners support one another in pursuit of a dual career in order to be less dependent on one star player for joint success (cooperative egalitarian players strategy). Each of the three strategies and their associated theories are outlined below.

2.2.1 Non-cooperative individualistic strategy

The resource bargaining and doing gender theories assume that each partner within the household tries to maximize their own individual utility function. They therefore pursue a non-cooperative individualistic strategy.

2.2.1.1 Resource bargaining between the partners

According to the resource bargaining approach, each individual utility function is maximized by aiming for the highest possible individual income. Within the couple, the person with higher earnings is assumed to have the higher bargaining power. The person with the higher bargaining power can in turn decide how much time he or she invests in paid and unpaid work. As paid work increases the bargaining power, paid work will be the preferred time investment. Paid work is assumed to be the preferred time investment because market human capital is more easily transferable to other relationships than housework human capital. In contrast, housework will be deferred to the partner with lower bargaining power (England and Farkas, 1986, 3.V). This higher time investment in

housework leads to less time available for paid work and hence for accumulating market human capital. The lower investment in market human capital will in turn increase the individual-level risk of poverty in case of divorce. Within this model, men and women are thus seen as playing against one another.

Manser and Brown further distinguish three ways in which the couple may bargain to arrive at the outcome. Firstly, they identify a dictatorial model in which one partner makes the decision for the whole household. This partner maximizes his or her utility function in light of the need to supply still enough incentives to the other partner to stay in the marriage. Second, they identify symmetric bargaining, in which each partner maximizes their own utility function in light of the other partner's decision. Thirdly, partners in a couple may pursue either one or two interdependent utilities (Manser and Brown, 1980: 36ff). The authors of the theory assume cooperative behaviour between the two partners within the marriage:

"Since the marriage decision involves a degree of cooperation that may be absent in other types of bargains, a cooperative game approach is not an inappropriate one" (Manser and Brown, 1980: 36).

I would argue, however, that if the utility function is maximized in light of the partner's decision rather than both partners maximizing a joint utility function, this strategy is still non-cooperative as it assumes individualism nonetheless. In contrast to Manser and Brown, who see divorce as the threat point for negotiations, Lundberg and Pollak in their separate spheres bargaining model propose that the threat point is a "noncooperative equilibrium within marriage" (Lundberg and Pollak, 1993: 988).

US studies indeed found that the partner with the higher income had the higher bargaining power (Blood and Wolfe, 1960). For various reasons (e.g. because women tend to be younger) it is often the husband who has a comparative advantage in paid work (Rusconi and Solga, 2007). In the US and Australia women were doing fewer hours of

housework when earning higher wages, however this relationship shifted once women earned 51% or more, which conforms with the subsequent doing gender theory (Bittman et al., 2003: 186).

2.2.1.2 Doing gender

In contrast to bargaining theories, which assume that a woman's housework involvement decreases with increasing returns on the labour market, gender theories assume that even employed women will still do the lion's share of domestic tasks (West and Zimmerman, 1987, Beer, 1983, Berk, 1985). The seemingly irrational perception of this being "fair" is tied to the assumption that

> "what is produced and reproduced is not merely the activity and artefact of domestic life, but the material embodiment of wifely and husbandly roles, and derivatively, of womanly and manly conduct" (West and Zimmerman, 1987: 144).

The doing gender approach further argues that men feel threatened in their gender identity if their partner's income is higher than theirs. Hence they will compensate by "doing gender" – acting out a "masculine" role by doing little housework (Brines, 1994). Findings on this theory are inconclusive. As discussed at the beginning of this paragraph, in the US and Australia, women were doing fewer hours of housework when earning higher wages. Indeed, this relationship shifted once they earned 51% plus of the joint income (Bittman et al., 2003: 186). Conversely, Kan, who also analysed both the bargaining and the doing gender assumptions, found no support for the doing gender hypothesis in her OLS analysis on BHPS data (2008: 61). The aforementioned cross-sectional analyses on differences in levels of investments do not allow for inferences about the relationship between within-couple shifts in paid and unpaid work. To fill this gap, Gershuny and colleagues used US, UK and German panel data, which allows for a dynamic analysis, and found that there was a lagged adaptation in unpaid working hours, i.e. a more equal sharing of tasks through a male increase and a female decrease in

housework hours once the woman's employment status changes. Yet men adapted more slowly and to a lower degree than women did (Gershuny et al., 2005: 664).

2.2.2 Cooperative 'star player' strategy

Whilst the doing gender and bargaining theories assume non-cooperative behaviour, the new home economics approach initially associated with Becker's *A Treatise on the Family* assumes cooperation (1991). Instead of each partner pursuing their own utility function, both partners try and maximize a single household (not individual-level) utility function. The joint output is assumed to be maximized through specialization. The decision of who specializes in paid and who specializes in unpaid work is based on the comparative advantage (=ratio of his marginal products in market and household sector compared to her ratio therein). This maximizing behaviour is in turn believed to result in the highest possible household income. With the returns on the investment in each sphere/type of human capital being dependent on past investments made in this particular type of capital, as time passes neither partner has an incentive to invest time in the other partner's sphere.

Even when both partners have the same comparative advantage, Becker proposes that each partner will specialize completely in one sphere (i.e. one in paid and one in unpaid work). The output would not change by a dissimilar investment of time, but the investment in each type of capital would indeed change, making the household better off in the future (Becker, 1991).

So far the theory is gender neutral. If the assumption is added that women have a biological advantage in raising children (because of the heavier commitment through pregnancy and breast feeding), when both partners invest the same in human capital, a gendered division of labour emerges. The effects of the initially biological differences are subsequently reinforced by human capital-related investment differences.

Nonetheless, there are two caveats with Becker's theory. Firstly, it is based on the assumption of constant or increasing returns to scale. Theorem 2.4 states,

"If commodity production functions have constant or increasing returns to scale, *all* members of efficient households would specialize completely in the market or household sectors and would invest only in market or household capital" (Becker, 1991: 35).

Across the year one may reasonably assume that the more time one spends in employment, the more skilled and hence the more productive one will become (marginal productivity, or the productivity of every additional month in employment, increases; in other words, there are increasing or at least constant returns to scale). However, this assumption seems less plausible if one examines a particular day or the entire life course.

Becker would assume that throughout the day, the productivity or output of the 11^{th} hour spent in housework equals or is even greater than the productivity or output of the 10^{th} hour of housework. However, it is more likely that the marginal productivity decreases at a certain point (i.e. one may be more productive in hour four compared to hour three, but one is likely to be less productive in the 11th hour spent on housework when compared to the 10^{th} hour).

Conversely, across the life course the marginal productivity (i.e. the productivity for every additional year spent in the job) may first increase and subsequently decrease. For instance, across the life course, the returns to scale may be decreasing (a) when the male partner has reached his maximum labour market potential (i.e. he has already reached the top of the career ladder) or once one has mastered the field and (b) within the household, the marginal return for each hour spent in housework may be decreasing over time when children leave the nest and parental care is no longer needed. In such cases, other than the increase in wages due to seniority, no increase in wages due to higher

levels in productivity (which for instance may be rewarded with a promotion into a higher paying position) could be expected.

Once the assumption of constant or increasing returns to scale is eliminated, absolute specialization may no longer be the preferred outcome. If on any day or across the life course people have diminishing marginal utilities, which may in turn differ between partners and between activities, then relative specialization rather than absolute specialization is more likely to be the outcome. Relative specialization in this sense refers not to each partner specializing completely in each sphere. Rather, one partner invests systematically and substantially more or less time in paid or unpaid work. This in turn leads to differential human capital formations across the life course.

Secondly, the theory does not take risks into account (see Oppenheimer, 1997: 447). Individual-level risks such as divorce imply that a woman may be less willing to commit fully to household labour, as this will decrease her chances of landing a well-paying job should he decide to leave her for a younger woman. Further risks are pointed out in the cooperative egalitarian player theories discussed below (section 2.2.3).

A puzzle within the work-family literature has been why seemingly equal investments in market human capital during the last decades have not been translated into equal earnings between the sexes. In the 1991 supplement to chapter 2, Becker consequently extends his argument to explain why women, despite working equal hours to men, have not been able to translate this time investment into equal wages. For this purpose he introduces the notion of effort/energy. He proposes that if raising children and doing the housework places high demands on people's energy, there will be less energy left for paid work. Even with the same number of hours, women, who primarily invest in housework and raising children, will be

"choos[ing] 'segregated' jobs and occupations, and invest[ing] less in market human capital" (Becker, 1991: 57).

The segregated jobs are less work-intensive, more flexible and more accepting of employees returning after a career break due to less specific firm- and client-level knowledge. However, they also pay less. This lower pay implies a subsequently lower investment in market capital compared to the high-earning husband. The reasons why women rather than men should be the ones doing so and therefore possessing the comparative advantage in unpaid work is not explained, however. Only if men were to contribute more time to housework would women have enough energy left for market work. Such a contribution would increase wage equality and decrease occupational segregation (Becker, 1991: 78). This in turn would imply that the division of labour may still exist but no longer be divided along gender lines.

2.2.3 Cooperative egalitarian player strategy

The specialization theories discussed so far assume "asymmetrical" dependency of partners on one another: the woman earns little and is financially dependent on the husband (Oppenheimer, 1997: 445). For the husband to still profit, she has to make a significant contribution to housework (Becker, 1991, Oppenheimer, 1997: 445). ***Risks theories*** question whether such asymmetrical specialization is indeed optimal if one takes individual-level risks of divorce and couple-level risks of the main earner's unemployment or the primary carer's sudden death into account. In any of these cases, role redundancy may be preferred over specialization (Oppenheimer, 1997: 447, Oppenheimer, 1994).

Psychological ***theories on equity*** also come to the conclusion that equity rather than specialization maximizes the joint utility. They propose that an egalitarian division of labour maximizes the joint utility function, as neither of the partners over- or underbenefits. And indeed, a small-scale study on 92 couples showed that overbenefitting

resulted in guilt whilst underbenefitting resulted in anger (Guerrero et al., 2008: 718-719). Similarly, studies on the relationship between depression and equity demonstrated that equity was associated with lower levels of depression among men and women (Kalmijn and Monden, 2012: 369).

The subsequent section will discuss how the three intertwined dimensions of within-couple career success – (1) working hours (2) wages and (3) associated utility – are affected by (a) individual-level characteristics (b) within-couple differences and (c) outside opportunities and constraints.

2.3 Multiple equilibria and the decline of the male breadwinner model

An analysis of couples' careers is of particular interest in light of current shifts in society away from a male breadwinner towards a more gender egalitarian division of labour. According to Esping-Andersen and colleagues, couples' specialization strategies within the different countries are currently moving from one orthogonal equilibrium (specialization) to another (gender symmetry). This shift is thought to have been initiated by exogenous changes such as birth control and household technology, which resulted in an increase in women's investment in paid work. As a consequence, a preference for female economic independence emerged. However, these preferences for female independence were/are not necessarily supported by institutions and policies which may still be supporting the male breadwinner model. The move from one equilibrium to the next is likely to be accelerated by family-friendly policies. In contrast, wherever these policies are out of line with the new preferences of women and their behaviour, an unstable equilibrium emerges when transitioning from one equilibrium to the next. During such times no common norm with regards to "proper behaviour" prevails. Hence one would expect to find inequitable outcomes such as the double shift or doing gender during such times. Once the income of partners becomes ever more alike, specialization –

due to the higher opportunity costs of women's unpaid work hour – will no longer be the optimal arrangement. As a result, a symmetric division of labour would emerge, as it would be more rational (Esping-Andersen et al., 2013).

2.4 The three intertwined dimensions of couples' career success

2.4.1 Career input: working hours

The division of paid labour between partners is mediated by the following factors: prior investments, gendered preferences, constraints, partner characteristics, parenthood, the employer and the national context.

2.4.1.1 Effects of Individual Characteristics on Working Hours

Prior investments

If specialization theorists are correct, then differences in pre-relationship labour market human capital should determine the difference in the within-couple division of labour. In the past, men were investing more time in their careers than women, which led to a comparative advantage which in turn resulted in men specializing in paid and women in unpaid work within the couple. Yet the gender difference in educational attainment has disappeared in most Western societies (Blossfeld and Drobnic, 2001b: 5, Shavit and Blossfeld, 1993). Moreover, with an increasing demand for skilled service and administrative occupations, more and more women were able to obtain higher educational wage returns (Blossfeld and Drobnic, 2001b: 20). As such, one would have expected a decline in gendered specialization in paid and unpaid work across the life course. Nevertheless, such assumptions are only partially supported, as micro-level evidence is mixed. However, one must be careful with this conclusion as results are based on a cross-sectional study (despite longitudinal data being used). Longitudinal studies on the UK show the contrary: women with a higher educational qualification re-entered employment faster than their low-educated counterparts (Dex et al., 2008: 65). Similarly, the wife's

resources had a positive effect on her labour market participation across different types of welfare states (Drobnic and Blossfeld, 2001: 376).

A cross-country over-time time use data study on changes in paid and unpaid work among men and women showed that men and women were gradually converging, although large gender differences still exist (Gershuny, 2000). Recent OECD statistics show though that in the US female full-time employment is no longer on the rise (OECD, 2014). In fact, European countries – most likely because of newly introduced family friendly policies – have overtaken the flexible US. In a New York times pole 61 % of non-employed women named family as a reason for their non-employment (Flores, 2014). The question emerges as to whether the female revolution has stalled or is incomplete – also on the reverse / housework side (Esping-Andersen, 2009, Sullivan, 2000).

Gendered preferences

Preference 'theorists' attribute the lack of change to differential preferences among the sexes. It is arguable whether this is a theory or rather a strong assumption of inherent gender differences. Hakim proposes that whilst men prefer to work some women have a "preference" for not working full-time (Hakim, 1995: 436). This assumption and her proposition of women's ***preferences*** affecting their time investment in their market human capital have led to a lively discussion. Four central principles underpin Hakim's preference theory. First, five changes have resulted in women now having a choice with regards to how much time they spend in market work versus non-market work: (1) "the contraceptive revolution", (2) the "equal opportunities revolution", (3) the "extension of white-collar occupations", (4) the introduction of "jobs for secondary earners", and (5) the rising significance of "personal preferences in the lifestyle choices". Second, there are three types of women preferring a different mix in market and non-market work: (a)

"home-centred", (b) "adaptive", and (c) "work-centred" (the minority) Third, this in turn leads to conflicts between the different types of women. Fourth, this may elicit differential responses to policies (Hakim, 2002: 435-436, Hakim, 2000).

The preference 'theory' is partially supported by findings that preferences shifted between two successive years among American workers who became parents, suggesting that a revision of work hour preferences took place (Clarkberg and Moen, 2001). Yet, because preferences can also be outcomes of given constraints rather than being the driving force of men's and women's time investment, it is questionable whether this 'theory' actually holds (Crompton and Harris, 1998: 131).

Constraints

The preference 'theory' is opposed by authors arguing that "Preferences may *shape* choices […] but they do not *determine* them" (Crompton and Harris, 1998: 131). These constraints include exclusion by men, precluding women from entering certain positions in the labour market, or socio-historical and policy differences between countries (Crompton and Harris, 1998: 131, Crompton and Harris, 1997). Indeed, work hour reduction has not been the preferred choice. Rather, there has been a mismatch between preferences and observed work hour patterns in Western Europe. This mismatch has also been prevalent in Germany. Whilst the male breadwinner model has been pursued by 52% of Germans it was preferred by only 6% of couples (Daly, 2005: 388). Note that 52% refers to a cross-sectional measure and that couples may eventually move into their preferred patterns. Similarly, in the US, men would prefer full-time work to overwork whilst women would like to work slightly less than full time (Clarkberg and Moen, 2001: 1133, Moen and Yu, 1999). These findings lend support to constraint theorists' arguments. Some of these constraints will be outlined in the subsequent sections.

2.3.1.2 Effects of the presence of a partner on work hour investments

Within the literature the partner is seen as either one of these constraints or a resource (Bernasco et al., 1998, Bernardi, 1999, Verbakel and de Graaf, 2008).

Having a partner can be restrictive if one of the following mechanisms is at play: first, if one partner works long hours he or she may no longer be able to pick up the slack at home. As a result, all of the housework must be shouldered by the other partner. Qualitative and quantitative findings have demonstrated that women were more likely to shoulder the dual burden of picking up the slack at home whilst simultaneously pursuing their career (Hochschild and Machung, 1989, Dex, 2004). Consequently, it comes as no surprise that overwork has been found to have gendered cross-partner effects: American women and mothers in particular were more likely to quit their job if their partner was working high hours. By contrast, American men were unaffected by their partner's high working hours. (Cha, 2010: 316-317).

Age differences may also affect labour market decisions. Since women tend to be the younger partner, it is often the husband who has a comparative advantage in paid work, resulting in a comparatively lower bargaining position for the wife when the couple has to decide whose career takes precedence (Rusconi and Solga, 2007: 315). A partner's income determined women's choice to work but not whether they were working part time or full time in the UK (Ermisch and Wright, 1993: 129).

A partner's education, in addition to their levels of overwork and age, can have negative consequences for labour market participation of the female partner. German women with higher educated men were working less than other women (Brynin and Schupp, 2000: 355). Because these results are based on cross-sectional analysis, little is known about how women's career trajectories were affected. Longitudinally, women who were partnered to men with high resources had lower levels of labour market participation in conservative welfare states whilst they had higher levels of labour market

participation in socially democratic welfare states (Blossfeld and Drobnic, 2001a: 376). These findings consequently point towards the importance of examining the interdependence between welfare state policies and men's and women's labour market decisions (see below).

2.4.1.3 Effects of the presence of children on work hour investments

By increasing the demands on couples' time, children have been identified as the main drivers of career investment shifts. Young children in particular were found to be responsible for work-life combination pressure (Van der Lippe et al., 2006: 303). Prior to childbirth, many couples do not have to make a family-dual career choice. Once the first child is born, many couples have to realize that

"the belief that a lifetime of continuous hard work is the path to occupational and personal success […is a] career mystique" (Reichart et al., 2007: 337).

Within couples, it is oftentimes the woman who reduces her employment hours in response to this newly introduced time pressure following normative expectations (Bielby and Bielby, 1989, Becker and Moen, 1999). In contrast, men with traditional attitudes have generally been found to work higher hours as parents (Kaufman and Uhlenberg, 2000: 944). The strength of the parenthood-work hour reduction association has been found to differ across countries, however (see Smith et al., 2003 for a comparison of East and West Germany, Ireland, Britain and Denmark). Similarly, the effect differs depending not on relative income pre-birth but on absolute income prior to childbirth. In Britain, higher female earnings were associated with a lower likelihood of entering a traditional division of labour upon entering parenthood (Schober, 2013: 82). The 16 waves of 310 couples were analysed with an OLS change (from pre-birth to two years after birth) regression, which allows for the examination of an individual's single transition between two time points. In contrast, I will look at the life course trajectories of individuals and couples later on by using growth curves rather than two time point

models. In other words, I will look at the life course story behind the multiple data points, accounting for dependencies between these data points over time. Qualitative and quantitative evidence suggests that for some couples, and only in the long term, the specialization patterns may be reversed (Steiber and Haas, 2010, Kühhirt, 2012, Becker and Moen, 1999). A longitudinal study on German men and women which used fixed effects regressions revealed that irrespective of women's relative earnings within the couple pre-birth, after the birth of the youngest child, all men and women entered a traditional division of labour. However, the magnitude of these changes was lower for women with a higher within-couple income share (Kühhirt, 2012: 573). Also, after determining their starting point with regards to the pre-birth income, both individuals were again analysed separately, precluding the possibility of making inferences about how couples' work hour investment evolves jointly over time.

2.4.1.4 Effects of the employer on work hour investments

The type of policies offered by the employer may affect work hour investment both across the life course and across the day. High demands on an individual's time may eventually lead to labour market drop out (Cha, 2010). Employer policies such as schedule control can help employees reduce their work-life conflict (Kelly et al., 2011: 281).

2.4.1.5 Effects of the national context on work hour investments

The national context can affect the calculations associated with the micro-level division of labour between men and women in two ways: (1) specific norms that pertain in a specific national context can raise the perceived costs of entering paid work, and (2) national policies can affect the attractiveness of employment in general and dual earnership in particular.

Attitudes

Gender role attitudes vary across countries. In Denmark for example, 12% are against female full-time employment when the child is younger than three. Similarly, only 14% of Swedes are against female employment at that age. This stands in sharp contrast to 48% of West Germans opposing female full-time employment when their child is younger than three years. Gender role attitudes are associated with how housework and paid work is shared among partners (Steiber and Haas, 2010: 258). Broadly speaking, countries with egalitarian attitudes such as Denmark and Sweden have been found to have a higher share in dual earner and female breadwinner couples and a lower share in male breadwinner couples (Steiber and Haas, 2010: 265).

Policies

On the macro-level, ***family friendly policies*** (parental leave, childcare) and ***tax policies*** can affect the micro-level division of labour between men and women. Countries differ in the extent and type of family friendly policies offered. In the post-war period the assumption that men were the sole providers for the family was still accurate and, consequently, policies aimed at supporting the male breadwinner were matched to couples' needs (Lewis, 2001). However, these policies no longer reflect dual earner couples' preference to work as dual earners.

A welfare state intervention index – comprised of the number of paid weeks times the wage percentage in leave, the percentage of preschool children in public childcare, and the proportion of employees in the public sector – had a positive effect on women's labour market participation (see section below on career outcomes) (Mandel and Semyonov, 2006: 1910). Yet, with this index it is impossible to understand which policy has which effect and whether length or wage percentage during parental leave was the driver of the results. When policies are separately considered, the following can be concluded:

Parental leave policies vary across countries along two dimensions: first, whether parental leave is offered to one or both genders and second, they differ in the length of leave offered. The length of paid parental leave may depend upon who uses the measure. Another option to parental leave may be parental payments in relation to working part time. Parental leave offers have been strongly gendered in the past. Exceptions are Scandinavian countries such Sweden and Norway, which have had paid paternal leave policies. Time use data showed that these countries exhibited a higher level of male involvement in childcare when compared to countries with no/low provisions of paternal leave such as the UK and the US (Sullivan et al., 2009: 242-243). This, rather than the actual length of leave offered, may also be the reason why these countries have higher female labour market participation rates. Longer ***maternal leave*** was found to be associated with women's later re-entry to the labour market (Gangl and Ziefle, 2009: 354).

In contrast, a country's ***public childcare*** enhanced the probability for female labour market participation among both married women and mothers, according to a cross-sectional study of the LIS data carried out in the mid-90s, across 19 countries (Pettit and Hook, 2005: 794-795).

The policies within Scandinavian countries increase the probability of women's labour market participation. Yet the policies can come at the price of career progression into higher positions across the life course: the women in those countries have a lower probability of entering managerial positions than those in Canada or Switzerland, for example (Mandel and Semyonov, 2005: 961-962). Hence it is questionable whether these policies indeed foster dual careers.

Various taxation variables interact in a complex way, leading either to an incentive or a disincentive for dual employment. First, ***three types of taxation*** can be

distinguished: joint, split and separate taxation. Second, these types of taxation interact in a complex way with two types of ***disregard***: (a) tax breaks and the ways in which they can be split between the partners, and (b) allowances for married couples. The effect of the disregard depends on the size of the disregard and how it is split between the two partners. Third, tax progression affects the income point at which the work incentive/disincentive sets in. Simulating a UK separate taxation system for West Germany (split taxation) increased labour market participation rates as well as full-time employment. A joint taxation scheme such as that implemented in Ireland was simulated to increase non-participation in Britain from 30% to 65% (Smith et al., 2003: 432). Interestingly, despite split taxation measures being couple-level measures, only married women were analysed in the study. Critically, men's labour supply was assumed to be exogenous to women's labour supply within this study, an assumption which, according to Cha's longitudinal study, does not hold – at least not in the US (Cha, 2010: 316-317). Similarly, despite using longitudinal data, only one wave was used. Consequently, couples' shifts in work investment responses across the life course were not covered. Moreover, cultural factors such as attitudinal differences remain unaccounted for in the economic models but may explain why East Germany was less sensitive to an Irish joint taxation system than West Germany (which in 1991 were taxed the same) (Smith et al., 2003: 432).

2.4.2 Career output: wages and wage potential

2.4.2.1 Effects of individual investments on wages

One's labour market success depends on one's overall human capital investment. Human capital may be acquired through ***education, job experience*** and ***on-the-job training*** (Becker, 1962: 9) and may decrease during phases of unemployment (Nickell, 1982: 50-51). The effects of job experience may differ by ***occupation***, however, as a "bad start" on the occupational hierarchy may hinder career advancement later in life. Again,

gender has an effect: in the UK, women rather than men tended to be stuck in occupations with low earnings if they started out in low-paying occupations (Bukodi and Dex, 2010: 437-439). Their analysis stopped at the age of 34, however. As a result, late-starters (i.e. women who first have children and only subsequently invest heavily in their careers) were excluded.

In the UK, ***part-time*** workers generally earn lower wages even after controlling for employee's selection into part-time or full-time work (Ermisch and Wright, 1993: 131). Similarly, in Germany, part-time workers were employed in jobs which, on average, were 2 points lower on the SIOPS scale when compared to workers employed full time (Manzoni et al., 2014: 1300). Following women over time, reduced work hours were shown to have a negative effect on wages for women in the US in managerial and professional positions (Glass, 2004: 383). Not only women's but also men's work reduction has been found to have a negative effect on their subsequent income and career, as evidenced by a study on Norwegian men (Halrynjo, 2009: 119).

Besides these objectively measurable characteristics, oftentimes unobserved individual characteristics such as ***ability*** and ***motivation***, which may be tied to family background, may lead to an increase in income or occupational position(Nickell, 1982: 44).

2.4.2.2 Effects of the presence of a partner on wages

If marriage reduces women's work hour investment but increases men's work hour investment, this differential investment in market human capital will eventually be reflected in different wages. Studies using OLS regressions particularly found support for a male marital wage premium, suggesting that men benefitted from the specialization processes associated with marriage. OLS regressions rely on between-group comparisons and consequently cannot control for individual-level unobserved characteristics (e.g. high-ability men being more likely to marry and earn high wages). Fixed effects analysis

can control for unobserved time-constant heterogeneity via subtraction of the individual-level mean from the individual's current observation. Once these unobserved time-constant individual differences were cancelled out with the fixed-effects approach, the effect diminished (Bardasi and Taylor, 2008: 579). Fixed effects analysis cannot control for differences in wage maturation, however (men with a steep wage progression being more likely to marry) (Ludwig and Brüderl, 2011: 4).

The above theories propose that a partner with a comparative advantage on the labour market or higher relative earnings would be a restriction to a career. This is at odds with sociologists' proposition that a partner may also act as a resource (Verbakel and de Graaf, 2008, Bernasco et al., 1998). The reason for these seemingly contradictory conclusions lies in different perceptions of how human capital can be acquired. From an economist's standpoint, an individual's capital is acquired through education and labour market experience. Sociologists see the acquisition of human capital as not only an individual's endeavour but acknowledge the role played by other individuals in enhancing this capital (Bernasco et al., 1998: 17). Whilst earnings may be negatively correlated with the partner's investment in paid work, high occupational attainment is also associated with labour market resources. These labour market resources (e.g. skills, information, networks and ambition) may act as social capital. In other words, if this capital is transferred to you, your partner's career success serves as a resource for your own career (Verbakel and de Graaf, 2008: 82, Bernasco et al., 1998: 17-18). Again, effects may be gendered. In their analysis on Germany and the UK, Brynin and Schupp found that, broadly speaking, transfers of human capital between partners had occurred but that this was more likely to be the case for men than for women (Brynin and Schupp, 2000: 349).

2.4.2.3 Effects of the presence of children on wages

The gender wage gap is mostly a gap between mothers' and men's wages; the gap between non-mothers and men is considerably smaller. This has led some to conclude that one should speak of a family wage gap instead, particularly since the gender wage gap has been narrowing, whilst the wage gap between mothers and non-mothers has been widening, or at least not decreasing (Gangl and Ziefle, 2009: 341, Waldfogel, 1998: , Avellar and Smock, 2004: 597). As a result of family-to-work spill-over, women in particular had to turn down overtime or additional tasks, which affected their job performance (Keene and Reynolds, 2005: 286). The change in working hours has been found to have long-term implications. In Britain, women born in 1958 who held managerial positions had a 70% chance of downward mobility when moving from full-time to part-time work, but only a 25-50% chance of upward mobility upon re-entering full-time employment. The chance of downward mobility was only lower in female-dominated positions (Dex and Bukodi, 2012: R33).

Taking time out after the birth of the child has also been found to destabilize West German women's careers – they risked either an upward or a downward movement. After 36 months the risk of upward movement decreased again. Note that these findings rely on a sample of women who were employed in one of the seven months before the first child was born. Women with a weaker attachment to the labour market may have incurred even larger losses (Aisenbrey et al., 2009: 597-599).

Motherhood has been found to be associated with a wage penalty of 5% per child in the US, after accounting for differential labour market behaviour (e.g. lower working hours or the move into less lucrative positions). This suggests that either employer discrimination or a reduction in women's productivity has led to the motherhood wage penalty (Budig and England, 2001: 204). The productivity parental leave penalty may partially be attributed to a depreciation in skills: in a two-wave longitudinal Swedish

study, a year of non-employment was related to a five-percentile move down the skill distribution (Edin and Gustavsson, 2008: 175).

When disentangling the wage premium associated with marriage from the wage premium associated with parenthood, fixed effects analyses revealed that both marriage and parenthood were associated with higher wages for US men. Yet, contrary to specialization theorists' expectations of a decrease in wages for women associated with marriage and motherhood, marriage led to wage gains for women. Moreover, working hours, job characteristics and tenure did not explain the marriage wage premium. In contrast, women did experience a motherhood wage penalty, yet the extent of this penalty did not differ significantly between married and unmarried women (Killewald and Gough, 2013: 495).

2.4.2.4 Effects of the national context on wages

The effect of parenthood on wages can be affected by national policies and attitudes. Jane Lewis divides countries into three types. The first type is the male-breadwinner family model, which draws a strong line between the public and the private responsibilities and offers no childcare and maternity leave. The second type is the modified male breadwinner countries such as France, where women have mostly worked full time receiving gender-neutral compensation for child costs and weak male breadwinner countries, encouraging dual-breadwinner couples through separate taxation, parental leaves and child care provision. The third type are the weak male-breadwinner countries (e.g. Sweden). These countries support female employment, such as via separate taxation, the extension of public childcare, and a loss of market earnings compensation (90%) – paid to both men and women – instead of a flat rate maternity leave (Lewis, 1992). These categories do not line up with Esping-Andersen's categorization of welfare states, however (1990). A cross-sectional study showed that, by the age of 45, mothers in Nordic countries – countries in which there are higher levels of

female employment support in terms of childcare and parental leave policies – earned 80% (two children, ages 25 and 27) to 91% (one child, age 27) of non-mothers' earnings. By contrast, in Germany and the Netherlands – both countries with highly traditional attitudes towards female employment and lower levels of support – mothers only earned between 42/46% (two children, ages 25 and 27) to 63% (one child, age 27), and in the UK between 58% (two children, ages 25 and 27) and 67% (one child, age 27) of their non-mother counterparts' earnings (Sigle-Rushton and Waldfogel, 2007: 76).

Parental leave policies have also been found to affect wage outcomes. Parental leave policies can be shaped in various ways.

Long maternity leaves were again associated with higher earnings inequality (Mandel and Semyonov, 2005: 949)Earnings however cannot disentangle whether the effect is due to working hours and wages. Nevertheless, longitudinal evidence on wages draws a similarly bleak picture for West Germany. Over time, unlike the US and UK, for West German women residual wage penalties remained, even after controlling for labour force experience, interruptions and moves into family-friendly occupations. The authors present this as evidence for higher levels of statistical discrimination against mothers in West Germany (Gangl and Ziefle, 2009: 365). Across countries, longer maternal leave periods in particular were found to have a negative impact on earnings inequality and also on subsequent wages (Mandel, 2012: 949, Ruhm, 1998: 315).

The extension of the public sector with ***childcare*** and other care jobs, which tended to offer work hour flexibility measures, enhanced female employment. Conversely, they deterred women from moving into more lucrative positions (Mandel and Semyonov, 2005: 965).

Budig et al propose that welfare state policy effects onto wages interact with attitudes in their respective countries. And indeed, within the more conservative

countries, the positive association between family policies and maternal earnings inequality was lower than in less conservative countries if not being negative (Budig et al., 2012: 186). However, while the authors calculate a 33% earnings gap for West Germany, for example (after accounting for labour market behaviour), a longitudinal study using wages instead of earnings finds a smaller gap of 14% (Buligescu et al., 2009: i38).

Tax policies can have two influences on wages. Firstly, if unequal tax rates are applied within the household they can reduce the net relative wage of one partner in comparison to the other partner. This may deter certain women from further investing in their market human capital, as they may earn comparatively less either due to their age, employer discrimination, or occupational segregation (Smith et al., 2003). Lower investments may in turn affect productivity and ultimately wages. In a two-wave longitudinal Swedish study, a year of non-employment was related to a five-percentile point move down the skill distribution (Edin and Gustavsson, 2008: 175). This in turn is likely to be also reflected in wages and earnings.

2.4.2.5 Effects of employers on wages

Employers also play a vital part in wage attainment. Women in particular may face statistical discrimination. If women in general are observed to either temporarily or permanently leave the labour market, employers may be inclined to factor hiring costs into women's wages. Similarly, they may be less inclined to "invest" in an employer they risk to lose. In a US-UK-Germany comparison, it was German women who were most likely to be affected by these kinds of discrimination: their residual wage penalty could not be explained by their labour market behaviour (Gangl and Ziefle, 2009: 341). Differences in family and tax policies with their resulting differences in work hour investment may make *employers* in turn more likely to statistically discriminate against women. Because hiring or promoting women *on average* can lead to decreased profits if

the woman drops out or reduces her hours, *individual* women may find it difficult to persuade employers that they will not reduce hours or drop out. Better jobs in particular are likely to be reserved for more stable employees, which on average tend to be men. This makes it hard for women to climb up to the top of the career ladder (Mandel, 2012: 243-244).

However, employers may also enhance the employees' productivity by decreasing stress with measures such as work hour flexibility. Indeed, researchers found that work hour flexibility reduced the clash of family with work commitments, as well as stress, overall fatigue, sleeping problems, backaches, headaches and job dissatisfaction. It also significantly increased the likelihood of employees being able to work beyond the age of 60 (Ala-Mursula et al., 2006: 615; Costa et al., 2004: 840-841). Another mechanism is proposed by Weeden (2005: 461): employees perceive the newly won flexibility as a gift and in return invest more in their jobs. The enhanced productivity is likely to result in higher wages.

2.4.3 Utility as happiness/health/depression

Several proxies for utility have been used to study the relation between (1) utility and couples' working hours and (2) utility derived from couples' wages. They include satisfaction, depression, health and, as an outcome of discontent, divorce.

2.4.3.1 Utility and work hour investment

How do (a) each partner's level of work involvement and (b) the relative distribution of working hours within couples affect each partner's well-being?

Utility of absolute levels of labour market participation

Unlike men, women are expected to take care of the home (Steiber and Haas, 2010). Working women are mostly responsible for juggling housework and childcare, resulting in a dual burden (Gershuny, 2000). Nevertheless, evidence on whether women are happy homemakers or happy employees is mixed. Some studies find that women are

slightly happier as homemakers than as wives working full time (Treas et al., 2011. 125), whilst others, when examining various measures of health, find that women's employment either has no effect or a positive effect on their health (Klumb and Lampert, 2004: 1007). As the authors rightly point out, selection effects (e.g. whether happier women are more likely to become homemakers) cannot be excluded (Treas et al., 2011: 126).

Moreover, cognitive dissonance may be at work. Cognitive dissonance occurs in decision making, when the

> "cognitive elements corresponding to positive characteristics of the chosen alternatives, and those corresponding to negative characteristics of the chosen alternative, are *dissonant* with the knowledge of the action that has taken place […] Dissonance almost always exists after an attempt has been made […] to elicit overt behaviour that is at variance with private opinion" (Festinger, 1962: 261).

In the case of utility measures such as satisfaction, dissonance may be at play when women who are dissatisfied with being housewives, for instance, nonetheless state that they are very satisfied to adhere to normative expectations regarding motherhood.

The effects may further be mediated by the individual's attitudes. A small-scale psychological study found that the effect of family-to-work conflict on guilt was stronger when the individual held traditional values. In contrast, the work-to-family conflict resulted in more guilt for those with egalitarian attitudes (Livingston and Judge, 2008: 212-214). These data must be interpreted with caution, however, as the study used a highly selective small-scale sample of female business and management studies students.

Not only an individual's attitudes but also a supportive attitudinal environment for female employment may affect women's employment-happiness relationship. In a 28-country multilevel analysis, Treas and colleagues found that the difference between part-time and full-time workers' happiness was reduced by liberal gender role attitudes, social spending, GDP, female labour market participation rates (Treas et al., 2011: 126).

Utility of relative levels of labour market participation

How is the distribution of working hours within the couple associated with utility? England and Farkas quote a study by Thornton and Freedman: Despite a decrease in specialization over time, couples have become more satisfied (Thornton and Freedman, 1983). According to them this piece of evidence seems to contradict Becker's economic theory (England and Farkas, 1986, ch. 3.VI). Although one has to be cautious with micro-macro inferences. Another US micro-level study demonstrated that it was not the actual distribution of hours but rather perceived equity that reduced depressive symptoms for men in paid and for women in unpaid work (Glass and Fujimoto, 1994: 186). Both studies used cross-sectional data. Hence it remains unclear whether across the life course these happiness patterns between the two groups may shift within individuals.

Employing a two-wave longitudinal approach, Kalmijn and Monden found that in the US an equitable division of labour reduced depressive symptoms for both husband and wife. The effect was particularly pronounced for husbands. Based on these findings, they propose that de-specialization towards dual-earner couples is not as detrimental to couples' well-being as commonly assumed (Kalmijn and Monden, 2012: 370-371). Similarly, divorce has been demonstrated to be more likely in specialized than in egalitarian couples in the US and vice versa in Germany(Cooke, 2006: 462).

This contrasts with Stutzer and Frey's findings on German couples. They found that women in specialized couples were happier than those in non-specialized couples, whilst there was no difference for men in specialized and non-specialized couples (2006: 16). The authors looked at the relationship between levels of satisfaction and specialization over time (clocked by years to/from marriage). As discussed in chapter five, their single summary measure hides potentially very different long-term developments, however.

2.4.3.2 Utility and wages and income

While the time-investment may represent a burden on women's levels of satisfaction, the resulting income and status attainment may have opposite effects on life satisfaction.

Utility of absolute income

Significant differences were found in the US. Whereas an increase in the proportion of women's income over time raised their own happiness and well-being, it had a negative effect on men's well-being (Rogers and DeBoer, 2001: 469-470). However, this study does not account for within-couple dependencies.

Utility of relative income

When accounting for within-couple dependencies, Brennan and colleagues found that men who attached a higher importance to their earnings were positively affected in their marital role quality once their relative earnings increased, whilst no such effect was found for women (Brennan et al., 2001: 177-178).

A study on German couples by Stutzer and Frey examined the effect of the relative difference in wage rates between spouses on changes in satisfaction around marriage. Based on the findings the authors conclude that ***couples who specialize gain more from marriage*** (Stutzer and Frey, 2006: 18-19). Their independent variable has a number of limitations (e.g. not accounting for time-ordering by using an average measure), which the fifth chapter discusses in detail.

Ultimately, both with regards to the relationship between wages and utility and with regards to the relationship between working hours and utility, it is impossible to determine whether the mixed evidence is due to mixed findings or simply a reflection of different sampling frameworks, a cross-sectional or longitudinal approach, or due to differential operationalization of utility.

Besides affecting time investments and wages, employers can play a vital role in improving male and female employees' sense of well-being, as evidenced by the positive effects work hour control can have on the employee's medical condition (Ala-Mursula et al., 2006: 611). Similarly, Kelly and colleagues found that the shift at Best Buy towards a results-oriented work environment (in other words, an environment in which the cultural norm was shifted within departments towards accepting that an employee could carry out their job however he or she liked as long as they completed their work) reduced work-life conflict via increased schedule control, even in a high-hour setting (Kelly et al., 2011: 284: 284). The authors note that these measures benefit all employees, not just mothers or fathers (Kelly et al., 2011: 384).

2.5 Gaps within the literature

2.5.1 Working hours: analysing couples' rather than individuals' career investment strategies

In order to measure a career, one relies on having a long observation window. In the past, panel data was unable to provide researchers with such long observation windows. As a consequence, researchers relied on single-interview retrospective data or cohort studies (Dex and Bukodi, 2013, McCulloch and Dex, 2001, Robert and Bukodi, 2002). This has resulted in measuring careers either as moves between two states, using the more basic event history analysis models (e.g. Aisenbrey et al., 2009). Outside of event history analysis approaches, two time-point comparisons (e.g. from full-time to part-time employment) have been used. It has been argued that researchers should move away from focussing on career transitions to analysing career trajectories (Aisenbrey and Fasang, 2010, Rosenfeld, 1992). Researchers consequently moved from analysing single transitions to analysing sequences of transitions, which in turn were defined as a trajectory. One way in which such sequences of events can be modelled is by extending event history analysis techniques by employing a multi-state hazard model (Raymo and

Lim, 2011). Yet these models can become quite complex across multiple states (Mills, 2011: 202-203). A more intuitively interpretable form of capturing longer time windows is the use of sequence analysis (see Abbott and Hrycak, 1990 who brought the idea to Sociology and for a recent discussion of its advantages in comparison to event history analysis , Aisenbrey and Fasang, 2010). The aim of this method is to distinguish between different types of career clusters. Sequence analysis does not rely on continuous measurement, as it is only interested in sequences of states. However, when trying to arrive at the different clusters, the problem arises as to how one can combine career sequences into groups to be able to distinguish between life course career types. After all, each individual has a quite unique sequence of states (Abbott and Hrycak, 1990: 150). Three steps are taken to arrive at the clusters (within the optimal matching approach):

"1. Theoretical specification of state space and transformation costs, 2. Optimal matching algorithm to produce pairwise distances between subjects, 3. Multidimensional scaling or clustering (Aisenbrey and Fasang, 2010: 425)".

Aisenbrey and Fasang have summarized the criticism and recent advances in sequence analyses which analyse the points raised by the critiques (Aisenbrey and Fasang, 2010: 652-653).

First, the link between theory and transformation costs were accused of being arbitrary (Levine, 2000). Data-based transformation costs and the use of a reference sequence has been proposed as a way to work through this arbitrariness (Stovel, 2001, Abbott and Hrycak, 1990). Second, the way sequence analysts have dealt with missing and incomplete data and the way how they dealt with sequences of different lengths has been criticized. Stovel and Bolan overcome this by using indel costs which take censoring into account (Stovel and Bolan, 2004). Third, it has been pointed out that the transformation costs should not be the same at various places within the sequence and that the order of sequences needs to be taken into account (Wu, 2000). Stovel's decay

function, the dynamic hamming measure, matching and reverse order coefficients, nonalignment/subsequence metrics, and complexity measures have been developed in order to address this critique (Stark and Vedres, 2006, Stovel, 2001, Dijkstra and Taris, 1995, Lesnard, 2006, Elzinga, 2010, Elzinga, 2003). Moreover, Markov models have been used (Berchtold and Raftery, 2002).

