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Chapter 3: Is there a gender satisfaction gap?

Occupational and private life satisfactions of men and women over the life course in the Cologne High School Panel (CHISP).

Abstract

Several cross-sectional and longitudinal studies show that men are less satisfied with life in general than women, but rarely provide an explanation. This study aims to do so. It starts off with the consideration that general life satisfaction may have a different meaning in occupational and private life, varying according to people's preference of private over occupational life. It describes the development of general, private and occupational life satisfaction of men and women and the private life preferences in the Cologne High School Panel (CHISP) at ages 30, 43, 56, and 66. Of the three satisfactions, only the occupational one shows a remarkable gender difference. In contrast to general satisfaction, it is higher for men than for women. Moreover, the preference of private over occupational life is higher for women than for men such that it is a candidate to explain the lower occupational life satisfaction of women. In regression analyses of occupational life satisfaction gender has no effect, age a positive, private life preference a negative, income no effect, and prestige a positive effect. But the most efficient regression model uses age only. Age seemingly cannot be beaten as a predictor of life satisfaction in the life course.

Is there a gender satisfaction gap?

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1 Study design

Research report and aim of study: Gender satisfaction gap, general or domain specific?

In several studies, women are more satisfied with life in general than men.¹ This might be called a *male general life satisfaction gap*. Most importantly, it is documented in meta-analysis of 281 study samples (Sirgy 2021: 135, 136). Also, it appears in single studies, cross-sectional (Humpert 2013: 217; Lim and Putnam 2010: Supplement; Lee & Kawachi 2019: 10) and longitudinal studies.² As for the latter, it appears in both of its forms: *unbalanced panels*, such as the German Socio-economic Panel (GSOEP), substitute subjects and do not follow up all subjects over the same life span; and *chort studies*, which are indeed balanced in following up the same subjects over the life course and inevitably lose subjects (Allison et al. 2017: 2). As for the first form, a male general life satisfaction gap is reported in Cheung & Lucas (2015: 129-130) and Kratz & Brüderl (2021). As for the second form, they are found in two British and one German study.

In the UK National Child Development Study (NCDS), a follow-up of 8000 children from a cohort born 1958 up to age 50, women's general life satisfaction at age 16, 42, 46, and 50 lies significantly at least 0.1 points on a 11-point-scale above men's – controlling for a host of indicators of social origin, family structure, medical diagnostic, personality, behaviour problems, school achievement, and intelligence from birth to age 16 (Frijters et al. 2014: F701-F704). Thus, a male general life satisfaction gap persists in a cohort from youth to midlife.

In the British Cohort Study (BCS) which followed people born 1970 up to age 34, women were .072 points more satisfied with life than men on an 11-point-scale at age 34, controlling for life success, good conduct and partnership at age 34, health at age 26, and intelligence, good conduct, family background, and health up to age 16 (Layard et al. 2014: F726, F731). Thus, the male general life satisfaction gap exists in a cohort during youth, but was not unfortunately followed up into midlife such that the question remains whether it persists as in the NCDS study or is closed later on during the life course.

In the Cologne High School Panel (CHISP) which examined German high school students born 1953 at age 30 and 43 and surveyed general, private, and occupational life satisfaction on an 11-point-scale, women were more satisfied with private and occupational life at age 43, controlling for the respective satisfactions and at age 30, starting condition at age 16, the respective successes at age 43, coping strategies at age 43, and the respective life domain importance assessments at age 43. However, the differences are small and partly insignificant and must be quasi averaged in order to attain general satisfaction (Meulemann 2001c: 222, 226).