To overcome such arbitrary decisions in a non-complex manner, I propose to use two methods which validate the choice of clusters in the analysis in chapter one: a researcher-driven, theory-based clustering combined with a data-driven validation of the clusters.

I would argue that a trajectory and particularly a career trajectory should be more commonly thought of as a vertical movement along a continuous scale rather than a sequence of states. The first chapter of the thesis therefore employs a work hour trajectory rather than event history or sequence analysis to demonstrate how looking at gradual moves along a continuous measure of working hours can lead to new insights. Indeed, recent research on careers has employed multilevel growth-curves (econometrically random effects models) and the more specific variant of a fixed effects model (again using the econometric usage of the term) (Kühhirt, 2012, Manzoni et al., 2014). However, an average curve and the effect of the independent variables on the average curve are modelled, rather than first exploring heterogeneity among the individual-level curves (see chapter three for an in-depth discussion). In addition, they study men's and women's outcomes separately.

Despite recent moves toward acknowledging that couples or families need to succeed rather than women having to "lean in," surprisingly little is known about what makes couples' careers succeed. Instead of providing solutions for couples, much of the research to date has focussed on identifying individuals' problems (Grzywacz and

Demerouti, 2013). In earlier days these individuals were mainly "working mothers", whilst in the first decade of the 21st century this focus was extended to fathers and non-working mothers (see Perry-Jenkins et al., 2000 for a review of the 1990s and for 2000-2010, Bianchi and Milkie, 2010). The theories above demonstrate that theories on specialization are theories on within-couple relationships. Not only longitudinally, but also vertically (i.e. in the depiction of how partners working hours within couples relate to one another), the method proposed in the third chapter has a key advantage: men's gradual moves and differences within the full-time category can be captured. Indeed, in the main cross-national book in the field, the number of men who were found to be working part-time was too low to make any valid inferences (Blossfeld and Drobnič, 2001: 60).

In the past, research has focussed on average developments, thereby in essence neglecting important variations in career strategies (Moen and Sweet, 2004: 217). By deliberately exploring variations among couples I am able to draw a richer picture of the different types of coupled career developments.

2.5.2 Wages and working hours: holding the employer accountable

Numerous studies have been conducted to determine how men's and women's wages are shaped. Yet these studies mainly focussed on the partner (e.g. they examined whether men were a resource or a restriction to women's careers), on children (motherhood and fatherhood wage penalty/premia) or on the influence of state-level policies.

There has been a curious omission with regards to employer-level solutions to ***couples***' work-life problems, despite policy makers and scholars demanding better work-life solutions from employers. This important stakeholder seems to have been analysed with regards to its effect on the individual (Weeden, 2005). Whether employer policies can also foster the partner's career has not been tested, possibly because of data

limitations. If negative effects occur with regards to overwork (Cha, 2010), positive cross-partner effects of more positive policies seem to be highly likely. Examples of such positive policies are work-life balance-enhancing measures such as telecommuting or work hour flexibility. Do they exhibit positive cross-partner effects and, if so, do such effects occur at the cost of the flexible spouse? Ultimately, addressing this question requires a longitudinal dataset capturing both the measures on each partner's wages as well as each partner's work hour flexibility status. The SOEP is unusual in that it measures both. The fourth chapter will exploit this aspect of the dataset by analysing cross-partner effects of work hour flexibility in addition to effects on the flexible employee.

2.5.3 Careers and happiness: successful couples=happy couples?

Within the literature, findings on how within-couple specialization affects happiness have been hampered by the use of crude static summary measures either in the dependent or the independent variable. Fundamentally, both satisfaction and the division of labour change over time. To properly address the question of how the division of labour affects each partner's satisfaction over time, chapter five examines how ***changes*** in human capital affect ***changes*** in the satisfaction of each partner. By looking at the statistical differences in satisfaction between partners, this thesis properly addresses the question of whether dual career investment or relative specialization is the pathway to happiness for men and/or women. By looking at changes in satisfaction over time, cognitive dissonance reductions may be captured in so far as women may eventually become so dissatisfied that they will start voicing their dissatisfaction. Unlike Stutz and Frey, a human capital measure is used which allows for depreciation in its value during periods of non-employment rather than the closest wage observation. After all, very large differences in wages may occur from before to after parental leave and choosing the wage observation closest to the missing observation is considerably random.

2.6 The West German context

The thesis focusses on West Germany. East Germany, with its historically routed differential institutional set-up, attitudes and preferences, would have made for an interesting contrast. For instance, in 2005/6 25% of East Germans opposed female employment if the child was below the age of three, versus 48% of West Germans (Steiber and Haas, 2010: 258). These differential attitudes and the differential childcare coverage pointed out earlier are in turn reflected in a higher proportion of male breadwinner couples in the cross-section (31% in West Germany versus 19% in East Germany) and in the number of dual earner couples (28% in West Germany as opposed to 48% in East Germany) (Steiber and Haas, 2010: 265). However, within the SOEP the sample size for East Germany is considerably smaller (about 20.91% of the total sample size). As such, many of the in-depth longitudinal analyses would have resulted in subsamples that were too small for East Germany. Since it is the long-term developments in particular which have been underexplored, I decided to focus on the long-term developments in West Germany instead of opting for a comparative approach.

As I will outline below, West Germany is a particularly interesting case through which to study couples' careers. Within the theoretical framework of couple specialization and multiple equilibria, West Germany can be categorized as having been stuck in a normatively and policy supported male breadwinner equilibrium for a long time. In recent times, an unstable equilibrium emerged, which is not only marked by differential couple-level work strategies but also by policies supporting opposing equilibria. The historically strong societal and policy support for the male breadwinner model stand in sharp contrast to the recently introduced policies aimed at supporting a more egalitarian division of labour. Hence there is potential for benchmarking former policy outcomes (as explored within the thesis) with transitory (capturing times with

policies supporting both the male breadwinner and an egalitarian division of labour) and future outcomes.

To be more precise, in the welfare regime literature, Germany has traditionally been classified as a corporatist-statist regime type. These regimes typically support a specialisation within the couple. Public childcare services have been scarce and, due to an egalitarian wage structure, private provision too expensive. Thus one partner has had to stay at home to look after the children (Esping-Andersen, 1996: 79). This couple-level decision has been further supported by tax policies which decrease the tax burden by taxing the lower income higher than the high income (Steiber and Haas, 2010: 256). More precisely, West German tax policies have for a long time supported the male breadwinner model because West Germany (a) has a splitting taxation regime (Ehegattensplitting) (b) a progressive income tax and (c) used to have a large zero rate allowance – though this has been phased out (Smith et al., 2003). The OECD recommended that the government

"reduce the average effective tax rates on labour income of second earners. Consider replacing the joint income tax assessment for spouses by individual income tax assessment" (OECD, 2012: 34).

With regards to the Faktorverfahren, which was introduced in 2010, the OECD comments,

"Even though from 2010 onwards the wage tax takes into account the actual relationship between the incomes of the first- and the second-earner for the calculation of the marginal burden (*Faktorverfahren*), the negative incentive effects of the joint income taxation framework for total annual income remain" (OECD, 2012: 34).

Similarly, the Betreuungsgeld or "Herdprämie" (stove premium), was introduced on 1 August 2013, following lengthy discussions between the parties and among Germans in general. It initially pays 100 Euros a month to parents who do not use childcare institutions for 22 months following the 14 months of paid parental leave. From the 1st of August 2014 150 Euros will be paid to parents who do not use institutional care. The Betreuungsgeld is clearly against OECD recommendations to "[r]esist temptations to

subsidize mothers staying at home" (OECD, 2012: 34). Whilst these two policies in particular are seen to hinder improvements in labour market performance, there have been other important shifts in family policies, which are likely to increase women's labour market participation and are explicitly aimed at arriving at orthogonal "gender egalitarian equilibrium" (Esping-Andersen et al., 2013: 3).

Of course, with 61% of parents experiencing difficulties in accessing childcare because of availability (waiting lists, lack of services), extending provision has been an utmost priority (Eurofound Quality of Life Survey, 2012: 124). Yet will these childcare extension initiatives be successful if the quality of childcare is not raised in parallel? Given that even in 2006 West Germans expressed concerns with regards to female employment in the child's early years (Steiber and Haas, 2010: 258), one may have assumed that besides availability of childcare for the very young, childcare quality would be an utmost priority on the federal policy list. Childcare of low quality may after all dissuade parents from sending their children to these institutions. Indeed, a quarter of all parents had difficulties of finding high quality childcare, compared to 12% in Finland (Eurofound Quality of Life Survey, 2012: 124). A recent study found a direct link between maternal employment patterns and childcare quality between the ages of zero to three in 2010/11. In particular, group size was a factor affecting maternal employment. The authors assume that this may have to do with the fact that relatively few mothers have used childcare at this age in the past (Schober and Spieß, 2014). In 2010 only about 20% of children went to the Krippe (crèche) (European Commission, 2013: 7). In less than 10% of the cases was the pedagogic quality good or very good. In more than 10% of the cases it was insufficient, whilst about 80% were of medium quality (Tietze et al., 2012: 9). However, it was not until November 2014 that Bund and Länder (the federal and the state representatives) sat down to discuss childcare quality (BMFSFJ, 2014c). On

the positive side, initiatives aimed at improving childcare quality and diversity are underway (e.g. incentivising men to become child minders, and scientifically evaluating new mentoring programs) (BMFSFJ, 2014b). However, these quality investments are called into question by the fact that, to become a child-minder, neither an Abitur (highest level of high school education) nor a tertiary degree is required. Hence it is not surprising that according to the camsis status scale (based on isco88), child-minders only have a status of 48 compared to a status of 77.6 for secondary school teachers (Ganzeboom et al., 1992, Ganzeboom and Treiman, 1996). Unless the state provides high quality childcare alternatives which will allow the couple to leave their child at the institution without the mother feeling like a "Rabenmutter" (literally, a "raven mother," i.e. bad mother) parents may judge it best to educate their children themselves during the early years. Overall, leaving the responsibility for high quality childcare with parents is at odds with a promotion of gender equality.

Another policy shift has taken place with regards to the parental leave. The recently implemented Elterngeld (paid parental leave) is rather generous, providing parents with up to 65% of their pre-birth income. The length of paid parental leave may depend upon who uses the measure. In West Germany, for example, the leave can be extended from 12 to 14 months, provided the other partner uses at least 2 months of the leave. As the take-up length of the Vaterschaftsmonate (paid paternity leave) demonstrates, men are likely to only make use of such an arrangement as long as it is economically viable and has little effect on their career (one could argue that the 2 months of leave, which most fathers currently take, is comparable to a long vacation and as such may not have consequences as potentially harmful as longer leave periods).

Because child-rearing responsibilities are still not distributed equally within couples, West Germany has introduced policies which will make it financially more

attractive for both partners to work part time upon entering parenthood. Very recently, in September 2014, the Bundesministerium für Familie, Senioren, Frauen und Jugend (BMFSFJ hereafter) (Ministry of Family Affairs, Senior Citizens, Women and Youth) announced the introduction of the Elterngeld Plus (parental-plus months) and the partner bonus (from the 1st of July 2015 onwards). In contrast to Elterngeld (paid parental leave), the new parental-plus money is also paid during periods of part-time employment. Moreover, if both partners work between 25 and 30 hours for at least four months, they receive a partner bonus of up to four months of additional parental-plus pay. The aim of the additional parental-plus months is to support the "cooperative division of labour" within the couple (BMFSFJ, 2014d). The announcement explicitly states that a four-month period is chosen to allow couples to "grow into the cooperative division of labour" (BMFSFJ, 2014a). In a nutshell, these policies make it financially more attractive to commence part-time work soon after birth and to divide part-time work between partners. They thereby stand in sharp contrast to older family policies, which tended to favour the male breadwinner model over dual earnership.

The policy can be interpreted as giving up on a dual full-time career model. However, not working full time is still at odds with the current notion of a career consisting of continuous full-time employment. Moreover, it is questionable whether companies will meet these demands without introducing a paternal career penalty. Consequently, it will be interesting to see whether policies will be able to re-define careers and thereby overcome the career-myth, or whether a lack in addressing the career myth via incentivising dual full-time employment may result in no change at all.

One has to note though that the thesis is unable to directly test for the effect of these policies, as they have only been introduced fairly recently. The thesis can, however, contribute to the debate by demonstrating how one may set a benchmark – for the time in

which a male breadwinner or star player arrangement (e.g. investing in one career at the cost of the other partner's career) was supported – against which these cooperative policies can in future be evaluated.

Institutions can be seen as reflections of cultural attitudes. Thus it is not surprising that 48% of the West German population are against maternal employment when the child is younger than three. In comparison, only 8% of the Finnish population agreed to the statement. This between-country difference was found across several measurements of attitudes towards female employment (Steiber and Haas, 2010: 258). Against the backdrop of such adverse attitudes, it is furthermore not surprising that West German women were more likely than UK and US women to be affected by statistical discrimination by employers, with some of the motherhood wage penalty remaining unexplained by actual labour market behaviour (Gangl and Ziefle, 2009: 341).

Cross-sectionally (using the 2004-5 and 2006-7 ISSP data), the adverse attitudes and the challenging policy contexts have been reflected in a relatively high share of male breadwinner couples and a relatively low share of dual earner couples. Again, taking Finland as a reference point, 18% percent of couples in that country were pursuing a male breadwinner model, compared to 31% in West Germany. 60% of couples were dual earner couples in Finland whereas only 28% of couples pursued a dual earner model in West Germany (Steiber and Haas, 2010: 265).

To summarize, until recently, West Germany was marked by low levels of support for maternal employment from German society, low state-level support in terms of childcare arrangements, parental leave policies aimed at mothers rather than at either parent staying at home, and a highly traditional division of labour in unpaid work and paid work – both in the cross-section and over time. Recent shifts in these policies support dual earner families. However, even nowadays tax policies and the

Betreuungsgeld are at odds with OECD recommendations to support dual earner families.

Against this backdrop, West German couples seem to have been particularly challenged in pursuit of a dual career. This is further evidenced by the large gap between male breadwinner couples and the percentage of couples wishing to be in this arrangement (Daly, 2005: 387-388). Because the data pre-dates the most recent family policy changes (2011 is the last survey year) and consequently couples will have struggled during the time of observation, West Germany provides a particularly revealing case through which to study the question:

What Makes Dual Career Couples Successful?

Since parents have been found to be particularly challenged in their dual career pursuit, they will be the focus of the study.

Chapter 3: Within-couple specialization in paid work: A long-term pattern? A dual trajectory approach to linking lives

Abstract

Research on the division of labour has mainly focussed on transitions between individuals' labour market states during the first years of parenthood. A common conclusion has been that couples specialize – women in unpaid and men in paid work – either due to gender ideologies or a comparative advantage in the labour market. But what happens later in life? The German Socio-Economic Panel now provides researchers with a continuous measure of working hours across decades of couples' lives, enabling dual trajectory analysis to explore couples' long-term specialization patterns. I focus on West German couples, and specifically, due to the relatively low institutional and normative support for female employment during its members' early years, on the 1956-65 female birth cohort. Even in this setting and with a conservative estimate, a surprisingly small number of couples – only a fifth – adopt full specialization in later life. A sizable proportion – a third – moves into dual full-time employment again, while half of highly educated couples do so as well. I find that highly educated women are not only less likely to permanently specialize but also more likely to try working full-time, possibly because their partners' comparative advantages are lower. But despite high opportunity costs, 45% of highly educated parents never try to pursue a dual career either because of a satiation of material wants or because of low societal support for maternal employment. The latter phenomenon is further underscored by the finding that couples' increase in working hours occurs only when a youngest child is a teenager.

3.1 Introduction

The question of how couples divide their paid and unpaid working hours has taken particular prominence in scholarly debates since Becker's *A Treatise on the Family* (1991). According to Becker's economic argument, couples divide paid and unpaid work according to who has the comparative advantage or who is relatively more efficient in each sphere in order to maximise a joint household utility function (Becker, 1985, Becker, 1991).[2] Both economists' and sociologists' analyses have supported the conclusion that women opt out of work or reduce their career investment whilst men invest more heavily in their careers. Two very different reasons are put forward: first, women are more likely to have a comparative disadvantage; and second, women may pursue different goals due to gender ideologies.

What may have been forgotten in the debate is that for very sound practical reasons, couples may chose not to specialize in the long term. If one moves away from assuming that income maximization will be the major couple-level goal, further possible motivations for choosing not to specialize emerge. For example, a woman may desire to pursue a career, irrespective of its short-term economic rationality, which will allow her to attain a status which reflects her past achievements. Moreover, the couple may be reluctant to let go of one partner's pre-birth human capital investments for practical reasons. (Doctors, for instance, may be required to refresh or maintain their human capital in order to demonstrate a continuous record of professional development, which is needed for their professional registration.) Even when viewed from the perspective of economic rationality, a comparative advantage might vanish once unpaid work has decreased in

[2]Becker would propose that couples specialize absolutely. Yet, as discussed in chapter two, this outcome hinges upon the assumption of constant or increasing returns to scale (no diminishing marginal productivity), which is unlikely to be met across the day or the life course. Consequently, a relative specialization pattern – with partners spending systematically and substantially more or less daily time in paid or unpaid work – is more likely to be the outcome.

importance or once one partner has maximised his or her potential in the labour market. In this case, couples may decide that it is more sensible to take turns (i.e. prioritize the other partner's career).[3] Becker and Moen's qualitative work supports this "taking turns" approach to life course work hour investment (1999: 998ff). Moreover, a couple may lower their financial risks by investing in both partners' careers. Additionally, her individual-level financial risk in the case of divorce, for example, can be decreased if the woman does not opt out of her career.

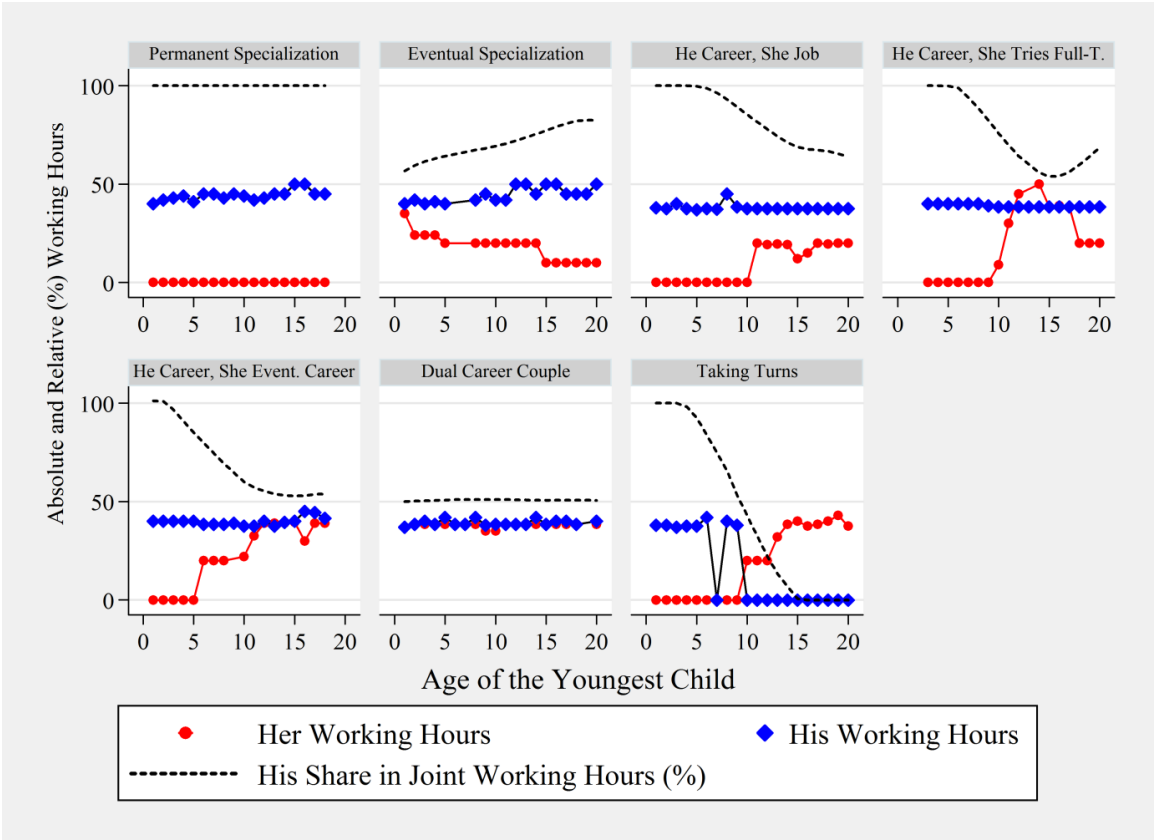
Against the backdrop of these sound alternatives available to couples, it is more likely that the division of labour is dynamic throughout the life course, with short-term inequalities based on a comparative advantage of one partner in the labour market not resulting in long-term specialization. Because of these alternatives and also because of methodological advances outlined below, the time has come to rethink the way in which the question "Do couples specialize in paid and unpaid work?" is analysed.

Previous analyses have not been adequately designed to address this question. Methodologically, despite theoretical claims to the contrary, couples' lives have traditionally been de-linked or the longitudinal dimension has been simplified. This was mainly due to a lack of appropriate data. Two types of longitudinal datasets can be distinguished: prospective and retrospective. Prospective datasets are collected by interviewing the same individual over successive years. As a consequence of the long lead-time required for prospective data, researchers must often settle for retrospective data to cover the life course. Since retrospective data is not collected annually but on a single occasion, it relies on the recall of the interviewee. As a result, only a categorical measurement (part-time, full-time, non-employed) of previous levels of engagement in

[3] Please refer to the literature review for an in-depth discussion of the returns to scale theorem and its problems with regards to the day and the life course.

paid work is feasible, rather than the detailed, continuous work hours evidence depicted in figure 2. Please note that "continuous" refers to the vertical axis and not to the horizontal axis. The horizontal axis can be "more continuous" if monthly retrospective categorical data is available. In turn, due to the categorical nature of the variable, researchers have tended to focus on ***transitions*** between ***states*** rather than the life course ***trajectory dynamics***. Whenever panel data was used, the analytical approaches applied to retrospective data or a two time point comparison was used. Furthermore, the longitudinal dimension was often explored only partially by focussing on the time around the first childbirth rather than on later life-course stages (e.g. Stier et al., 2001). As figure 2 shows, interesting differences in labour distribution tend to occur after the couples' youngest child grows beyond its first years.

Figure 2: Real-data examples of couples' possible work hour trajectories and his resulting share in working hours



Source: GSOEP v28, seven parent-couples of the West German 1956-65 female birth cohort who are observed at least once during the first four years of age, once at ages 5-13 and once at ages 14-20, deductive (researcher-determined) grouping

Figure 2 illustrates how one would ideally analyse the question with couples from the German Socio-Economic Panel (SOEP)[4]. Straightforwardly, one would operationalize the question of how couples divide their paid working hours throughout their lives as a set of ***linked pairs of alternative work-hour trajectories*** – one for each partner – spanning the life course.

Working with these two curves, the question of couples' life course work hour strategies becomes a question of

> (a) Opening the ***vertical black box*** of how working hours are divided between partners [linking lives at the cross-sectional level].
>
> (b) Opening the ***horizontal black box*** of how the division of labour between partners develops over time [life course analysis].
>
> (c) Understanding ***variations*** in the vertical and longitudinal dimensions depicted through the seven different ideal-types of couples [exploring heterogeneity].

When examining the factors that might explain which type of couple will end up in either pattern, the first one to turn to is educational level. This variable in particular has been found to be associated with labour market investment in past work-family literature (Blossfeld & Drobnic, 2001, Brynin & Schupp, 2000, Dex, 2008).

The German Socio-Economic Panel, which covers up to 30 years of peoples' lives ***prospectively***, can shed new light on which ***different types*** of ***long-term*** work hour strategies ***couples*** pursue. Since both partners are interviewed across their lives, it allows the life course developments of husband and wife to be linked together (see (a)) via two trajectories (see (b)). The relatively large number of observations further enables the assessment of the heterogeneity of couples' joint over-time work hour trajectories (c) to find out how many couples pursue distinct long-term work hour strategies other than

[4] The data used in this thesis were made available to me by the German Socio-Economic Panel Study (SOEP) at the German Institute for Economic Research (DIW), Berlin.

within-couple specialization. Surprisingly, these recent possibilities have remained unused.

West Germany is a particularly interesting case. On the one hand, ever more women have entered the labour market, as they have across the Western world (Simonson et al., 2011: 79). On the other hand, former West Germany differs from other countries in several important respects. First, approval of maternal employment has been particularly low. In 2005/6 48% were against full-time maternal employment if the child was younger than three. In comparison, only 12% of the Danish sample was against maternal employment at that life course stage (Steiber and Haas, 2010: 258). Second, the attitudes in former West Germany are reflected in a traditionally low level of institutional support. Even in 2007, only 8% of under-three year-olds were in a creche (compared to 37.4% in former East Germany) (Destatis, 2007: 7). Third, even the childcare that couples were lucky enough to obtain oftentimes did not cover the whole working day. Similarly, primary school ended at around 2 p.m. (Steiber & Haas, 2010: 252). In order to prevent the confusion of differential historical developments, the study focusses on the 1956-65 birth cohort. The cohort was chosen because normative and institutional support for mothers' paid employment was lower than in later cohorts. By focussing on this particularly challenged group, one gets a lower-bound conservative estimate of how many couples do not specialize or de-specialize in the long term.

Within this context, this chapter seeks to revisit the topic of a couples' specialization in paid and unpaid work to expand our answers to the following questions:

(1) To what extent do couples specialize in paid and unpaid work in the longer term (over the life course)?

(2) To what extent is the educational level of partners related to long-term specialization?

3.2 Theories and findings on the division of labour

Much research on within-couple specialization draws on Becker's argument that couples divide paid and unpaid work according to who has the comparative advantage, or who is relatively more efficient in each sphere. It is assumed that both partners try to maximise a joint household utility function (1985, 1991).[5] Especially after childbirth, the demands on a couple's time increase. Consequently, this period has been of particular interest to researchers.

Theoretically, several arguments speak against permanent specialization. One has to distinguish between short-term and long-term choices. Economically, in the short term it may make sense to let the woman invest in unpaid and the man in paid work because the child requires a lot of attention early on in life (especially from the breastfeeding mother) and because the husband will generally earn a higher wage at this stage. The question arises as to whether in the long term, once the children are grown up, old specialization patterns would still maximise the joint utility function. After all, the comparative advantage may shift. One partner may have exhausted their potential in the workplace. Children may no longer require as much maternal attention when the child is in its teens. Consequently, the partner specialized in unpaid work may no longer be needed as much in the domestic sphere, which frees up time to be invested in paid work. In short, in a couple in which the man has specialized in paid and the woman in unpaid work, the man might not earn more if he spends an hour more on the job (his marginal returns decrease across the life course) whilst the woman has not reached the final career stage and can therefore increase joint earnings by re-investing in her career (increasing marginal returns across the life course).

[5] There are further twists to this theory, but this is how it is most commonly used in the research.

If the male partner earns a low wage, her wage may be needed for the family to survive. This may be less of an issue when children are young, as child allowance and paid parental leave may cover the costs. Whilst under certain circumstances parents continue to receive the child allowance until their child's mid-twenties (e.g. if the child is attending a university), this may not suffice to cover the costs associated with raising the child. Especially as children enter their teens, the annual expenditure per child is likely to increase.[6] Consequently, over time the family may become more and more dependent on her income. As a result, she may be increasing her working hours.

Economic considerations aside, women may have invested heavily in their career prior to childbirth and therefore only have planned to take a temporary career break when children require more parental attention rather than leaving their careers for good. Furthermore, she may be pursuing a career for its own sake, being driven by status rather than money.

Finally, as Oppenheimer points out, specializing can be a risky strategy (Oppenheimer, 1997: 447). The risk can be thought of as a couple-level variable or an individual-level variable. If the husband has an accident or becomes unemployed, then the family's future is jeopardised. If, however, both partners could potentially support the family, then this risk can be decreased. From the woman's perspective, the decision not to invest in her career entails a high financial risk in the case of break-up or widowhood.

Analyses on the Western world have come to the conclusion that women reduce their working hours around the birth of their first child (Blossfeld and Drobnic, 2001, Kan, 2007, Sanchez and Thomson, 1997, Steiber and Haas, 2010, Stier, Lewin-Epstein

[6] Recent press speculation in the Stern suggests that children indeed cost more across the life course (Boldebuck & Harberg, 2014). Analysing the relationship between a child's age and the costs associated with the child is up to future scientific work.

and Braun, 2001, Waldfogel *et al.*, 1999). Stier and colleagues examined women's working hours slightly later in the child's life. They focussed on a two time-point comparison of women's employment states when there was a pre-school child in the household and when it was of school age. According to their analysis, a low proportion of women in West Germany were employed full time at both time-points or shifted from part-time to full-time employment by the time the child was of school age (20%). 50% remained non-employed (2001: 1747).

But what happens to couples' working hours even later in life? Cross-sectional and individual-level (not couple-level) data suggest that the work hour reduction shifts again later in life. Steiber and Haas, using data from 2004/5 and 2006/7, predicted that dual full-time employment within couples would take on the following pattern: 60% dual full-time employment for childless couples, approximately 12% for parents of small children and then a steady increase back to slightly above 40% once the children leave home (2010: 265). Kühhirt goes one step further on the longitudinal dimension and uses over 20 SOEP waves. The fixed effects regressions show that men decreased their market hours by 1.5 to 3.5 hours when their youngest child turns 18. Meanwhile, when the youngest child turned 18, women who earned less than 45% of the couple's income in the pre-birth years still fell 2 hours behind pre-birth working hours, whilst those earning 55% and above reached almost pre-birth working hours (2012: 574). These findings on ***individuals*** suggest that ***couples'*** initial work hour investment strategies change at a later stage. Yet how they do so in relation to one another and how these different couple-level strategies are distributed within the population still remains unclear.

Besides the hints from the quantitative data discussed above, alternative explanations are further supported by Becker and Moen's qualitative findings: about a

third of the couples were taking turns with regards to who placed limits on their career across the life course. According to Becker and Moen,

"Trading off was also a strategy that allowed couples to readjust from a one-job, one-career marriage to a two-career marriage"(1999: 1002).

Which sorts of couples might one expect to adopt other strategies? If men and women are concerned about human capital loss, then one would expect couples in which ***women are highly educated*** to avoid a long-term specialization strategy. Moreover, the money which a highly educated mother may earn by returning to work may provide the couple with enough resources to invest in private childcare (remember the low institutional support mentioned above) and to outsource other housework (Cohen, 1998). This in turn would allow the mother to work full time relatively sooner after the birth.[7] Past findings on the first transition after childbirth suggest, however, that even when highly educated, West German women were not significantly more likely to re-enter full-time careers after childbirth (Blossfeld, Drobnic & Rohwer, 2001: 70).

A ***husband's advanced education*** can affect the woman's time investment both negatively and positively. On the one hand, it may make female employment unnecessary, as it is no longer required to meet the couples' financial demands. The couple may be content enough with their financial situation to pursue non-monetary rewards both inside and outside the labour market rather than further increasing their joint labour market participation (related to John Stuart Mill's view of the satiability of wants (Mill, 1871)). That such a mechanism may be at play is suggested by Cha's finding that professional mothers partnered to men who worked high hours were more likely to opt out of the labour market than women partnered to men working low hours (2010: 320).

[7] Education may of course have other values other than purely economic ones. Education may make you want to participate in a more varied range of experiences, which you may find in the labour market. A slightly anti-feminist approach might also say that women value education for a different reason (its intrinsic value) than men do. Still, this does not affect the lower-bound estimate.

On the other hand, the financial reward associated with education may provide the couple with enough resources to outsource household labour, which would allow the wife to return to the labour market sooner (Cohen, 1998). In sum, existing theories of the relationship between a man's high education and the woman's work investment are inconclusive.

If the ***husband is at the bottom end*** of the education distribution, couples may be forced by financial constraints to re-enter high hour dual employment, especially as children grow older.

3.3 Data

The analysis uses the German Socio-Economic Panel Study (SOEP), an annual whole household repeated measures study. This study has been conducted in the Federal Republic of Germany/West Germany since 1984. Household members are interviewed on an annual basis for the study, allowing individuals and their immediate household members to be followed over time. Version 28 of the SOEP is used for the analysis, which consists of 57,049 individuals, 45,658 of which are West Germans (i.e. currently living in West Germany). For this study only the prospective part of the SOEP is used. The underlying rationale for restricting the analysis to the survey years 1984 onwards is that the previous years' retrospective measures of working hours collected in the SOEP's biographical calendar are, due to recall problems, only capturing working hours as categorical state variables. As shall be discussed below, these can be problematic for a longitudinal analysis within-couple specialization. Missing work hour data is treated as non-observed. The main interest lies in the overall curve rather than in an individual data point.

West German couples in which the woman was born between 1956 and 1965 are selected. [8] The sample includes both married and cohabiting couples but excludes all singles and excludes all couples in which only one partner is observed later in life. To be more precise, concurrent observation of both partners is not necessary to draw the joint curves, but one would at least like to observe each partner for a long time span in order to understand how each partner's investment shifts over time in relation to the other partner. For ease of interpretation, only heterosexual couples are examined. Moreover, only couples in which the youngest child is younger than 21 years are kept. It can be reasonably assumed that a couple which has not shifted to another division of labour at this stage will never do so. Periods of employment as well as periods of non-employment are included, to account for the most extreme form of specialization, as well as for the shifts away from this extreme form of specialization.

The length of the observation window poses particular challenges. On the one hand, the best approximation to the individual-level trajectory has to be found. Ideally, one would use a balanced panel. A balanced panel would have consisted of individuals followed for the same number of years and would not have included any missing data points in between the survey years. A long balanced panel, however, results in a highly selective sample: respondents replying to a large number of consecutive waves differ systematically from other respondents (see sensitivity analysis). Moreover, it radically reduces the sample size. The following stringent sample definition ensures a good approximation of the individual-level trajectory whilst at the same time allowing for a conservative estimate of de-specialisation and a large enough sample size:

[8] Only West German couples are analysed, as East and West Germany differ in their values and institutional support, which has led to different work hour strategies (see Steiber & Haas 2010).

- The parents have to be observed at least once when the child is between one and four years old. The age of four is chosen as the cut-off point because, since 1992, mothers in parental leave may not be laid off until the child turns three (BMFSFJ, 2012).
- They have to be observed at least once when the youngest child is aged 4-13, and again when the youngest child is aged 14-20 in order to capture what is happening in the later childhood years.

The analytical requirements reduce the number of couples from 3312 down to 505. Within this sample everyone is observed at least six times and 50% of the sample is observed 19 times or more. The loss of observations could have been reduced with (a) a shorter observation window or (b) by working with only two time-points (start and end rather than also observing them between the ages 4-13). Yet because important shifts take place late in life, cutting the window on the right-hand side would have meant blackening out important patterns such as the taking turns pattern, and would led to an underestimation of the non-traditional couple-types. Reducing the data requirement to only include one observation between ages 4-13 and one between 14-20 would have meant that no clear picture would have emerged with regard to the shifts in the importance of work when the children are young versus when they are older and enter an age in which the availability and acceptance of institutional care increases. The application of (b) (i.e. the use of two observation points) would have also meant an underestimation of non-traditional couple arrangements. Furthermore, it would have remained unclear which decisions were taken when children were ages 4-13, for those couples who are only observed twice. In other words, one would not have known whether the parents re-entered dual full-time employment, for example, early or late in the youngest child's development.

3.4 Methods and measurements

3.4.1 Past analytical approaches to the division of labour

Despite calls for "bringing the 'course' back into the life course" and calls for linking lives (Aisenbrey and Fasang, 2010: 420, Bianchi and Milkie, 2010), research on the division of labour and couples' careers has mainly focussed on transitions and individuals.

As mentioned in the introduction, due to a lack in panel data maturity (i.e. panel data not covering long observation windows in the past) past research using retrospective data focussed on ***transitions*** between ***states*** rather than the life course ***trajectory dynamics***. Event history analysis allows you to link multiple events as "transitions in context" with multi-state models (Mills, 2004: 143, Mills, 2011). However, these models can get rather complex if several states are linked over time (Mills, 2011: 202-203). Whilst sequence analysis covers multiple states across the life course in a more intuitive way, similarities between two life courses are difficult to identify (Abbott & Hrycak, 1990; Aisenbrey & Fasang, 2010; Wu, 2000). Moreover, retrospective data underestimates the number of labour market transitions (Manzoni, 2012: 18). Whenever panel data was used, oftentimes the analytical approaches applied to retrospective data or a two time-point comparison was used. Whatever happened between the transitions from part-time to full-time employment and within a category (e.g. did full-time employed men reduce hours from 50 to 40?) remained unclear. Furthermore, the longitudinal dimension was often explored only partially by focussing on the time around the first childbirth rather than on later life-course stages. The analyses thereby in essence ignored other and potentially more important longitudinal developments. The importance of the later period is also indicated by Steiber and Haas' (2010) and Kühhirt's (2012) findings. However, Steiber and Haas' findings are based on cross-sectional data, and whilst Kühhirt (2012)

goes one step further and uses over 20 SOEP waves, he does not look at how the working hours relate to one another within the couple.

The categorical operationalization also resulted in a cruder measurement on the vertical (couple-level) dimension: instead of focussing on ***relative hours*** (e.g. he 44, she 34), which is the focus of Becker's theory, they focussed on the less interesting but more easily accessible ***relative states*** (e.g. he full-time, she part-time). De-specialization could consequently only be captured if either the husband moved into part-time or the wife into full-time employment. Also, the models (such as seemingly unrelated regressions or clustered standard errors), whilst accounting for interdependence, did not model how partners' outcomes were interrelated (e.g. Killewald & Gough, 2013). If the cross-partner influence was modelled in the fixed part, it was depicted as a unidirectional influence with the direction of causality running from the partner to the respondent (e.g. Bernardi, 1999). A bidirectional influence is more likely, however. Within the context of event history analysis, joint frailty models (a variant of multilevel random effects models) allow for two survival processes to be correlated. Each individual is assigned their own random variable, which is associated via a joint distribution (Mills, 2011: 168-171). Joint frailty models have mainly been developed and described in demography and in the medical and biological sciences (Yashin et al., 1995, Wienke et al., 2001, Rondeau et al., 2007). This model would have had to be combined with the multistate models to arrive at a similar modelling technique. This would have been too complex, however – especially for a reader who is new to these techniques. The approach outlined in chapter three is easier to grasp. Furthermore, the average couple was mostly of interest. Whilst the average couple may be specialized, at any point in time an equal division of labour and, in the long run, some dual career strategies may be hidden within this average pattern.

3.4.2 Chosen analytical approach

To properly address the division of labour question across the life-course, the method chosen is required to cover both the vertical and horizontal dimensions and to distinguish between different types of couples. For the longitudinal dimension, I see drawing two curves as the most intuitive representation of couples' careers. Moreover, vertically, processes may differ across couples. A large number of heavily specialized couples can pull the two curves in figure 2 far apart. Still, at any point in time, an equal division of labour and, in the long run, some dual career strategies may be hidden within this average pattern. By exploring heterogeneity in couples' trajectories one can avoid these problems and open the vertical black box of what happens both within and between couples. As I am not only interested in the average curve of men and women but also in their variations, I have to classify couples into different joint work hour trajectory groups (similar to figure 2). Instead of using independent variables as factors determining the variability "about the population's mean trajectory of development" (Nagin, 2005: 7) – which would be the common approach in growth-curve analysis – the work hour strategies are categorized into groups by the researcher (deductive approach) based on prior findings. These groups are subsequently used as an independent variable in a growth-curve analysis to model over-time differences in work hour strategies. In the sensitivity analysis, a group-based trajectory model is run to test whether the same dominant patterns emerge from the data.[9] To account for couple-level dependencies (vertical dimension) in this chapter, the couple is explicitly modelled as a unit both via a dyadic index and via a model with two dependent variables (referred to as multivariate in the literature e.g. Raudenbush et al., 1995, Snijders and Bosker, 2012).

[9] The reason for preferring the researcher over the data driven approach in the main analysis is that group-based trajectory analysis is an approximation to the data and as such it cannot discern certain patterns – e.g. whether she tried working full-time. Moreover, for this chapter the interest also lies in the relationship between partners within couples – e.g. whether partners take turns requiring a dual curve approach.

3.4.3 Variables

3.4.3.1 Dependent variable

For all analyses, hours are reported as being "usually worked in a week". Hours are coded as zero if the person does not work. An alternative to using the annual measure of working hours would have been to look at the between-wave measure of monthly employment status. Since the main interest of this chapter is to analyse gradual changes along the vertical axis and how partners' working hours relate to one another on the vertical dimension, a more precise measure on the vertical dimension was preferred over a more precise measure on the horizontal time-axis.

3.4.3.2 Analytic clock

One major departure in what follows from much previous work is the "analytic clock". The oldest child's age is conventionally taken as the time-giver because, according to Becker (1991) and subsequent researchers, the birth of this child is an important determinant of how much time the couple has left for paid work. But whilst the oldest child may be responsible for work hour reductions, it can reasonably be assumed that the youngest child's institutional location will determine the couples' re-investment strategies. For this reason, the age of the youngest child is chosen here as the time scale along which the two partners' work hour changes are observed. For this purpose, the youngest child is selected within each household and its current age is matched to the two parents.

3.4.3.3 His and her individual-level trajectories

Past research has shown that work hour patterns differ between women and men, with women following a more diverse range of work hour strategies (e.g. Blossfeld and Drobnič, 2001). Based on past research, visual data inspection and the group-based trajectory model (see sensitivity analysis), her work hour trajectories can be categorized into the following groups using the following procedure: first, the maximum number of hours worked in the periods where the youngest child is aged 0 to 4, 5 to 13, and 14+ are

calculated for each individual. As discussed earlier, the rationale behind the age choice is that women can return to their former employer for up to three years after having given birth. Hence, one can argue that a key labour market decision will have been made in the subsequent year. 14 years are chosen because the group-based trajectory analysis suggests that most trajectories have reached a plateau at this point.

Women are subsequently classified as ***a housewife*** if the maximum number of hours worked is zero across all periods. They are further coded as housewives if they are categorized as such by the group-based trajectory model (as in this case most data points will be around zero) and if they never work above 15 hours. This gives more weight to women being housewives to again ensure a very conservative estimate of de-specialization. If in the early period, women work zero hours but in subsequent periods more than zero but less than 35 hours, they are categorized as ***eventually working part-time*.** If they eventually work more than 35 hours they are categorized as ***eventually working full-time***. If women work more than zero but less than 35 hours in all periods, they are categorized as ***part-time*** workers. Similarly, if women work more than 35 hours in all of the observation windows, they are categorized as ***full-time*** workers. Women whose work hours eventually decrease are coded as ***decreasing***. If, however, they unsuccessfully tried working full-time at some point they are coded as decreasing ***tried full-time*.** The theoretical consideration underlying this distinction is that women who have the opportunity to try out full-time employment may differ from those who never make use of this opportunity. The cut-off point of 35 hours equates approximately a full-time work week or a full-time week minus the breaks. In summary, there are seven types of individual career trajectories for women:

- Housewife
- Eventually part-time

- Part-time throughout
- Eventually full-time
- Full-time throughout
- Decreasing from part-time
- Tried full-time but decreased working hours again

For him, the work hour patterns are likely to be less varied because few men move into part-time employment or take several months off after childbirth. This makes re-investment strategies less likely (Blossfeld et al., 2001: 60). As pointed out earlier, even if men are unlikely to become temporary "housemen", or to work part-time, they may nevertheless vary their hours within the full-time range or undertake part-time employment at a later stage (Becker and Moen, 1999). Men are categorized as pursuing either ***stable*** or ***increasing*** working hours towards or above full-time employment, or ***decreasing*** working hours. Hence, men's work hour trajectories are divided into four groups:

- Increasing hours
- Stable hours
- Decreasing within the full-time employment range
- Decreasing to part-time employment

One should note that the classification into different individual-level work hour trajectory groups is in principle also possible with sequence analysis (see for example Levy et al., 2007). However, the couple-level categorization is much harder to achieve with a picture of two sequences of states rather than a picture of two curves. I would argue that depicting couples' careers as two curves enables you to gain a more fine-grained understanding of how the two partners' careers relate to one another. They can be

far apart or close together and this distance can change over time. Some curves may even cross. These developments could not be as easily depicted in sequence analysis.

3.4.3.4 Combining the individual-level trajectories into couple-level patterns

Having categorized the main female and male work hour trajectories at the individual level, the couples' trajectories are now categorized according to how the partners' trajectories relate to one another over time within the couple. Whilst the previous categorization is helpful to arrive at the general categories, a visual inspection of each couple is necessary at this stage to be able to find the taking turns approach, for example. When combining the individual trajectories altogether, the following patterns can be distinguished:

- Permanent Specialization (she a housewife or working fewer than 15 hours, he stable or increasing hours)
- Eventual Specialization (she works but decreases hours eventually, he stable or increasing hours)
- He Career, She Job (she works few hours (i.e. below 35) at some point, he works stable or increasing hours)
- He Career, She Tries Full-Time (like the previous couple, only that she works full-time for some time)
- He Career, She Eventually Career (she increases hours to full time, he stable or increasing hours)
- Dual Career Couple (both try to work full-time throughout with potentially some time off in the first three years for the mother)
- Taking Turns (she increases hours to full time, he decreases hours – with the potential of both to cross)

There are obviously also variants (e.g. by timing of re-entering) but these cannot be considered due to the sample size.

Some may argue that women who pursue a job or are trying to work full time are also pursuing a career. After all, the most commonly denoted meaning behind the word "career" is monotonic upward social mobility. Yet the term also refers to "a job or profession that you have been trained for, and which you do for a long period of your life" and "to move forwards quickly, without control, making sudden sideways movements" (Longman, 2009: 252), which are non-upwardly mobile moves. Moreover, in principle, women in a he career, she job or a he career, she tries working full-time arrangement could be pursuing a career on other dimensions (e.g. they may also get promoted or achieve higher earnings).

From a definitional standpoint, the thesis uses a subset of these various definitions and defines career in a technical sense: A career is either a stable development on a high level or an upward movement from a lower level. The author thereby does not make any normative judgements with regards to which career should be pursued.

Regarding the latter argument, one has to point out that it has been demonstrated that women who work part time face financial drawbacks (Wolf, 2014). If women are not maximizing their investments into their human capital they may not be maximizing their earnings potential. This in turn increases women's and the couples' financial risks if one partner leaves the relationship or if the main earner becomes unemployed.

The fact that women try to work full time also shows that in principle this may be initially a preferred option which for various reasons is not pursued. In light of Daly's research on the mismatch between preferences and actual working hours, this is of particular importance (Daly, 2005: 387-388).

3.5 Results

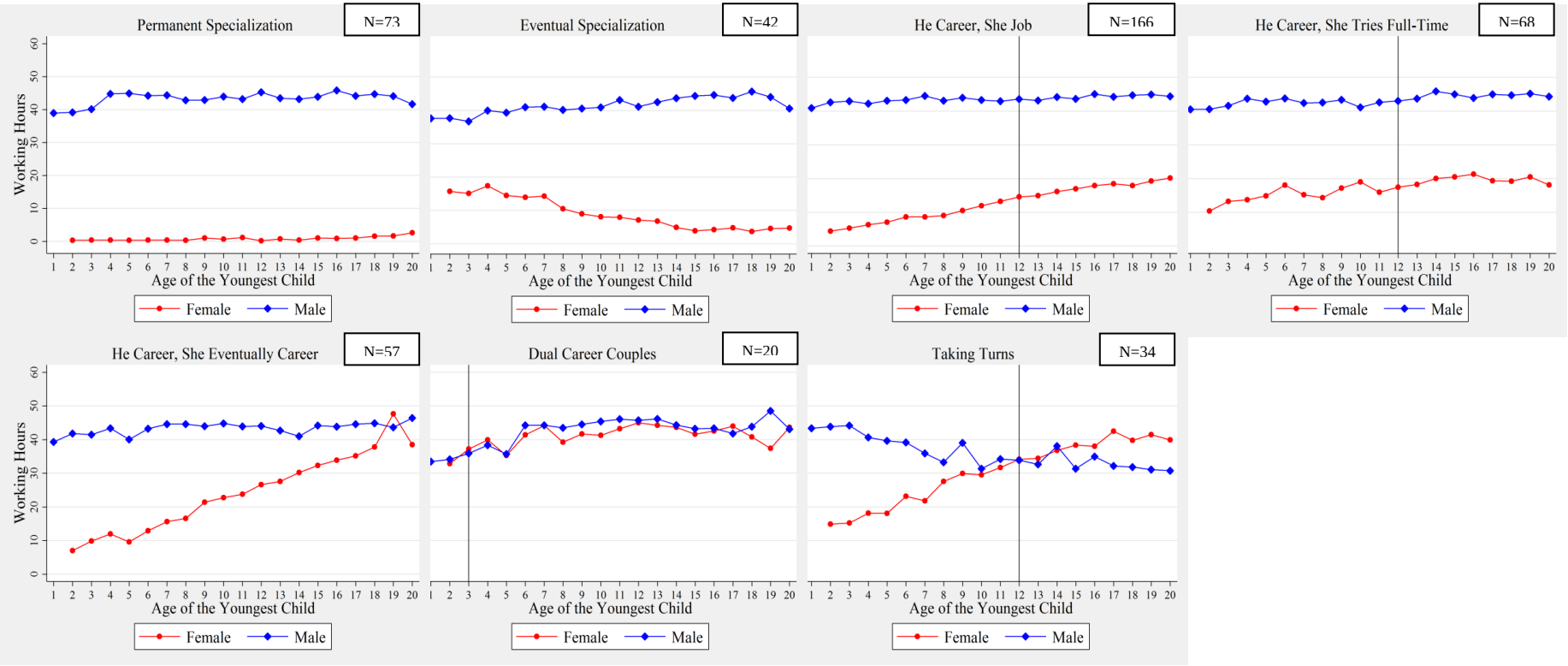
3.5.1 Depicting the average growth-curve for each couple-level work hour pattern

Figures 3 and 4 indicate the variety of work hour patterns pursued in the data by depicting the average development both in absolute and in relative terms within each group. The figures give a sense of how absolute levels and relative working hours differ over time.

Regarding the shifts along the age of the youngest child, on average most final work hour shifts occur at a later stage in the youngest child's life. Couples, in which she pursues a job or tries working full time, reach their maximum working hours when the child is in its teens and has entered secondary school. Couples who take turns do so on average when the child is around secondary school age. What is surprising is that if she eventually pursues a career, she does so at a very late age – on average, when the child is around eighteen and hence an adult. The only exception to the late maximization pattern is the dual career couple, which re-enters dual full-time employment early (before the age of three) and reaches a plateau when the child enters primary school.

Regarding the relative working hours, figure 4 shows that the last three types of couples reach an equal division of labour on average (with him working 50% of the joint working hours). Moreover, in a he career, she job constellation or when she tries to work full time, the average becomes ever less unequal (on average reaching a division of 30/70).

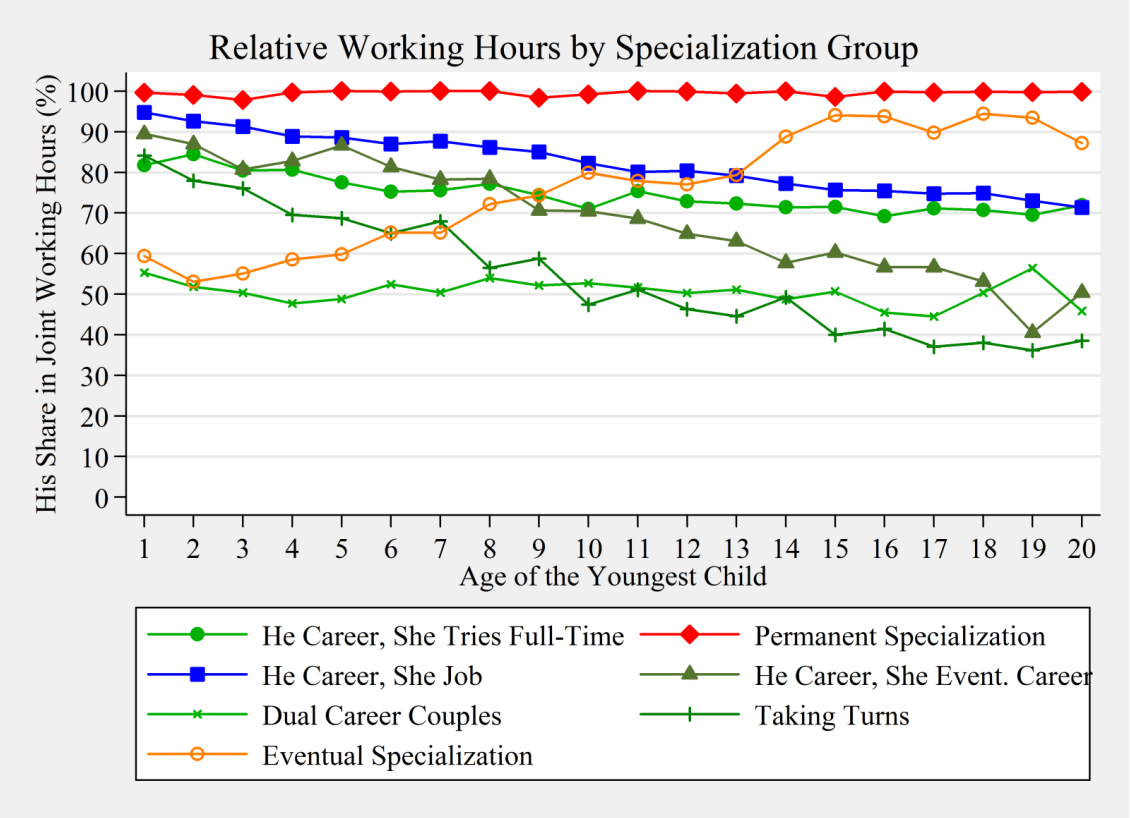
Figure 3: Couples' absolute work hour trajectories by the youngest child's life-course, dyadic growth-curves (researcher-determined / deductive groups)



Note: The two curves are jointly estimated with a discrete time specification. Maximum likelihood estimation is used. Time is nested within the couple.

Source: author's own calculations based on GSOEP v28, semi-balanced panel of parents of the 1956-65 West German female birth cohort who are observed at least once during the first four years of age, once at ages 5-13 and once at ages 14-20, excluding "others". Unweighted N = 460.

Figure 4: Couples' relative work hour trajectories by the youngest child's life-course, dyadic index growth-curve model (researcher-determined / deductive groups)

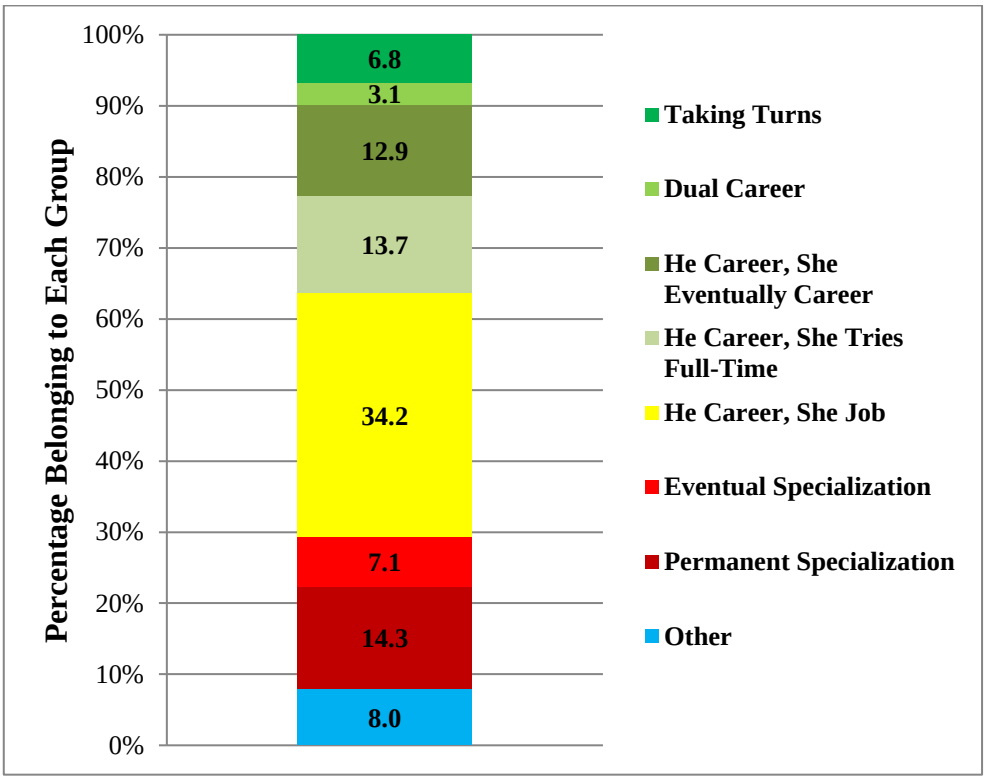


Note: The two curves are jointly estimated with a discrete time specification. Maximum likelihood estimation is used. Time is nested within the couple.

Source: author's own calculations based on GSOEP v28, semi-balanced panel of parents of the 1956-65 West German female birth cohort who are observed at least once during the first four years of age, once at ages 5-13 and once at ages 14-20, excluding "others". Unweighted N = 460.

These curves are averages for each group and thereby a summary of each of the patterns. Still, had one compiled these couples into a single average figure, one would not have been able to discern these important differences depicted in figure 3. But how are these different patterns distributed across the sample?

Figure 5: Distribution of couples' joint work hour trajectories (see figure 3/4)

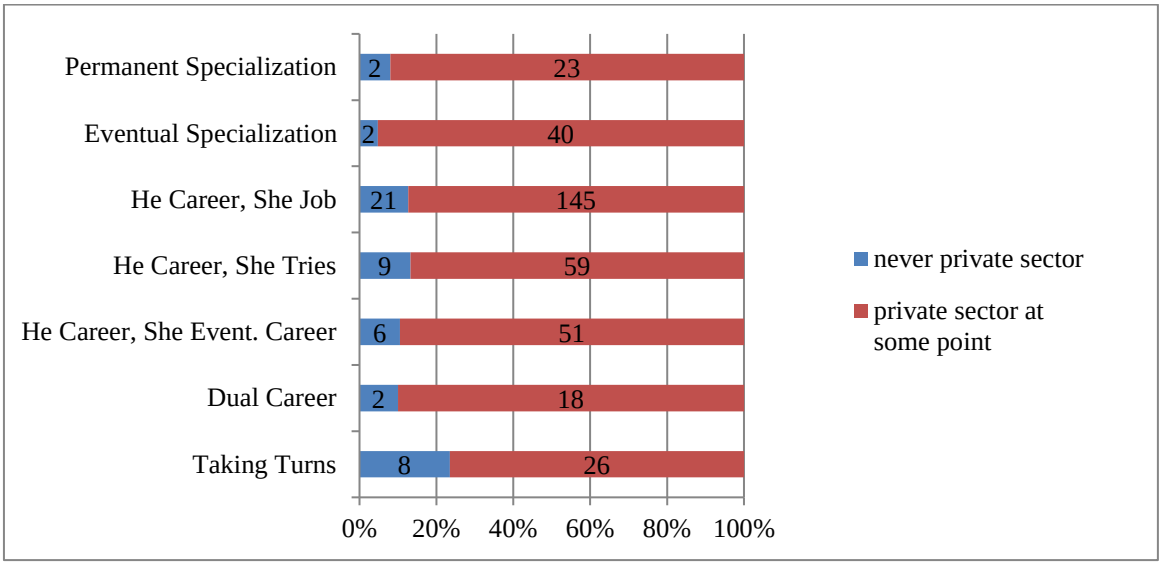


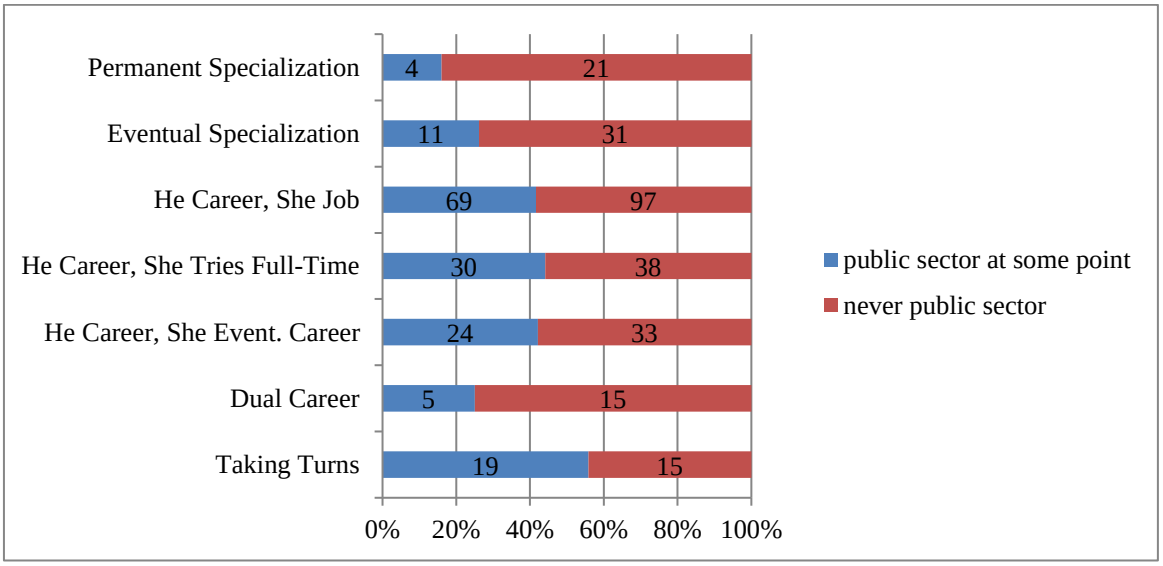
Source: author's own calculations based on GSOEP v28, semi-balanced panel of parents of the 1956-65 West German female birth cohort who are observed at least once during first four years of age, once at ages 5-13 and once at ages 14-20. Groups are derived from the researcher-determined couples' joint work hour trajectory shapes depicted in figure 3. The results are weighted by the last observation's longitudinal weight. Unweighted N = 505.

According to figure 5, fewer couples specialize than expected in the long term. Specializing couples, including those in which the woman is predominantly a housewife and those in which she scales back her working hours later in life, make up only about 21.4% of the couples. The dominant category remains the he career, she job couple. In 34.2% of the cases the woman works at least part time. However, in 36.5% of the cases the woman works full time at some point. Among these couples, there are about 6.8% in which the husband scales back whilst the wife re-invests in her career. 3.1% pursue a dual career throughout and in 12.9% of the couples she is able to re-enter her career at a later stage. 13.7% of couples try the dual career route but move back to a single full-time employment pattern later in life.

How do the joint trajectory types relate to being in the public or private sector? Figure 6 shows whether women were ever working in the public or private sector. The public sector may be more flexible in terms of reducing working hours making certain dual careers possible. This may not necessarily be the case in the private sector. As women are the ones who reduce their hours, I will focus on them in this analysis.

Figure 6: Private versus public sector – women by joint work hour trajectories



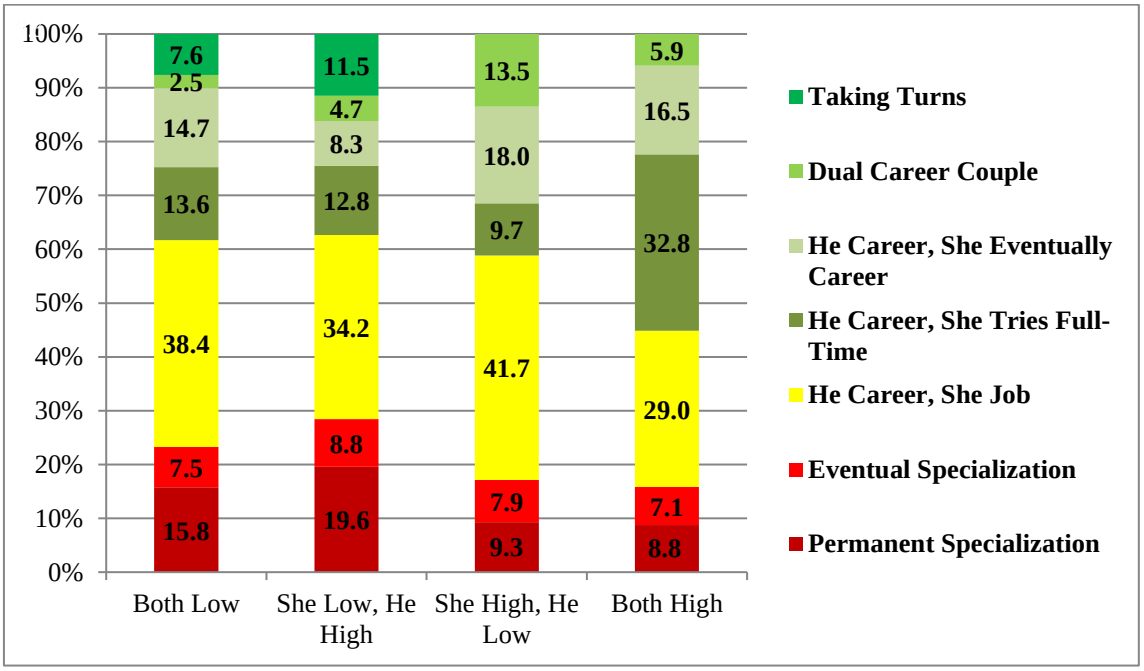


Source: GSOEP v28, semi-balanced panel of couples observed across the youngest child's life-course (once when aged 1-4, once when aged 5-13 and once when aged 14+). Groups are derived from the researcher-determined couples' joint work hour trajectory shapes depicted in figure 3, excluding "others". Unweighted N = 460.

Interestingly, among the couples who specialize, more women have never worked in the public sector during the period of observation, whilst among the he career, she job, he career, she tries full-time, he career, she eventually career and the taking turns couples, half of the women have worked in the public sector at some point. This suggests that the public sector may be more supportive of non-traditional work hour investment patterns. Further in-depth analysis would be required to test for the significance of the results.

3.5.2 The relationship between work hour trajectories and education

Figure 7: Joint work hour trajectories by joint education

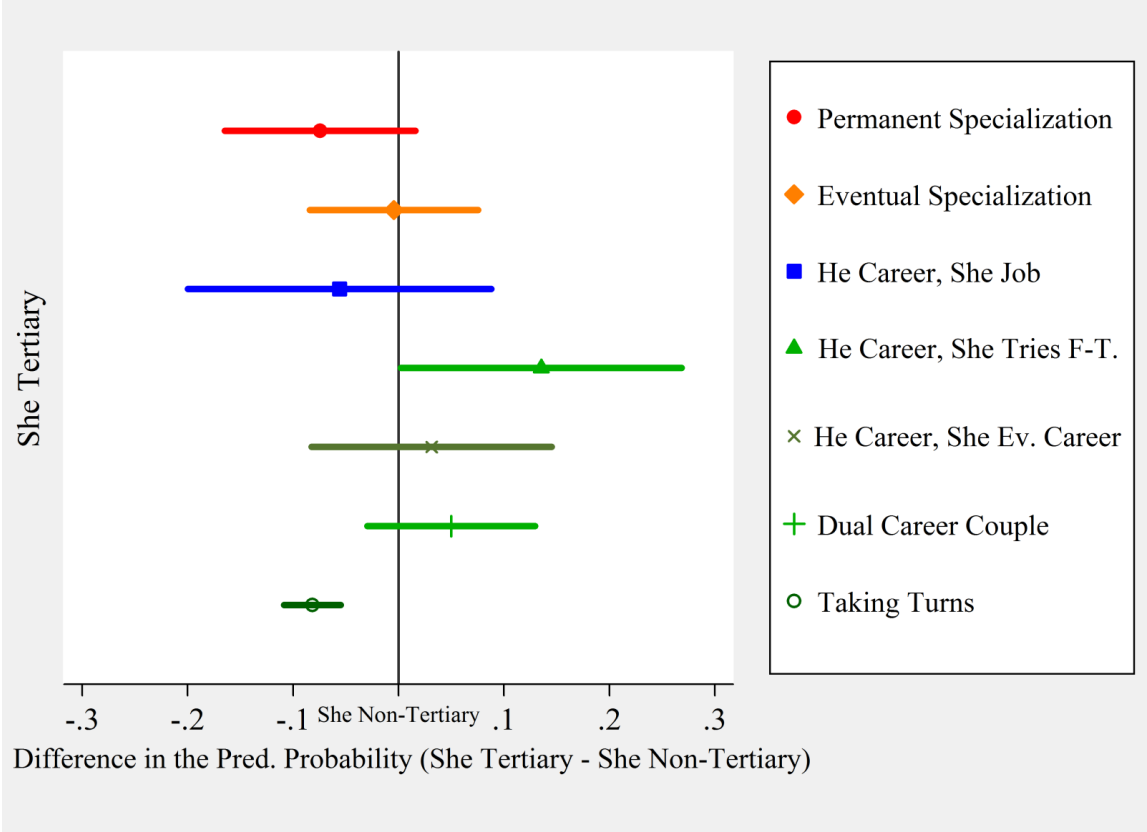


Source: GSOEP v28, semi-balanced panel of couples observed across the youngest child's life-course (once when aged 1-4, once when aged 5-13 and once when aged 14+). Groups are derived from the researcher-determined couples' joint work hour trajectory shapes depicted in figure 3, excluding "others". The results are weighted by the last observation's longitudinal weight. Unweighted N = 460.

An immediate question which arises is whether the different work hour strategies are tied to different combinations of educational qualification. Figure 7 shows how the different work hour strategies are distributed depending on the educational combination of the couple. Low education refers to any education below a tertiary degree and high education to having obtained a tertiary degree. The reader should note that these percentages are based on a small subsample of couples who stay together for a long

period of time. If this sub-sample criterion were to be systematically related to certain levels of education then the distribution would not reflect the distribution in the population. To test for the significance of the observed distributions, a sequence of multinomial regressions is run from which the discrete change in the predicted probability from the base level is derived. First the effect of each partner's education is analysed. Subsequently, the relationship of the joint work hour trajectories to a couple's relative education is explored. A multinomial regression was chosen as there is no obvious ordering among the joint education categories. You cannot assume that there is a transitive relationship so that if "She High, He Low" > "She Low, He High" and "She Low, He High" > "Both High", that the relationship "She High, He Low" > "Both High" also holds. The coefficients are plotted in the following figures 8-12.

Figure 8: Change in the predicted probability of being in the joint work hour trajectory if her educational level changes from non-tertiary to tertiary – contrasts with 95% CIs



Note: To be read as e.g. female tertiary degree holder couple has a 7.4% lower probability to pursue permanent specialization than the baseline couple in which she holds no tertiary degree. For the figures discrete changes (i.e. differences in the predicted probabilities) are calculated based on a multinomial logistic regression. The empty cells are reweighted. The results are further weighted by the last observation's longitudinal weight.

Source: GSOEP v28, semi-balanced panel of couples observed across the youngest child's life-course (once when aged 1-4, once when aged 5-13 and once when aged 14+). Groups are derived from the researcher-determined couples' joint work hour trajectory shapes depicted in figure 3, excluding "others". Unweighted N = 460.

In figure 8 for example, the vertical line represents the baseline or reference probability to end up in each of the trajectory groups if she has not acquired a tertiary degree. Read horizontally, the picture below presents the change in the predicted probability for each joint trajectory when her educational level moves from non-tertiary degree (which is the zero baseline) to tertiary degree. The confidence intervals (the lines) are calculated using the delta method.[10]

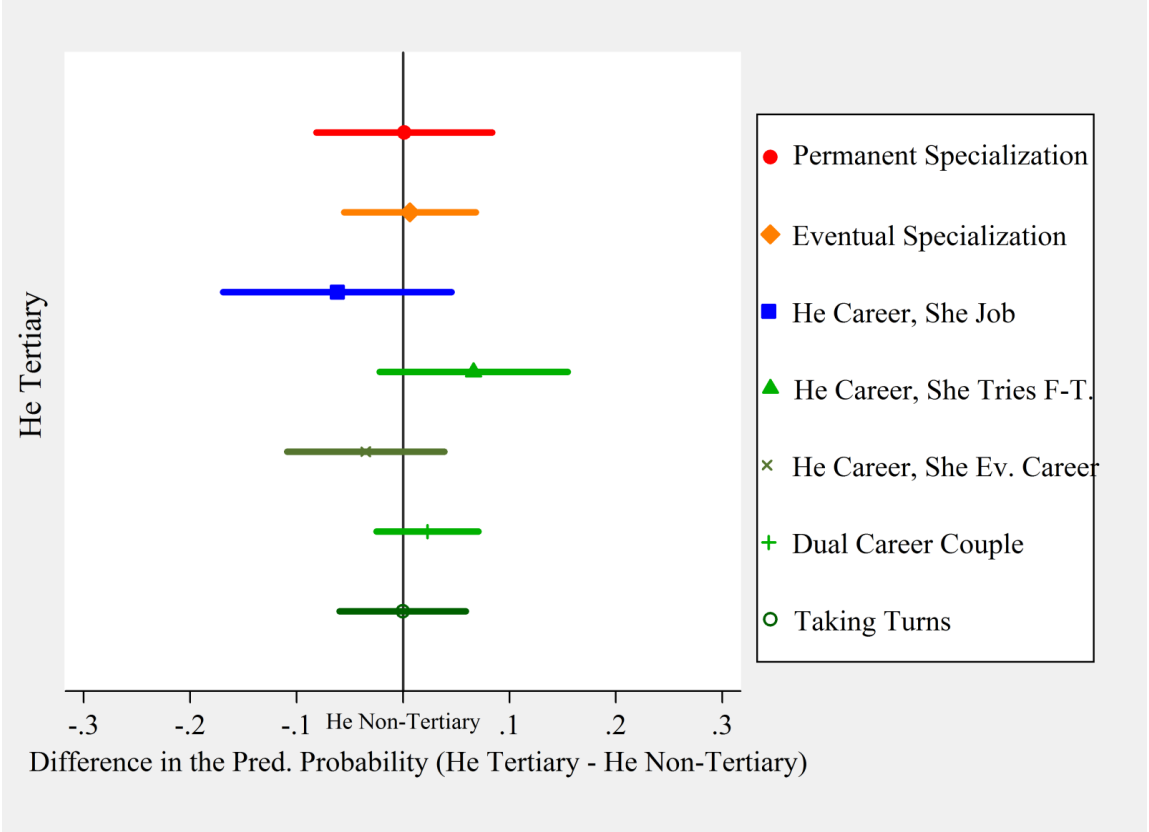
[10] Please refer to LONG, J. S. 1997. *Regression models for categorical and limited dependent variables*, London, Sage. for further details and to JANN, B. 2013. COEFPLOT: Stata module to plot regression coefficients and other results. *Statistical Software Components*. and JANN, B. 2014. Plotting regression

Her educational qualification seems to be driving the work hour strategies in parts. If she has obtained a tertiary degree, the couple is less likely to pursue a permanent specialization pattern. Moreover, the probability of trying to pursue a dual career is significantly higher; the he career, she tries full-time pattern is 13.5% more likely to be pursued by a couple in which she has a tertiary degree than in a couple in which her qualification is non-tertiary, which is significant at a .5-level. The couple has a lower probability to take turns, however.

His higher education does not lead to a lower labour market participation probability of the wife if looked at from a long-term perspective (see figure 9). Instead, his higher education increases her probability to at least try working full time, although this also is only significant at a .141-level.

coefficients and other estimates in Stata. *University of Bern Social Sciences Working Paper No. 1*. University of Bern, Department of Social Sciences. (2014) for the coefplot module producing the graph.

Figure 9: Change in the predicted probability of the joint work hour trajectory if his educational level changes from non-tertiary to tertiary – contrasts with 95% CIs

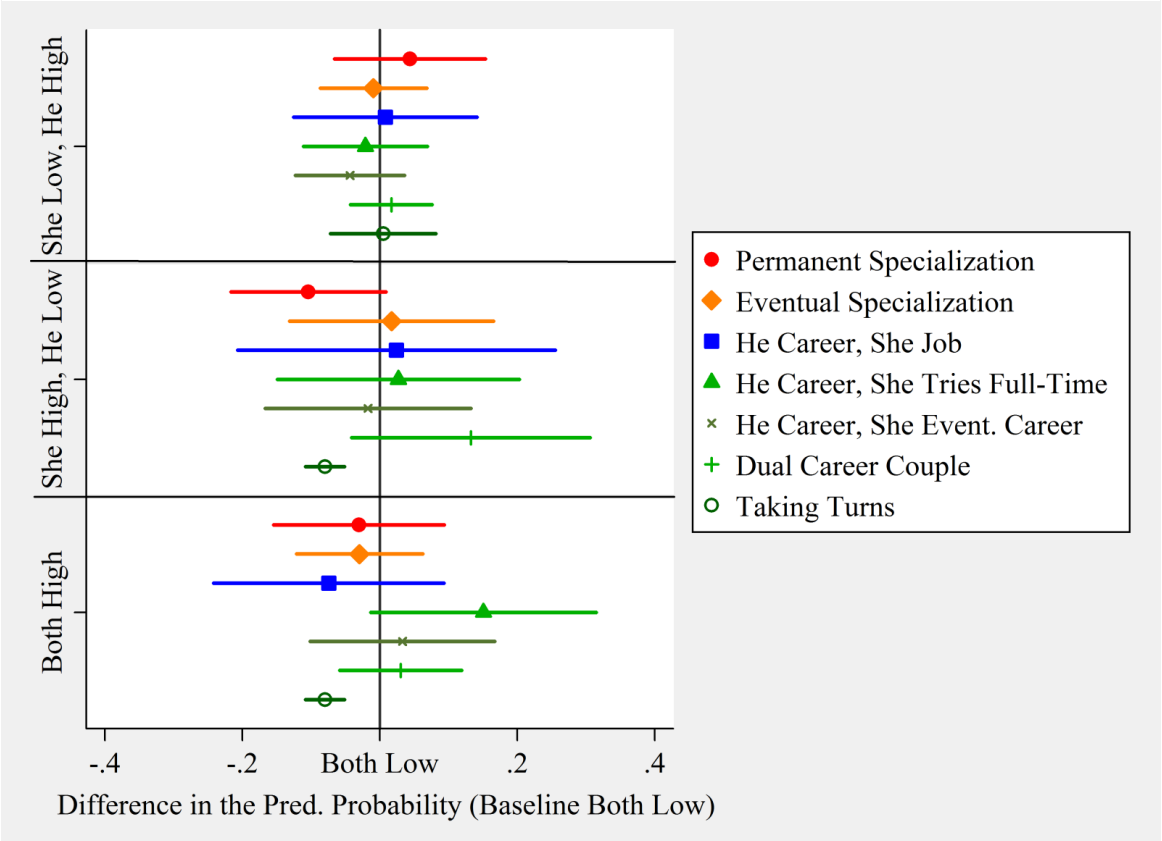


Note: For the figures discrete changes (i.e. differences in the predicted probabilities) are calculated based on a multinomial logistic regression. The empty cells are reweighted. The results are further weighted by the last observation's longitudinal weight.

Source: GSOEP v28, semi-balanced panel of couples observed across the youngest child's life-course (once when aged 1-4, once when aged 5-13 and once when aged 14+). Groups are derived from the researcher-determined couples' joint work hour trajectory shapes depicted in figure 3, excluding "others". Unweighted N = 460.

It is very likely that not only each partner's absolute but also their relative educational level to one another drives the joint decision-making processes. Hence, in what follows, the couples are distinguished by their joint educational level, similar to the descriptive figure 7. Since there is no order among the categories, six comparisons have to be made:

Figure 10: Couple's change in the predicted probability of the joint work hour trajectory if joint educational level changes from the baseline both low to… – contrasts with 95% CIs



Note: To be read as e.g. she high, he low degree holder couples have a 10.4% lower probability to pursue permanent specialization than the baseline couple in which both have no tertiary degree. For the figures discrete changes (i.e. differences in the predicted probabilities) are calculated based on a multinomial logistic regression. The empty cells are reweighted. The results are further weighted by the last observation's longitudinal weight.

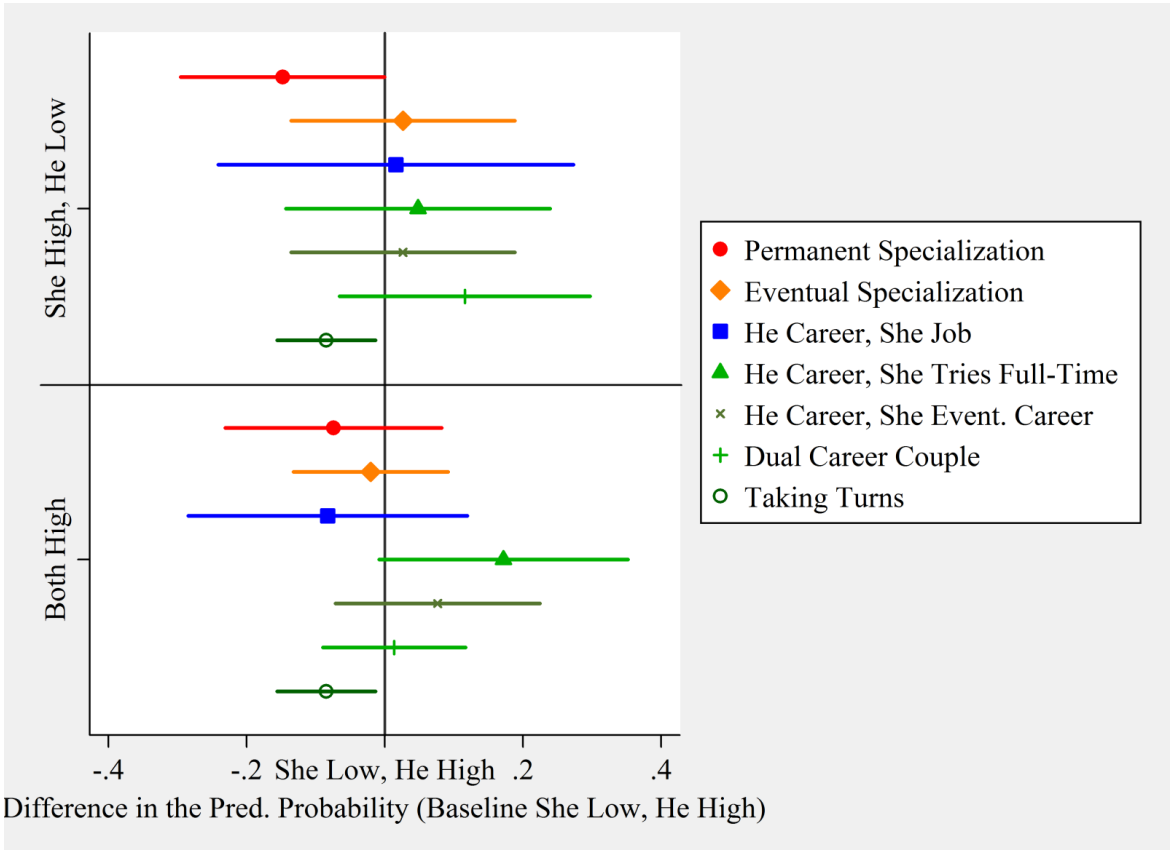
Source: GSOEP v28, semi-balanced panel of couples observed across the youngest child's life-course (once when aged 1-4, once when aged 5-13 and once when aged 14+). Groups are derived from the researcher-determined couples' joint work hour trajectory shapes depicted in figure 3, excluding "others". Unweighted N = 460.

Even when accounting for relative education, her education seems to be the relevant one. If neither partner has a tertiary qualification (figure 10), there is no significant difference in the probability of work hour patterns pursued in comparison to couples in a she low, he high pattern. In contrast, couples in which the woman is the only one with a tertiary degree – she high, he low – have a 10.4% lower probability to pursue a permanent specialization pattern, and the contrast is significant at a .07-level. These couples are also 13.2% more likely to pursue a dual career pattern, although the

difference is only significant at a .134-level. This type of couple is also 8% less likely to pursue a taking turns pattern, which is highly significant (at a .000-level). If both have a high educational qualification, the couples are 15.1% more likely to try a dual career (which is significant at a 0.071-level). These couples have a 8% lower predicted probability to pursue a taking turns pattern than the reference couple in which both partners have no tertiary degree.

Figure 11 changes the reference group. The difference in the predicted probability is now calculated using a **she low, he high** education couple as the baseline. If she has the higher educational qualification (she high, he low), the predicted probability of permanent specialization is 14.8% lower – a contrast which is significant at a .05-level. Taking turns is also 8% less likely (significant at a .00-level). Similarly, if both have a high tertiary degree, taking turns is less likely. Moreover, highly educated couples have a 17.2% higher predicted probability of trying to work full time at some point, which is significant at a .061-level.

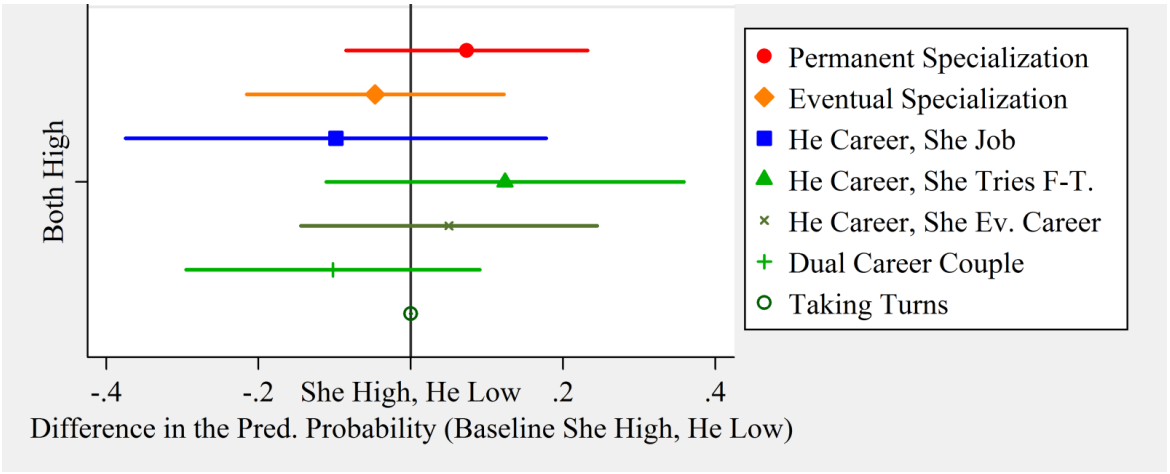
Figure 11: Couple's change in the predicted probability of the joint work hour trajectory if joint educational level changes from the baseline she low, he high to… – contrasts with 95% CIs



Note: For the figures discrete changes (i.e. differences in the predicted probabilities) are calculated based on a multinomial logistic regression. The empty cells are reweighted. The results are further weighted by the last observation's longitudinal weight.