If there is really a male general life satisfaction gap, it contrasts to the female pay gap often researched (Busch 2013) and the social structural disadvantages of women documented for many countries (Batz 2016, Sirgy 2013: 136-137). Why should women feel better if they are

¹ The higher life satisfaction of women is difficult to explain by social mechanisms. Maybe women are raised to have lower aspirations than men and experience more successes. As the BCS suggests, women more often show good conduct than men at age 5 and 10, and 16 which, in turn, is the second strongest predictor of general life satisfaction at age 34 among the variables up to age 16 (Layard et al. 2014: Appendix C1, C2, C6, F726). A meta-analysis of 281 cross-sectional studies of general and of job satisfaction found no gender differences of their means but an effect of national gender inequality (Batz 2016)

² There are some exceptions. Headay et al. found no gender difference in a SOEP (2010: 77. c)

worse off? This question cannot be straightforwardly answered as long as general life satisfaction is regarded and possibly different meanings of “general” for men and women are neglected. Yet all studies cited treat life satisfaction only in general, without regard of specific life domains more amenable to men or women. None of them explains why women are more satisfied with their life in general in spite of their social structural disadvantages. Furthermore, only the NCDS cohort study examines age as predictor of life satisfaction possibly to be accounted for by social mechanisms. Finally, none of the two British cohort studies explains the development of the gender gap.

The aim of this study is to explore a new moderating variable of the male, generally the gender, satisfaction gap: life domain. Men and women can focus on different life domains when responding a question about satisfaction with “life in general” such that the satisfaction gap may hide a meaning gap.³ Men are less satisfied with life “in general” than women, because men more often have occupational life in mind, and women more often private life; in many surveys indeed, men attribute more centrality to occupational life, women to family life (Sharabi 2015: 521-525; 529). “Life” encompasses more promising, yet also more risky aspects of life for men; and more controllable and secure ones for women.

The following cohort study regards general, occupational and private life satisfaction from age 30 to 66 and aims at explaining their developments by private life preference, controlling for age and life success. It treats two questions in two steps.

Two questions and research steps: Descriptive and causal analysis

The first question of the study is whether life satisfactions differ between genders and over the life course. Explicitly stated, it comprises a series of questions which will be answered in the first research step:

- Is there a satisfaction gap not only in general, but also occupational and private life satisfaction in favour of men or of women? And how does it develop over the life course?
- Have men or women a preference gap for occupational over private life? And how does it develop over the life course?

The answers require only *descriptive* analyses of satisfaction of preference distributions by age and gender which are presented in section 2. They tell which of the three potential gender gaps is worth a further analysis of determinants of satisfaction, and whether it is worthwhile to look at preferences of private over occupational life as a new explanation of the gender satisfaction gap beyond the customary explanation through life success (Birkelbach & Meulemann 2023: chapter 2, section 1.3). Accordingly, the satisfaction and preference variables will be selected for the second step.

The second question asks whether and why the gender gap of the chosen satisfaction persists or disappears over the life course:

- Do the gender differences of life satisfaction persist when age is controlled for?
- And do they persist when further predictors of life satisfaction, private life preference and life success, are controlled for additionally?

The answers require *causal* analyses which are presented in section 3. In order to control for the time-invariant effect of age, Generalized Linear Mixed Models (GLMM) must be applied;

³ Indirectly, this meaning difference shows in the effects of civil societies association membership on general life satisfaction. For men, membership in hobby societies and in charity organizations, that is in areas more close to occupational life, produce general life satisfaction; for women, membership in parents’ associations and in citizen initiatives, that is, in areas closer to family life (2013: 131-132).

Structural equation models (SEM) as used in chapter 2 of Birkelbach & Meulemann (2023) are not adequate because they allow to examine gender only for the first time point.

Data and variables

Data base is a cohort study, the CHISP (Birkelbach 2017; Birkelbach & Meulemann 2023). It starts off with a survey of 3240 high school students at age 16 in 1969 which have been re-interviewed at the median age of 30, 43, 56 and 66 in 1984, 1997, 2010 and 2020 with 1989, 1596, 1301 and 1013 continuous respondents respectively. In each of the four panels from age 30 onward general and occupational as well as private life satisfaction has been surveyed.