Source: GSOEP v28, semi-balanced panel of couples observed across the youngest child's life-course (once when aged 1-4, once when aged 5-13 and once when aged 14+). Groups are derived from the researcher-determined couples' joint work hour trajectory shapes depicted in figure 3, excluding "others". Unweighted N = 460.

Figure 12: Couple's change in the predicted probability of the joint work hour trajectory if joint educational level changes from the baseline she high, he low to both high – contrasts with 95% CIs



Note: For the figures discrete changes (i.e. differences in the predicted probabilities) are calculated based on a multinomial logistic regression. The empty cells are reweighted. The results are further weighted by the last observation's longitudinal weight.

Source: GSOEP v28, semi-balanced panel of couples. Groups are derived from the researcher-determined couples' joint work hour trajectory shapes depicted in figure 2. Couples are observed across the youngest child's life-course (once when aged 1-4, once when aged 5-13 and once when aged 14+). Unweighted N = 460.

The final comparison not treated before is comparing both high with she high, he low education couples. When changing the reference group in figure 12 to a couple in which he has the higher educational qualification (**she high, he low**), there is no significant difference between this couple-type and couples in which both have a high (tertiary) degree.

3.6 Sensitivity analyses

3.6.1 Validating the deductive trajectory groups with an inductive approach

A group-based trajectory model is run to test whether the patterns of the researcher-driven approach also emerge from the data. Group-based trajectory modelling lets statistical criteria such as the Bayesian Information Criterion (BIC), and hence the data, determine the number and the shapes of different groups. Whilst some of the decisions are still made by the researcher, it is in essence the more inductive approach

applied in the chapter. It differs from a multilevel model in its assumptions: the multilevel approach assumes that

"the population distribution of trajectories varies continuously across individuals and in a fashion that can be ultimately explained by a multivariate normal distribution of population parameters" (Nagin, 2005: 5).

In contrast, the group-based trajectory model

"assumes that there may be clusters or groupings of distinctive developmental trajectories that themselves may reflect distinctive etiologies" (Nagin, 2005: 5).

For the group-based trajectory model of this chapter, the number and shape of trajectories is allowed to be different for men and women. The results are weighted by the last observation's longitudinal weight to account for differential sampling and differential drop-out probabilities. These are calculated by multiplying the first year cross-sectional weight with the probability of staying in the sample in the following waves until the final observation (see SOEP Desktop Companion for further details (Haisken-DeNew and Frick, 2005)). The model choice both for the number of groups and for the shape of each trajectory group is based on the best joint BIC and on the statistical significance of the polynomials.

The group-based trajectory model's accuracy is tested both by calculating the confidence intervals and by analysing the average posterior probability of assignment (Nagin, 2005, ch.5).

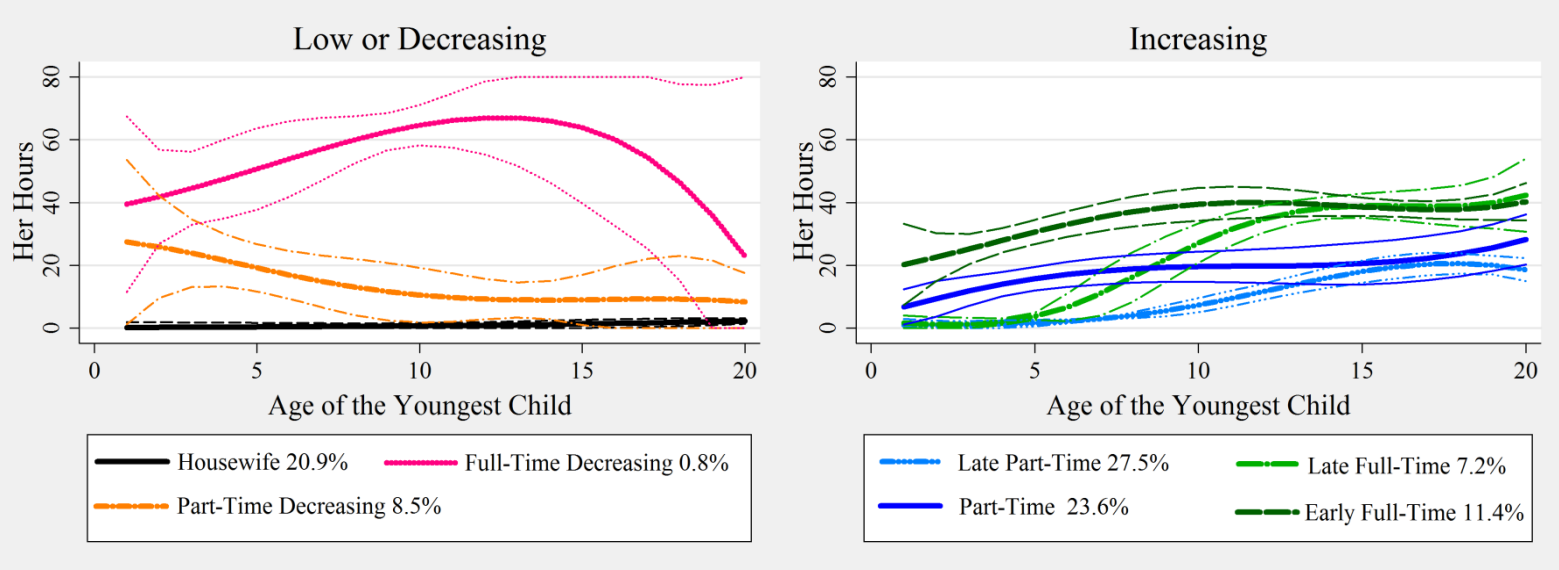
The best-fitting group-based trajectory analysis seems to support the ideal-type distinctions of the main text. There are also housewives, those who eventually work part -time (full-time decreasing in this figure), eventually part-time employed women (late part-time in figure 13), part -time throughout (part-time in figure 13), eventually full-time (late full-time and early full-time in figure 13) and decreasing from part-time (part-time decreasing in figure 13). Only two categories do not emerge from this analysis:

Full-time throughout (possibly has been subsumed under early full-time) and tried full-time but decreased working hours again (because most points will have been on the part-time curve, these individuals will be classified as working part-time in the group-based trajectory analysis, which is only an approximation the real curve). As in the main researcher-determined analysis, men not only have stable but also increasing or decreasing working hours.

Note that there are slight fluctuations around these patterns so that the trajectories represent trends rather than absolute patterns.[11]

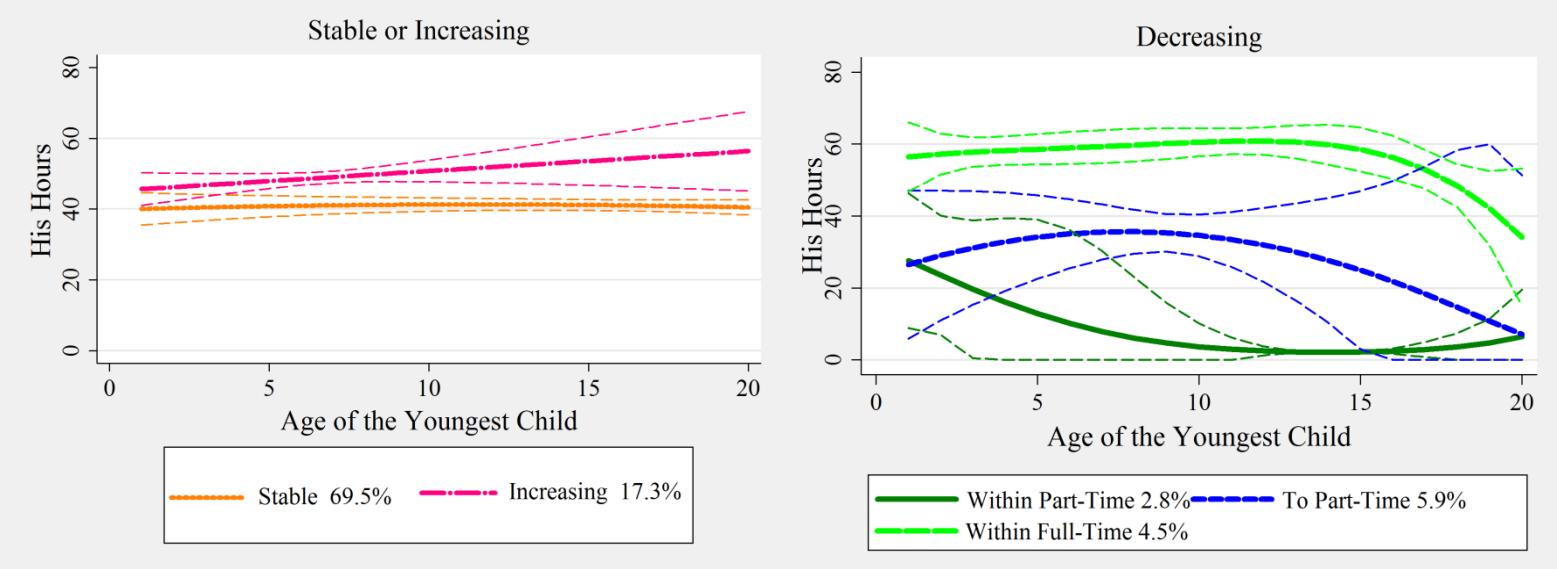
[11] The figures were created using the trajplot command (see Nagin 2005)

Figure 13: Women's work hour trajectories along the youngest child's life course: Group-based trajectory model (data-based approach) with confidence intervals



Source: author's own calculations based on GSOEP v28, semi-balanced panel of West German partnered mothers born between 1956-65 who are observed at least once during first four years of age, once at ages 5-13 and once at ages 14-20, weighted by final-observation longitudinal weight. Unweighted N = 505.

Figure 14: Men's work hour trajectories across the youngest child's life course, group-based trajectory model (data-based approach) with confidence intervals



Source: author's own calculations based on GSOEP v28, semi-balanced panel of West German partnered mothers born between 1956-65 who are observed at least once during first four years of age, once at ages 5-13 and once at ages 14-20, weighted by final-observation longitudinal weight. Unweighted N = 505.

Like the main analysis, the results further point toward the importance of the child's institutional whereabouts: on average, the early full-timers and the early part-timers increase around the age of three whilst other women increase their hours when the child is of primary school age (six years old). The maximum hours are reached only once the child has entered secondary school (which it enters either at age 10 or 12 depending on the Bundesland (state)). Unlike women, who differ in their initial work-hour intercepts after childbirth, men's working hours generally start off high (see figure 14). Subsequently, they seem to stay fairly stable or increase from there onwards. Just around 10% reduce their hours on average at some point. Interestingly, his work hour pattern does not seem to be closely tied to the age of the youngest child.

3.6.2 Missing data

To understand how missing data patterns may affect the results, a sensitivity analysis is carried out for the dyadic index from figure 4 (his share in joint working hours). The rationale for choosing this variable for the test is that it provides a more parsimonious summary of whether de-specialization or specialization occurs at various observation lengths. The dual trajectory approach would have resulted in too many possible combinations of his and her trajectories, making a comparison less intuitive.

The sample is chosen based on the observed relative hours. If they are missing, the individual year is set to missing. The truncation is tested on a 15-year balanced panel as the 20-year balanced panel covers only 71 observations as opposed to 132 couples. The 71-couple sample would have resulted in a cruder comparison. Balance is defined by the item response rather than the individual having filled in the survey, but possibly not the item in that year.

For the dyadic index, the area above the 60% line is an area in which the couple has not reached a non-traditional division of labour, whilst the area below is deemed to be non-traditional. Couples are hence categorized as traditional, traditional moving (if they move toward but do not cross the 60% line), traditional to non-traditional (if they cross the 60% line) and non-traditional (moving around the 60% line or below). The first is a specialized couple-type whilst the later represent various degrees of non- or de-specialization. Note that the 60% cut-off point is data-determined as very few couples have a 50% distribution in the approximation.

3.6.2.1 Right-truncation

As a first step, I would like to see how truncating the 15-year fully balanced sample to the first seven, ten and twelve years of the youngest child's life affects the assignment of individuals to groups. An unweighted group-based trajectory model (data-driven categorization) is used to see which dominant patterns emerge from the various samples. Weighting would have made it less clear whether the patterns emerged due to a different longitudinal weight or because of a different pattern being identified. The number of trajectories is determined by the best Bayesian Information Criterion (see Nagin, 2005). A quartic polynomial specification is chosen for each trajectory group to ensure a high flexibility in the patterns. Under this specification, a seven-group model has the best fit. The specification is kept throughout to ensure that different patterns do not emerge due to a change in specification. Subsequent to each type of truncation, the

assigned group is saved to compare the group assignment of the same individual across different types of right-truncation.

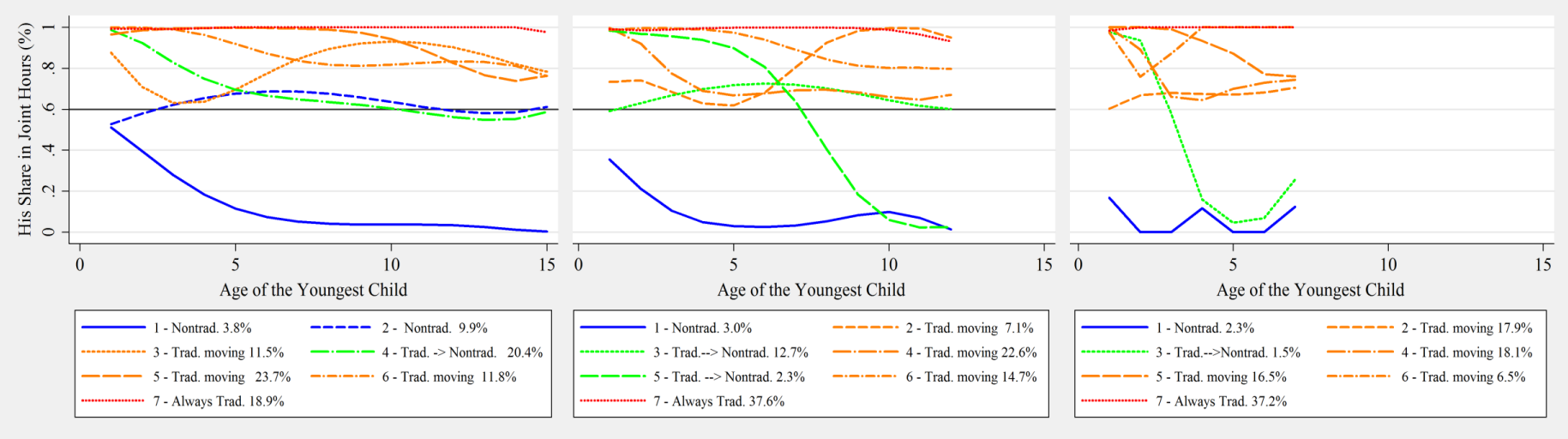
When all values are observed across the fifteen years (figure 15a), approximately 18.9% of all couples are categorized as traditional. The rest de-specializes across the life-course.

Several observations can be made in figure 15b when the same sample of the previous figure 15a is only observed for twelve years. First, more couples are categorized as pursuing a traditional division of labour (37.6% vs. 18.9%). Second, fewer couples are categorized as pursuing a non-traditional division of labour (3% vs. 13.7%). Third, the traditional to non-traditional groups 3 and 5 are smaller and most of the couples barely cross the 60% line now.

When truncated at seven years, the same individuals are again classified as traditional in 37.2% of the cases. The non-traditional group drops further to 2.3%. The group which moves from traditional to a non-traditional division of labour decreases from 15% to 1.5%.

When comparing the same individuals' categories derived from 15 years and 7 years of data, it becomes clear that, when observed only for seven years, an individual who with 15 years of observed data would have pursued a traditional pattern, would have been classified as less traditional only in 3 of the 70 reclassified cases. Overall, the findings underscore the importance of working with the longest observation window possible – hence the choice to observe all couples at least once when the child is aged between 15 to 20 years in the main analysis. Still, as not all couples will have reached the 20 years, over-estimation of traditional patterns is likely in case of right-truncation.

Figure 15: Dyadic index trajectory patterns – right truncation: Group-based trajectory analysis



a: 15-year Fully Balanced Sample **b: Right-Truncation to 12 years** **c: Right-Truncation to 7 years**

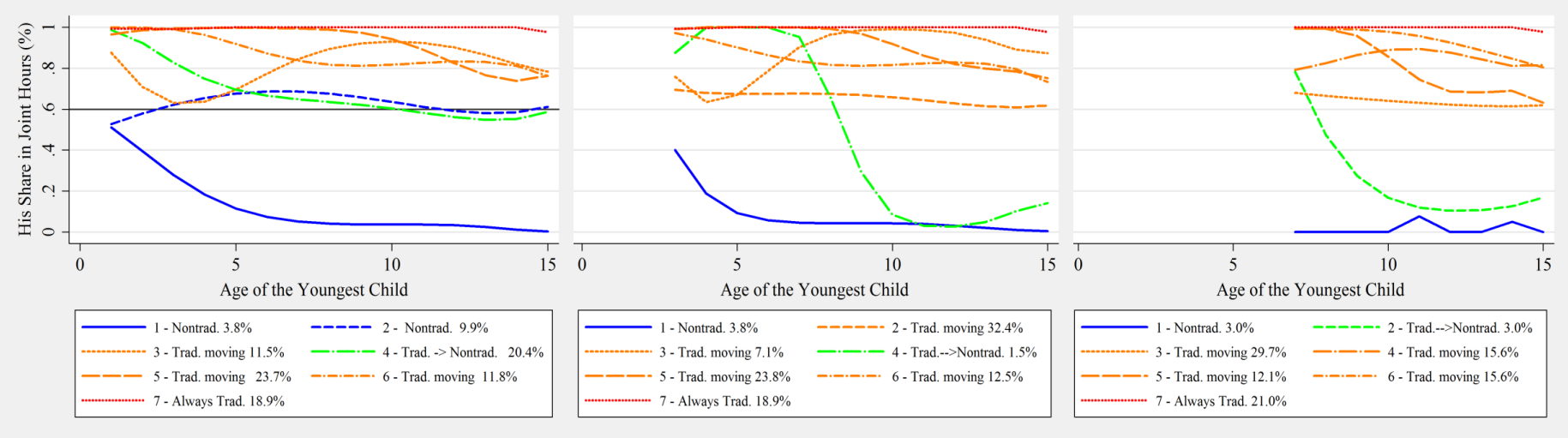
Source: author's own calculations based on GSOEP v28 all West German parents of the 1956-65 female birth cohort who jointly responded to the work hour question when the child was aged 1-15 without any missing values. Unweighted N =132.

3.6.2.2 Left-truncation

Figure 16 shows that left truncation (3 and 7 years) again increases the number of couples who are categorized as following a traditional work hour pattern from 18.9% to 21%. Moreover, only 3% as opposed to 13.7% of the sample is categorized as following a non-traditional work arrangement. Fewer couples are categorized as moving from traditional to a non-traditional division of labour (i.e. him working less than 60% of the joint working hours) – the number drops from 20.4% in figure 16a group 4 to 3% in figure 16c group 2.

When comparing the same individuals when observed for 15 years and when missing the first 7 years, it becomes apparent that in the truncated case, the same individual would have been classified as more traditional in all of the 40 reclassified cases. Again, left-truncation leads to an overestimation rather than underestimation of the traditional patterns.

Figure 16: Dyadic index patterns – left-truncation: Group-based trajectory analysis



a: 15-year Fully Balanced Sample **b: Left-Truncation to 3 years** **c: Left-Truncation to 7 years**

Source: author's own calculations based on GSOEP v28 all West German parents of the 1956-65 female birth cohort who jointly responded to the work hour question when the child was aged 1-15 without any missing values. Unweighted N=132.

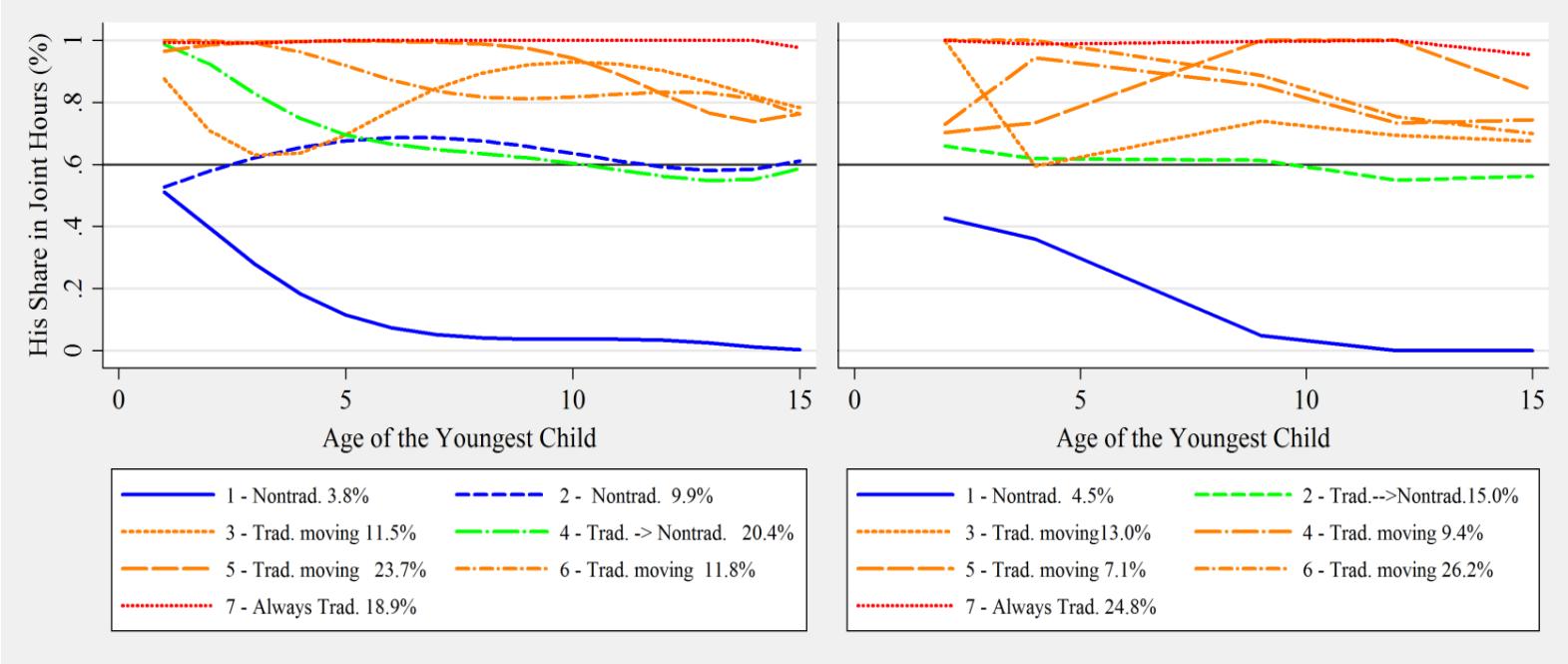
3.6.2.3 Uneven spacing

Subsequently, the effect of uneven spacing of observations is analysed. The data is artificially set to missing and includes only an observation at ages 2, 4, 9, 12 and 15.

Again, the always traditional group is larger than in the fully balanced sample (24.8% vs. 18.9%) and the non-traditional group is smaller (4.5% vs. 13.7%). Furthermore, fewer couples cross the 60% line.

Overall results suggest that right-truncation, left-truncation and missing data lead to an over-estimation of the number of traditional couples. Consequently, the missing data analysis indicates that the chosen non-balanced sample seems to provide a lower-bound estimate of de-specialization.

Figure 17: Dyadic index patterns – uneven spacing: Group-based trajectory analysis



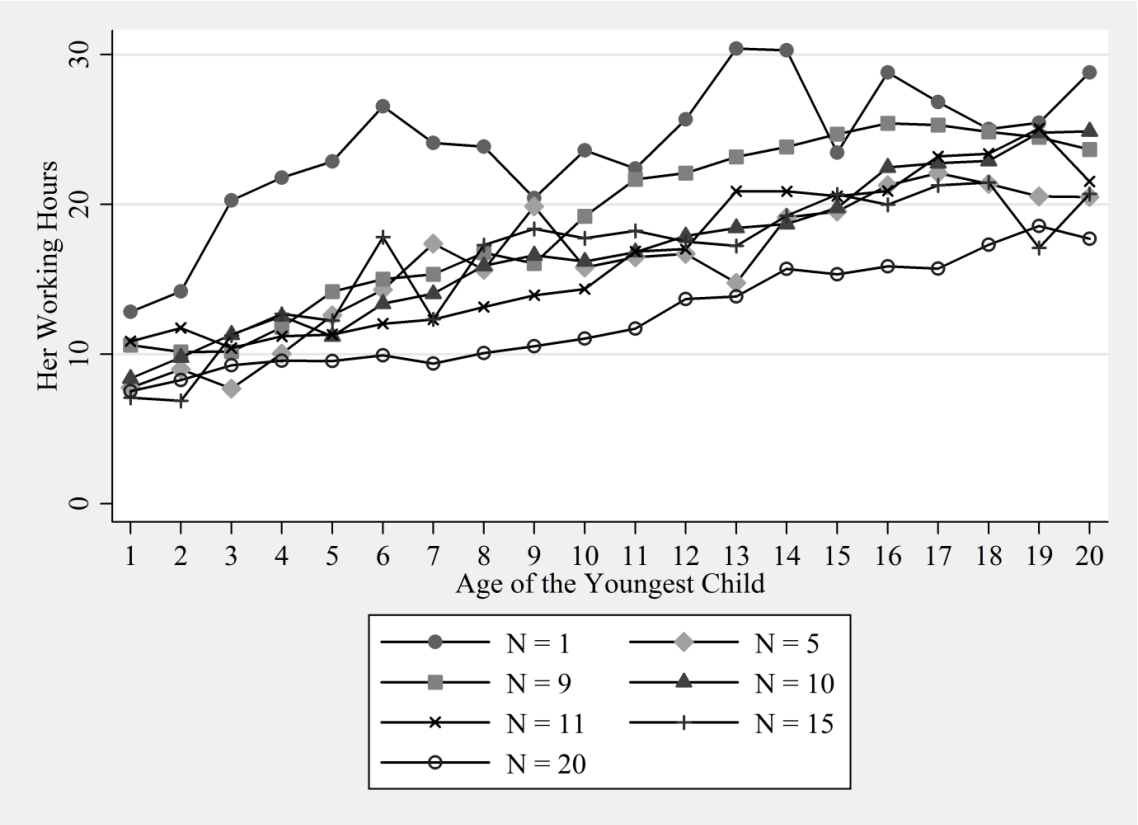
a: Complete data **b: Data for ages 2,4,9,12 & 15**

Source: author's own calculations based on GSOEP v28 all West German parents of the 1956-65 female birth cohort who jointly responded to the work hour question when the child was aged 1-15 without any missing values. Unweighted N =132.

3.6.3 Selection effects

In the case of working hours, it is highly likely that people responding to the survey every year may be working less than people who do not manage to respond in every wave. Hence, a multilevel analysis comparing the work hour trajectories of women with different response patterns is carried out.

Figure 18: Her working hours by number of survey responses: growth-curve analysis



Note: Time-points are nested within individuals. The fixed part uses a discrete specification of time interacted with the group to account for differential developments. A random effect for the child's age is used. The multilevel model uses maximum likelihood estimation and an unstructured covariance matrix.

Source: author's own calculations based on GSOEP v28, West German coupled women belonging to the 1956-65 birth cohort. Unweighted N = 1754.

This model demonstrates that women with up to ten responses worked more hours throughout the first 20 years of the youngest child's life than women with a higher number of responses. Because everyone within the sample has at least responded to six waves and 50% to 19 times or more, her working hours are likely to be underestimated across the life course.

Ultimately, the sensitivity analyses suggest an underestimation of non-traditional couple-level patterns. Hence, a conservative technique in relation to the main findings has been chosen. The lower-bound estimate of de-specialization patterns is very likely to be even higher in the population.

All in all, the sensitivity analysis pursued two aims. First, the analysis sought to discover the extent to which a traditional division of labour may have been under-estimated and a non-traditional division of labour over-estimated in the main analysis due to left- and right-truncation as well as missing data in between waves. Findings of the missing data sensitivity analyses suggest that within the main analysis, the proportion of non-traditional couples has been under-estimated under the various missing data regimes. The second aim was to find out the extent to which women with a larger number of observations on the key dependent variable working hours differ from those with fewer observations. Ultimately, if women with only one response differ systematically from women with several responses, this might skew the results. And indeed, women with fewer responses tend to work higher hours. Hence, in relation to the main goal of understanding whether specialization is the dominant pattern, the estimates for the non-specialized couples are likely to be lower conservative estimates.

3.7 Limitations

When working with 20 years of data, one has to account for a selective sample (people who respond to all waves may be very different to the average person) while also being able to draw good conclusions in the case of missing data. In longitudinal data analysis, there are a range of different ramifications that missing data can have on the results.

In sum, the sensitivity analyses suggest an under-estimation of non-traditional couple-level patterns. Therefore, a conservative technique in relation to the main findings seems to have been chosen. The lower-bound estimate of de-specialization patterns is likely to be even higher in the population. The group-based model from the main analysis can further be interpreted as a sensitivity analysis regarding the researcher-determined trajectory distinctions. Further to the above sensitivity analyses, it should be noted that the study is limited in that if couples dropped out due to unobserved variables, this cannot be discerned in the analysis.

Long-term developments are the main interest of this chapter. The resulting sample requirement (being observed when the child is 14-20) in turn implies that only couples who stay in a relationship until this point are part of the sample. The results consequently cannot be generalized to divorced couples, which may have had a shorter observation period. If couples with a non-traditional or traditional division of labour were more likely to be divorced I would underestimate the overall number of couples in this category. The latter may be problematic as it would suggest an over-estimation of non-traditional couples. Hence the limitation with regards to the generalizability of the findings. Similarly, with regards to the second research question, if highly educated couples in certain work hour arrangements were less likely to stay together, the relationship between education and the work hour patterns would only hold for those couples who have no problems or disputes (e.g. would not divorce due to the pursuit of a certain joint work hour strategy). Neither do I know whether only couples with a certain number of children remain in the various career trajectory types. Further analyses on these types of sample analysis would make for an interesting follow-up paper.

Some of the education patterns are likely to be tied to the financial returns from this education. Ideally, one would have tested the relationship between relative financial

standing pre-parenthood and subsequent joint work hour trajectories. However, extending the observation window to include pre-parenthood wages leads to a significant drop in the number of sample members (to about a third), which makes an analysis of the 1956-65 cohort infeasible.[12]

3.8 Discussion and conclusion

The deductive life course approach puts the current interpretation of the comparative advantage theory into question: against the line of expectation, even with a conservative estimate from the 1956-65 birth cohort, the number of couples who specialized in the long term turns out to be relatively small. A surprisingly smaller number of couples specialize permanently than economists would expect: 21.4%. The number is also a lot smaller than the 50% in Stier's study on the early childhood years, which underlines the importance of looking at long time spans. Instead, in a sizable proportion of all couples – 36.4% – she enters full-time employment again. Of the latter, 13.7% try working full-time as mothers. A sizable proportion of women even stays in or returns to full-time employment for good – 22.7%. A further 34.2% of couples move into the one career, one job pattern.

The analysis further demonstrates that men also contribute to de-specialization strategies through work hour reductions, even if one does not observe them moving into part-time employment. 6.7% even take turns in their career investment, supporting US qualitative findings (Becker & Moen, 1999). Reasons for de-specialization may include economic necessity for a dual income, risk avoidance in case of unemployment or divorce, a trading off/taking turns approach, or her motivation to make use of the human capital acquired before motherhood.

[12] Controlling for various independent variables within a multinomial specification is beyond the scope of this chapter but it is an interesting potential line for future research.

Multiple attempts were made to validate the findings in the main analysis. The individual-level trajectory categories upon which the joint work hour trajectories were based have been cross-checked for robustness by running a group-based trajectory analysis. Even with this data-driven approach, the same categories of individual-level trajectory types emerged (except for the tried working full-time, which the group-based trajectory model's code would not have been able to identify).

Moreover, within the main analysis it remained unclear which influence missing data may have had on the percentage of couples in each joint trajectory type. These missing data patterns are either ignored or an imputation strategy is chosen, which may or may not be close to the unobserved data points. This chapter proposes an alternative way of missing data analyses. Instead of trying to get at precise estimates, the chapter sought to find a lower-bound estimate of de-specialization patterns and to understand whether this percentage was shifted by missing data. A number of sensitivity analyses were consequently carried out testing for the pattern of missingness and the number of missing data points. An extensive sensitivity analysis demonstrated that the percentage of de-specializing and non-traditional couples is if at all under-estimated: with fewer missing data points the number of couples found in these patterns is likely to have been higher whilst the percentage of traditional couples would have most likely been lower.

With regards to the subsequent findings, the difference between short-term and long-term work hour investment patterns may further be associated with the costs per child which are likely to increase over time, though the testing of this relationship is up to future research.

The methodological advances in this chapter made these findings possible. The main contribution consequently lies in demonstrating how using high quality prospective household panel data, which in recent years spans decades of couples' lives, can enhance

our understanding of how couples' career trajectories are linked across the life-course. The analytical possibilities are now vastly extended by the panel data's provision of a continuous rather than categorical measurement of working hours. It enables researchers to work with a life course dual trajectory approach, which allows for the uncovering of formerly hidden couple-level and long-term dynamics. Rather than just taking snapshots of particular transitions or shorter time-spans, it sheds light on what happens between these transitions from part-time to full-time employment. Furthermore, it shows how couples' working hours evolve in relation to one another even if neither of the partners ever leaves full-time or part-time employment. By shifting the focus from what happens around the birth of the oldest child to what changes when the youngest child grows up and leaves home, the chapter explicitly tests whether specialization is indeed a long-term pattern. The chapter thereby directly addresses the call to bring the life course back into life course research and to link lives, which has also been made in a recent review on family research (Bianchi and Milkie, 2010: 715). There is considerable heterogeneity in couples' degrees of specialization. This further underscores the importance of moving away from analysing the average couple to analysing variations in the division of labour.

The joint work hour trajectories seem to be tied to her rather than his human capital investments made before entering parenthood. Unlike Blossfeld et al's findings, which are based on analysing her transition from housework to full-time employment, the woman's educational level makes a significant difference as to whether dual full-time employment is pursued when the life course trajectory is analysed (Blossfeld, et al., 2001: 70). Women with ***high educational qualifications*** are not only *less* likely to permanently specialize, but are also significantly *more* likely to try working full time. This difference between working part time and trying to work full time could not be captured in past analyses, which only looked at the first transition after childbirth (from housework to

part-time employment). In contrast, his educational level has no significant effect. A similar strategy may be less economically viable for less educated women, as the returns on investment are likely to be lower in the long term and the opportunity costs for staying at home therefore lower.

Further interesting differences emerge from examining the couple's ***combined education***. Assuming that on average there is a positive relationship between educational level and salary, if a ***man's qualification is lower than hers***, her comparative advantage in the labour market might result in a higher contribution. The data is consistent with this assumption with about 31.5% pursuing a dual career or eventually pursuing a dual career, as compared to 17.2% when they have the same non-tertiary education. Couples are also significantly less likely to permanently specialize both in comparison to couples in which both have the same non-tertiary education and in comparison to couples in which he has the comparative advantage. Moreover, these couples are significantly more likely to pursue a dual career if compared to a couple in which both have the same low educational qualification. Interestingly, there is no significant difference to couples in which both have a tertiary degree. This suggests again, as in the individual-level results, that her rather than his educational level is the main driver for joint work hour patterns.

This is also reflected in the fact that ***his comparative advantage*** makes no significant difference when compared to a couple in which both have a low education. Couples in which his education is higher than hers are less likely to try working full time, only when compared to couples in which both have a tertiary degree – possibly because of a lack of economic incentive if his education and, probably, salary is higher than hers.

Moreover, if ***both have a tertiary degree*** the couple is significantly more likely to try and pursue a dual career than if both partners have a low education. This may be a reflection of these couples' abilities to support a dual career by outsourcing housework

and childcare in a setting with low institutional support. A high income has been found to be related to higher outsourcing in the past (Cohen, 1998). The costs associated with having a child are likely to differ between low and highly educated parents once the child enters its late teens. Past studies have shown that there is a correlation between the educations of parents and their children (Riphahn and Trübswetter, 2013). Children of low educated parents are consequently more likely to attend Berufsschulen (vocational training schools). From the age of 16 these children will generally receive a salary, as they will work for an employer. In contrast, highly educated parents are more likely to have children who pursue higher degrees as well. Parents who send their children to university would have to financially take care of their children for another three years so they could complete their high school degree. Thereafter, unless the family had an income below the educational subsidy threshold (BAföG), parents would have to pay for their child's rent and food (unless children work and study at the same time). Women may consequently be more likely to re-enter high levels of employment in order to meet the family's higher financial needs when the child grows up. Women in low educated couples may in contrast face less financial strain, as their children will earn their own salaries considerably earlier in their lives.

The non-significant differences are interesting in themselves. The probability of specialization does not differ significantly between couples in which ***both have a high educational*** qualification when compared to a couple in which both partners' education is low. Neither does the probability of pursuing a he career, she job strategy. Similarly, results do not differ significantly when compared to couples in which he or she holds the comparative advantage.

One can conclude from this finding that women seem to have different levels of ambition in this group. On the one hand, it can be argued that her education represents a

pre-motherhood human capital investment, which the woman or her partner may be unwilling to relinquish. A possible explanation is that the female partner may be pursuing a career for its own sake. The career achievement rather than the financial rewards may drive her career investment choices. The woman might want to prove herself vis-à-vis her partner. Alternatively, she may want to lower the individual-level financial risk of divorce or the couple-level risk of his unemployment. Whether this re-investment is driven by her desire to pursue a career or by the desire to reduce the individual-level risk of divorce or the couple-level risk of unemployment is unclear.

On the other hand, despite higher opportunity costs, some women with a tertiary degree choose not to pursue a dual career. The family's material wants may be completely satisfied by a single (male) income. Rather than further increasing the family's income, women may then have the choice to work fewer hours, thereby creating a potentially better work-life balance for the family. Furthermore, the "vocation" may lie in an occupation which does not require a full-time work hour investment – e.g. if she deliberately turns down a job as a high-flying lawyer for the tobacco industry and instead opts for contributing to society by doing pro-bono work defending the poor. Alternatively, women may feel pressured by a conservative environment to avoid being a "Rabenmutter" ("bad/greedy/raven mother"). This might also explain why 32.8% of women tried working full time but eventually refrained from doing so.

In summary, even though economic arguments would largely lead one to assume that specialization in the division of labour is to be expected, this is not supported in a life course analysis. This notion must be rejected, even with an estimate which is likely to be a conservative estimate of de-specialization from the West German 1956-65 birth cohort subject to traditional socialization,. Couples seem to move back into dual employment of varying degrees as soon as they are able to, particularly if she is highly educated. For

most of the highly educated women this is likely to reflect an intrinsic motivation to work or a risk-avoidance strategy in case of the partner's unemployment or divorce. The close linkage between women's working hours and institutional support (with many women reaching their work hour plateau only when the child is in its teens) suggests that the recent policies aimed at full childcare coverage also for young children, both in terms of number of children and hours throughout the day, are likely to lead to an increase in dual careers or eventual dual careers. Further analysis will show how a more supportive attitudinal and institutional environment both across time and space may lead to different distributions in joint work hour trajectories. If the latter leads to an increase in employment at the age at which coverage is extended, this would suggest that divisions of public policy rather than the economist's notion of divisions of labour are at work across the life course.

Chapter 4: Flexible men and successful women: The effects of flexible working hours on German couples' wages

Abstract

Working flexible hours is believed to help couples manage career and family demands. It is assumed to increase an employee's productivity, resulting in higher wages. Yet, if interpreted as a lack of commitment, working flexible hours could also be punished with lower wages. The SOEP allows for the assessment of these opposing arguments. Furthermore, for the first time it is possible to test whether partners of flexible workers profit from changes in couple-level flexibility. This chapter uses fixed-effects analysis to account for selection into work hour flexibility based on wage level. Fixed-effects analysis only examines the effects upon those who enter work hour flexibility and, as such, it cannot test whether flexible workers differ from non-flexible workers. They may for instance select into work hour flexibility based on differential wage growth. Consequently, a growth-curve analysis is carried out to test for differences between those who eventually work flexibly and those who never enter work hour flexibility. Results show that West German men's and women's wages increase upon entering flexible working hours. There is also a positive cross-partner effect: West German women and mothers particularly benefit from their partner's flexibility. Men, not women, are found to be the main users of flexible working hours. Consequently, flexible hours appear to be an alternative to working part time for men seeking to support a dual career in regions with less state-level support.

4.1 Introduction

The rise in female labour market participation has resulted in more and more couples wondering how increasing workplace demands can be combined with family life without having to give up on either a family or dual earnership. Companies have acknowledged these worries. In the report on European family friendliness, commissioned by the Ministry of Family Affairs, Senior Citizens, Women and Youth, 58.2% of German companies judged family friendliness as important and 21.5% judged it as rather important (BMFSFJ, 2010: 12). For companies, the motivation for implementing flexibility measures includes the ability to keep and recruit qualified employees and to increase job satisfaction, productivity and the speed of re-integration for parents (BMFSFJ, 2010: 26). Governments hope to counterbalance the negative effects of the second demographic transition through dual earnership (BMFSFJ, 2010: 9, BMWI, 2010). Scholars — as well as the German government and German companies — have proposed flexible working hours as one means to overcome work-family conflict in a high-hour culture (BMFSFJ, 2010: 35, Moen and Sweet, 2004).

Flexible working arrangements are heterogeneous in Germany, with some work time flexibility being driven by employers and some by employees (see Hunt, 2013 for a detailled discussion). The main interest of this chapter is employee-driven flexibility. People are categorized as working flexible hours if they either work flexitime within a working hours account with a certain degree of self-determination of daily working hours or if they have no formal regulation and have self-determined working hours. The former can be seen as a mixture of employee and employer-driven flexibility, whilst the latter is fully flexible at the employee level. Theoretically, both of these kinds of flexible working hours are assumed to enhance careers. First, they decrease work-life stress for the employee, as the competing demands of work and life no longer conflict. This decrease

of stress is in turn assumed to enhance career rewards through increased output productivity (Gariety and Shaffer, 2001: 74). Second, schedule flexibility provides the opportunity to increase hours at work by working at non-core times. Both of these effects may result in higher wages, either as a reward for higher productivity or because the employee is able to take up more demanding positions. From a couple's perspective, flexible hours may allow partners to de-synchronize schedules, and therefore permit better solutions to handling time-inflexible tasks at home.[13]

Yet some scholars question whether employees believe that this positive work hour flexibility effect exists. Moen and Sweet (2004) among others argue that some employees fear that taking up flexibility measures would hurt their careers. However, qualitative research on flexible hours showed quite the opposite. Hochschild found that of all work-family policies offered, only the flexible hours programme was taken up (1997: 26).

This makes one wonder whether employees' reservations are justified with regards to schedule flexibility. Are all flexible work arrangements capable of harming careers or do some actually foster careers (measured by an increase in hourly wage)? Empirical findings have been mixed.

Moreover, the effect of work hour flexibility on the respondent's wage has been theoretically discussed in US studies. The partner has also been analysed in the context of work hour flexibility. Studies have dealt with the question of whether having a partner is associated with control over working hours (Lyness et al., 2012: 14). Another study found that being able to take time off for family demands was significantly related to lower work-to-family conflict (Voydanoff, 2004). Yet none of those studies tested whether work hour flexibility could also be advantageous for the partners' career outcome.

[13] Note that de-synchronization has also been found in the context of part-time work. See for example Carriero R., Ghysels J., Van Klaveren C. (2009) Do parents coordinate their work schedules? A comparison of Dutch, Flemish, and Italian dual-earner households. European Sociological Review 25:603-617.

Partners of the flexible workers may profit indirectly from new couple-level flexibility. Being in a relationship with a flexible partner may after all allow you to delegate inflexible tasks to the flexible partner. Additionally, a partner's resources have been shown to affect the respondent's career (Bernardi, 1999, Verbakel and de Graaf, 2008). It is likely that the adoption of schedule flexibility has similar cross-partner effects.

Nevertheless, there has been no quantitative study on the cross-partner wage effects associated with work hour flexibility. Instead, current quantitative research has focussed exclusively on the wage effects onto the individuals who use schedule flexibility. This lack in empirical evidence is likely attributable to a lack in quantitative data. After all, an examination of cross-partner effects of employer-level policies requires couple-level data which also captures work hour flexibility. The SOEP is unusual in that it measures both. It is certainly unique in capturing the work hour flexibility longitudinally across Germany.

This chapter consequently compares the effects of flexible working hours on men and women both as flexible employees and as partners of flexible employees in West Germany. It analyses the sample as a whole and also focusses on parents, as they are the most challenged by time constraints. The three main questions to be answered are:

(1) Who makes use of the work hour flexibility measure?

(2) What influence does work hour flexibility have on the person taking up this arrangement?

(3) What influence does the flexibility have on their partner's career?

Effects on a career may be said to have been exerted if the work hour flexibility measure leads to a direct reward gauged by an increase in log hourly deflated gross wages (taken from contractually agreed hours). Henceforth, even though both partners respond

in the survey, for definitional purposes the person taking up the arrangement shall be referred to as the respondent or the flexible partner/spouse, whilst the other partner is referred to as the partner or the inflexible partner/spouse. [14]

4.2 Theories and findings on the users and effects of work hour flexibility

4.2.1 Who works flexibly?

Who works flexible hours? In a first step, one has to distinguish between who is likely to take up flexible working hours and who is given the opportunity of working flexible hours. Other flexibility measures such as part-time work are predominantly used by women in West Germany (Steiber and Haas, 2010: 257). Therefore, one would assume that women are also the main users of flexible working hours. Findings on 12 other European countries have shown, however, that when looking at nonday employment women were not significantly more likely to work non-standard schedules – even when comparing only full-time employed men and women. In some countries it was actually men who were more likely to be in nonday employment (Presser et al., 2008: 91). This contrasts with working on weekends though. Even after controlling for various socio-demographic characteristics, women were more likely to be working on weekends in most of the countries (Presser et al., 2008: 95-96). Since flexible hours should reduce the need to work fewer hours it is assumed that it is mostly respondents who work full time who make use of these measures. High work commitment is seen as the norm (Cha, 2010: 303). This long-hours culture, which is especially pronounced in high service occupations, comes at the price of potentially losing good employees, as they might not be able to cope with both high, inflexible hours and family demands. Past studies showed that parents were more likely to decrease their work hour overlap possibly to increase the

[14] Spouse and partner are used interchangeably. The sample includes both married and cohabiting couples.

possibilities for informal childcare (Van Klaveren et al., 2011: 16-17). They may therefore be more likely to make use of work hour flexibility measures.

With regards to who is offered work hour flexibility, In jobs where people are easily replaced this may not be of importance to the employer, yet in sought-after professions replacements may be difficult and expensive to find. To pre-empt a loss, employers may therefore decide to offer flexible hours to their employees, particularly to those in sought-after positions. One would therefore expect to find differences in the usage of this flexibility between the high service occupations and other employees. Because parents in particular face higher time demands, one would expect that they make more use of these measures than childless individuals. Past studies on non-standard working hour have, however, found that this was not the case (Presser et al., 2008: 101).

4.2.2 Work hour flexibility and careers

The effect of schedule flexibility on the person entering work hour flexibility is far from clear, both on theoretical and empirical grounds. Two plausible theoretical notions, "productivity" and "commitment signalling", work in opposite directions. Productivity theory would assume that working flexibly allows respondents to meet commitments at home, such as the provision of childcare or taking care of sick relatives and children (Rose, 2014: 14). This may reduce work-life compatibility stress, which may in turn lead to higher productivity (Gariety and Shaffer, 2001, Glass, 2004). Indeed, researchers found that work hour flexibility reduced the clash of family with work commitments, as well as stress, overall fatigue, sleeping problems, backaches, headaches and job dissatisfaction. It also significantly increased the likelihood of employees being able to work beyond the age of 60 (Costa et al., 2004: 840). Another mechanism is proposed by Weeden (2005: 461): employees perceive the newly won flexibility as a gift and in return invest more in their jobs.

In contrast to this theory of productivity, the notion of "commitment signalling" argues for the existence of a "flexiglass ceiling" (Weeden, 2005: 454). Whilst work hour flexibility does not reduce overall time at work and may therefore not have as negative an effect on wages as work hour reduction, commitment theorists would counter that an employer might perceive the request for flexible hours as a sign of lower levels of commitment (Glass, 2004: 371). Moreover, if employees spend less time working during core hours, they reduce the face time spent with the employer. Being perceived as an absent and hence uncommitted employee can counteract the positive productivity effects onto wages. Gender is likely to interact with work hour flexibility. Women in West Germany are more likely to work part time and to drop out of the labour market altogether than men (Blossfeld et al., 2001: 60ff). Consequently, they may generally be perceived as being less committed to the labour market. Hence a woman's request—and a mother's request in particular—for work hour flexibility might be interpreted even more negatively than a man's request. Similarly, part-time workers may be signalling disinvestment via two measures. Once this signal has been sent, an employer might decide to invest less in this individual by offering fewer training and promotion opportunities (Budig and England, 2001: 218, Glass, 2004: 372). Another frequently stated reason for lower wages is that the administrative costs associated with these flexibility measures are indirectly deducted from the employee's wage (Weeden, 2005: 461).

The effects on the nonflexible partner are clearer. One's own wage may increase if the partner starts working flexible hours for several reasons. First, it may increase the partner's income (provided there is a positive productivity effect), which could allow the couple to invest in childcare or cleaning services, for example. Alternatively, the flexible partner might take over all the non-flexible tasks in the household. This may allow the

non-flexible partner to increase their own working hours—particularly if he or she had already reduced their hours to manage the inflexible tasks.

So far no quantitative analysis on West Germans has been conducted. Past studies have mainly been carried out in the US. Even if one were to assume that the effects of schedule flexibility were similar in the two countries, it remains unclear which of the two theories (commitment signalling or productivity enhancement theory) holds. The studies that have been conducted on working flexibly in the US have mostly cross-sectional studies and have produced divergent findings. Boushey (2008: 51) found that for American mothers there was no significant effect on wages if one controlled for part-time work and education, whilst Weeden (2005: 471) and Gariety and Shaffer (2001: 74) detected a significant wage premium for men and women in the US. It remains unclear whether the difference in results is attributable to the more generic sample chosen by the latter studies.

Moreover, the cross-sectional analyses on wages could not account for the fact that unobserved factors might result in spurious relationships. In other words, what appears to be an effect of work hour flexibility on wages may in fact be the result of selection into work hour flexibility based on wage level. Selection may occur if sectors which are more likely to offer schedule flexibility are at the same time more likely to offer higher wages (employer selection effect). Another employer selection effect working in the opposite direction would occur if mothers were to earn less income in return for the option of flexibility measures (Glass, 2004). These elements cannot be disentangled in cross-sectional analysis, which is why a longitudinal design is crucial.

Glass' longitudinal study measured the differences in wage growth of ca. 200 working mothers in the Midwestern United States. As with the cross-sectional analysis, no effect was found with regards to the mothers' subsequent wage growth. Employee

selectivity, measured by whether people would stop working if they had enough money and a dummy on whether family policies had led to taking the job, was not significant. Employer-selectivity effects, measured by a dummy indicating whether the measure was offered rather than used, were not significant either. The results might be attributable to the selected sample—mothers (Glass, 2004). Another comparison group (men, for instance) might have resulted in different findings. Furthermore, Glass' sample is only representative of the Midwestern region.

The following analysis is not as regionally restricted, as it employs longitudinal data from across West Germany. Fixed effects models are fitted to test if the positive effects of working flexible hours remain after accounting for those wage level differences which are due to unobserved time-constant heterogeneity. An additional growth-curve analysis sheds light on how flexible and inflexible workers and their partners differ over time.

To summarize, when compared to past research, this chapter overall has three major strengths. Firstly, it is the first chapter to examine the effect of flexible working hours on both the respondent and their partner, thereby testing for the first time implicit assumptions about positive cross-partner effects. Secondly, it combines the methodological strengths of the two main papers in the field, working with a generic sample as in Weeden's paper, while also analysing the questions in a longitudinal fashion, as did Glass' paper. This approach allows for the measurement of the effect of flexibility tenure and accounts for time-constant unobserved heterogeneity. Thirdly, this chapter conducts a subsample analysis on parents, as they are likely to face different challenges.

4.2.3 The West German context

Female employment has traditionally been disapproved of in the Federal Republic of Germany (West Germany). Even in the 2004/5 European Social Survey, 50% of West

Germans agreed that "Women should be reducing their hours for family commitments". Along the same lines, 51% of West Germans agreed that "a pre-school child suffers if the mother is working". Similarly, 48% of West Germans were against a mother being employed full time if the child is under the age of three (Steiber and Haas, 2010: 258).

Although politicians have passed legislation to guarantee childcare from 2013, only 8% of under-three year-olds in West Germany were provided with childcare in 2006 (Destatis, 2007: 7). In 2012, 22.3% of all under-three-year-olds were covered in West Germany (Destatis, 2013: 7). This low level of state and social support was reflected in a low number of dual-earner couples: 28% between 2004 and 2006. In 5% of couples, the woman was the main earner. The male breadwinner model was most prevalent in West Germany, with 31% living in such an arrangement. A partially modernized (with the man working full time and the woman working part time) model was pursued by 26% of West German couples (Steiber and Haas, 2010: 265). [15]

In light of the low level of state-level support, it can be expected that West Germans in particular may have been taking up work hour flexibility. Statistical discrimination is likely to play a role when it comes to the effect of work hour flexibility. If women in general are observed to leave the labour market, employers may be more likely to interpret the demand for work hour flexibility as signifying a decrease in career commitment. As a consequence, their careers may be harmed by asking for work hour flexibility. These effects may be expected for mothers in particular. With regard to cross-partner effects, it must be understood that West German men who are already the main earners may have reached a limit regarding how much more they can invest in their career and therefore might not benefit if their partner starts working flexibly. The opposite holds true for West German women, who tend to work part time and hence can

[15] Please note that these are cross-sectional figures which frequently differ from life-course figures as could be observed in chapter three in relation to the male breadwinner model (specialization) for instance.

still raise their working hours considerably. These women are likely to experience a wage boost, as being supported by flexible husbands might allow them to invest more time into their careers.

4.3 Data

Like the last chapter, this chapter's analysis uses the German Socio-Economic Panel Study (SOEP). The following analysis again uses version 28 of the SOEP (years 1984-2011), which consists of 57,049 individuals, of which 45,658 are West Germans (i.e. currently living in West Germany).

Age is restricted to the key career years—ages 25 to 60—which leaves 31,529 individuals. Only individuals who are categorized as employed throughout are kept—a total of 26,774.

4.3.1 Dependent variable

Career is measured in terms of log hourly wages (gross), which is deflated to the 2005 values (Statistisches Bundesamt, 2013). The log is taken because the relative change rather than the absolute change is of interest. Moreover, it ensures a normal distribution of the dependent variable.[16] The hourly wage is derived from the contractually agreed hours. All cases in which gross earnings are unreasonably higher than net earnings (i.e. above 2.2 times) or in which people earned below 1 Euro an hour are dropped, resulting in a subsample of 26,498 individuals. An alternative would have been to examine earnings either on the individual or on the couple level. With regards to earnings on the individual-level, it must be noted that earnings equals the product of input (working hours) and output (wages). Hence it would have remained unclear whether over time a rise in earnings was associated with a change in work hour flexibility or whether a rise in working hours was associated with a change in work hour flexibility. Consequently, wage

[16] Relative measures are less skewed by wage distributions.

is chosen as a dependent variable. Another alternative would have been to use combined earnings (which would have been a reflection of joint income maximization). This would have been logical as couples may judge the effectiveness of work hour flexibility by its effect on the joint outcome. This was not done because it would have remained unclear whether the respondent who enters work hour flexibility or the partner who never works flexibly would have contributed to higher or lower earnings once the couple moves into work hour flexibility. Since this is the main interest of the chapter (individual and cross-partner effects), individual-level measures were chosen instead. Moreover, this chapter would like to relate to past literature on the topic, which has been based on individual work outcomes (wages). Unlike for working hours, there is no in-between wave measure of earnings.

Yet, how reliable is income data? After all, income is a sensitive question, because it requires the invasion of privacy, there is a risk of disclosure to third parties, and the answer may be socially (un)desirable (Tourangeau et al., 2000). Prospective data is advantageous because it allows one to carry out dependent interviewing techniques. One can feed forward data from previous waves either when formulating the question (also called active dependent interviewing) or to check responses in the current interview (reactive dependent interviewing) (Jäckle et al., 2005: 7). Within the context of the SOEP, the current wave includes a question on last year's income allowing for cross-year survey response validation. This makes the data less prone to erroneous and missing data than cross-sectional survey methods, and resultantly makes it more accurate, reliable, comprehensive and valid. Whilst register data might provide more reliable data because they are not prone to the three points mentioned by Tourangeau and colleagues, their income measures are threatened in their reliability in the context of tax evasion. Yet the

register data would not have had the work hour flexibility measure and could hence not be used.

How did the SOEP survey team cope with missing data? In 1986, 95% had an observed income measure, in 1993 94.3% and in 2001 90.8%. Self-employed have a particularly high rate of missing data (Frick and Grabka, 2014: 11). However, since they are not included in this chapter, this poses no threat to the current analysis.

Within the context of the prospective SOEP, row-and-column imputation is carried out (Little and Su, 1989, Grabka and Frick, 2003). This is a key advantage over missing data official cross-sectional statistics such as the German Income and Expenditure Survey, which often rely on expert imputation which is "highly subjective and – in most cases – unreproducible for interested third parties" (Frick and Grabka, 2014:6). The longitudinal imputation method is more reliable than the cross-sectional imputation method. For 1986, 4.1% of the 5% of missing data were imputed using Little and Su's method (Frick and Grabka, 2014: 23). In comparison, for 1993, 5.1% of the 5.8% of missing data and for 2001 5.4% of the 9.2% of missing data were also imputed using this method.

4.3.2 Independent variable of interest

Work hour flexibility is only measured in 2003, 2005, 2007, 2009 and 2011. Consequently, the study only uses these waves. Working flexibly is an indicator variable coded to one if the person can determine their own work schedule, or if the person has an annual hours contract with some personal control over their hours.

Since the aim of the regression is to measure the effects of work hour flexibility on wages, the sample is further restricted to individuals who entered flexible work during the observation period. Of these, only individuals with consecutive observations of the flexibility status are kept. Any other approach would have been unclear if respondents were working inflexible hours or stayed in flexible work in the missing year. If a

respondent left and then re-entered a flexible working arrangement, only the first spell of flexibility is observed.[17] This sample definition yields 9,319 individuals, 1,211 enter, 456 stay two years, 192 stay four years, and 86 remain for six years in a flexible work hour arrangement (the latter are dropped).

For the partner regression, the sample is further restricted to employed heterosexual couples, in which the partner is aged 25-60 years. The wage is cleaned as above. This results in a subsample of 5,365 individuals. 648 have partners who enter, 256 have partners who stay two years, and 123 have partners who work for four years in a flexible arrangement.

4.4 Methods and measurements

The subsequent analysis explores what effect a change in work hour flexibility has on within-individual changes in wages. It consequently moves away from a comparison between those working flexible hours and those who are not. Instead, it focusses on all individuals who move into work hour flexibility in order to understand how this move changed the flexible employee's own wage in T, T+2 and T+4 when compared to T-2. A fixed effects analysis is chosen so as to cancel out time-constant unobserved heterogeneity ($\propto_i$). Time-constant unobserved heterogeneity can be an issue when, for example, only motivated employees, who would have earned a higher wage regardless of whether they work flexible hours, are offered work hour flexibility. In this case, a high-wage worker may both earn a higher wage and be offered flexible employment, but flexible employment might not necessarily have led to their higher wage. The cancelling out of such effects is achieved by subtracting the individual-level over-time mean from each individual-level observation, leaving only deviations from the mean. This is important because if the error term is correlated with the covariates then the estimates are

[17] The analysis is based on the assumption that, within the last couple of years, this is the first time (in a long while) that they have worked flexible hours.

biased (Dougherty, 2006, Allison, 1994). Not only unobserved but also observed time-constant variables such as industry (provided the employee does not change industry) and gender are cancelled out by this method, which is why they are not controlled for—only changes are of interest in this case. In the equation below the X_{jit} stands for the covariate j of the individual i at time t, whilst $\bar{X}_{ji}$ is the individual's mean across all time points for the covariate j. Similarly, F stands for the work hour flexibility of the individual i at time t, and $\bar{F}_i$ is the mean value across all time points for the individual i. ε_{it} is the remaining idiosyncratic error term at time t and $\bar{\varepsilon}_i$ the individual's error averaged across time.

$$Y_{it} - \bar{Y}_i = \sum_j \beta_j \left(X_{jit} - \bar{X}_{ji}\right) + \gamma(F_{it} - \bar{F}_i) + (\propto_i - \propto_i) + (\varepsilon_{it} - \bar{\varepsilon}_i)$$

The following analysis shows the effect of moving into work hour flexibility on log hourly wages. To get at group-specific effects of work hour flexibility, a subgroup analysis (e.g. on men and women) is carried out. A limited number of control variables are used because of the sample size. The models are run in several steps. For respondents, in a first step, the typical Mincer-wage equation variables are included: **years of experience in part-time and in full-time employment** and **its squared term**. As with overall experience, it is assumed that a person with a higher tenure may be more likely to be offered flexible employment in order to retain qualified workers. However, tenure is highly correlated with full-time work experience. To account for period-specific wage shifts (e.g. the economic crisis) time **dummies for survey years** are included. The standard errors are bootstrapped to account for clustering within individuals.

Since the duration effect of work hour flexibility is of interest, an **interaction between working flexibly and the dummies of time spent in flexible work** is added to the model.[18]

[18] The time spent in flexible work is coded as a set of time dummy variables indicating those just entering flexible work, having spent at least two years in flexible work, etc.

4.5 Results

4.5.1 Descriptive statistics: who works flexibly?

Against expectations, significantly more men make use of work hour flexibility in West Germany. This is surprising, as other measures such as part-time work are predominantly used by women: only 33% of women were working full time in 2004/7 (Steiber and Haas, 2010: 265). The distribution of work hour flexibility across both genders may be a reflection of the differential availability of work hour flexibility in predominantly male and predominantly female occupations. Moreover, whilst women may have a preference for working flexible hours, flexible hours may only be available at the top of the career ladder, which women are less likely to reach. The finding of men being the main users is particularly interesting in light of Glass' proposition that if work-family policies are no longer only associated with female occupations, women will no longer have to choose between flexible low-paying jobs on the one hand and inflexible high-paying full-time jobs on the other, as the associated wage gap will disappear (2004). Moving away from the assumption of differential preference, the number may also simply be a reflection of men being employed in occupations which are more likely to offer work hour flexibility (Weeden, 2005: 458-459).

Table 2: Cross-section observed vs. expected flexibility in West Germany

	Observed frequency (row %)	
	Not working flexibly	Working flexibly
Gender		
Male	62.42	**37.58**
Female	68.33	31.67
Expected frequency (row %)	65.18	34.82
Full-time/part-time status		
Full-time	64.60	**35.40**
Part-time	73.52	26.48
Expected frequency (row %)	66.48	33.52
High service vs. other		
High service	30.50	**69.50**
other	69.80	30.20
Expected frequency (row %)	65.06	34.94
Parents of 0-7 year old		
yes	63.44	36.56
no	65.56	34.44
Expected frequency (row %)	65.18	34.82

Source: SOEP v28 2005; author's own calculations; bold = higher than expected (chi²-test-based)

Note: ages 25-60; excludes self-employed; weighted with cross-sectional weight provided by SOEP (w11105); unweighted results were qualitatively similar

The higher need for flexible working hours in high work hour cultures is reflected in the significantly higher proportion of full-time workers taking up flexible working hours (35.40% vs. 26.48%). It is also apparent in the significantly larger number of high service employees who work flexible hours: nearly two thirds work flexible hours in this occupation, whereas in other occupations only a third have a flexible work time

arrangement.[19] As would be expected, possibly because of the higher work-life combination pressure, a higher number of parents make use of work hour flexibility measures. Yet differences are not as striking as one may have assumed (36.6% vs. 34.4%). This may have to do with employers using the work hour flexibility measure not as a means to help parents across the board but as a means to incentivise very particular employees to stay at their firm – offering it based on whom they would like to retain rather than based on who is most likely to need the work hour flexibility measure.

4.5.2 Fixed effects results: The effect of work hour flexibility

To what extent does work hour flexibility have an effect on career outcomes (wages)? In the baseline model, both men and women profit from entering work hour flexibility (table 3, models 1 and 6).

The effect remains even when controlling for alternative explanations for wage change, such as period effects (in a recession employees may earn less) in models 2 and 7 and changes in human capital (measured as changes in work experience) in models 3 and 8. To understand whether the change in wage is caused by a simultaneous employer change, cases in which the employee changes the employer are dropped. Employer change is coded as one for all subsequent years if the person held a higher tenure with their employer in the previous than in the current year. Moreover, the sample is restricted to private sector employees as public sector employees may not be easily punished. Similarly, the private sector may punish employees more than the public sector for

[19]The definition of high service workers is derived from the Erikson and Goldthorpe Class Category. It includes mostly professionals, large enterprise employers and higher managers (with more than 10 subordinates). This is derived from the Standard International Socio-Economic Index of Occupational Status (ISEI). For further details please refer to Ganzeboom H.B.G., Treiman D.J. (1996) Internationally comparable measures of occupational status for the 1988 International Standard Classification of Occupations. Social Science Research 25:201-239, in particular page 214, to the revised version Ganzeboom H.B.G., Treiman D.J. (2003) Three Internationally Standardised Measures for Comparative Research on Occupational Status, in: J. H. P. Hoffmeyer-Zlotnik and C. Wolf (Eds.), Advances in Cross-National Comparison. A European Working Book for Demographic and Socio-Economic Variables, Kluwer Academic/ Plenum Publishers, New York. pp. 159–193. and to the SOEP Documentation PGEN SOEP. (2011) Documentation PGEN. Person-related status and generated variables, Deutsches Institut für Wirtschaftsforschung, Berlin.

entering work hour flexibility, which is why a subsample analysis on private sector employees is carried out. Neither of the two can be affirmed as even within the subsample of private sector employees who did not change employers, both men and women experience a positive wage effect. For women, the size of the effect even increases.

To ensure a clear specification of the work hour flexibility effect, in subsequent models, the analysis excludes self-employed respondents and those who changed employers. The rationale for the exclusion restriction is that self-employed individuals are not reliant on an employer and may therefore not be punished for demonstrating lower commitment. If an employee changes to an employer which offers work hour flexibility as well as higher wages, then it remains unclear whether the employee would have earned a higher wage even if he or she had not had the option of working flexible hours. Excluding those individuals who changed employer ensures that both effects can be clearly distinguished from one another.

Table 3: Fixed effects analysis, dependent variable: Respondent's log hourly wage – stepwise

	(1) Women: Basis	(2) + Period	(3) + Human Capital	(4) - Employment Changers	(5) - Public	(6) Men: Basis	(7) + Period	(8) + Human Capital	(9) - Employment Changers	(10) - Public
Time spent working flexibly (Ref.: Not yet)										
Just entered	0.025*	0.025+	0.020	-0.013	-0.019	0.055***	0.067***	0.063***	0.061***	0.062***
	(0.013)	(0.014)	(0.015)	(0.015)	(0.019)	(0.009)	(0.010)	(0.012)	(0.009)	(0.013)
2 years	0.040+	0.047*	0.037+	0.004	0.002	0.063***	0.086***	0.077***	0.072***	0.067***
	(0.022)	(0.021)	(0.022)	(0.021)	(0.017)	(0.015)	(0.013)	(0.012)	(0.013)	(0.018)
4 years	0.091*	0.092*	0.085**	0.068+	0.123*	0.064***	0.083***	0.077***	0.072***	0.071*
	(0.037)	(0.040)	(0.030)	(0.038)	(0.054)	(0.017)	(0.021)	(0.021)	(0.019)	(0.030)
Survey year (Ref.: 2003)										
2005		0.009	0.008	-0.012	-0.037		-0.017***	0.042	-0.004	0.030
		(0.007)	(0.027)	(0.021)	(0.035)		(0.005)	(0.036)	(0.046)	(0.055)
2007		-0.017+	-0.018	-0.055	-0.099		-0.041***	0.076	-0.017	0.068
		(0.010)	(0.053)	(0.041)	(0.070)		(0.006)	(0.073)	(0.091)	(0.109)
2009		-0.012	-0.013	-0.069	-0.136		-0.034***	0.143	-0.001	0.115
		(0.009)	(0.075)	(0.059)	(0.103)		(0.006)	(0.108)	(0.136)	(0.165)
2011		0.015	0.012	-0.075	-0.155		-0.014+	0.220	0.027	0.189
		(0.009)	(0.100)	(0.081)	(0.137)		(0.008)	(0.145)	(0.181)	(0.221)
Part-time work experience (yrs)			0.003	0.012	0.022			-0.009	-0.014	-0.003
			(0.012)	(0.010)	(0.018)			(0.012)	(0.013)	(0.014)
Full-time work experience (yrs)			0.022+	0.032**	0.037*			-0.013	0.011	-0.010
			(0.012)	(0.010)	(0.018)			(0.017)	(0.022)	(0.027)
Part-time work exp. (yrs)²			-0.000	-0.000	-0.000			-0.001	-0.000	-0.001
			(0.000)	(0.000)	(0.000)			(0.001)	(0.001)	(0.001)
Full-time work exp. (yrs)²			-0.001***	-0.001***	-0.000***			-0.000***	-0.000***	-0.000***
			(0.000)	(0.000)	(0.000)			(0.000)	(0.000)	(0.000)
Constant	2.570***	2.570***	2.448***	2.311***	2.098***	2.799***	2.817***	3.164***	2.780***	3.104***
	(0.007)	(0.009)	(0.163)	(0.136)	(0.229)	(0.007)	(0.007)	(0.280)	(0.366)	(0.440)
R-squared	0.002	0.007	0.015	0.013	0.013	0.009	0.020	0.035	0.032	0.034
Person-years	9061	9061	8982	8369	5287	8983	8983	8884	8289	6224
Individuals	4366	4366	4287	4262	2901	4037	4037	3944	3917	3054
Transitions	425	425	425	338	201	529	529	529	458	321
exp. degrees of freedom	3	7	11	11	11	3	7	11	11	11

Source: SOEP v28 years 2003, 2005, 2007, 2009 & 2011

Note: bootstrapped standard errors, employees aged 25-60, excludes self-employed and those who changed employer

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

To understand whether women who might be interpreted as having a lower or higher commitment also profit, the sample is subsequently divided into two groups: women working at least 30 hours and women working below 30 hours (table 4 models 2 and 3). Those working at least 30 hours still profit from entering work hour flexibility: their hourly wage is 6.6% higher (exp 0.064) after four years. Conversely, women who worked below 30 hours do not profit significantly from work hour flexibility.

To what extent do work hour flexibility measures affect parents? Because previous findings on the US suggest that the effect of work hour flexibility may differ depending on parental status, separate analyses are run for parents (models 5 and 6). Mothers do not benefit significantly from entering work hour flexibility. In fact, their wages decrease initially. In contrast, fathers' wages increase immediately: they earn 5.7% more (exp .057), although this effect attenuates after four years.

Table 4: Fixed effects analysis, dependent variable: Respondent's log hourly wage – subgroup comparison

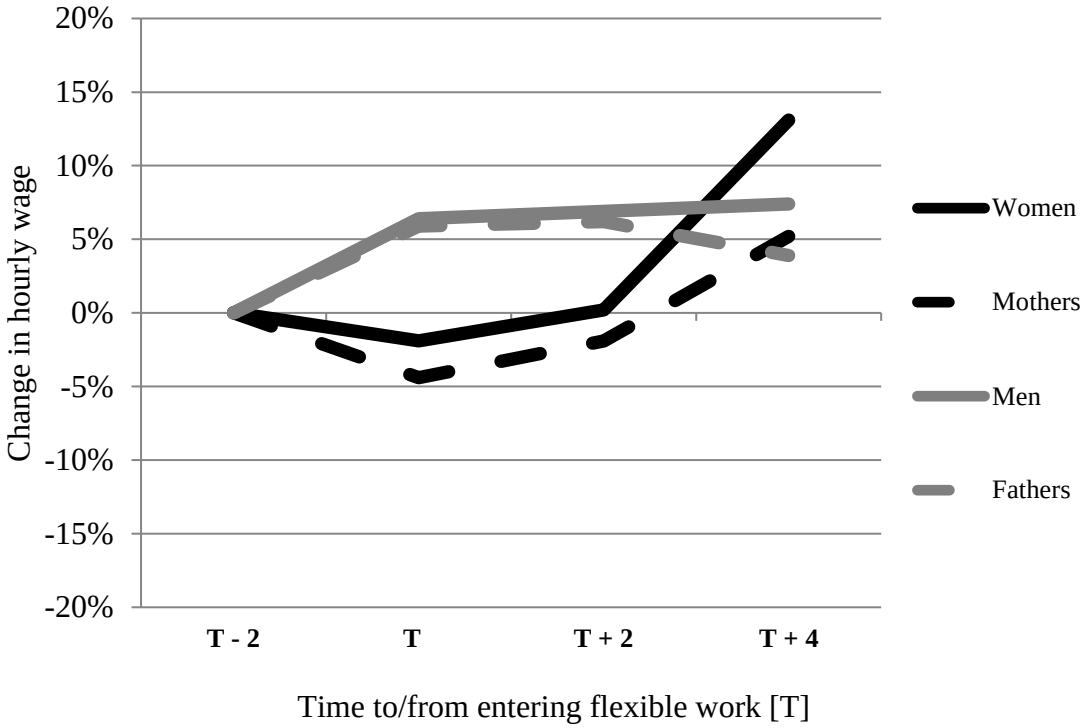
	(1) Women: all	(2) Women:>=30hrs	(3) Women:<30hrs	(4) Men: all	(5) Mothers: all	(6) Fathers: all
Time spent working flexibly (Ref.: Not yet)						
Just entered	-0.019	0.022	-0.084**	0.062***	-0.043	0.057***
	(0.018)	(0.020)	(0.032)	(0.013)	(0.038)	(0.017)
2 years	0.002	0.057*	-0.066+	0.067***	-0.019	0.060*
	(0.022)	(0.024)	(0.040)	(0.016)	(0.046)	(0.025)
4 years	0.123*	0.064*	0.136	0.071*	0.051	0.038
	(0.061)	(0.032)	(0.127)	(0.029)	(0.087)	(0.049)
Survey year (Ref.: 2003)						
2005	-0.037	0.060	-0.080+	0.030	-0.045	
	(0.030)	(0.060)	(0.042)	(0.059)	(0.048)	
2007	-0.099+	0.098	-0.196*	0.068	-0.137	
	(0.059)	(0.122)	(0.078)	(0.118)	(0.095)	
2009	-0.136	0.166	-0.290**	0.115	-0.176	
	(0.087)	(0.180)	(0.110)	(0.178)	(0.137)	
2011	-0.155	0.239	-0.348*	0.189	-0.239	
	(0.116)	(0.238)	(0.151)	(0.239)	(0.186)	
Part-time work experience (yrs)	0.022	-0.016	0.048**	-0.003	0.034	0.017
	(0.015)	(0.033)	(0.018)	(0.014)	(0.026)	(0.029)
Full-time work experience (yrs)	0.037*	-0.013	0.062+	-0.010	0.052*	0.026
	(0.015)	(0.030)	(0.032)	(0.028)	(0.025)	(0.037)
Part-time work exp. (yrs)²	-0.000	-0.001	-0.000	-0.001	-0.000	-0.000
	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.003)
Full-time work exp. (yrs)²	-0.000***	-0.000***	-0.001	-0.000***	-0.001*	-0.000**
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Constant	2.098***	2.848***	1.747***	3.104***	2.013***	
	(0.198)	(0.414)	(0.252)	(0.461)	(0.230)	(0.552)
R-squared	0.013	0.033	0.021	0.034	0.012	0.022
Person-years	5287	2833	2454	6224	2051	2881
Individuals	2901	1598	1451	3054	1248	1480
Transitions	201	119	82	321	65	160
exp. degrees of freedom	11	11	11	11	11	11

Source: SOEP v28 years 2003, 2005, 2007, 2009 & 2011

Note: bootstrapped standard errors, employees aged 25-60, excludes self-employed and those who changed employer

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Figure 19: Respondent's change in hourly wage



Source: SOEP v28 years 2003, 2005, 2007, 2009 & 2011
Note: Results based on table 4

Figure 19 summarizes the predicted changes in hourly wage for those entering flexible work. It demonstrates the pronounced effect for West German women and the immediate effect for men.

To further test the robustness of the findings, the following variables which may affect commitment and/or wages irrespective of work hour flexibility are controlled: age, age squared, and number of children. Qualitatively, the results do not change. To understand whether a change in working hours or a change in status may be driving the results, **actual hours** and change in **status** on the camsis scale are also controlled. They do not change the results either (tables 5-8).

Table 5: Fixed effects analysis, dependent variable: Respondent's log hourly wage – all men

	(1) Age	(2) Children	(3) Actual Hours	(4) Status
Time flexible partner spent working flexibly (Ref.: Not yet)				
Just entered	0.058***	0.061***	0.066***	0.061***
	(0.013)	(0.013)	(0.012)	(0.012)
2 years	0.065***	0.067***	0.076***	0.065***
	(0.017)	(0.017)	(0.014)	(0.016)
4 years	0.072+	0.070*	0.080**	0.065*
	(0.037)	(0.029)	(0.027)	(0.031)
Part-time work experience (yrs)	-0.003	-0.003		-0.002
	(0.013)	(0.016)		(0.013)
Full-time work experience (yrs)	-0.015	-0.012		-0.011
	(0.028)	(0.024)		(0.020)
Part-time work exp. (yrs)²	-0.001	-0.001		-0.001
	(0.001)	(0.001)		(0.001)
Full-time work exp. (yrs)²	-0.000	-0.000***		-0.000***
	(0.000)	(0.000)		(0.000)
Age	0.039			
	(0.034)			
Age²	-0.000			
	(0.000)			
Survey year (Ref.: 2003)				
2005		0.031	-0.023***	0.031
		(0.049)	(0.006)	(0.041)
2007		0.072	-0.038***	0.070
		(0.099)	(0.007)	(0.082)
2009		0.120	-0.042***	0.118
		(0.149)	(0.008)	(0.122)
2011		0.195	-0.021*	0.193
		(0.195)	(0.009)	(0.164)
Number of Children		0.011+		
		(0.006)		
Actual Hours			0.002+	
			(0.001)	
Status				-0.000
				(0.001)
Constant	1.968**	3.111***	2.731***	3.118***
	(0.718)	(0.387)	(0.043)	(0.326)
R-squared	0.027	0.035	0.023	0.033
Person-years	6224	6224	6274	6177
Individuals	3054	3054	3117	3044
Transitions	321	321	321	321
exp. degrees of freedom	9	12	8	12

Source: SOEP v28 years 2003, 2005, 2007, 2009 & 2011

Note: bootstrapped standard errors, employees aged 25-60, excludes self-employed, those who changed employer and public service employees

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 6: Fixed effects analysis, dependent variable: Respondent's log hourly wage – all women

	(1) Age	(2) Children	(3) Actual Hours	(4) Status
Time spent working flexibly (Ref.: Not yet)				
Just entered	-0.017	-0.020	-0.013	-0.018
	(0.016)	(0.020)	(0.019)	(0.020)
2 years	-0.006	0.001	0.006	-0.001
	(0.018)	(0.024)	(0.020)	(0.021)
4 years	0.118*	0.123*	0.124*	0.124*
	(0.053)	(0.059)	(0.052)	(0.049)
Part-time work experience (yrs)	0.018	0.022		0.022
	(0.014)	(0.015)		(0.014)
Full-time work experience (yrs)	0.029*	0.037*		0.037*
	(0.014)	(0.016)		(0.015)
Part-time work exp. (yrs)²	0.000	-0.000		-0.000
	(0.000)	(0.000)		(0.000)
Full-time work exp. (yrs)²	-0.000	-0.000***		-0.000***
	(0.000)	(0.000)		(0.000)
Age	0.004			
	(0.016)			
Age²	-0.000*			
	(0.000)			
Survey year (Ref.: 2003)				
2005		-0.037	0.006	-0.038
		(0.034)	(0.010)	(0.029)
2007		-0.100	-0.012	-0.101+
		(0.067)	(0.009)	(0.059)
2009		-0.137	-0.005	-0.140
		(0.101)	(0.011)	(0.085)
2011		-0.156	0.020	-0.159
		(0.135)	(0.014)	(0.116)
Number of Children		0.006		
		(0.011)		
Actual Hours			-0.002*	
			(0.001)	
Status				0.001
				(0.001)
Constant	2.437***	2.088***	2.540***	2.066***
	(0.377)	(0.211)	(0.038)	(0.204)
R-squared	0.012	0.013	0.012	0.013
Person-years	5287	5287	5312	5254
Individuals	2901	2901	2946	2887
Transitions	201	201	201	201
exp. degrees of freedom	9	12	8	12

Source: SOEP v28 years 2003, 2005, 2007, 2009 & 2011

Note: bootstrapped standard errors, employees aged 25-60, excludes self-employed, those who changed employer and public service employees

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 7: Fixed effects analysis, dependent variable: Respondent's log hourly wage – fathers

	(1) Age	(2) Children	(3) Actual Hours	(4) Status
Time spent working flexibly (Ref.: Not yet)				
Just entered	0.055**	0.055**	0.055***	0.054**
	(0.018)	(0.018)	(0.016)	(0.017)
2 years	0.062*	0.058*	0.061*	0.053*
	(0.026)	(0.026)	(0.024)	(0.026)
4 years	0.040	0.034	0.034	0.026
	(0.043)	(0.045)	(0.044)	(0.047)
Part-time work experience (yrs)	0.016	0.019		0.017
	(0.027)	(0.024)		(0.026)
Full-time work experience (yrs)	0.021	0.020		0.026
	(0.028)	(0.026)		(0.039)
Part-time work exp. (yrs)²	0.000	-0.000		-0.000
	(0.003)	(0.003)		(0.003)
Full-time work exp. (yrs)²	-0.000	-0.000+		-0.000**
	(0.000)	(0.000)		(0.000)
Age	0.004			
	(0.034)			
Age²	-0.000			
	(0.000)			
Survey year (Ref.: 2003)				
2005		-0.032	-0.015+	-0.035
		(0.052)	(0.009)	(0.075)
2007		-0.057	-0.022+	-0.065
		(0.103)	(0.012)	(0.151)
2009		-0.085	-0.026*	-0.096
		(0.154)	(0.013)	(0.226)
2011		-0.087	-0.012	-0.099
		(0.209)	(0.014)	(0.300)
Number of Children		0.022+		
		(0.012)		
Actual Hours			0.003+	
			(0.002)	
Status				0.000
				(0.001)
Constant	2.780***	2.573***	2.726***	2.548***
	(0.689)	(0.384)	(0.066)	(0.562)
R-squared	0.020	0.026	0.017	0.021
Person-years	2881	2881	2904	2856
Individuals	1480	1480	1503	1477
Transitions	160	160	160	160
exp. degrees of freedom	9	12	8	12

Source: SOEP v28 years 2003, 2005, 2007, 2009 & 2011

Note: bootstrapped standard errors, employees aged 25-60, excludes self-employed, those who changed employer and public service employees

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 8: Fixed effects analysis, dependent variable: Respondent's log hourly wage – mothers

	(1) Age	(2) Children	(3) Actual Hours	(4) Status
Time spent working flexibly (Ref.: Not yet)				
Just entered	-0.038	-0.043	-0.043	-0.038
	(0.035)	(0.039)	(0.036)	(0.038)
2 years	-0.027	-0.019	-0.026	-0.016
	(0.053)	(0.048)	(0.058)	(0.044)
4 years	0.057	0.051	0.059	0.057
	(0.076)	(0.109)	(0.091)	(0.076)
Part-time work experience (yrs)	0.025	0.034		0.034
	(0.028)	(0.028)		(0.034)
Full-time work experience (yrs)	0.041	0.052		0.053+
	(0.031)	(0.032)		(0.029)
Part-time work exp. (yrs)²	-0.000	-0.000		-0.000
	(0.001)	(0.000)		(0.001)
Full-time work exp. (yrs)²	-0.001+	-0.001*		-0.001**
	(0.000)	(0.000)		(0.000)
Age	0.013			
	(0.040)			
Age²	-0.000			
	(0.000)			
Survey year (Ref.: 2003)				
2005		-0.045	0.016	-0.045
		(0.056)	(0.015)	(0.060)
2007		-0.137	-0.011	-0.138
		(0.112)	(0.016)	(0.119)
2009		-0.176	0.009	-0.179
		(0.163)	(0.021)	(0.179)
2011		-0.239	0.010	-0.242
		(0.222)	(0.031)	(0.241)
Number of Children		0.001		
		(0.020)		
Actual Hours			-0.002	
			(0.002)	
Status				0.001
				(0.001)
Constant	2.269*	2.011***	2.442***	1.983***
	(0.901)	(0.281)	(0.062)	(0.317)
R-squared	0.011	0.012	0.008	0.012
Person-years	2051	2051	2064	2039
Individuals	1248	1248	1273	1241
Transitions	65	65	65	65
exp. degrees of freedom	9	12	8	12

Source: SOEP v28 years 2003, 2005, 2007, 2009 & 2011

Note: bootstrapped standard errors, employees aged 25-60, excludes self-employed, those who changed employer and public service employees

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

4.5.3 Fixed effects results: The effect of work hour flexibility on partners

To what extent does the partner benefit from newly won couple-level flexibility? For this analysis, all partners who changed their employer during the period of observation are excluded to ensure that a change in employer is not the cause of the partner taking up work hour flexibility. The effect on the partner rather than the source is of interest. Consequently, in contrast to the analyses on the respondents, self-employed and flexible partners who changed employer are kept in this analysis.