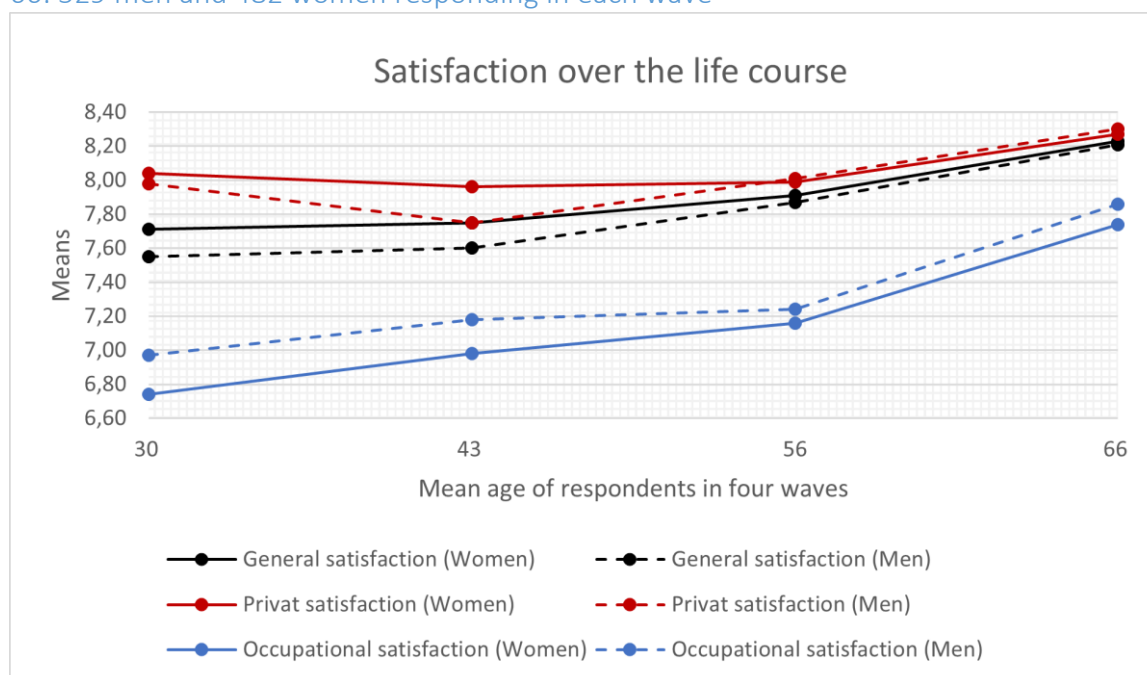
As described in Birkelbach & Meulemann (2023: chapter 1 and 2), *life satisfactions* have been surveyed on a scale from 0 to 10 "very satisfied". It referred in this order to "your life all in all", "your private development and your private life", and "your occupational development and your occupation life". As in all satisfaction scales, subjects use almost exclusively higher values, in this case above 5; the standard deviations of the general life satisfaction range over the four time points from 1.2 to 1.4, those of the private life satisfaction from 1.4 to 1.8, and those of the occupational life satisfaction from 1.6 to 2.3. *Life domain preference* has been constructed from a list of domains asking "how important for you these different domains are" with options from 0 to 7 "very important". Importance of occupational life was represented by a single item "Occupation and Work"; importance of private life by the mean of four items "Marriage partner / life partner", "Own family with kids", "Friends and acquaintances", "Relatives". The preference for private life was computed as private minus occupational importance. Because both sides have been measured on the same scale, the mean of the preference is slightly above 0 with a range from -7 to 7. Just as the low values of life satisfaction the extreme values of private life preference are rarely used; the standard deviation on the 15-point scale ranges the four time points from 1.26 to 1.56.

As also described in Birkelbach & Meulemann (2023: chapter 2), *occupational life success* - occupational prestige and hourly income – was as measured for each of the altogether 44 occupational stations reported by the respondents over all ages. For each time span between waves the respective last available station was used to measure success. Consequently, measures were available when the respondent was employed at least once between waves, and are missing only if he was never employed. The rare cases of being not employed over all stations of a time span between waves was coded as zero for both variables. In brief, employment status is measured as a part of success and controlled for.

2 Descriptive analysis: Satisfaction and preference in gender groups over the life course

The gender difference of general, occupational, and private life satisfaction at age 30, 43, 56, and 66 is presented in figure 2.1.

Figure 3.1. Means of the occupational, private and general life satisfaction at age 30, 43, 56 and 66: 529 men and 482 women responding in each wave



Due to missing values, there are less respondents at some time points, but at least 524 men and 477 women.