Table 9: Fixed effects analysis, dependent variable: Inflexible partner's log hourly wage - subgroup comparison including controls

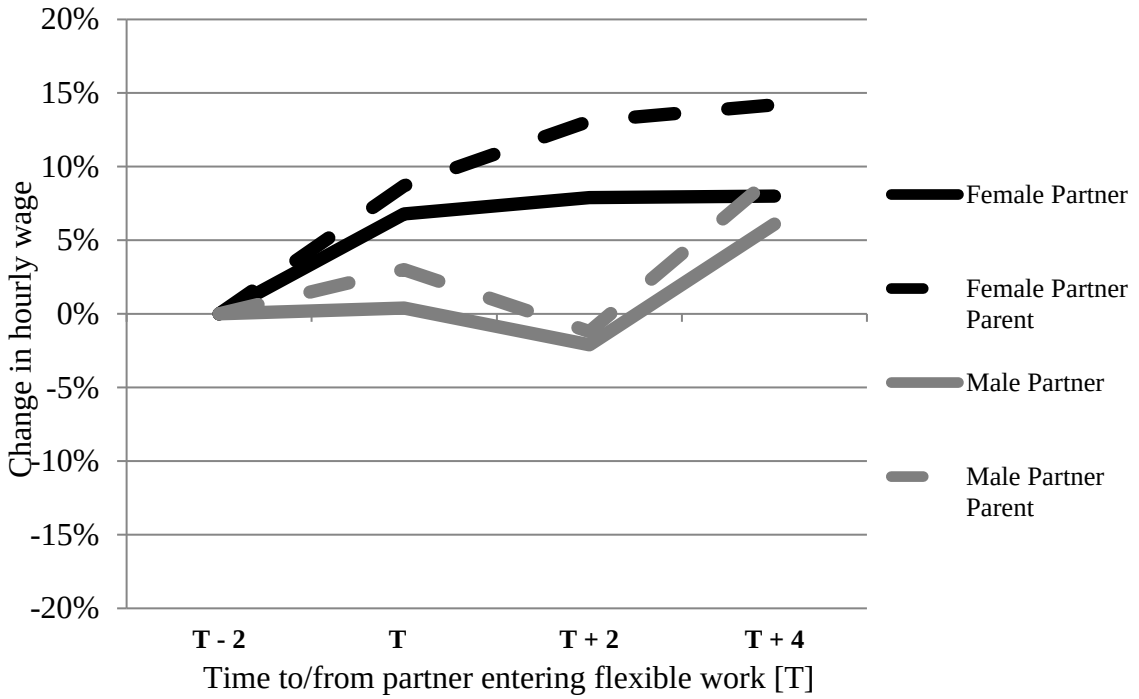
	(1) All Female Partners	(2) Female Partners Parents	(3) All Male Partners	(4) Male Partners Parents
Time flexible partner spent working flexibly (Ref.: Not yet)				
Just entered	0.066***	0.083***	0.004	0.029
	(0.018)	(0.025)	(0.013)	(0.021)
2 years	0.076*	0.123*	-0.021	-0.012
	(0.033)	(0.058)	(0.023)	(0.048)
4 years	0.077*	0.133+	0.059	0.090**
	(0.039)	(0.081)	(0.036)	(0.031)
Survey year (Ref.: 2003)				
2005	-0.036	-0.062	-0.043	-0.087
	(0.029)	(0.051)	(0.045)	(0.076)
2007	-0.089+	-0.128	-0.099	-0.182
	(0.052)	(0.091)	(0.087)	(0.149)
2009	-0.131+	-0.188	-0.125	-0.276
	(0.076)	(0.139)	(0.129)	(0.223)
2011	-0.115	-0.197	-0.146	-0.327
	(0.106)	(0.190)	(0.171)	(0.296)
Part-time work experience (yrs)	0.011	0.014	0.013	0.032
	(0.015)	(0.026)	(0.020)	(0.040)
Full-time work experience (yrs)	0.000	0.001	-0.000	0.001
	(0.000)	(0.000)	(0.001)	(0.003)
Part-time work exp. (yrs)²	0.022	0.032	0.025	0.043
	(0.016)	(0.032)	(0.022)	(0.039)
Full-time work exp. (yrs)²	-0.000	-0.000	-0.000+	-0.000
	(0.000)	(0.001)	(0.000)	(0.000)
Constant	2.336***	2.261***	2.546***	2.260***
	(0.185)	(0.271)	(0.400)	(0.629)
R-squared	0.019	0.024	0.014	0.021
Person-years	3775	1908	4378	2146
Individuals	2028	1111	2317	1228
Transitions	238	130	197	94
exp. degrees of freedom	11	11	11	11

Source: SOEP v28 years 2003, 2005, 2007, 2009 & 2011
Note: bootstrapped standard errors, employees aged 25-60, excludes employment changers
+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

As table 9 shows, in West Germany women profit from their partner's new flexibility. The effect is particularly pronounced for mothers: they earn 14.2% more (exp.

0.133) four years after their partner has entered work hour flexibility. For male partners the effect is only significant for fathers after four years.

Figure 20: Inflexible partner's change in hourly wage



Source: SOEP v28 years 2003, 2005, 2007, 2009 & 2011
Note: Results based on table 9

Figure 20 summarizes the effects on partners. Table 10 tests for the robustness of the findings on mothers, by adding further controls to the mother's model (age, number of children, actual hours worked, status). The results do not change.

Table 10: Fixed effects analysis, dependent variable: Inflexible partner's log hourly wage – mothers

		(1) Age	(2) Number of Children	(3) Actual Hours	(4) Status
Time flexible partner spent working flexibly (Ref.: Not yet)					
	Just entered	0.083**	0.085*	0.089**	0.086**
		(0.027)	(0.034)	(0.032)	(0.030)
	2 years	0.115*	0.123*	0.101+	0.139**
		(0.056)	(0.053)	(0.053)	(0.043)
	4 years	0.140+	0.128+	0.126	0.177**
		(0.073)	(0.070)	(0.086)	(0.055)
Part-time work experience (yrs)		0.007	0.019		-0.012
		(0.022)	(0.025)		(0.021)
Full-time work experience (yrs)		0.013	0.038		0.007
		(0.033)	(0.027)		(0.026)
Part-time work exp. (yrs)²		0.001*	0.001		0.001*
		(0.000)	(0.001)		(0.000)
Full-time work exp. (yrs)²		0.000	-0.000		-0.000
		(0.001)	(0.001)		(0.000)
Age		0.048+			
		(0.029)			
Age²		-0.001**			
		(0.000)			
Survey year (Ref.: 2003)					
	2005		-0.073	-0.031+	-0.013
			(0.048)	(0.019)	(0.036)
	2007		-0.150+	-0.045*	-0.045
			(0.088)	(0.020)	(0.070)
	2009		-0.223+	-0.058*	-0.070
			(0.126)	(0.023)	(0.108)
	2011		-0.245	-0.020	-0.044
			(0.173)	(0.030)	(0.154)
Number of Children			0.034*		
			(0.016)		
Actual Hours				-0.005*	
				(0.002)	
Status					0.001
					(0.002)
Constant		1.906**	2.132***	2.612***	2.457***
		(0.635)	(0.233)	(0.059)	(0.234)
R-squared		0.029	0.028	0.034	0.032
Person-years		1908	1908	1903	1837
Individuals		1111	1111	1116	1078
Transitions		130	130	130	130
exp. degrees of freedom		9	12	8	12

Source: SOEP v28 years 2003, 2005 , 2007, 2009 & 2011
Note: bootstrapped standard errors, employees aged 25-60, excludes employment changers
+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

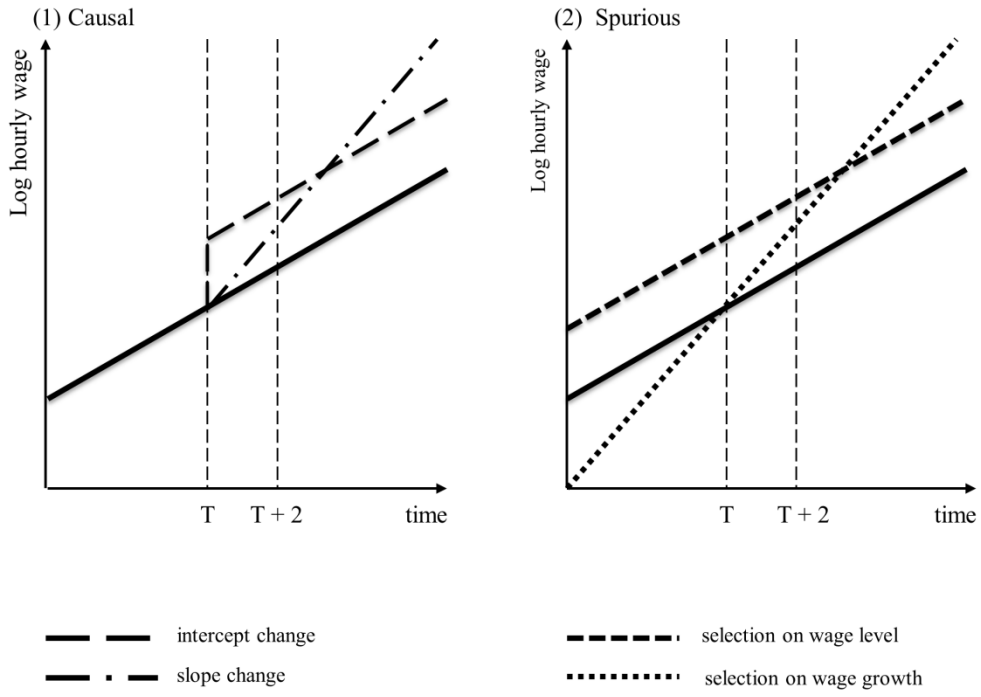
4.6 Testing for differences in wage growth

Fixed effects models are generally employed to arrive at an unbiased effect estimate. Consequently, all between-individual variation is cancelled out as it may bias the results (Allison, 1994). Selection into work-hour flexibility based on wage level is

dealt with via the within-individual mean substraction (Brüderl, 2010, Wooldridge, 2012). As a result, no between-group comparison is carried out (i.e. the analysis does not compare those who work flexible versus those who do not). However, in order to generalize the findings beyond the treated group, the researcher has to rely on the parallel trend assumption (no difference in wage growth between flexible and non-flexible employees). This may be unreasonable when comparing flexible to nonflexible employees. To test this assumption, this analysis uses a growth-curve approach, which allows for between-group comparisons.

Besides selection on wage level, selection on wage growth can be an issue for identifying the effect of work hour flexibility on wages. The way this plays out in the model is nicely illustrated in the following figure adapted from Ludwig & Brüderl's figure on the marital wage premium—a problem with a similar set-up (2011: 4):

Figure 21: Causal versus spurious relationship (based on Ludwig & Brüderl 2011: 4)



The left-hand side shows the effects of working flexibly: an immediate rise in the wage level and/or a change towards a steeper wage growth over time. The right-hand side shows two types of spurious effects: the wage-level is either higher to begin with, even

prior to working flexibly (T) and/or the slope is also steeper than that of the non-treated group prior to working flexibly. As a result, what appears to be a difference between those working flexibly and those who do not in a cross-section (the vertical line in T+2), is in fact a result of selection on either wage level or wage growth.

To see whether the groups would not have differed even in the absence of entering work hour flexibility, this chapter tests whether the wage development of those eventually working flexibly (treatment group) and those who never enter flexible work under the period of observation (control group) is significantly different. For this purpose, the wage development of those entering flexible work in T and those never working flexibly are followed over time.

To describe developments in the data over time, growth-curves are used. They allow for the description of

"average within-person trajectories of an outcome, while also accounting for between-person variation in these trajectories" (Shaw and Liang, 2012: 218).

The model consists of a randomly varying individual-level intercept U_{0i} and a random individual-dependent slope U_{1i} for time. They are assumed to have a joint bivariate normal distribution with expectation 0 and variances τ_0^2 and τ_1^2 and covariances τ_{01}.[20] The fixed part consists of time dummies (Snijders and Bosker, 2012: 249; 253):[21]

$$d_{hti} = 1 \; if \; t = h$$

$$d_{hti} = 0 \; if \; t \neq h.$$

This results in the following baseline equation:

[20] A likelihood ratio test on the baseline model for women in West Germany showed that a random slope improved the fit of the model significantly. Moreover, the residual error structure was tested comparing BIC between unstructured, exchangeable and autoregressive of order one error structures. The unstructured model had the better BIC and was therefore chosen. To ensure comparability, the same error structure is applied throughout.

[21] The random slope for years in flexitime had been tested prior using a deviance test on the baseline regression for women in West Germany (Snijders & Bosker 2012: 254). To ensure comparability, the same random slope is applied throughout.

$$Y_{ti} = \sum_{h=1}^{m} \mu_h d_{hti} + U_{0i} + U_{1i} Time_{ti} + R_{ti}$$

The time dummies are interacted with treatment group membership. Two phases are to be distinguished: the baseline phase (T-4 and T-2), which is the time during which none of the two groups work flexibly, and the treatment phase (T, T+2, T+4), which represents the period in which the treatment group enters flexible work and the control group stays in an inflexible work arrangement. Note that T is not a particular survey year but rather the year in which the person enters a flexible work time arrangement. Time dummies are chosen, since it is unclear which form the effect takes.

Significantly different slopes, which would be marked by thick rather than dashed slopes between T-4 and T-2, would indicate a possible selection on wage growth.[22]

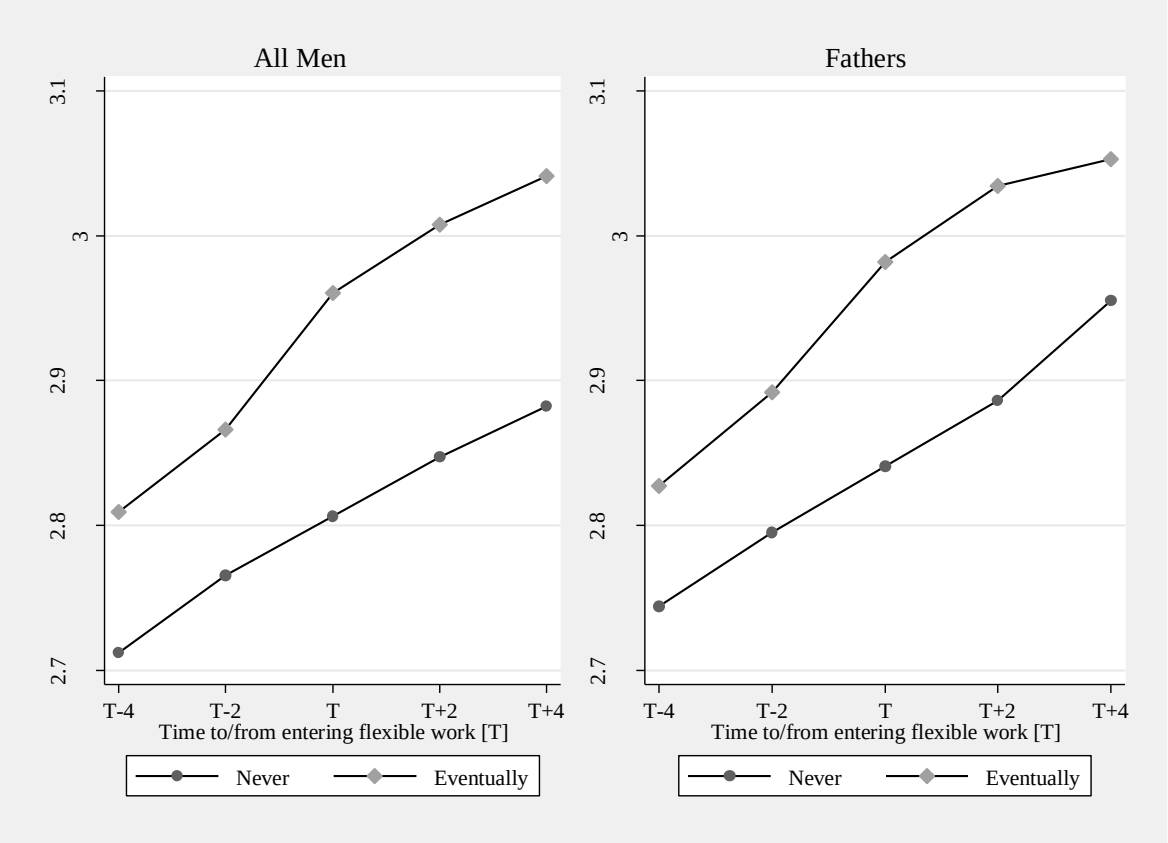
Age is again restricted to the key career years (25-60). As in the fixed effects analysis, the growth-curve analysis excludes the self-employed, public sector employees and those who change employer. Unlike the fixed effects analysis, individuals who have never entered work hour flexibility are also included in the analysis.

The models are run with controls for human capital, demographic and labour market traits. This chapter tries to stay as close as possible to Weeden's specification (2005), adjusting where necessary for the fact that the regression is longitudinal. Consequently, the human capital variables include **education (in years)** and **years of work experience and its square**, but divided into part-time and full-time experience. In addition, the following demographic traits are controlled: n**umber of children at the point of working flexibly** (measured at wave 4 to ensure that it is work hour flexibility that has led to wage changes, rather than the fact of having children) and **migration**

[22] In practice the model described by Mitchell, page 445 MITCHELL, M. N. 2012. *Interpreting and visualizing regression models using Stata*, Texas. is used. The effect is plotted using the margins and marginsplot commands. To contrast the effects between groups, contrast is used.

status, whether direct or indirect (i.e. born in Germany but with foreign parents). Age and its square could have been included, but due to their high collinearity with work experience and its square, only the latter are kept on the basis that they are the more important variable. Regarding labour market traits, actual hours are correlated with initial labour market experience possibly because of its part-time and full-time distinction. Since overall human capital rather than current investment is of interest, **work experience at t0** is prioritised. One could argue that it reflects the general commitment up to date. If work hour flexibility leads to the ability to work more hours and this is rewarded in turn, this is also considered as a career effect of flexible hours. Moreover, **industry at t0** and **status at t0** (measured via the camsis scale), are included. Overall, the centring follows Snijders & Bosker' chapter on longitudinal data analysis where theoretically applicable (2012: 258-259), including the baseline situation before entering flexible work and changes from this baseline situation (by subtracting the value of the first observation from the current value) (see also Singer and Willett, 2003: 176). For categorical time-varying variables the initial category and the current category are included (see Snijders and Bosker, 2012: 259).

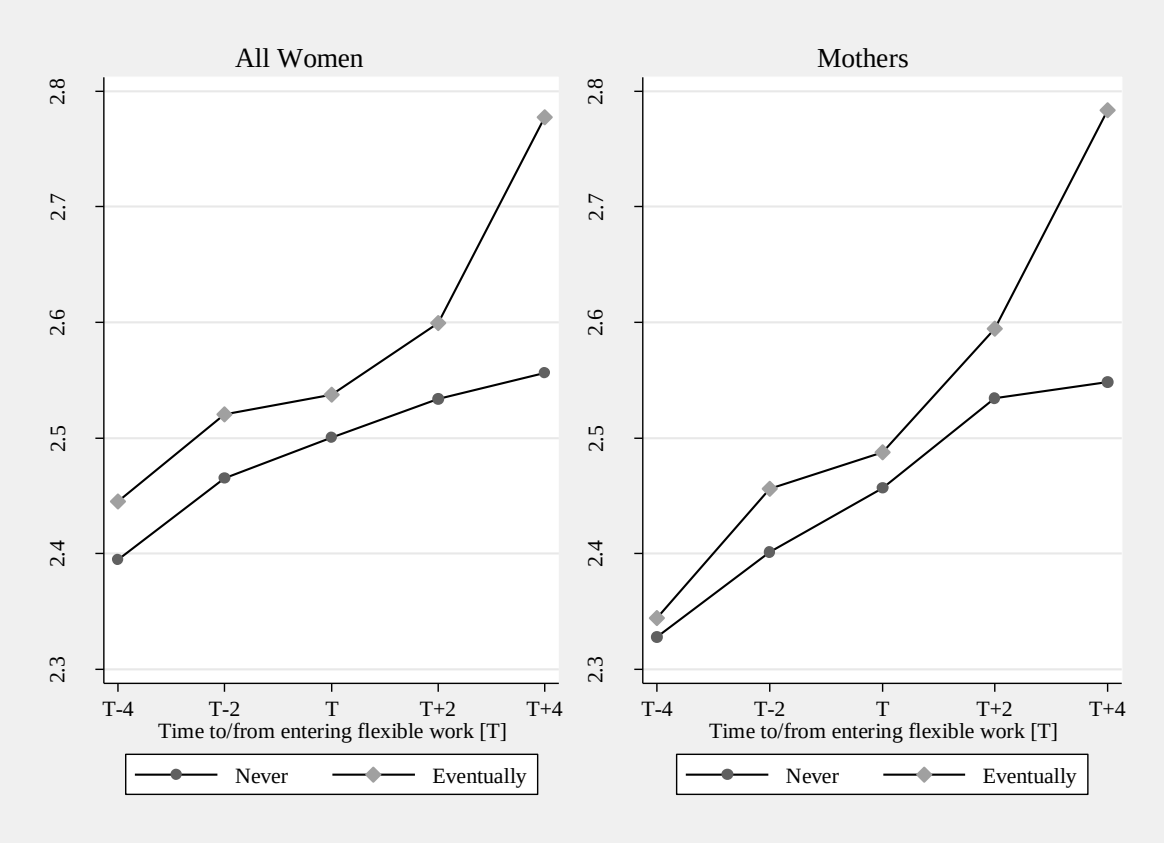
Figure 22: Growth curves – men



Source: SOEP v28, years 2001, 2003, 2005, 2007, 2009 & 2011, author's own calculations

Note: employees aged 25-60, excludes employment changers, self-employed and those working in the public sector. Results are based on a growth-curve analysis (table 11) controlling at the beginning of the observation period for status, work experience (part-time and full-time) and its square, migration status and number of children as well as for change in the number of children.

Figure 23: Growth curves – women



Source: SOEP v28, years 2001, 2003, 2005, 2007, 2009 & 2011, author's own calculations

Note: employees aged 25-60, excludes employment changers, self-employed and those working in the public sector. Results are based on a growth-curve analysis (table 11) controlling at the beginning of the observation period for status, work experience (part-time and full-time) and its square, migration status and number of children as well as for change in the number of children.

In figures 22 and 23 (based on table 11) I test for differences in wage growth between T-4 and T-2. The figures demonstrate that in none of the subsamples is there a significant difference in wage growth prior to flexible workers entering work hour flexibility. A different slope between T-2 and T may already be the result of a higher wage due to work hour flexibility in T and not selection on wage growth. The results further demonstrate the positive effect of work hour flexibility. The test is not only carried out visually but also formally.[23]

[23] In practice the model described by Mitchell, page 445 ibid. is used. The effect is plotted using the margins and marginsplot commands. To contrast the effects between groups, contrast is used.

Table 11: Growth curve analysis, dependent variable: Respondent's log hourly wage

	(1) Women	(2) Mothers	(3) Men	(4) Fathers
Fixed Effects				
Wage level T-4 if eventually working flexibly	0.050*	0.017	0.097***	0.083***
	(0.025)	(0.041)	(0.018)	(0.024)
Time to/from entering flexible work [T] Control Group (Ref. T-4)				
T-2	0.071***	0.074***	0.054***	0.051**
	(0.012)	(0.020)	(0.011)	(0.017)
T	0.106***	0.129***	0.094***	0.097***
	(0.017)	(0.029)	(0.015)	(0.023)
T+2	0.139***	0.206***	0.135***	0.142***
	(0.023)	(0.038)	(0.020)	(0.029)
T+4	0.162***	0.221***	0.170***	0.211***
	(0.030)	(0.049)	(0.026)	(0.037)
*T-2*Eventually working flexibly*	0.004	0.038	0.003	0.014
	(0.020)	(0.038)	(0.014)	(0.020)
*T*Eventually working flexibly*	-0.013	0.014	0.057***	0.058*
	(0.023)	(0.044)	(0.015)	(0.022)
*T+2*Eventually working flexibly*	0.015	0.044	0.063**	0.066*
	(0.035)	(0.070)	(0.022)	(0.031)
*T+4*Eventually working flexibly*	0.170**	0.219	0.062+	0.015
	(0.052)	(0.171)	(0.033)	(0.045)
Survey year (Ref.: 2001)				
2003	-0.025+	-0.017	-0.002	-0.000
	(0.013)	(0.022)	(0.011)	(0.018)
2005	-0.056**	-0.044	-0.063***	-0.058*
	(0.018)	(0.029)	(0.015)	(0.023)
2007	-0.107***	-0.140***	-0.116***	-0.106***
	(0.022)	(0.035)	(0.019)	(0.027)
2009	-0.135***	-0.166***	-0.154***	-0.173***
	(0.027)	(0.044)	(0.025)	(0.035)
2011	-0.138***	-0.227***	-0.162***	-0.196***
	(0.034)	(0.055)	(0.031)	(0.043)
Status in t0	0.013***	0.014***	0.011***	0.011***
	(0.001)	(0.001)	(0.001)	(0.001)
Part-time experience at T-4	-0.009**	-0.006	-0.036***	-0.029+
	(0.003)	(0.007)	(0.008)	(0.015)
Full-time experience at T-4	0.017***	0.015**	0.026***	0.025***
	(0.003)	(0.005)	(0.003)	(0.004)
Part-time experience at T-4²	0.000***	0.001	0.002**	-0.000
	(0.000)	(0.000)	(0.001)	(0.002)
Full-time experience at T-4²	-0.000**	-0.000	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Industry at T-4 (Ref.: Agriculture)				
Energy	0.150	0.033	0.428***	0.448***
	(0.176)	(0.376)	(0.100)	(0.127)
Mining	0.123	0.206	0.198*	0.248*
	(0.329)	(0.387)	(0.093)	(0.111)
Manufacturing	0.052	0.155	0.265***	0.289***
	(0.120)	(0.193)	(0.066)	(0.084)
Construction	0.152	0.226	0.239***	0.260**
	(0.123)	(0.198)	(0.066)	(0.085)
Trade	-0.080	-0.004	0.043	0.069
	(0.119)	(0.192)	(0.067)	(0.086)
Transport	0.048	0.277	0.146*	0.179*
	(0.126)	(0.203)	(0.070)	(0.090)
Bank, Insurance	0.104	0.152	0.260**	0.390***
	(0.126)	(0.202)	(0.081)	(0.106)
Services	-0.014	0.072	0.136*	0.235**
	(0.119)	(0.192)	(0.068)	(0.087)
Migrant	-0.018	-0.017	-0.034*	-0.021
	(0.019)	(0.029)	(0.015)	(0.019)

Number of children T-4	-0.010	-0.020	0.022***	0.011
	(0.009)	(0.015)	(0.007)	(0.009)
Change in number of children	0.012	0.013	0.017**	0.027***
	(0.010)	(0.016)	(0.005)	(0.008)
Constant	1.723***	1.622***	1.826***	1.820***
	(0.124)	(0.200)	(0.074)	(0.099)
Random Effects				
Slope	-3.278***	-3.754***	-3.660***	-3.714***
	(0.139)	(0.139)	(0.160)	(0.253)
Intercept	-1.216***	-1.206***	-1.311***	-1.396***
	(0.023)	(0.037)	(0.020)	(0.030)
Slope*Intercept	-0.134	-0.199	0.067	0.062
	(0.093)	(0.247)	(0.104)	(0.172)
Residual	-1.787***	-1.672***	-1.944***	-1.942***
	(0.017)	(0.027)	(0.014)	(0.020)
Log Likelihood	-279.79	-353.12	552.56	281.79
Individual-Years	4438	1752	5654	2746
Individuals	1753	808	2007	1089
Degrees of freedom expended	30	30	30	30

Note: employees aged 25-60, excludes employment changers, self-employed and public sector employees
+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

4.7 Limitations

The findings apply to the first years of working flexibly. This study cannot conclude whether the positive effects are long-term. Whilst I do capture work hour flexibility across the biannual years, the study cannot exclude the possibility that people moved in and out of flexible work between the biannual surveys. It seems highly unlikely, however, that someone who was observed as working flexibly in 2005 and 2007 was not working flexibly in 2006. One major problem could occur if parenthood, for instance, which has been shown to be related to moves in and out of work hour flexibility, had not been properly captured (Presser, 2005: 20). I have, however, arranged the data so as to exclude the possibility that couples move in and out of work hour flexibility in response to the main event: parenthood. This was done by running the subsample analyses.

The chapter cannot 100% capture whether the work hour flexibility is only perceived as being available or actually taken up. To be more precise, the question asks: Working time arrangements can be very varied these days. Which of the following options/opportunities is most applicable to your job/work?

(1) Fixed start and end time of daily work

(2) Employer-determined, partially changing daily working hours

(3) No formal working time arrangements, I determine my working hours myself.

(4) Gliding time and flexitime wage record with a certain degree of self-determinedness with regards to the daily working hours within this context. As such it is not 100 % clear whether perceived or actual take-up is measured in answers 3 and 4. This is in essence a metaphysical question, similar to the one described by George Berkeley and later referred to by William Fossett as

"If a tree falls in a park and there is no-one to hand, it is silent and invisible and nameless. And if we were to vanish, there would be no tree at all; any meaning would vanish along with us."

Looking at actual work hour flexibility take-up is impossible yet one can assume that if the individual ticks 3 or 4 this is most likely their actual take-up pattern – especially since job changers are excluded from the subsequent analyses (which would have most likely implied a change in the opportunity of working flexible hours). If this were not the case, then the relationship between work hour flexibility and the variables of interest (e.g. gender) may actually be different for take-up and perceived opportunity. E.g. men may be more likely to be offered work hour flexibility whilst women may be more likely to take it up.

Both models' capacity to capture selection is restricted by their inability to take into account time-varying confounding by unobservables (Robins et al., 2000). If a person selects into flexible work because a certain future outcome is expected, this can further bias the estimates (Sampson et al., 2008: 847). Moreover, the fixed effects results are only generalizable to people who enter work hour flexibility.

4.8 Discussion & conclusion

The low levels of childcare provision in West Germany require couples to seek solutions for managing work and family demands elsewhere. One possible alternative stakeholder to turn to is the employer. Recent company survey results (see this chapter's introduction) suggest that employers may indeed offer policies which ease work-family combination pressures in order to recruit or maintain employees. Work hour flexibility may be one of the measures employers might offer. Whether these offers come with a catch of decreased career prospects has not been clearly answered in the past, however. The first purpose of this chapter has consequently been to investigate who uses flexible working hours, and what effects the use of flexible working hours have on the flexible worker's career. In addition, because of the SOEP's unusual availability of both work hour flexibility and household level wage measures, this chapter tested for the first time the effect of work hour flexibility on the partner's career. In order to understand how the most time-squeezed couples—i.e. parents—are affected, they are considered separately.

Unlike measures such as part-time employment, it is predominantly men who make use of flexible working hours, rather than women. The findings are similar to Weeden's findings in the US, where more men (30.3% vs. 26.8%) were working flexible hours. A likely explanation is that men are more likely to be in positions which offer flexible work (Weeden, 2005: 458). In line with the assumption that work hour flexibility measures are offered in high work hour cultures to retain employees, I find that high service workers and full-time workers make more use of schedule flexibility than would be expected. Parents are also more likely to make use of the measure, possibly because of higher demands on their time due to the varied and numerous responsibilities of childcare.

With regards to the effect on the respondent, productivity theorists seem to be

correct: both men and women in West Germany profit from work hour flexibility. The effect on men is more immediate, possibly because men may not be perceived as being less committed. The lack of such a positive effect for mothers suggests that they may still be facing doubts from employers about their career commitment when taking up work hour flexibility. These findings are in line with past findings by Glass. Commitment signalling also seems to play a role for women in part-time employment: they do not profit either.

The positive cross-partner career effects underscore how important it is to think of private sector measures as not only benefitting the employee: both West German women and men profit from their partner's increased flexibility. Mothers in particular experience wage gains of up to 14.2%. This might be because of decreased work-life stress or their ability to work at core hours.

The effects may be attributable to a lack of institutional support, which makes West Germans turn to their employers for solutions to counter work-life conflict. Women and men in West Germany can now schedule work around family demands, thereby being able to work more and possibly more productively for their employers. This may not only result in higher wage returns, but may also allow them subsequently to enter more demanding positions. The high effect for women in West Germany may be attributable to them being traditionally more likely to be secondary earners.

The wage growth that West German women experience once their partners enter flexible work arrangements suggests that flexible working hours may be a man's alternative to part-time work in order to support their spouse's career in areas with low regional support. This seems to apply to parents in particular. This could be deemed a "win-win situation", as this measure allows men to aid their spouse's career whilst the

flexible man still benefits from wage growth. This may also be the reason why 57.51% of West Germans working flexible hours were male in 2005.

The findings demonstrate that not only state-level, but also employer-level support can have a significant effect on couples' careers. It further demonstrates the importance of moving away from an individual-level analysis toward a couple-level analysis of employers' measures. Since those who work and those who do not work flexible hours do not differ significantly in their wage-growth prior to the flexible worker entering work hour flexibility, it is unlikely that the flexible worker would have had a steeper wage growth than the non-flexible worker even if not working flexible hours.

Further research could be conducted regarding the characteristics (e.g. attitudes, socio-economic variables) of men who take up flexible working hours to benefit their spouse's career.

Chapter 5: Dual career pursuit – the pathway to couple happiness?

Abstract

Recent policies (e.g. the extension and guarantee of childcare provision and parental plus months, which encourage both partners to work part-time upon entering parenthood) are aimed at encouraging a more equal human capital investment within couples. However, whilst this may make economic sense, it is unclear whether parents would actually be happier in an equal human capital investment arrangement. Whilst pursuing a career may be rewarding, it also puts a lot of pressure on parents. To test the satisfaction-relative human capital investment relationship, this chapter first constructs a measure of human capital which, in contrast to past measures, provides a clear picture of the wage potential a person can achieve during periods of non-employment. Thereafter, a relative human capital investment index is created at each point in time (his share in joint human capital). Different types of joint human capital strategies are distinguished using a group-based trajectory model. Subsequently, the satisfaction of men and women in a) dual career couples who pursue an equal human capital investment are compared to men and women within b) eventual specialization couples who start to predominantly invest in the man's human capital. Following both partners' satisfaction curves over the age of the youngest child, results show that women in dual career couples are initially unhappier. However, once the youngest child is eight years old and hence in primary school, this relationship shifts. From this point onwards women in dual career couples become ever more satisfied with their lives. In contrast, women in an eventual specialization pattern, who are initially significantly more satisfied with their lives, experience a decline in satisfaction resulting in a significantly lower satisfaction level. This dissatisfaction suggests that a move away from policies supporting relative specialization towards policies supporting a more equal human capital investment represent a step in the right direction. They are not only beneficial to the state, which tries to balance social security

books by increasing labour market participation. They are also beneficial for the woman in their potential to increase her levels of life satisfaction. The fact that women of young children are unhappier in a dual career as opposed to a relatively specialized career suggests that a move towards accepting maternal employment during early childhood, as well as increasing childcare provision and quality, is likely to raise their satisfaction not only later on but also earlier in the youngest child's life. Methodologically, one of the key advantages of this chapter is that it follows the same individuals over time rather than looking at shifts between two time-points. The increasing dissatisfaction of women in a relatively specialized arrangement can thereby be captured. This methodological advance can in turn capture partially decreasing cognitive dissonance: women may over time not be able to hide their dissatisfaction. Alternatively, the decrease in maternal attention required may result in decreasing satisfaction. Either way, only the curve measure can help us understand these formerly unaddressed processes.

5.1 Introduction

The current social security systems are strained by the Second Demographic Transition – a growth in the retired population yet a decline in the workforce due to low birth levels. Consequently, policy makers have a strong interest in enhancing dual earnership. After all, enhanced labour market participation can help balance the books. In particular, women's traditionally lower work hour investment across the life course presents an area where labour market participation can be increased. In West Germany, programs aimed at fostering female employment include extending kindergarten provisions (both in terms of number of children and hours across the day covered) and offering men a "use it or lose it" option of paternal leave (with couples getting 14 months instead of 12 months of paid parental leave if each partner takes at least two months). Recent OECD statistics suggest that politicians have indeed succeeded in increasing the labour force participation rate of women aged 25 to 64. It has risen substantially: from 66.2% to 77% between 2000 and 2013. Similarly, the employment/population ratio rose from 60.7% to 73.3% (OECD, 2014).

The recent policies represent a substantial shift away from supporting the male breadwinner model towards supporting dual earnership. Yet it is unclear whether couples are actually happier in a dual career arrangement than in a specialized arrangement.[24] The chapter will consequently answer the following question:

(1) Are dual career couples (couples which make approximately equal human capital investments over time) more satisfied with their lives than couples that eventually specialize (predominantly invest in the male partner's human capital)?

[24] The study is obviously restricted to a period in which support for dual employment was not necessarily a given. Consequently, the findings on the happiness associated with a dual career versus a male breadwinner model can only be generalized to the period in which support was low. However, one may assume that with higher levels and high quality childcare support men and women may even be happier in a dual career arrangement in the future (see introduction).

There are two opposing lines of argument. The first line of argument proposes that couples that specialize are happier. Economists suggest that specialization around childbirth will lead to a maximum output as each partner is able to invest his or her time according to their respective comparative advantage, and happiness is a function of *joint* output. Conversely a dual career requires high time investments of both partners. As a result, neither of the two partners has a "wife" at home to take care of the domestic chores. Similarly, if both partners invest a lot of time into their respective careers, little joint time and family time may be left. The high levels of stress may in turn lead to lower levels of satisfaction. Cha for example found that paternal overwork resulted in maternal labour market drop-out (Cha, 2010: 320-323).

In contrast, the second line of argument proposes that couples with an equal human capital investment (also referred to as dual career couple in this chapter) are more satisfied with their lives. A career associated with monetary rewards may be more satisfactory than one partner having to opt out of the career path and consequently leave his or her ambitions behind. The higher rewards can be used to outsource domestic chores. Having invested in their human capital the women may be less dependent upon their husbands. Men may also be happier as the financial burden is not to be borne solely by them.

The satisfaction-specialization relationship may shift across the life course. In the short term, or during the child's early years, the mother might prefer to opt out of the labour market or to only work part time. Her new role as mother may fulfil her completely. In contrast, at the same life course stage, employed mothers may struggle to balance work and family life. As a consequence, they may be less satisfied in a dual career arrangement. Later on, this relationship may shift. Once the children no longer require maternal attention, mothers who have given their partner's career precedence may

struggle to find a job which will give them the same purpose as motherhood. Mothers who have pursued an equal investment strategy may enjoy their lives more as work-life pressure decreases.

Because the specialization-satisfaction relationship is likely to change across the life course, the second question of this chapter is:

(2) To what extent does the relationship between current life satisfaction in a dual career vs. eventual specialization change across the age of the youngest child?

The German Socio-Economic Panel's longitudinal and household structure allows for the testing of how couples' careers – rather than individuals' careers – are related to each partner's and the couples' level and change in satisfaction over time.

Analytically, the first advantage in comparison to past papers lies in the measurement of human capital, or wage (potential). Past studies have analysed the relationship between wage and satisfaction. Wage is a suitable career measure if one is only interested in people who remain employed. However, it is a questionable measure if one also wants to examine periods of temporary non-employment. Within couples, women especially may not be pursuing a lock-step career of continuous full-time employment (Moen and Sweet, 2004: 212). To enable a comparison between the earning powers of men and women, I propose to look at wage potential/human capital measure instead. This change in the independent variable allows for analysis of the interrelationship between couples' careers even if one partner is currently not employed. This is theoretically important, as non-employment can be interpreted as a career decision that has been made. Technically, the measure is based on a single Heckman regression. The use of gender in the Heckman selection equation when creating the human capital measure implies that the Heckman selection process can be correctly specified without

using gender in the subsequent main regression stage. Using gender in the main regression would ultimately result in a downward bias in the estimation of the woman's human capital investment. The reason for this downward bias lies in women's real-world circumstances. For instance, women have been found to earn lower wages than men, even when working in identical occupations or positions. This is not necessarily a reflection of differential human capital investment, however. Hence, a gender-neutral approach in the main equation is warranted.

The second advantage over past approaches, such as the use of the last wage observation to impute a value during periods of non-employment (e.g. Stutzer and Frey, 2006), is that the human capital measure depreciates over time if the person is not employed. It may be unreasonable to assume that an employer will offer the same wage to a woman who has just left the labour market for a year and a woman who has not worked in the job for ten years.

The analysis is set up as follows: as a first step, the change in relative human capital measures is established. Then, an analysis of the relationship between human capital change and level and changes in is run. This procedure results in a third advantage. Past analyses – because they focussed on cross-sectional or two time-point comparisons – have struggled to disentangle whether "happier couples" select into a specialized arrangement, or whether being in a male breadwinner model makes you happier. Because I follow the same couples over time (examine within-couple changes) when they move from an equal to an unequal arrangement, I can tease apart some of these processes. Indeed, it is likely that women who are inherently dissatisfied with a male specialized arrangement feel pressured by society to indicate satisfaction with being the ideal mother. Such processes of cognitive dissonance may disappear over time. With time, women may more and more feel able to voice their dissatisfaction. A two time-point

comparison cannot capture such gradual satisfaction shifts. In contrast, a longitudinal curve analysis is likely to capture these over-time changes in satisfaction.

Moreover, by relating different relative human capital investment curves to each partner's satisfaction curve, a clearer picture of over-time satisfaction changes and differences therein can be obtained than in past analyses.

5.2 The relationship between couples' career strategies and their happiness

5.2.1 How couples negotiate career outcomes

As discussed in the literature review, there are three strategies through which the couple can arrive at the observed human capital outcomes. (1) Both pursue individual goals (non-cooperative individualistic strategy) – the assumption of both bargaining and "doing gender" theories (Manser and Brown, 1980). (2) Partners establish a joint goal by maximizing the outcome of the player with the "comparative advantage" (cooperative star player strategy) (Becker, 1991). (3) Both partners support one another in pursuit of a dual career, in order to be less dependent on one star player for joint success (cooperative egalitarian players strategy) (Oppenheimer, 1994, Oppenheimer, 1997). Recent German policies such as the Partnerschaftsbonus (supporting dual part-time employment) mentioned in the introduction, are explicitly aimed at a more equal division of labour. In contrast, former policies (such as the Ehegattensplitting –joint taxation with income splitting) had a tendency to support the cooperative star player strategy. For this reason the chapter focusses on the latter two. Each of the strategies is assumed to arrive at a higher utility (satisfaction in the case of this chapter) via a different mechanism which is outlined below.