As already shown for the total group in Birkelbach & Meulemann (2023: chapter 1, figure 1.1), the rank order of the satisfaction is: private slightly above general, general strongly above occupational; all three increase almost always monotonously – private by 0.3, general by 0.6, and occupational by 0.9 scale points. The rank order holds for both genders. Yet the gender differences and developments differ between the three satisfaction measures.

Regarding general life satisfaction, men score below women at age 30 and 43 by -0.16 and -0.15 scale points, which is, measured by the standard deviations of between 1.2 and 1.4 neither negligible nor substantial. The difference shrinks to almost zero at age 56 and 66. Between ages, the satisfaction of men increases more strongly by 0.66 scale points than the one of women by 0.52; the strongest increase takes place between age 56 and 66. Gender differences are weaker than time developments. They are overridden by developmental forces.

Regarding private life satisfaction, men and women are – if one neglects the tiny difference at age 43 – at each age equal; differences switch from -0.21 to 0.03, and are minimal measured by the yardstick of standard deviations between 1.4 and 1.8. Between ages, the satisfaction of both genders increases equally about 0,3 scale points, and particularly strongly between age 56 and 66. Gender differences disappear behind developments.

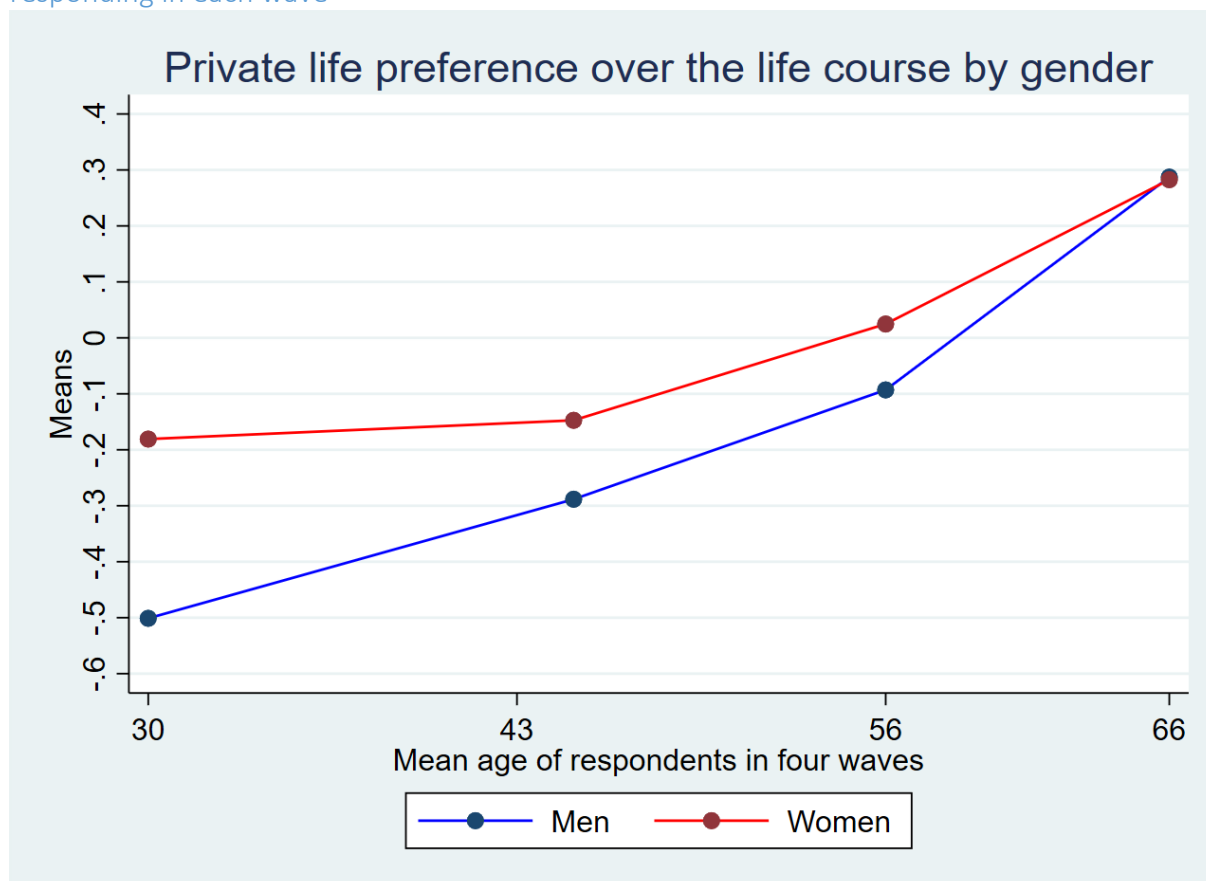
Regarding occupational life satisfaction, men score at each age above women; their advantage dwindles from 0.23 at age 30 to 0.12 at age 66 which is not completely negligible even by the yardstick of comparatively high standard deviations between 1.6 and 2.3. Between ages, the satisfaction increases by 1.00 scale points for men and 0.89 scale points for women. Gender differences are stronger for occupational than for private life satisfaction, but disappear again behind developments.