5.2.2 Theories and findings on the relationship between specialization and satisfaction

Both theoretically and empirically, it is unclear whether within-couple specialization or an equal human capital investment results in a higher level of

satisfaction for each partner. In the following sections I will therefore first outline the theoretical arguments for and against a positive relationship between within-couple specialization and satisfaction.

5.2.2.1 Cooperative star player strategy

Becker's theory assumes that couples seek to maximize a joint household utility function (Becker, 1991). This joint household utility function is maximized if each partner specializes relatively in either paid or unpaid work, depending on their comparative advantage (measured as the ratio of his marginal products in market and household sector compared to her ratio therein).[25] Under this assumption, an unequal investment in both partners' market human capital should make both partners more satisfied as it implies a more efficient division of labour ensuring the maximum joint output.

Non-economic theories also propose that specialization is more conducive to happiness than non-specialization. Within this line of argument, non-specialization is assumed to lead to higher time pressures as both partners have less time available for the family life and thus experience combination pressure (Jacobs and Gerson, 2001). This in turn may make them less satisfied. The resulting hypothesis is as follows.

Hypothesis 1:

*Each partner will be happier if the couple **specializes**, even if it puts one partner at a comparative disadvantage in the labour market. They are happier because (a) this strategy maximizes the joint income and (b) partners do not have to manage family and career demand simultaneously.*

[25] Becker would propose that couples specialize absolutely. Yet, as discussed in chapter two, this outcome hinges upon the assumption of constant or increasing returns to scale (no diminishing marginal productivity), which is unlikely to be met across the day or the life course.

Doing gender theories would propose that this relationship does not hold if the woman is the star player and the man merely acts as a support figure in the household, as he would not be able to fulfil a traditionally "masculine" role as a main or sole breadwinner (West and Zimmerman, 1987: 126).

Empirically, when looking at women's ***working hours individually***, there is conflicting evidence as to whether women are happier as housewives or as working wives. Unlike men, women face normative expectations to take care of the home (Steiber and Haas, 2010: 258). As outlined above, even working women are mostly responsible for the housework and childcare, resulting in a dual burden (Gershuny, 2000). Indeed, some studies find that women are slightly happier as homemakers than as wives working full time (Treas et al., 2011: 111). Women's feelings of time-deficit were related to a lower sense of well-being in a 1997 cross-sectional US study on dual-earner families. Despite men being more affected by time-deficits with children and their partners due to a higher involvement, these time-deficits were not associated with lower levels of well-being (Nomaguchi et al., 2005: 756). This may lead one to expect that working women are more stressed.

Similarly, when examining the ***distribution*** of ***working hours*** within the ***couple***, Stutzer and Frey found that women in specialized couples were happier than non-specialized couples, whilst there was no difference for men in specialized and non-specialized couples. The authors examined the relationship between levels of satisfaction and specialization over time (clocked by years to/from marriage). They classified couples as specialized if one partner was in full-time employment, on maternity leave or self-employed, whilst the other one is retired and only occasionally or not at all a participant in the labour market, and if they are in such an arrangement, have been for most of the seven years (Stutzer and Frey, 2006: 15-16). One has to be cautious with these findings,

however. A single summary measure hides potentially very different long-term developments (e.g. it would capture both women who initially work full time and then drop out and women who first do not work and then re-enter the labour market). Whether maternity leave should be in the "non-specialized" bracket as the authors suggest is also highly questionable – particularly if one considers the vast literature on wage penalties associated with long maternity leave (Gangl and Ziefle, 2009).

While the time investment may represent a burden, particularly on women's levels of satisfaction, the resulting income and status attainment may have opposite effects on life satisfaction.

Stutzer and Frey looked at German couples to analyse the effect of the ***relative*** difference in ***wage rates*** between spouses on changes in satisfaction around marriage. If the difference in wage rates was above the median, couples were classified as specializing and contrasted with non-specializing couples (difference in wage rates below the median). Post-marriage, the two groups had similar levels of satisfaction whilst, before getting married, couples with large wage differences were unhappier than couples with small wage differences. Based on the findings, the authors conclude that couples who specialize gain more from marriage (Stutzer and Frey, 2006: 19). Again, the study has a number of limitations. The study would have been more persuasive if measurements had been constructed more carefully. Their shadow wage measure, which was used to enable them to include periods of non-employment, is questionable as it uses either the last observed wage or the wage observed after non-employment. Besides the decision as to which one to include being rather random (whichever is the closest to the last missing datapoint), the former measure would not take into account motherhood wage penalties (see above). Moreover, the dynamic development in wages is reduced to a static average relative difference in wage rates across years. This makes it difficult to judge when such

differences occurred during the period of observation. Whether men and women differed in their satisfaction with these arrangements was not tested, although the same study found significant differences between men and women with regards to the division of working hours.

5.2.2.2 Cooperative egalitarian players strategy

Social scientists concerned with within-couple equality come to the opposite conclusion. They perceive specialization as a cause or precursor of inequality which may lead to depression or, as characterized in this study, dissatisfaction (Kalmijn and Monden, 2012: 360). Along their lines of argument one would assume the following counter-hypothesis:

Counter-Hypothesis 2:

*Partners will be more satisfied with an **equal** human capital investment, even if this does not maximize the joint or the individual output.*

Supporting evidence includes the observation that despite a decrease in specialization over time, couples have become more satisfied, which seems to contradict Becker's economic theory (England and Farkas, 1986, ch. 3.VI, Thornton and Freedman, 1983). Although one has to be cautious with micro-macro inferences. The study uses cross-sectional data, however. Employing a two-wave longitudinal approach, Kalmijn and Monden explicitly tested whether the sociological/psychological assumption of equity increasing health or the economic proposition that specialization increased partners' well-being was true for US couples. The 2-wave US panel dataset enabled them to account for initial differences in health, and they found that an equitable ***division of labour*** reduced the depressive symptoms of husbands and wives. The effect was particularly pronounced for husbands. Based on these findings, they propose that de-

specialization towards dual-earner couples is not as detrimental to couples' well-being as commonly assumed (Kalmijn and Monden, 2012: 370-372). Similarly, divorce has been found to be more likely in specialized than in egalitarian couples (Cooke, 2006: 442). Irrespective of levels of equality, at least across various measures of health, there was no negative effect of employment onto employed women's health. Instead there was either no effect or a positive effect (Klumb and Lampert, 2004: 1007).

A longitudinal 5-wave US study on ***individuals*** (not couples) indeed found that an increase in ***women's income*** was associated with a rise in well-being and marital happiness, whereas there were no positive cross-partner effects of women's increased wages on men (Rogers and DeBoer, 2001: 464). A serious weakness of the Rogers and DeBoer study is that no long-term household-level panel dataset with satisfaction measures was available. Hence, couple-level dependencies in this individual-level sampling framework could not be captured. Brennan and colleagues account for these dependencies via a multilevel model in which wives' and husbands' outcomes are modelled as separate but correlated outcomes. They follow the procedure proposed by (Raudenbush et al., 1995). In comparison to the Rogers and DeBoer study, they come to similar conclusions with regards to men but contrasting conclusions with regards to women: ***men*** who attached a higher ***importance*** to their ***earnings*** were found to be positively affected in their marital role quality, if their share in relative earnings increased. For women there was no effect on their marital role quality (Brennan et al., 2001: 178-180).

Overall, it remains unclear whether the mixed findings regarding the specialization-utility relationship are a reflection of the different operationalization, the sampling frameworks, the cross-sectional or the longitudinal approach.

5.2.3 Age of the youngest child as a mediating factor

Parenthood has been demonstrated to affect the amount of time both partners can invest in their career. Oftentimes this has resulted in women leaving the labour market or opting to work part time. For some, this has been shown to be a permanent mode of being, whilst for others it is a temporary state (Becker and Moen, 1999, Kühhirt, 2012). But how does this divergence in human capital investment affect couples?

After all, employment gives a sense of purpose, structures the day and provides a social structure. In fact, unemployed men have been found to feel lost without these elements central to employment (Jahoda et al., 1972, ch.7).

Alternatively, when children are young, parenthood may counteract de-structuration for mothers. Indeed, the same study found that

> "women are merely unpaid, not really unemployed. They have the household to run, which fully occupies the day. Their work has a definite purpose, with numerous fixed tasks, functions and duties that make for regularity" (Jahoda et al., 1972: 74).

Hence, even if not in full-time employment, the parent who stays at home and reduces his or her human capital investment may have the same sense of purpose (e.g. taking care of and educating the child), time structure (e.g. daily meals with children) and social structure (e.g. being in contact with other mothers via children's play groups). However, once children grow older and hence more and more independent, the sense of purpose and time structure may gradually disappear. The emptying nest may in turn leave behind a hole which mothers who at this stage have given up on their careers may not be able to fill.

In contrast, mothers of young children who continue investing in their human capital may initially face a higher amount of work-life stress at this point. This may have to do with the normative context (women who work when having a pre-school child are

assumed to do so at the cost of their child) as well as the institutional level of support. Across the life course the work-life demands shift. The older the child, the more acceptable maternal employment may be. Both represent outside constraints which change over time: as the child grows older and more independent institutional childcare support may be less needed. Consequently, mothers who continued to invest in their human capital may be more comfortable with leaving their child alone at that age or in institutional care.

Therefore, I expect the relationship between work hour investment and happiness to be mediated by the age of the youngest child. There is a large and growing literature on how children affect various happiness outcomes. For instance, Kohler and colleagues who studied Danish parents found that gains in happiness were mainly associated with having a first child, and only for women if controls for partnership were included. Further children even had a negative effect on women, whilst they had no effect on men (Kohler et al., 2005: 425). These findings are similar to the ones by Pollman-Schult on Germany. He further found that satisfaction was lower for parents of older children, mirroring findings by Nomaguchi (Pollmann-Schult, 2014: 333, Nomaguchi, 2012). Moreover, for men the satisfaction was offset by the costs of having another child. The authors assume that this is because men carry the weight of having to financially care for the offspring (Pollmann-Schult, 2014: 333).Yet no study examined how the life satisfaction changed differently across the age of the youngest child for different types of couples with different divisions of labour. If the man is not the only one who has to financially care for the child, perhaps he is happier. It is furthermore highly likely that the satisfaction shifts differently across the life course depending on investments and hence relative importance of other life domains (work). I would assume that:

Hypothesis 3: Specialized couples will be more satisfied earlier in life but less satisfied later in the child's life.

5.2.4 The West German context

Not only an individual's attitudes but also a supportive attitudinal environment for female employment may affect women's employment-happiness relationship. In a 28-country multilevel analysis, Treas and colleagues found that the difference between part-time and full-time workers' happiness was reduced by liberal gender role attitudes. Attitudes in addition to family friendly policies were found to reduce the negative relationship between work status and happiness. Higher social spending by certain countries moved the levels of homemakers' and full-time employed wives' satisfaction closer to one another. The difference between part-time and full-time workers' happiness was also reduced by social spending, GDP and female labour market participation rates (Treas et al., 2011: 122). West Germany, with its traditional gender role attitudes and minimal support for dual employment, may have made women pursuing a career less satisfied.

As the authors rightly point out, selection effects, e.g. whether happier women are more likely to become homemakers, cannot be excluded. Moreover, cognitive dissonance may be at work. Cognitive dissonance occurs in decision making, when the

> "cognitive elements corresponding to positive characteristics of the chosen alternatives, and those corresponding to negative characteristics of the chosen alternative, are *dissonant* with the knowledge of the action that has taken place […] Dissonance almost always exists after an attempt has been made […] to elicit overt behaviour that is at variance with private opinion"(Festinger, 1962: 261).

In the case of satisfaction, women may overtly state that they are satisfied as housewives or when giving their partner's career precedence. However, this may be dissonant with their actual inner feelings and their beliefs regarding what they should have done instead. In other words, women may have actually preferred to continue

having a career but may feel that they have to state that they are satisfied as caring housewives or secondary earners. This feeling of having to be satisfied as a caring mother, rather than voicing dissatisfaction in light of the wasted human capital, may be attributable to normative expectations. Women in West Germany may feel that they are expected to be a good mother rather than a bad Rabenmutter who prefers having a career.

Festinger further argues that the

> "total magnitude of dissonance which exists between two clusters of cognitive elements is a function of the weighted proportion of all the relevant relations between the two clusters which are dissonant, each dissonant or constant relation being weighted according to the importance of the elements involved in that relation" (1962: 262).

As stated earlier, across the age of the youngest child, the relative importance of being a mother versus pursuing a career may shift. The older the child, the less maternal care is required. Hence a career may become relatively more important at that point. Being predominantly a mother may therefore result in an ever higher magnitude of dissonance. The person may feel the urge to reduce this rising dissonance. According to Festinger one can reduce the dissonance by either changing or intensifying the public opinion (Festinger, 1962: 264). Consequently, women may eventually voice their dissatisfaction with being the secondary earner, thereby moving from cognitive dissonance to cognitive consonance.

5.3 Data & sample

The chapter again uses the German Socio-Economic Panel (version 28 spanning 1984-2011 for West Germany). The sample is restricted to parents with minors but does not include children living outside the home. Only heterosexual couples are kept. Only couples in which both partners had a human capital value in the four years before childbirth and were not parents at the time are kept. Moreover, only those couples who are observed when the youngest child is 10-15 years old are kept. This results in a

subsample of 436 individuals, 50% of which are observed 16 times. This sample choice enables a comparison of couples over a long period of time. The chapter uses the youngest child as a time-clock as it ensures that couples are not reducing their human capital in response to having another child. I thereby ensure that all parents will have a comparable age-related childcare commitment/access to similar institutions for the youngest child.

5.4 Methods

The analysis is set up as follows: I first construct a human capital measure. Second, to observe partner's relative human capital investment level across multiple time-points (i.e. how specialized couples are at ages 5, 7, 8, 9, and 10), I create a dyadic index (his share in joint human capital). Third, a group-based trajectory model is run with the dyadic index as a dependent variable to understand the extent to which couples differ in their relative human capital investment depending on the age of the youngest child. Fourth, the couples are grouped into different human capital investment strategies based on the results of the group-based trajectory model.

Thereafter, to better understand the extent to which the couples' relative human capital investment affects each partner's satisfaction, a multilevel model is run. This model is run with satisfaction as the dependent and the various human capital investment trajectories as an independent variable. To enable the comparison between men's and women's happiness, the grouping of couples is interacted with gender. A random couple-level intercept and a covariance between the male and the female slope within the couple allow for within-couple dependencies. Ultimately, this set-up allows me to compare couples who eventually specialize to couples who stay on the dual career track (defined as equal human capital investment), enabling me to understand whether an equal dual career or specialization is related to a higher male and female life satisfaction. Because

the time-dimension is the age of the youngest child, I can simultaneously analyse whether the specialization-satisfaction versus dual career couple-satisfaction relationship shifts depending on the age of the youngest child thereby answering question two.

5.5 Measurements

5.5.1 Dependent variable: men's and women's current life satisfaction

Economists tend to assume that the choices made by individuals reflect their actual preferences. In contrast, Kahneman and Krueger argue that choices may not mirror actual preferences, as an agent's rationality is bounded, with the result that people make inconsistent choices when maximizing their own utility (Kahneman and Krueger, 2006: 3). They therefore propose the use of a direct measure of subjective well-being to deduce people's utility. Like Clark and colleagues, I am consequently using a subjective measure – a questionnaire-based subjective estimate of satisfaction – to measure people's preferences/utility derived from their actions (Clark et al., 2008). There are several alternatives to the use of life satisfaction. One alternative would have been to examine satisfaction with family life. However, this item has only been measured from 2006 onwards, which would have resulted in too small a subsample. From a theoretical point of view, satisfaction with family life may not necessarily capture the satisfaction with employment decisions. Another obvious alternative would have been work satisfaction. However, work satisfaction is only measured if the individual is employed. Because the inclusion of periods of non-employment is one of the main rationales of the analysis, the more generic life satisfaction is chosen instead. The scale ranges from 0 (completely dissatisfied) to 10 (completely satisfied). The SOEP's satisfaction measure has been demonstrated to have a .74 test-retest reliability (Lucas and Donnellan, 2012: 328). Two measures are used. Firstly, to understand between-group differences, levels of life satisfaction are measured. Secondly, to cancel out unobserved time-constant

heterogeneity (couples with equal human capital investment may in general be a happier group), the maximum pre-birth satisfaction-level is subsequently subtracted from the current life satisfaction level (Snijders and Bosker, 2012). One disadvantage with a generic one-item life satisfaction measure is that one cannot disentangle which domain (e.g. work or family) is responsible for the current levels of satisfaction. The measure is situated at the end of the SOEP questionnaire and therefore is highly likely to capture overall life satisfaction, rather than satisfaction with a specific domain in life. The main interest lies in long-term changes in satisfaction. Hence, domain satisfaction variables were not used as the relevant items were only available from 2006 onwards. Further analysis on smaller observation windows (which, however, would not capture the long-term moves from an equal to an unequal division of labour) may shed light on whether specific domains such as family life satisfaction were affecting the life satisfaction measure.

5.5.2 Constructing a measure of human capital investment

Because the construction of the independent variable differs from past approaches, I will first describe its specification in detail.

5.5.2.1 Rationale for a human capital investment measure

Including periods of non-employment in a career rewards measure is not a simple endeavour, either practically or theoretically. How does one consider periods of non-employment in a career curve? Methodologically, past solutions to modelling periods of non-employment have been: (a) to exclude the observations (b) to carry the last observation's value forward (c) to use zero earnings at these time-points.

Theoretically, it is unclear how such modelling would fit non-employment into a career trajectory. If I exclude these years, I cannot find out how the decision to drop out affects couples with different earnings potentials differently. Carrying the last observation

forward, I unreasonably assume that the wage earned in the last year of employment equals the wage earned after five years or so out of the labour market. After all, whilst both a professor's and a secretary's income is zero during non-employment years, this is not a reflection of their earnings potential. As a result, the opportunity costs associated with (not) re-entering the labour market are quite different. Similarly, over time a secretary and a professor who are currently not working may be losing quite a different amount of human capital.

To capture such cross-sectional and over-time differences, a human capital measure is used. This measure summarizes past and current human capital investments. Moreover, the use of human capital allows for a direct comparison of men's more stable and women's fluctuating careers.

5.5.2.2 Constructing a human capital measure based on the Essex score

The human capital measure used in the analysis is based on the so-called "Essex" score. The Essex score can be seen as a summary measure of current wage potential based on past decisions (Gershuny, 2002, Kan and Gershuny, 2006). Only panel data allows one to construct this measure, as it provides not only an individual's current but also an individual's past labour market behaviour. Unlike retrospective data, detailed measures of wages are available, all of which can be used for the calculation of current levels of human capital. Since the aim is to construct a comparative measure for the UK, the method stays as close as possible to the UK Essex score construction. The method has been adapted to Germany and the German data wherever needed.

The vehicle used to arrive at the Essex score is a Heckman wage regression (Heckman, 1979, Heckman, 1976). A Heckman regression is usually employed by the researcher when selection into a sample is based on the dependent variable (in this case wage). The most common example for selection which is related to the wage outcome is

parenthood, which is therefore discussed in detail. The opportunity costs for recent parents to pursue dual earnership are in general higher than for non-parents. Opportunity costs may be higher if there is no free full-day public childcare (which was the case in West Germany during the observation period). Even if child minding were free, parents might wish to nourish and develop their children's skills themselves. Moreover, the numbers of hours that need to be spent on unpaid work increase. Combined, these circumstances and desires raise the perceived opportunity costs of dual employment. If the perceived opportunity costs for both to stay in the labour market are considered too high, one of the partners will drop out of the labour market. For various reasons the opting-out partner tends to be the mother, either because policies only support maternal leave, or because she wishes to use the first months to breast feed, or because she may have a lower income in comparison to her partner.

The elevated opportunity costs in turn increase the potential wage the non-employed person would have to earn to stay in or re-enter the labour market. Consequently, the decision to work is not independent of the potential wage achieved (also referred to as the reservation wage). Under these circumstances a Heckman regression is usually employed. The Heckman regression calculates two equations: the propensity to work (selection equation) and the wage outcome. At stage one, the probability of someone to choose to work is calculated using a probit model. It is assumed that this wage is only observed if the wage is higher than the reservation wage. The actual wage regression is then corrected for the probability of a wage being observed. The errors of the two equations are assumed to be correlated. The advantage of using a Heckman regression is that it enables the researcher to make inferences beyond the working population. After all, the working population has selected itself into work. If you

were not to account for this selection mechanisms then the estimates would be biased for the non-employed (Heckman, 1979, Guo and Fraser, 2010: 91).

Unlike the usual economist's Heckman wage regression, which also takes into account factors such as children and other household income and variables that influence the participation decision, the Essex score regression focusses solely on the variables directly related to human capital (Heckman, 1976). One could argue that children, household income and other circumstances may influence the decision to work and should thus be included in the measure. Yet this is deliberately not done. The rationale behind using a Heckman regression is to create a summary score rather than to analyse the influence of certain variables on the dependent variable. The regression only acts as a vehicle to get the right weight of each variable to estimate a person's human capital. Thus, only once it has been predicted will the influences of other variables, such as children, be considered. In addition, a more practical reason is that, unlike economists, sociologists' questions often revolve around family or gender effects. To avoid circularity in argumentation these variables need to be excluded from the score (Gershuny, 2002: 21-22). Furthermore, the work investment decision associated with children is already directly included via the time spent out of employment. This is a more direct human capital indicator than children themselves. Children may or may not influence the decision to work and are consequently a less straightforward indicator of work decisions. Their high correlation with working hours is another reason to exclude them and avoid endogeneity.

The variables included to calculate the human capital measure are age, mean occupational wage as an indicator of the general wage potential within the occupation, education and part-time and full-time work experience. The three steps which need to be taken to arrive at the measure are outlined below.

Step 1: Generating a mean occupational wage

Firstly, a mean occupational wage must be derived from the data. The mean occupational wage's purpose is to measure the monetary value that is on average associated with a certain occupation. The mean log hourly wage was calculated based on agreed hours in employment, to assure that the variable was independent of levels of employment. Gross wage was used, as it is not affected by people switching the tax class. Prior to calculating the mean hourly wage, the data is cleaned to exclude unreasonably high or low observations. This is done by calculating the ratio of gross to net earnings and dropping everyone where gross earnings are higher than 2.2 times the net earnings.

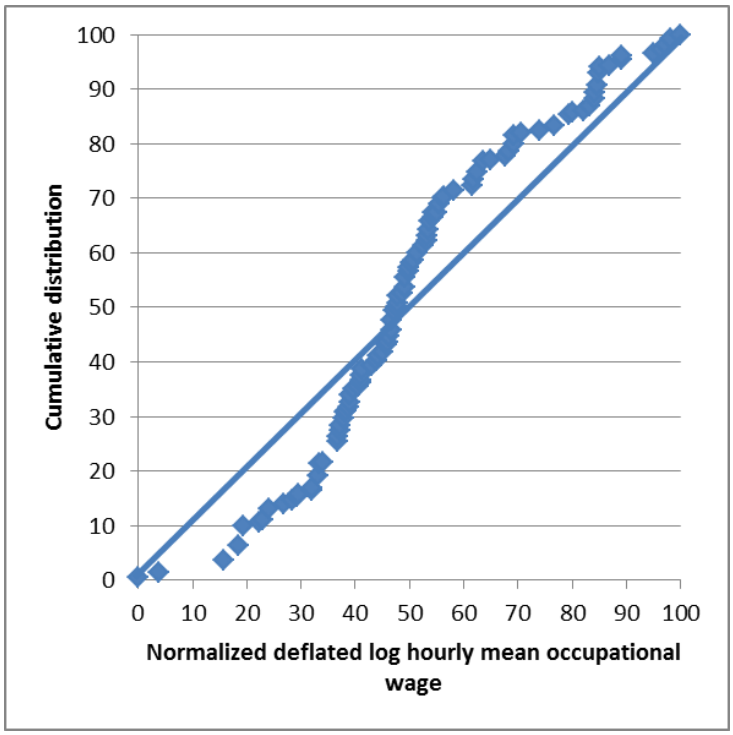
To arrive at an occupational wage, occupational groups must first be defined for which a mean is to be calculated. Since the final aim is to arrive at a score with a normalized distribution, the four-digit occupational classification ISCO-88 is split and aggregated across all waves in order to arrive at roughly same-sized categories. To ensure that a mean wage is not calculated for too-small groups, the four-digit ISCO-88 is subsequently truncated to the higher-level three-digit version and only re-split into its three digit version, if the sample size is too large. Whenever groups are aggregated, they are aggregated into the closest 3-digit category with the highest number of people in it. If categories are split they are split according to the fourth digit of the untruncated 4-digit ISCO-88 (e.g. truncated 723 is split into 7231 if ISCO-88 equalled 7231 or 7232, into 7232 if ISCO-88 equalled 7233…). The final group size is about 1000-3000 observations per category. Some groups, such as teachers, could not be split, as the 4th digit in the 4-digit classification did not further distinguish the groups.[26] Moreover, occupational groups for which splitting would have resulted in too small a subsample are left in the

[26] This was the case for secondary teachers; public service administrators; nursing associate professionals, midwifery associate professionals, and other medical office clerks; sales associate professionals; accounting and bookkeeping clerks; statistical and finance clerks; fashion and other models; institution-based personal care workers; agricultural, industrial and machine mechanics and fitters; domestic helpers, cleaners and related domestic helpers; manufacturing labourers, assembling labourers, and hand packers.

bigger groups. Furthermore, those occupations, which had no clearly defined job role, are dropped (these include the categories help in family business; apprentice without defined job role; intern, trainee without defined job role; school leaver, seeking employment; other labourer, seeking employment; skilled labourer, craftsman, no further details; home worker, no further details; foreman, team leader; other labourer, no further details). Overall, this regrouping exercise leaves 95 occupational groups remaining.

Subsequently, a mean occupational wage is derived for each of these groups using the following procedure: first, income is deflated using the consumer price index, which also differentiates between East and West Germany until 1989 (Statistisches Bundesamt, 2013). To arrive at hourly wages, each individual's monthly primary gross earnings are divided by 4.3 weeks and the agreed hours worked within a week. Those with a missing value on the agreed hour's variable and those earning less than one Euro are dropped. As the hourly wage has a skewed distribution it is logged to ensure that the outliers would have less of an effect. Once a deflated logged hourly agreed wage has been created for each individual, it is averaged for each of the occupational subgroups. The resulting mean occupational wage (MOW) is then normalized across the groups by subtracting the minimum MOW from each MOW and dividing it through the difference between the maximum and the minimum MOW. The cumulative distribution of this mow scale is then checked for normality (see figure 24).

Figure 24: West Germany mean occupational wage vs. cumulative distribution



Source: SOEP v28 West Germany

The mean occupational log hourly wage is subsequently used as one of the independent variables in the Heckman regression. For non-employed, the last ISCO-88 aggregation (i.e. from the 95 groups that have just been created) is carried forward to enable imputation for periods of non-employment (63,709 of 275,639 observations are imputed for West Germany). Backward imputation is not carried out, since this would have left unclear whether there was a job occupied before the first observed ISCO-88 truncated value.

Step 2: Determining the best Heckman regression to arrive at the human capital measure

The Heckman regression calculates the potential log hourly agreed wage for both employed and non-employed. The sample is restricted to key career years (ages 16-65).

The controls reflect the variables which are thought to be related to employers' wage offers. To control for different levels of employment across periods, **wave** and its square (to account for lingering effects) are included. To capture more recent labour

market investments, the categorical **work status** variable (full-time employed, part-time employed, irregular employment and not employed) is controlled for the last two years. This allows for capturing the lingering effects of non- or unemployment (Gangl, 2006). **Years of part-time and full-time work experience** and **years spent in unemployment** are included to capture the life course work history. The differential reward associated with different occupations is captured in the **normalized mean occupational log hourly wage**, whose construction is described above. To allow for the mean occupational wage to reach an upper limit, **its square** is also included. A higher educational qualification is likely to be rewarded with a higher wage by the employer. Consequently, **education** is included. The variable is split according to the casmin categories of education: (0) in school, (1a) inadequately completed; (1b) general elementary school; (1c) basic vocational qualification; (2a) intermediate vocational qualification; (2b) intermediate general qualification; (2c) general maturity certificate; (2c-2) vocational maturity certificate; (3a) lower tertiary education; (3b) higher tertiary education. Subsequently, a categorical distinction of the mean occupational wage is included – **high mean occupational wage** (mow) (top 10% of the distribution) and medium mean occupational wage (the next 30% in the distribution). Based on the cumulative distribution, the high category is defined as anyone who is above 88.65 points on the 100-point scale. **Medium mow** is defined as anyone achieving between 52.95 and 88.65 points on the scale. Since the highest level of education (lower and higher tertiary education) might be rewarded differently depending on occupation, it is interacted with medium and high mean occupational wage. **Age** and **age squared** are included to account for age-specific employability, which is likely to be lower at higher ages. Similarly, the wage progression is slower/stagnating at very old ages. To account for the curvilinear relationship between age and rewards, the regression further included a polynomial specification. The age

variables are interacted with medium and high mean occupational wage, as the reward peak is likely to differ for the different levels of reward. To control for different developments over time for medium and high mow occupations, an interaction with wave and its square (to allow for differential curvature) is included.

The variables are included one after another and a log likelihood ratio test is performed to see if the respective variable improved the model fit significantly. Moreover, a value is predicted for each individual and subsequently the agreed hourly wage is regressed on this value to analyse how much of the variance is explained by the predicted variable of the different models. This is done first for the main regression. The best fitting main model is subsequently used to test the specification of the selection equation.

The resulting model is presented in table 12. In 2011 this measure explained 54% of the variance in log hourly agreed wage among the 16-65 year-olds. This measure has been calculated by regressing the predicted outcomes of the regression in table 12 on agreed log hourly wage. The resulting R^2 was 54%. Note that this R^2 is not the R^2 of the regression depicted in table 12.

Table 12: Heckman regression, dependent variable: Respondent's log hourly wage

	Wage Equation	**Selection Equation**
Female	-	0.072***
		(0.010)
Wave	0.021***	-0.028***
	(0.001)	(0.003)
Wave squared	-0.001***	0.001***
	(0.000)	(0.000)
Employment Status T-1 (Ref. Full-Time)		(dropped)
Part-Time	-0.056***	-0.049**
	(0.005)	(0.017)
Irregular	-0.243***	-0.682***
	(0.007)	(0.021)
Non-Employed	-0.222***	-1.272***
	(0.006)	(0.014)
Employment Status T-2 (Ref. Full-Time)	(dropped)	(dropped)
Part-Time	-0.070***	0.040*
	(0.005)	(0.017)
Irregular	-0.202***	-0.266***
	(0.007)	(0.021)
Non-Employed	-0.163***	-0.320***
	(0.004)	(0.014)
Part-Time Work Experience (yrs)	0.006***	0.012***
	(0.000)	(0.001)
Full-Time Work Experience (yrs)	0.000	0.016***
	(0.000)	(0.001)
Unemployment (yrs)	-0.023***	-0.028***
	(0.001)	(0.002)
Mean Hourly Wage	0.007***	0.015***
	(0.001)	(0.001)
Mean Hourly Wage²	0.000	-0.000***
	(0.000)	(0.000)
Education (Casmin) (Ref.: in School)	(dropped)	
(1a) inadequately completed	-0.209***	0.404***
	(0.034)	(0.089)
(1b) general elementary school	-0.189***	0.308***
	(0.033)	(0.088)
(1c) basic vocational qualification	-0.105**	0.296***
	(0.033)	(0.087)
(2b) intermediate general qualification	-0.164***	0.360***
	(0.034)	(0.089)
(2a) intermediate vocational	-0.047	0.250**
	(0.033)	(0.087)
(2c_gen) general maturity certificate	-0.180***	0.139
	(0.034)	(0.089)
(2c_voc) vocational maturity certificate	0.014	0.168+

	(0.034)	(0.088)
(3a) lower tertiary education	-0.030	0.174+
	(0.034)	(0.090)
(3b) higher tertiary education	0.048	0.044
	(0.034)	(0.090)
Medium Mean Hourly Wage	-0.310***	0.065
	(0.029)	(0.109)
High Mean Hourly Wage	-0.681***	1.000***
	(0.058)	(0.197)
Medium Mean Hourly Wage*Tertiary Education	0.181***	0.114***
	(0.009)	(0.031)
High Mean Hourly Wage*Tertiary Education	0.138***	0.158***
	(0.007)	(0.027)
Age	0.039***	0.014***
	(0.001)	(0.003)
Age squared	-0.000***	-0.001***
	(0.000)	(0.000)
Age*Medium Mean Occupational Wage	0.011***	
	(0.001)	
Age*High Mean Occupational Wage	0.023***	0.009+
	(0.003)	(0.005)
Age²*Medium Mean Occupational Wage	-0.000***	-0.030***
	(0.000)	(0.009)
Age²*High Mean Occupational Wage	-0.000***	-0.000*
	(0.000)	(0.000)
Wave*Mean Occupational Wage	0.000***	0.000***
	(0.000)	(0.000)
Wave*Mean Occupational Wage²	-0.000***	-0.000***
	(0.000)	(0.000)
Constant	1.439***	0.651***
	(0.039)	(0.104)
athrho	0.074***	
Constant	(0.017)	
lnsigma	-1.199***	
Constant	(0.002)	
Individual-years	169201	
Degrees of freedom expended	34	

Source: SOEP v28, employees and non-employees aged 16-65
+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Step 3: Attaching the predicted human capital (Essex score) to the dataset

Having arrived at the underlying Heckman regression to be used for calculating the Essex Score, the next step is to compute the Essex Score for each individual. For 54.168 observations, which had a missing value on wage, the Essex Score could be imputed, arriving at a human capital measure in terms of (potential) economic reward achieved in the labour market for 169.201 person-years.

5.5.3 Constructing a measure of each partner's share in human capital

To capture within-couple shifts in human capital investment, a specialization measure is constructed via a dyadic index. The dyadic is calculated by dividing his human capital (at t) by the joint human capital (at t). The degree of within-couple specialization in human capital investment is measured at each point in time. The curve across time represents the change in division of labour over time. Couples can pursue very different patterns of relative human capital investment over time which, as in the first chapter, may be hidden underneath the average curve. To disentangle the dominant specializations patterns over time, a group-based trajectory model is run. The model groups the relative measure into different relative human capital paths (e.g. ever more equal, ever less equal).

As in the first chapter, for the specification of the group-based trajectory model, a quartic function is chosen for the curves. Subsequently, the number of trajectories and their polynomial shape are determined. The final model fit is determined by the Bayesian Information Criterion and by a visual inspection of the size and shape of the groups. Throughout, the analysis is weighted by the last observation's longitudinal weight.

5.5.4 Controls

The level of stress associated with dual earnership is likely to be mediated by both institutional support available to couples but also the acceptance of pursuing a dual career. Both attitudes and institutional support shifted across the last decades, when

attitudes became more favourable and institutional support stronger. **Cohort effects** are consequently controlled for. The cohorts are divided into pre-1950 (raised during wartime or post-war), 1950-1959 (not raised in the sixties and not benefitting from full-day childcare support when children were raised), 1960-1969 (raised in the sixties under presumably more liberal values), and 1970 plus (affected by extension of childcare coverage throughout the day).

Age has been shown to be associated with satisfaction. Age squared is also included, as some studies have found a U-shaped relationship between age and satisfaction (e.g. Clark and Oswald, 2006).

Marriage is assumed to have a positive effect on satisfaction. Hence, marriage during the observation period is controlled. I expect the effect to decline and have consequently included both a marriage dummy and a variable including the years since marriage and its square.

Health may affect both levels of satisfaction and the time an individual can invest in their career, or the level of work stress he or she can sustain. Consequently, it is an important control which has been used in past studies on satisfaction (Kalmijn and Monden, 2012, Pollmann-Schult, 2014). As a non-linear effect of the level of satisfaction with health is assumed, the variable has been split into three categories: low health (0-4); medium health satisfaction (5-7); high health satisfaction (8-10). Both own and spousal health are included, as a low health level of one partner may also affect the other's own work hour investment and life satisfaction.

Household income may further affect how satisfied the couple is with the time invested and the reward received. The stress resulting from high work hour investment may be counterbalanced if resources are available to outsource other tasks. Since couples'

joint taxes vary depending on whether they are married and depending on the year, the deflated net joint household income is chosen as a measure. It is logged to rectify the skewed distribution and centred at the mean. To understand the extent to which income may drive the association between career input and career rewards, the models are run with and without this control.

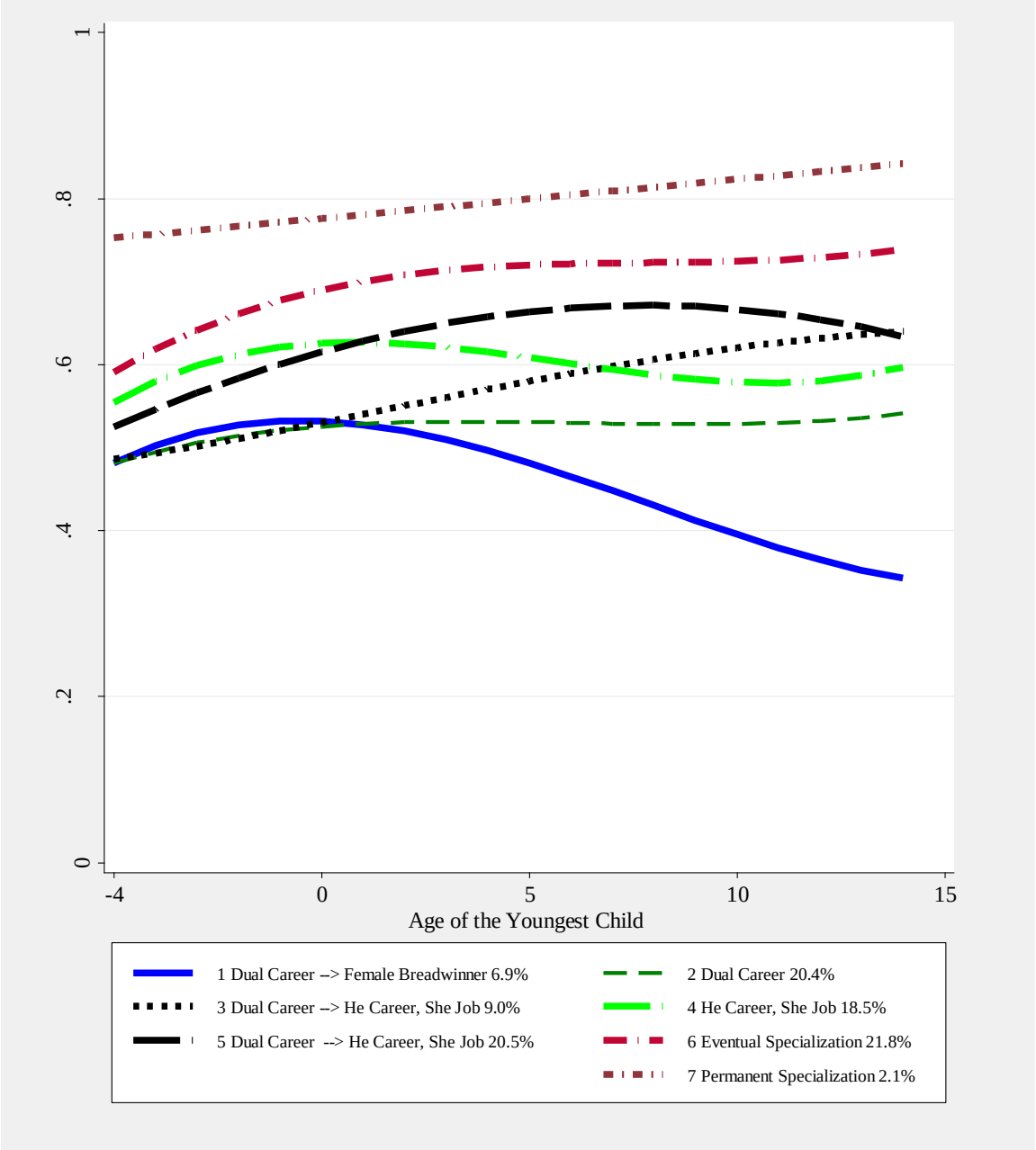
Children, especially young ones, still influence how acceptable maternal employment is (Steiber and Haas, 2010: 258). More generally, first-borns have a strong effect on life satisfaction in Germany and elsewhere, yet later-born children do not have an additional effect on parental life satisfaction (Pollmann-Schult, 2014: 327). By using the age of the youngest child, child effects are controlled for.

5.6 Results

5.6.1 Couples' relative human capital

The group-based trajectory model's aim is to understand how the division of labour – measured as his share in joint human capital investment at t – changes over time. The patterns which emerge from the group-based trajectory model are discussed below.

Figure 25: Relative human capital investment trajectories by the age of the youngest child



Source: SOEP v 28, All couples in which both partners have a human capital observation at least once in the four years prior to birth of the youngest child when no child is yet in the household, and once at ages 10-15. Group-based trajectory model, weighted by last observation's longitudinal weight, Unweighted N=436 individuals.

The first thing to note is that pre-birth human capital investment is fairly equal. Thereafter the relative human capital investment trajectories diverge considerably: some couples eventually specialize whilst others move towards a female breadwinner model. The divergence is a reflection of the decisions couples are making over time. They are

actively seeking out one partner's career as the one in which to invest.[27] Looking at each trajectory individually, one group is too small (0.9%) and followed no clear pattern. Consequently, this group is excluded in figure 25. For the rest of the sample, five groups can be distinguished: de-specializing towards a female breadwinner model (6.9%); dual career (20.4%); moving from a dual career investment to a he career, she job strategy (29.5%); eventual specialization (21.8%); permanent specialization (2.1%).

The reader should note that these percentages do not reflect the distribution within the population. In this chapter the relationship between couples' human capital investment pattern and their satisfaction patterns is of interest. In other words, the model's aim is to group couples into different human capital investment patterns. Unlike in chapter three, the aim is not to describe the distribution of these patterns in the population. This kind of analysis would require a sensitivity analysis similar to the one carried out in chapter three.