As already discussed in Birkelbach und Meulemann (2023: chapter 1), the increase of all three satisfactions and particularly their strongest increase in the last phase fits well to the mechanism of adaptation of goals to capabilities of attainment, postulated in gerontology (Baltes 1996; Brandtstädter 2007). But it comes somewhat too early. Apart from private life, it shows already at age 43 and 56 where it may be additionally caused by a tendency to turn the balance of

experiences between success and failure in favour of the first ones in order to keep self-respect over the life course. In any case, both explanations hold equally for both genders.

In sum, gender differences are minimal compared to developments of each domain and sufficiently big to suggest further analyses only for the occupational life satisfaction. Does the disadvantage of women in occupational life satisfaction reflect a reduced interest? The gender difference of private life preference at age 30, 43, 56, and 66 is presented in figure 2.

Figure 3.2. Means of private life preference at age 30, 43, 56, and 66: 529 men and 482 women responding in each wave



Due to missing values, there are less respondents at some time point, but at least 527 men and 479 women

As already shown for the total group in Birkelbach & Meulemann (2023: chapter 1, figure 2), the “family preference”, which was retained as the more pertinent indicator of private life preference, increases strongly and monotonously between age 30 and age 66. This is reproduced for both genders. For men, private life preference increases by 0.79, for women by 0.48 scale points – which is substantive measured by standard deviations of about 1.3. The disadvantage of men dwindles from -0.32 to -0.14 between age 30 and 43 and is negligible later on. Thus, some of the female disadvantage of occupational life satisfaction at age 30 and 43 may indeed reflect a female disinterest in occupational life between age 30 and 43.

The female disinterest in occupation age 30 and 43, in turn, may reflect a reduced female employment during this period due to family obligations. Employment is not controlled for in the descriptive analysis, but in the causal analysis further down. In the causal analysis, the success variables prestige and income are introduced as predictors. They are constructed over all stations between two waves and are missing only if no station has a valid value (see “data and variables” section).

Summing up, the descriptive analysis provides two conclusions for the causal analysis. The gender gap of the occupational life satisfaction only is worth further analysis. And the private life preference is a promising candidate for its explanation beyond life success.

3 Causal analysis: Occupational life satisfaction over the life course by gender, age, preference and life success

Model Choice

Are the developments of the occupational life satisfaction of men and women over age 30, 43, 56, and 66 presented in figure 3.1 statistically significant? To answer the question, regressions of occupational life satisfaction on the effects of the figure, gender and time, are required. As occupational life satisfaction has been surveyed repeatedly from the same subjects, the correlations of the measurements due to unobserved subject qualities must be controlled for by a random factor (Andreß u.a. 2013: 203-247). It can be estimated in two kinds of regressions the choice between which depends on the measurement level of the eleven values of the dependent variable.

If the values are considered to form an interval scale, the general linear model without a transformation – or “link” – of the dependent variable and under the assumption of a normal distribution can be applied. It treats data in the broad format *n subjects in rows * j measurements for k variables times j waves in columns* such that fixed effects over repeated measurements, random effects of persons, and errors within persons are estimated – the latter two by a factor for each subject running from 1 to i and by error terms running from 1 to i*j subject-measurements.

If the values are considered to form only an ordinal scale, the general linear *mixed* model with the logit transformation and the assumption of a multinomial distribution can be applied. It treats the data in the long format of *i subjects with j measurements in rows * k variables in columns* such fixed effects and a random subject factor are estimated – but, as subjects are no longer presented in the same row and the logit transformation has a fixed distribution, no error term for measurements within subjects. The trade-off between both forms is stronger measurement assumptions and within person error estimation against weaker measurement assumptions and no within person error estimation. As this analysis is focused on the estimation of fixed effects the second option has been chosen. Its statistical details will be briefly described.⁴

An ordinal dependent variable is analysed by a series of logistic regressions the number of which depends on the number of its values. For each, the dependent variable is a so-called logit, the logarithm of the quotient of a probability and the counter-probability whose values range from - *infinite* to + *infinite*. As each subject has been measured four times, the target variable has a multinomial distribution. The goodness of such a regression – the equivalent of the explained variance R² corrected for degrees of freedom in a regression of a metric goal variable – is the Aikake-Information-Criterion (AIK), which evaluates the gains of explanation relative to the costs of the number of predictions. As the R² corrected for the degrees of freedom, it does not increase unconditionally with the numbers of predictors but only with the efficiency of predictors. The equation of a single logit of the series is:

$$\text{Log} (p_i/(1-p_i)) = \text{beta0} + \text{beta1}*\text{Gender} + \text{beta2}*age + u_i$$

Note that there is no error term for the j measurements within individuals e_{ij} in the equation. In order to account for the ordinal quality of the dependent variable, logits and corresponding beta0's are computed for successively higher values. For each, p_i is substituted by the p summed

⁴ As programmed in GENLIN MIXED of SPSS.

up to a higher and $(1-p_i)$ summed up to the next lower level. For the first two values, thus, the logit becomes

$$\text{Log} (p_1/p_0), \text{ for the second Log } ((p_2 + p_1)/(p_1 + p_0)).$$

In this manner altogether 10 beta0 intercepts for the eleven values are computed which indicate the threshold for advancing from the lower to the higher value. If the dependent variable is truly ordinal, the intercepts become monotonously bigger.⁵

Gender has been measured with a dichotomy with 1 for men and 0 for women. To simplify, age has been measured by a metric variable with values 30, 43, 56, and 66. The measurement for private life preferences and for occupational life success have been explained in Birkelbach & Meulemann (2023: Chapter 2, section 1.5). For all of them higher represent stronger values.

Regression Results

To answer the questions of the introduction, two predictors, gender and age, suffice to start with. But in order to understand how gender and time differences come about, further predictors of satisfaction already treated in Birkelbach & Meulemann (2023: Chapter 2) must be controlled for – the private life preference and the life success, the personal and the social-structural conditions of occupational life satisfaction, yyy “meaning of life” and inequality. Thus, two models stand for examination: model 1 with gender and time only and model 2 with – additionally – private life preference and occupational life success. In both models, gender is time-invariant, but all further variables are time-variant. The results are presented in table 3.1.

Table 3.1. Occupational Life Satisfaction at age 30, 43, 56, and 66: Fixed Effects of gender, age, private life preference, and occupational life success in mixed models of ordered logistic regressions with subjects as random effects.

Model: number, predictors	N * 4	Male	Age: 30-66	Male*Age	Private life preference	Hourly Income	MPS-Prestige	AIK
1 Male, Age	4029	.072	.011***	.000				106327
1a Age	4029		.011***					106352
2 Age, Preference, Success	3457		.009***		-.086***	.001	.003***	9380
2a Preference, Prestige	3855				-.068**		.004***	104031

*** p<.001, ** p<.01, * p<.05. 10 threshold values for the 11-point scale dependent variable refer to male in model 1, they are completely ordered in each model, and not shown.

Model 1 analyses 4029, that is, almost all of the 1013*4 measurements. It shows, that the age effect is relevant only. The Male effect and the Male*Age interaction are not significant. There is no gender gap – male or female. Looking back at chapter 2, figure 2.1, only the increase of the two gender lines is informative – yet neither their distance nor their form changes. This is further confirmed in model 1a which keeps only age as predictor. The regression coefficient remains the same but the AIK increases. Model 1a is more efficient than model 1 because it uses two predictors less.