5.6.2 The relationship between couples' relative human capital and each partner's satisfaction

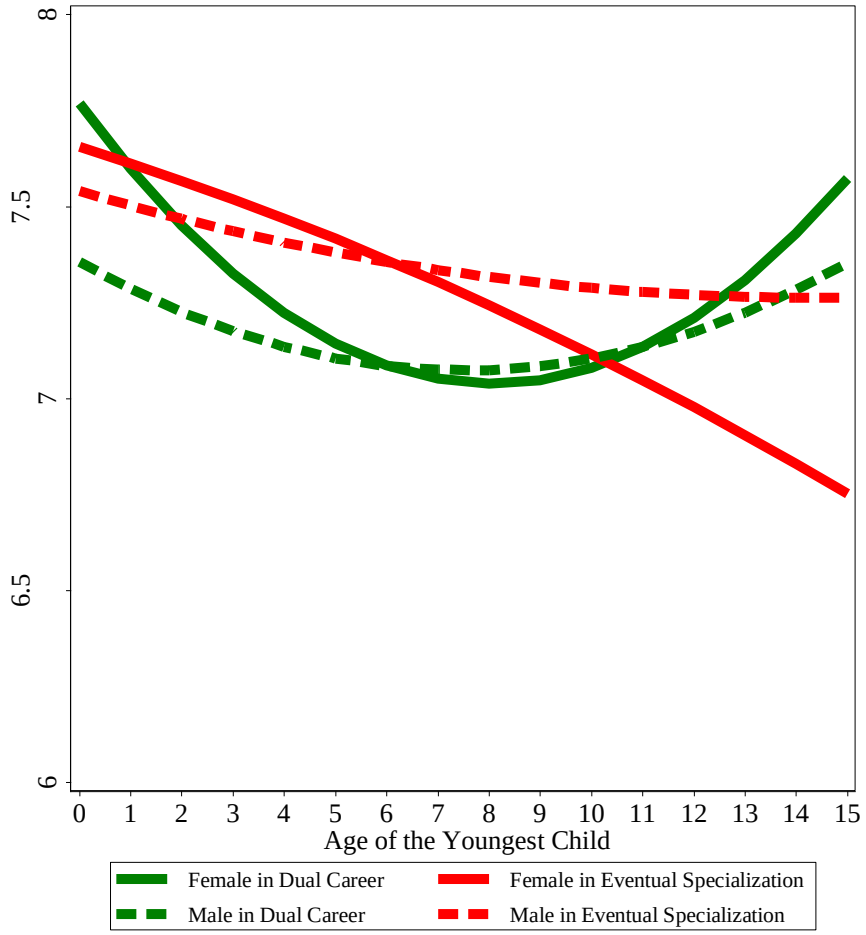
The two main groups of interest – dual career couples and eventually specializing couples – derived via the group-based trajectory model are next used as independent variables. They are interacted with gender to understand whether there are differences in partner's satisfaction.

The results of figure 26 show that both men and women are happier in an eventual specialization pattern; supporting Becker's and stress theorists' arguments. Men are happier nearly throughout. However, once children grow older the relationship changes: women become unhappier in the arrangement while women in an equal division of human capital become more satisfied again. Similarly, men's dissatisfaction with being in

[27] Alternatively, this may be a reflection of the gender wage gap when partners move up the hierarchy.

a household with an equal division of human capital wanes once the youngest child is in its teens.

Figure 26: Satisfaction level by relative human capital investment trajectory



Dual Career vs. Eventual Specialization Couples

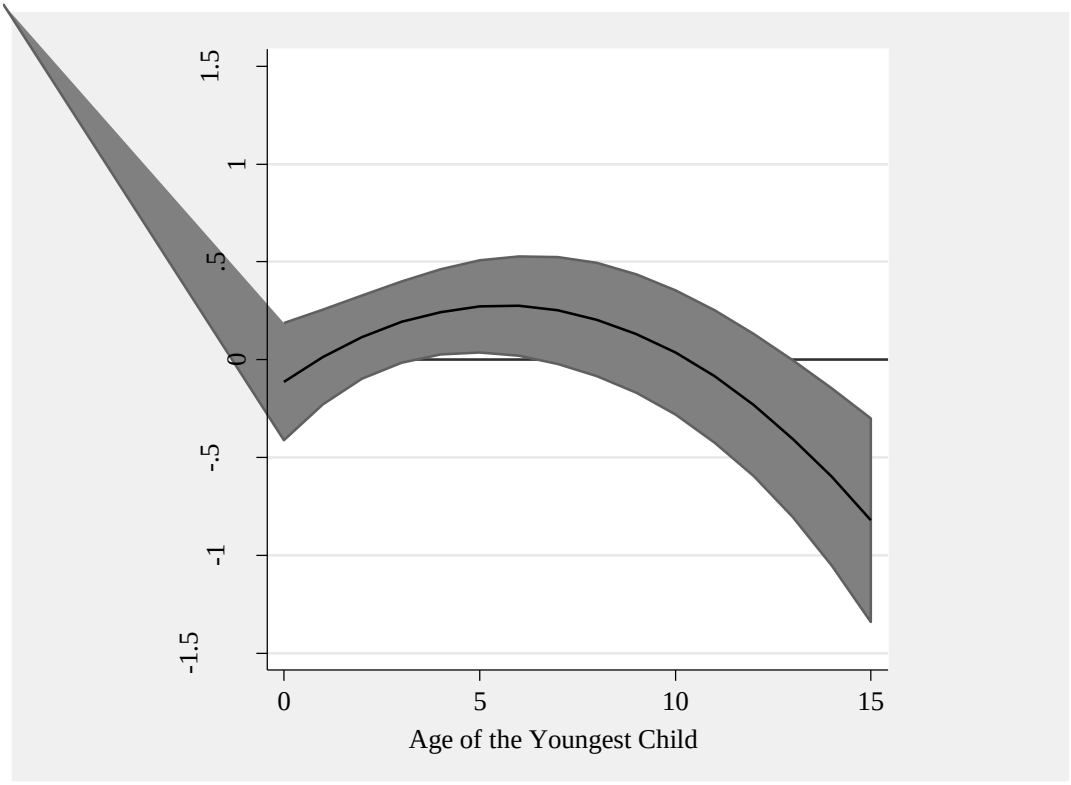
Source: SOEP v 28, All couples in which both partners have a human capital observation at least once in the four years prior to birth of the youngest child whilst no child is in the household and once at ages 10-15. N=432 individuals.

Note: Groups based on group-based trajectory model in figure 25. Linear predictions of the fixed part of a multilevel model which also controls for cohort, age, age squared, marriage during observation window, years since marriage (if marriage occurred during observation window), years since marriage squared and own and partner's satisfaction with health status (low, medium, high).

But are the levels significantly different from one another? For men, there is no significant difference between being in a dual career arrangement and an eventual specialization investment trajectory. For women, however, significant differences emerge

over time: Figure 27 calculates the contrasts in predictive margins from the same model as figure 26. It shows that, initially, women in both types of relative human capital investment strategies – dual career couples with an equal investment throughout versus couples in an eventual specialization strategy (i.e. which invest more in his human capital) – do not have significantly different current life satisfaction levels. Once the youngest child is between four and six years old, women who at this age have invested relatively little (according to figure 25 they earn 30% of the joint human capital) in their careers are significantly more satisfied with their lives. Once the youngest child enters secondary school at about age 11-12, this relationship shifts. Now women in a dual career arrangement are significantly more satisfied (at a .10-level) with their lives.

Figure 27: Satisfaction level by relative human capital investment trajectory - contrast

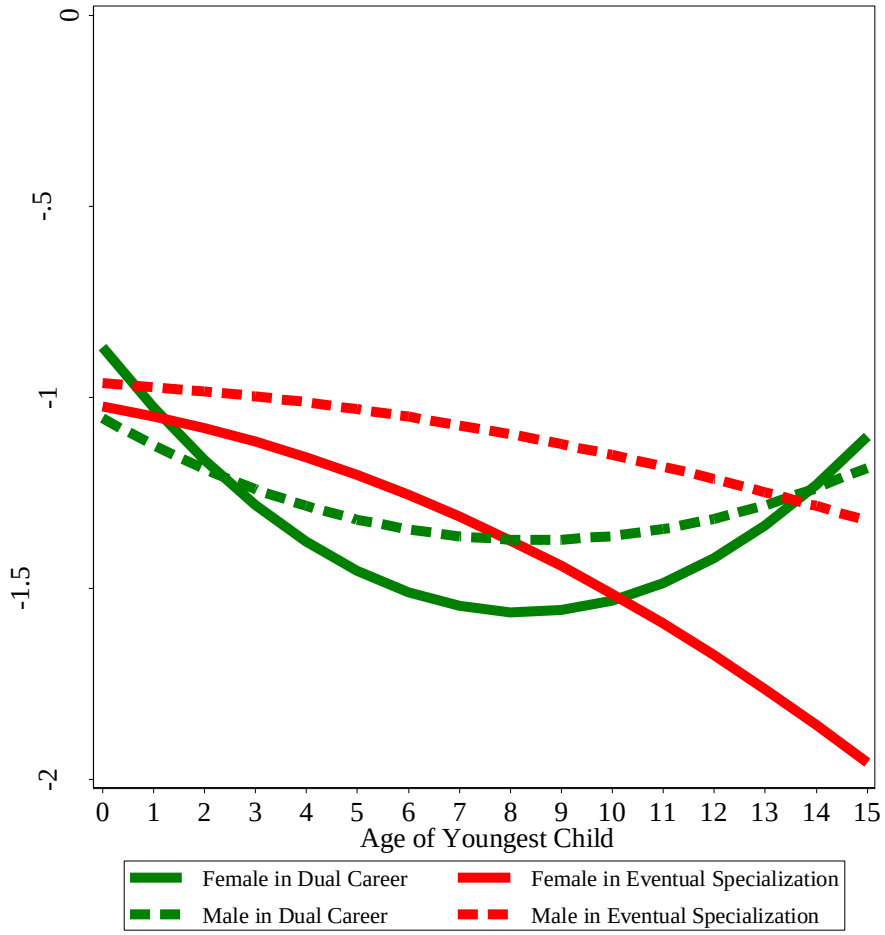


Dual Career (Baseline) vs. Eventual Specialization Couples

Source: SOEP v 28, All couples in which both partners have a human capital observation at least once in the four years prior to birth of the youngest child whilst no child is in the household and once at age 10-15. N=432 individuals.

Note: Groups based on group-based trajectory model in figure 25. Contrast in predictive margins. Linear predictions of the fixed part, which are based on a multilevel model which also controls for cohort, age, age squared, marriage during observation window, years since marriage (if marriage occurred during observation window), years since marriage squared and own and partner's satisfaction with health status (low, medium, high).

Figure 28: Change in current life satisfaction – no income control



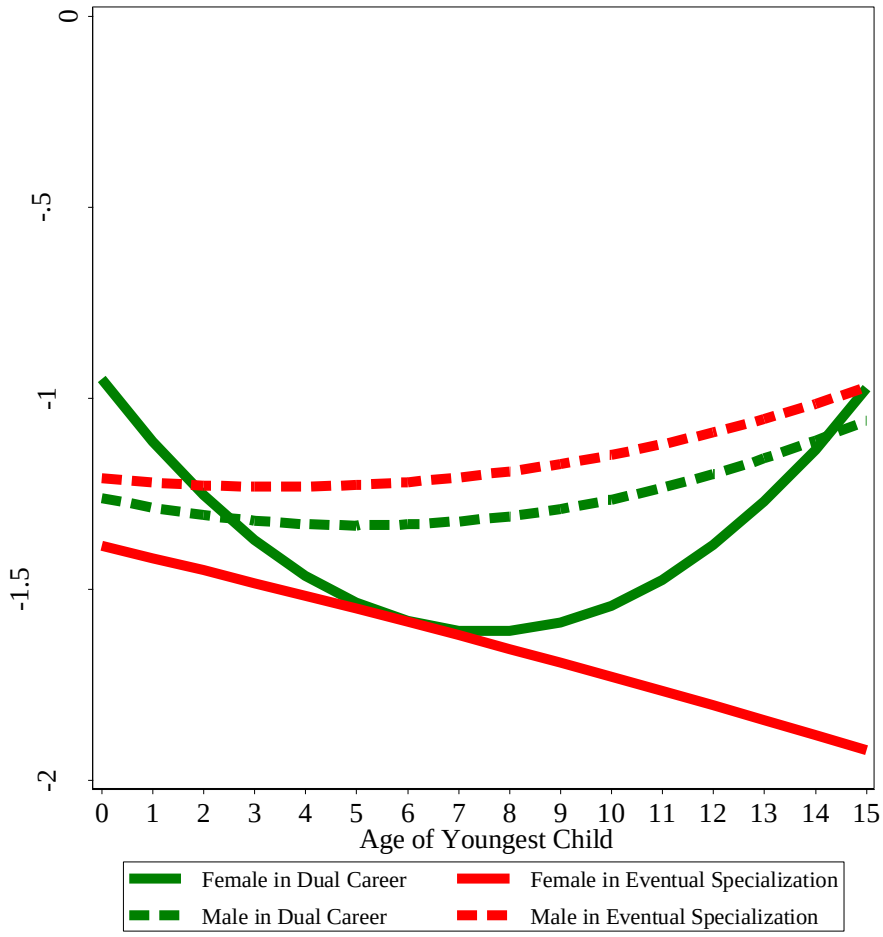
Dual Career vs. Eventual Specialization Couples

Source: SOEP v 28, All couples in which both partners have a human capital observation at least once in the four years prior to birth of the youngest child whilst no child is in the household and once at ages 10-15. N=432 individuals.

Note: Groups based on group-based trajectory model in figure 25. Linear predictions of the fixed part of a multilevel model which also controls for cohort, age, age squared, marriage during observation window, years since marriage (if marriage occurred during observation window), years since marriage squared and own and partner's satisfaction with health status (low, medium, high).

To understand whether change in satisfaction takes on a similar shape, the maximum pre-birth satisfaction measure is subsequently subtracted from the current level of satisfaction.

Figure 29: Change in current life satisfaction – with income control



Dual Career vs. Eventual Specialization Couples

Source: SOEP v28, All couples in which both partners have a human capital observation at least once in the four years prior to birth of the youngest child whilst no child is in the household and once at ages 10-15. N=432 individuals.

Note: Groups based on group-based trajectory model in figure 25. Linear predictions of the fixed part of a multilevel model which also controls for cohort, age, age squared, marriage during observation window, years since marriage (if marriage occurred during observation window) and years since marriage squared and own and partner's satisfaction with health status (low, medium, high) + current net household income (centred at overall sample mean).

To what extent can this relationship be explained by joint income levels?

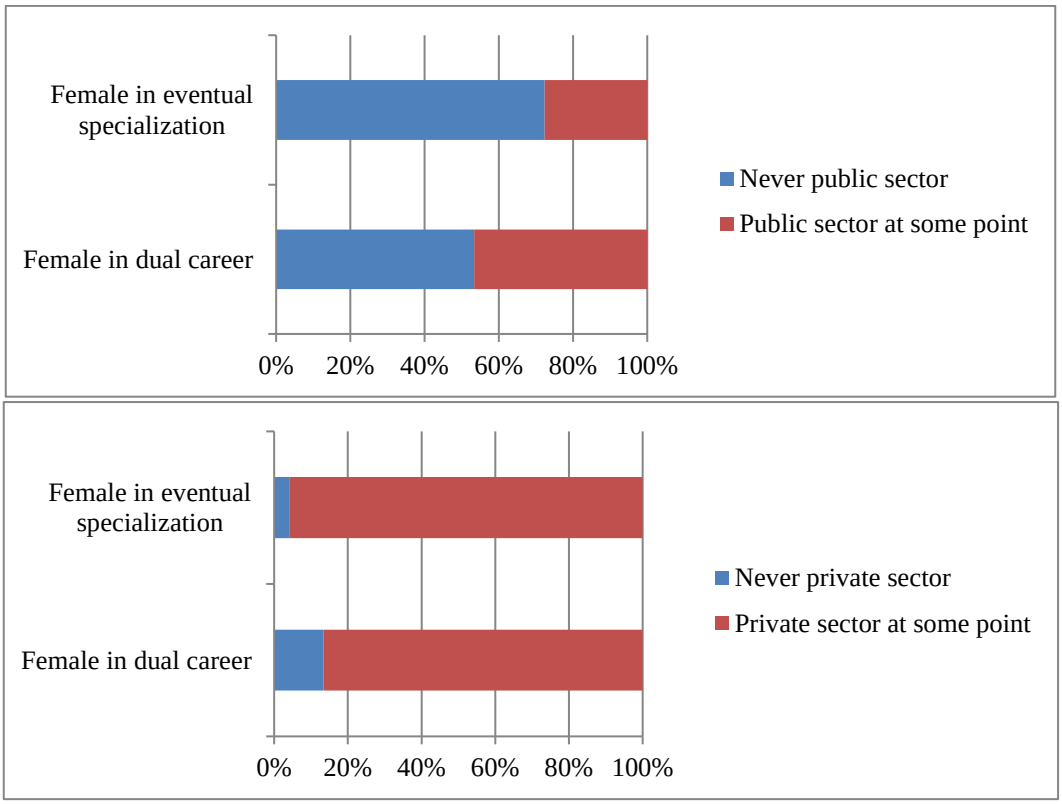
Interestingly, women stay on the dissatisfaction track if men's human capital investment takes precedence over time. Again, between the ages of 13 to 15 women in a dual career are significantly more satisfied with their lives than women in an eventual specialization pattern. For men, the relationship shifts. They seem to have been only ever more dissatisfied with being the main breadwinner because of its relationship to joint

household income. Further analysis is warranted to see if couples' net household incomes increased over time, which may have resulted in men's decreased satisfaction. However, as discussed, the curves for men in a dual career couple and men in an eventual specialization pattern are not significantly different.

5.6.3 Who are they?

Within the data, 20.4% of women appear to end up in an optimal arrangement. An immediate question which comes to the reader's mind is whether the dual career and the eventual specialization couples are different. Are the women in these couples working in the private sector? Which positions do they occupy in the labour market?

Figure 30: Private versus public sector for dual career versus eventual specialization women



Source: SOEP v 28, All women couples in which both partners have a human capital observation at least once in the four years prior to birth of the youngest child whilst no child is in the household and once at ages 10-15. N=92 individuals.

Figure 30 shows how the women in the two human capital investment strategies are distributed across the private and the public sectors. Of those who eventually

specialize, fewer women have ever worked in the public sector. This suggests that the public sector is more likely to enable a dual career.

5.7 Limitations

While the chapter is not able to make inferences about the distribution of relative human capital investment patterns in the population, as this would require further tests, it can test for the relationship between relative (his share in) human capital and satisfaction over time. The analysis represents a first step towards arriving at the relationship between satisfaction and couples' relative human capital investment. It may be of interest to see how the relationship differs between income groups – e.g. Are high income groups more satisfied in an equal human capital investment arrangement when the child is in its teens? To tease out the time investment versus associated rewards relationship, a closer look at working hours is warranted.

Some elements of cognitive dissonance may still be at work. Both the dual career and the specialized couples may indicate a higher level of satisfaction than they actually feel. However, because in the questionnaire current life satisfaction is measured at the very end and not immediately preceded by questions regarding being a mother or father or work-life stress, it is likely that this limitation is not as pronounced. Furthermore, one would assume that cognitive dissonance is highest among couples who have changed from an equal to a non-equal division. This in turn would imply that the results would be more pronounced if cognitive dissonance is not at work. The relative relationship is not likely to be different.

The results are based on small sub-sample sizes. Future analysis on shorter observation windows may provide more precise estimates. However, men's and women's

satisfaction follow a similar pattern, suggesting that despite imprecision around the estimates the strength and the direction of the effect is captured.

5.8 Discussion & conclusion

Are dual career couples more satisfied than couples that eventually specialize? The chapter analyses the question by examining the relationship between the different relative (his share in joint) human capital investment strategies and each partner's satisfaction over time. This kind of over-time analysis, which groups couples according to their relative human capital investment trajectory over time, is unprecedented. It provides a far clearer picture than cross-sectional or transitional approaches - e.g. (Schober and Scott, 2012, Kalmijn and Monden, 2012). Grouping couples according to their curve shape allows in essence for the combining of two people's ***changes in human capital*** in relation to one another, alongside ***each partner's satisfaction change***. This in turn is a clearer picture of within-couple processes than approaches summarizing several time points in a single number (such as Stutzer and Frey). A further advantage of this method is that by relating a couple-curve (his share in joint human capital) to two dependent variables (his and her satisfaction over time), processes of adaptation/cognitive dissonance can be better captured. These processes are impossible to disentangle in the other approaches.

Results show that couples are not necessarily happier if they pursue the cooperative star player strategy or eventually pursue relative specialization (as proposed by Becker's division of labour theory and stress-related theories). Neither are they necessarily happier in an equal division of labour (proposed by the cooperative egalitarian theories). Instead, hypothesis three seems to hold: *Specialized couples are more satisfied earlier in life but less satisfied later in the child's life.* Interestingly, partners within couples who eventually specialize seem to become ever less satisfied with this

arrangement. Women in a specialized couple are ever less satisfied with their lives in comparison to mothers in a dual career arrangement, particularly when the youngest child is a teenager. An explanation may be that women who have mainly invested in family responsibilities – at least in comparison to their partners – may feel a void once this sense of purpose (being a mother) disappears. Hence cognitive dissonance may increase. Over time, these women may feel so dissatisfied with their lives that cognitive dissonance may no longer be tenable for them. Consequently, they may voice their dissatisfaction more and more to reduce the dissonance. At least from a standpoint of satisfaction, women may not be maximizing their output in an eventual specialization arrangement. Similarly, it is questionable whether income really is maximized via specialization. Ultimately, men are dissatisfied over time. This relationship shifts when net household income is controlled, however. One can conclude from this that men are not necessarily less satisfied with a relatively specialized arrangement. Rather, they are less satisfied with it if the household income is affected. This initial dissatisfaction may stem from the financial pressures associated with being the main earner which may be borne disproportionally by men.

In contrast, dual career couples' current life satisfaction picks up again when the child is around eight years old and for women is significantly higher when the child is in its teens. The increase in life satisfaction at this point may have to do with a decrease in work-life conflict, as the youngest child who seeks independence during the teenage years will require less maternal attention at this point. Moreover, the acceptance for maternal employment may be higher at this age and therefore the likelihood of a guilty conscience for not caring for one's own child may be lower.

All in all, results suggest that a move away from policies which support a relative specialization (e.g. Ehegattensplitting, or joint taxation with income splitting) towards policies supporting a fair division of labour within the household and consequently a

more equal human capital investment are likely to not only balance Germany's social security books but, more importantly, to make couples happier. These recent policies include the Partnerschaftsbonus (partner bonus), which financially encourages both to ork part time soon after childbirth rather than him working full time and her re-entering the labour market later, as well as paid paternal leave as a "take it or lose it" option (i.e. 12 months of parental leave plus another 2 months, provided the other partner makes use of it). It might even be that, with increasing investments in childcare availability (provided quality is raised to a satisfactory standard) for the very young, women in dual career couples may eventually experience less work-life pressure and less social pressure to take care of the youngest child during this time. Women in dual earner couples may as a result not only be happier later in life, when the children are growing more and more independent, but also early in life. Similarly, men may feel less pressured to be the main provider and hence may become more satisfied.

Chapter 6: Discussion and conclusion

6.1 Introduction

This chapter highlights the thesis' contributions to the field. It first outlines the theoretical and methodological research contributions (section 6.2). The possible implications of the findings for empirical research, couples, companies and policies are laid out in section 6.3. Fruitful avenues for future research are described in section 6.4. The thesis ends with the conclusion in section 6.5.

6.2 Research contribution

The present study makes several noteworthy substantial contributions to social science theory and methods which in turn enabled a number of substantial contributions to the field.

6.2.1 Theoretical contributions

The thesis makes several noteworthy theoretical contributions to the work-family literature. First, I develop a series of within-couple decision making process categories, which allow researchers to integrate sociologists' and economists' theories on the division of labour into one overarching framework.

Second, the longitudinal focus of the thesis implied that I had to develop a theoretical framework which allows us to understand why short-term and long-term divisions of labour may differ.

Third, based on the theoretical understanding that couples' long-term decision making processes may vary considerably, I develop a longitudinal categorization of couples' divisions of labour.

Fourth, I derive a theory which allows us to understand why employers may not only negatively affect partners' careers, but how they may also have a positive effect on the careers of not only their employees but also their respective partners and as such society at large.

Fifth, the thesis links longitudinal happiness, longitudinal division of labour literature and the parental life course more explicitly than past analyses by differentiating satisfaction hypotheses by age of the youngest child.

Sixth, the thesis proposes a way to deal theoretically and more sensibly with periods of non-employment when modelling careers.

6.2.1.1 A new framework for theories on the division of labour

The new theoretical framework, which aims to integrate sociological and economic thought, consists of three couple-level decision making processes. First, I extend the economists' simple dichotomy of individual-level utility maximization versus maximization of a joint couple-level utility function by adding a third category: in addition to playing against each other or pursuing a "star player" strategy, couples may also or alternatively act as team players. Furthermore, within the analysis, men are allowed to be team players rather than assumed to be obstacles to women's careers. They are not necessarily the macho male breadwinners past analyses made them out to be. Rather, at least a portion are willing to make sacrifices by reducing their working hours and/or taking-up work hour flexibility, which I infer is intended to support their partner's careers.

I further explain how sociologists' theories fall into each of these categories and what they can add to the economists' utility maximization theories. Ultimately, the complex sociological theories add important new variables such as fairness, norms and risks into the within-couple decision-making process equation. I believe that these variables have a great role to play in our understanding of couple-level outcomes.

6.2.1.2 The importance of distinguishing between short-term and long-term developments

Ray Pahl already pointed out that divisions of labour were changing across the life course (Pahl, 1984: 276). I explain why couples may attach different weights to work and family across different life course stages.

Examining the ways in which couples' working lives are linked across the age of the youngest child forces the researcher to think about how the importance of the various work-life decision components (e.g. childcare needs versus monetary concerns) shifts across different life course stages.

The thesis links both the husband's and wife's lives with their children's ages as a life course indicator over time. Linking lives in this way allows us to better understand the complex within-household work-life dynamics.

6.2.1.3 Developing longitudinal couple categories

The first empirical chapter explicitly contributes to the division of labour literature in two ways. It develops categories for the different types of long- rather than short-term joint work hour patterns or strategies that couples pursue. This includes the "he career, she *eventually* career"; the "he career, she tries working full-time" and "taking turns" couples. The chapter thereby validates the long-term couple-types identified in the qualitative literature (see Becker and Moen, 1999 in particular), and it adds new couple-types which have been previously missed in the literature (e.g. "he pursues a career, she tries working full-time").

6.2.1.4 Linking employer and household characteristics

The thesis explains why employers as well as families and the state may play a vital role in enhancing dual earnership. Past analyses have focussed on negative employer effects, such as number of working hours (Cha, 2010). The theoretical portion lays out how employer policies may have positive cross-partner effects and how this in turn may contribute to society at large.

6.2.1.5 Linking the happiness to the division of labour literature

Another theoretical contribution lies in linking both the longitudinal division of labour and the longitudinal happiness literature. There is an interesting overlap in these vast literatures which has not been fully exploited: the division of labour research analyses the division of working hours and wages over time, but the ways in which this

relates to an individual's or a couples' joint utility is assumed rather than directly tested. In contrast, the happiness literature tests directly how *either* working hours *or* wages/income relate to happiness. The quantitative happiness literature lacks a solid analysis of how this in turn is related to couples' divisions of labour across different life course stages (e.g. early versus late parenthood). Past analyses on West Germany in particular relied on questionable measurements and did not link the life course of the youngest child to couples' decisions, which is likely to be important in that regard. The sixth chapter provides a life course test of the interrelationship between couples' division of labour and their life course satisfaction.

6.2.1.6 Theoretical considerations in dealing with periods of non-employment

Non-employment may be associated with very different opportunity costs for men and women, depending on their prior life course investments. The loss in human capital may also follow a different trajectory depending on the initial investment. Family researchers therefore must consider carefully the ways in which non-employment may affect different types of women rather than equating non-employment with zero wages. Specifically, they should consider the opportunity costs in terms of *potential* wages that *might be* achieved. Instead of assuming that the potential wage equates the last observed wage, they need to take into consideration the employer's wish for up-to-date, readily accessible human capital. By explicitly modelling the wage potential based on Gershuny's Essex score, the chapter demonstrates how one can overcome these issues in a West German context (Gershuny, 2002).

6.2.1.7 Contributions beyond family research

Both the second and the third chapter's contributions go beyond family research. The empirical findings of the chapter on work hour flexibility provide a new understanding of the role employers' policies can play in enhancing not only their own employees' progress but also the employees' partner's wage progress. These

considerations will be of interest to both human resource management studies and also to studies of labour markets.

The third chapter further contributes to the vast happiness literature. It extends past findings in the area by analysing the relationship between potential wage (human capital) changes and changes in current life satisfaction, in addition to the more conventional relationship between wage changes and satisfaction.

6.2.2 Methodological contributions

The main methodological contribution lies in the thesis' explicit move forward from simple first order transitional approaches such as the simpler event history analysis models, or more generally, from two time-point comparisons for the analysis. Instead, trajectories and the variants thereof are used as a way to depict couples' careers. Similarly, wherever possible, I explicitly focus on the couple and cross-partner influences rather than on men and women individually.

Whilst many longitudinal advances have been made within the context of event history and sequence analysis mainly within the biological and medical sciences and in demography, these methods would have gotten too complex for an analysis of couples' joint career trajectories (e.g. one would have had to combine multi-state and joint frailty models to arrive at a similar model intuition). Instead, longitudinal approaches from various disciplines which explicitly focus on modelling trajectories with continuous variables (criminology, economics, education research, psychology, etc.) were studied and employed.

Each chapter uses a unique combination of the various disciplines' models in an attempt to break disciplinary silos. For instance, chapter three employs sociological multivariate multilevel models (commonly used in research on schools) and group-based trajectory analysis (which is in the process of entering the field of family research but has already been applied in crime and violence studies).

The second empirical chapter in essence lays out how to deal with bias whilst at the same time thinking about how peculiar the treated may be. In 1994, Allison introduced fixed effects methods (normally used in econometrics) into the sociological literature. He argued that because

"the fixed-effects approach is such an effective method for controlling for individual differences, it should be the natural first choice among competitors" (Allison, 1994: 191).

Within the framework of event history analysis a similar within-estimation technique can be achieved (Giesselmann and Windzio, 2014: 99-101). Because I have the advantage of being able work with a continuous dependent variable, I model trajectories not as numerous transitions between states but as a move along a continuous variable. Moreover, this paper seeks to model the effects of events rather than the causes of events (Allison, 1994).

By using fixed effects models, family researchers in sociology have moved closer to economists' concerns about unobserved heterogeneity (details laid out in chapter four). Ever since, this approach has been broadly applied in the work-family literature (Allison, 1994). Within the econometric literature, random effects models are often dismissed (after a Hausman test) as they introduce bias into the estimates. However, by subtracting the individual-level mean from the current observation, the fixed effects analysis in essence only focusses on within-individual changes. As change is a prerequisite for entering the model's calculations, individuals who experience no change on the key independent variable are in essence dropped from the analysis. Therefore, the results are only generalizable to the people "treated" with a change on the independent variable. Indeed, because of their focus on the treated, little can be said about how peculiar this treated group is and how likely it is that the effects observed for this particular subgroup also apply to other populations. In contrast, random effects models allow for a

comparison between those who experience a change on the independent variable and those who do not (in chapter four those who eventually enter work hour flexibility and those who do not). This may provide additional insights into a fixed effects analysis, as it allows one to see how heterogeneous the two groups are – both at one point in time and across time. Cancelling out these effects disallows one from observing these differences. Similarly, fixed effects analysis is no perfect solution to selection mechanisms. Selection based on time-varying variables is after all not controlled (Ludwig and Brüderl, 2011: 4). Chapter four therefore runs both models for those eventually entering flexible working hours to gain insights on both the effect and the difference between treated and untreated.

The third empirical chapter demonstrates how one can model the relationship between two dependent and two independent longitudinal (curve) outcomes simultaneously. It further adds to economic and career research by demonstrating how calculating the Essex score for West Germany is a more sensible way to model human capital during periods of non-employment (Kan and Gershuny, 2006, Gershuny, 2002). By analysing changes in satisfaction over time, the thesis can partially demonstrate how cognitive consonance or reduction in cognitive dissonance is achieved over time: Women voice ever lower levels of satisfaction. Alternatively, it may show how dissatisfaction with specializing in one partner's human capital increases, depending on the relative importance of work- and family.

The methods laid out in this thesis may not only be of benefit to family researchers but also to other researchers interested in the development and interrelationship of two variables over time. These include, for instance, patient-carer, employer-employee, student-teacher relationships or any other form of dyadic relationship.

6.2.3 Substantial Contributions

The substantial contributions were enabled by creatively extending current theories and methods.

First, I could demonstrate that most couples in the conservative 1956-65 female birth cohorts were in fact not pursuing a permanent specialization strategy. I thereby showed how cross-sectional or short-term analyses of couples' divisions of labour may be misleading. Similarly, I could demonstrate the importance of thinking about couples not as one homogeneous, average mass but as belonging to very distinct work hour pattern groups. I could further demonstrate how these long-term work hour patterns may relate to family policies at the time.

Second, by modelling individual's trajectories across the life course I could also explicitly demonstrate how within-individual shifts in working hours may relate to norms on parenthood and to levels of institutional support.

Third, I could show how, for women, the take-up of several family-friendly policies can lead to a negative effect on their career if combined with part-time work for instance. However, the thesis also demonstrated that work hour flexibility can have a positive effect not only on the individual taking up the measure but also on their partner. Here it is women and mothers in particular who profit.

Fourth, I demonstrated that parents' levels of satisfaction developed differently for different couple-types (i.e. egalitarian team player versus star player couples) across the age of the youngest child, and that this satisfaction was likely to be again related to norms in relation to parenthood and to institutional support. This in turn underlined the importance of theoretically distinguishing between different types of couples, as they seem to share very distinct experiences across the life course.

6.3 Implications

6.3.1 Implications for empirical research

This thesis has demonstrated that before adopting a commonly used approach, it may be worthwhile to stop and think about how the choice of methods and data may hinder the discovery of the answer. In other words, some analytical tools restrict the researcher in what they can observe. Past analyses on the division of labour, for example, have oftentimes been replications of former event history analysis approaches. By examining the first transition into the labour market after childbirth, researchers were in essence looking for answers to key questions raised in their analyses (i.e., What do couples' careers look like?) wherever there was a lamppost of easily accessible data or easily replicable methods, even if they knew that the answers were lying far from these lampposts, somewhere in the dark (i.e., key career decisions being made at life course stages later than those they were looking at). The chapter regarding within-couple specializations, especially, has major implications for the field. It demonstrates how one can draw a rich picture of or shed light on formerly hidden aspects of couples' careers by moving away from approaches such as event history analysis, towards the examination of both the couple and the longitudinal dimension, with the use of continuous measures. Similarly, chapter four demonstrates the importance of not only analysing effects. It may be a valuable exercise to also understand who is affected and whether this is a particular subgroup. Chapter five demonstrates how operationalizing periods of non-employment as human capital may enable a comparison of both partners' human capital investment even if one partner is non-employed. This may be more sensible than choosing the easier option of carrying the last observation forward, for instance – at least as far as the division of labour is concerned. As in the third chapter, chapter five further demonstrates the insights that can be gained by depicting satisfaction and human capital changes as curves rather than transitions or a summary number.

More generally, the thesis addresses how sociologists can make complex life course findings accessible to a wider audience. Rather than working with complex tables, the thesis employs recent advances in graphical analysis to visually present complex findings adhering wherever possible to the principles of graphical excellence.

"Excellence in statistical graphics consist of complex ideas communicated with clarity, precision, and efficiency" (Tufte and Graves-Morris, 1983: 13).

The commands used include (among other modes of analysis) the margins command and its various extensions in STATA and user-written programs such as trajplot (for the group-based trajectory models) and coefplot (for the multinomial findings) (Nagin, 2005, Jann, 2013, Jann, 2014). By making the complex look simple without distorting reality, complex life course findings can be made accessible to a wider audience.

6.3.2 Implications for couples

The research impacts couples in several ways. First, it re-frames the debate from a "women's problems" perspective to a search for solutions for couples. Secondly, it demonstrates that, even under less favourable conditions than are currently prevalent in Germany, more couples have tried to pursue a dual career than might be apparent in cross-sectional and transitional studies. Third, it may encourage couples to use work hour flexibility measures – at least if they are not combined with part-time work – to overcome work-life incompatibility issues. Fourth, by questioning whether dual career success makes couples happier, it brings a non-economic dimension into couple-level decision making processes. The findings on women's satisfaction may in turn encourage women to take a long-term satisfaction perspective when deciding on whether or not to tackle work-life stress when the child is very young by continuing to invest in their human capital.

This thesis deliberately re-positions the debate not as a woman's problem but as a couple-level struggle requiring couple-level analyses and solutions. Past analyses have implicitly put men and women on opposing teams by analysing the "motherhood wage penalty" and the "fatherhood wage premium" for example. Such a gendered approach makes it hard to include men in the debate. Indeed, if you play on impersonally defined opposing gender teams, you are not likely to listen to the other gender. By re-framing the questions as "What makes dual career couples successful?" men are encouraged to enter the discussion. This question turns a matter of men versus women into a personalized, within-couple debate. The question further asks men to find a solution for their families rather than directly accusing men of being the stumbling blocks to women's careers. For instance, men might be against a quota on executive boards for women but may not necessarily oppose their wife's career advancement as a board member.

Cross-sectional and transitional analyses on individuals prevent couples from finding out which long-term strategies couples pursue. The first chapter provides a picture of which couple-level strategies were pursued at a time when institutional and societal support was low. It demonstrates that even at such times, once the children were older, partners indeed tried – and a fairly large share succeeded – in pursuing dual full-time employment.

The second empirical chapter (chapter four) demonstrates that work hour flexibility may still be associated with a stigma for mothers and part-time working women. Yet it also demonstrates that men and full-time working women benefit from making use of work hour flexibility. This may possibly have to do with employers perceiving the request for work hour flexibility in combination with full-time work as a commitment, if reducing work hours would have been the alternative. More importantly, the study demonstrates that one's partner may profit from one's own flexibility. Since

women and mothers in particular experienced a positive cross-partner effect, a possible implication may be that men make use of this measure to support their partner's careers.

Finally, couples may find themselves on a treadmill, doubting whether the dual career pursuit with its associated stress will be what makes them happy. The final chapter tests this. Certainly, when the children are young dual career pursuit may be less satisfactory. Yet, later on in life, when the children are more independent, women who have continued investing as much in their human capital as their partners are more satisfied with life. In contrast, women in specialized arrangements become less satisfied. The initial dual burden might consequently pay off in later life.

6.3.3 Implications for companies

There has been a rising interest in flexible men as evidenced by this year's widely cited study by the working mother research institute, titled "How Men Flex" and sponsored by Ernst and Young (Working Mother Research Institute, 2014). However, its results are purely descriptive and hence conclusions cannot be drawn about whether flexible men are more satisfied because their employer is generally more interested in them or because they work flexibly.

In contrast, the second substantive chapter of this thesis explicitly tests for effects of being able to work flexible hours on the flexible respondent as well as their spouse. It demonstrates that employers can possibly foster both partners' career success. Yet it also demonstrates that those who are in most need of the policies (parents) may not be the ones most likely to have access to it. If companies implicitly enable dual career success by increasing the partner's career output, this has three implications: (1) their work hour flexibility policies not only help their employees but potentially also the partner's career; (2) it may reduce couples' stress levels; (3) the policies may create a positive company image and enable companies to retain and recruit other employees. From the descriptives,

it appeared as though those who needed flexible working hours (e.g. parents) were not necessarily more likely to obtain them. In order to benefit society at large, instead of companies alone, the introduction of these measures – if offered to those who need them – may result in a wider social contribution, enabling more people to work and possibly reducing the stress associated with work. However, this may only be the case if companies do not in turn sanction employees for the adoption of work hour flexibility.

6.3.4 Implications for policy

When moving away from the "Lean In" discussion, in which women are defined as the sole bearers of the problem of work-life balance (Sandberg, 2013), policy makers are enabled to think about solutions for couples rather than solutions for individual women. After all, childcare policies and parental leave are not only important for achieving gender equality between men and women but also for achieving equality within couples. To conclude on the introductory quote from President Obama's speech at the Working Families Summit in June 2014, "Anything that makes life harder for women makes life harder for families". Obama's assertion is a more realistic reflection of couples' actual needs.

Without empirical evidence, policy makers have already acknowledged that increasing workplace flexibility is a "basic need" (e.g. Obama, 2014). The chapter on work hour flexibility for the first time provides empirical support for the assumption underlying this policy – that work hour flexibility helps support couples' careers.

6.3.5 Contributions to the public debate

The thesis contributes to the debate by re-framing what has been defined as a women's employment problem as a couple-level struggle. Men are thereby explicitly invited to join the search for solutions, and employers may therefore be held more accountable for the policies they offer. The thesis will further provide a benchmark against which shifts in employer- and state-level policies may be evaluated in the future

(e.g. Will dual career couples be even happier than male breadwinner couples in the future, or once childcare availability and quality has been raised?).

6.4 Avenues for future research

Is West Germany a unique case, or can similar patterns in joint work hour trajectories be observed in other countries? Is the relationship between couples' career investment and each partner's satisfaction mediated by cultural norms and levels of institutional support? Will couples in other countries also benefit from their employer's work hour flexibility measures, or is such a benefit only prevalent at times/in areas of low state-level support? Would couples be happier in a dual career if they were living in a more supportive environment (e.g. Scandinavia)? With its focus on West Germany, the study cannot generalize beyond West German borders. Consequently, a cross-national study involving different cultural attitudes and family policy regimes would be a logical next step to understand whether the patterns emerging from this thesis also apply to other contexts. A comparative approach would allow for speculation about how different coupled career pathways are tied to different tax systems, childcare and parental leave policies.

The role employers play in enhancing couples' career success could be further investigated by analysing work place policies other than work hour flexibility. Other policies which may be examined include working from home, or telecommuting. This latter measure provides an interesting comparison with work hour flexibility, as it is likely to have similarly positive cross-partner wage effects (with the telecommuter being able to take care of domestic tasks during working hours – e.g. washing clothes and turning on the dishwasher). In contrast to work hour flexibility, this measure may send a signal of lower commitment, as face-time with the employer and hence the perceived

control over the employee may be drastically reduced. The importance of scientists undertaking research in this area is underscored both by recent policy documents mentioning work hour flexibility as a solution to work-life conflict (BMFSFJ, 2010, European Commission, 2013).

Not all links between the three dimensions of couples' career success could be explored on the micro level. Further research might explore couples' wage and career output trajectories. Moreover, the relationship between work hour flexibility and current life satisfaction could be further explored.

This thesis is based on quantitative analysis. Qualitative research can sometimes tap more directly into motivations for behaviour. A mixed methods life course analysis may prove to enhance our understanding of how the life-course outcomes came about, or what motivated the decisions which spurred the life-course outcomes.

6.5 Conclusion

What makes dual career couples successful? The thesis analyses three dimensions of career success: career investment, career rewards and satisfaction. Because parents in particular have been found to hit a ceiling when trying to pursue dual employment, the thesis focusses on parents.

The thesis proposes that two variables enable parents' dual career success in terms of joint work hour investment. First, the findings suggest that, across the life course, institutional support for childcare affects the level of couple-level work hour investment. Second, high levels of education may provide couples both with the incentive to pursue dual employment (e.g., not wanting to waste pre-birth human capital investments, or the wish to financially support their child to enable them to attain high levels of education) as well as the opportunity to pursue dual employment (as high education is associated with

high income, which in turn may enable couples to outsource domestic tasks, allowing for higher work hour investments).

How can couples increase their wages? It seems as though turning to their employers when struggling to meet work and family demands might be in option. Work hour flexibility was found to increase success on this dimension not only for the flexible partner, but particularly for non-flexible mothers.

Even if one redefines success as satisfaction, the findings suggest that the pursuit of a dual career may eventually make women more successful, and possibly men as well. Hence, recent policies encouraging a more equal human capital investment within couples may be a not only balance the national books but also make (West) German parents happier.

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