Given the results of model 1, model 2 drops Male effect and the Male*Age interaction and introduces private life preference, hourly income and MPS-prestige as new predictors. The number of measurements is weakly reduced by missing values of prestige, and strongly by

⁵ Die Regressionen wurden mit SPSS GENLIMIXED durchgeführt. Wir bedanken uns bei Dr. Baltes-Götz, der uns bei der Anwendung des Programms geholfen hat.

missing values of income. It is *not* reduced by having no employment because at each age the last valid value was used (see “data and variables” section).

Private life preference decreases occupational satisfaction and prestige increases it, but income is irrelevant – as has been shown in Birkelbach & Meulemann (2023: chapter 2, figure 2.3) for each of the three and each of the four ages respectively. However, the AIK does not increase in comparison to model 1a. Private life preference and occupational life success cannot beat age. To optimize the effects beyond age, model 2a is restricted to preference and prestige and does no longer lose subjects because of missing income values. Preference and prestige effects are as in model 2 and significant. But the AIK is still lower than in models 1 and 1a. Even after ex-post optimization, private life preference and occupational life success cannot beat age.

The lesson of the four models together is: Time-variant variables – such as preferences and success – compete significantly and substantively with age as predictors of the development of occupational life satisfaction. But it is hard to beat age as predictor of the development. It is difficult to find an exhausting set of predictors and very probable that some impact of age remains which could not be identified analytically.

4 Summary, limitations and perspectives

Summing up, the male gender general satisfaction gap is not found in the CHISP. Rather, men are about as satisfied as women with general and private life, but *more* with occupational life. In each of the three forms, satisfaction increases almost always monotonously in both gender groups. In each, the gender difference is minimal in comparison to the increase over the life course. However, the increase takes different forms. The general and the private life satisfaction remain more or less constant between age 30 and 56 and increase somewhat at age 66; the occupational life satisfaction increases strongly over the whole life course and strongest between age 56 and 66. Thus, only the occupational life satisfaction is worth further analysis.

Yet there is a male gender gap of private life preference. Men have a weaker preference for private over occupational life at age 30 and 43, but no more at age 56 and 66. Thus, private life preference is a promising predictor of a female gap of occupational life satisfaction beyond life success.

However, if occupational life satisfaction is regressed on gender and age, only age has a significant positive effect and gender as well as gender*age have none. If occupational life satisfaction is regressed on age, private life preference and occupational life success, age retains its positive effect and private life preference and prestige have significantly the expected negative and positive effects, yet hourly income has none. Age is the best predictor and none of the further predictors reduces its predictive power.

As for methodology, the GLMM models used in this analysis are, in contrast to the SEM models used in Birkelbach & Meulemann (2023: Chapter 2), able to examine effects of a time invariant factor, gender, over all waves. As it had no effect, the SEM models are not impaired by having not included gender among the predictors. In particular, they cannot be improved by introducing gender effects for more than one age.

A limitation of this study is its socially selective sample. German High School Students have better occupational opportunities than the general population, and plan and act accordingly already in 1969 and up to 2010. Thus, effects may be stronger in the general population: Women may prefer private over occupational life more strongly, and be more strongly satisfied with private and less strongly with occupational life than men.

Looking beyond this study, age seems difficult to be beaten by concurrent substantive impacts in predicting occupational life satisfaction. And it is difficult to find further competitors beyond

life domain preference and life domain success. Two further candidates, causal attribution of life success and coping strategies with failure have been analysed in the still bigger CHISP-sample up to age 43 – unfortunately with inconsistent results. The internal causal attribution of success should and did increase occupational life satisfaction – but its counterpart, the external attribution, did as well and even more strongly so (Meulemann 2016: 32-34). And the flexible adjustment of goals to capabilities should and did increase occupational life satisfaction (Brandtstädter 2007) – but its counterpart, the tenacious goal pursuit, did equally strongly so (Meulemann 2001c: 226).

Given the sociologist's intention to explain the effects of natural categories, such as age and sex, by social mechanisms this is a disappointing conclusion. Maybe, sociology has to acknowledge the power of natural categories in social life, rather than to aspire to explain it by social mechanisms.

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