



Federal Ministry for
Family Affairs, Senior Citizens,
Women and Youth

Women's biographical patterns and pension income prospects

Executive Summary – Key results and equality
policy conclusions

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I.

Introduction

Although it is true that women and men in a relationship tend to discuss and agree on mutual career decisions, the adverse effects that result from these decisions will – in most cases – be borne by the women alone (Sachverständigenkommission 2011: 202). In this process, one disadvantage tends to lead to another, triggering a downward spiral that frequently ends up in precarious income situations: Women have children, give up their job and, as a result, lose their own income and career prospects. If and when they want to re-join the labour force, they frequently find themselves doing so on a lower level, with poor career development opportunities.

The ‘actual implementation of equal rights for women and men’ and the ‘eliminat[ion] of disadvantages that now exist’ is a mandate from the German Basic Law to the legislator. The main actor in the equality policy field is the Federal Ministry for Family Affairs, Senior Citizens, Women and Youth (Bundesministerium für Familie, Senioren, Frauen und Jugend; BMFSFJ) that co-operates with the other Federal Ministries. These policies aim to achieve equality in all areas of life. Participation in the world of work has a key role to play in this context, since the type and degree of integration into the employment system are major determinants of the primary distribution of the resources of time and money.

To be able to draft appropriate strategies and measures aimed at securing women and men equal opportunities to participate in the employment system, it takes a differentiated analysis of the underlying causes, identifying also existing barriers and negative interactions. The study ‘Women’s biographical patterns and pension income prospects’, commissioned by the BMFSFJ and run by TNS Infratest Social Research, focuses on female (non-) employment trajectories and – based on the data from the study ‘Old Age Pension Provisions in Germany’ (‘Altersvorsorge in Deutschland’; AVID) – identifies the rates and structures of family-related career breaks of (German) women of birth cohorts 1942 to 1961 between the ages of 15 and 65 years. It describes patterns of withdrawal from and re-entry to the labour market typical of women with child-raising and/or care-giving periods and provides a differentiated analysis of the interaction between family-related employment breaks and personal pension entitlements. In this summary the key results of the study (chapter 2) and the conclusions for the field of equality policy are presented (chapter 3), completed by a short description of the AVID data and the statistical procedures used for the analyses (chapter 4).

II.

Key results

2.1 Family-related career breaks have a female face

Family-related non-employment periods (in which gainful employment is completely given up for child-raising or care-giving responsibilities) play a major part in women's employment biographies that, however, vary considerably from region to region: in the West, women (born between 1942 and 1961) take a total of 9.1 years off, while in the East it is only 2.8 years. The bulk of these periods (ca. 90%) is accounted for by child-raising and only a very small number of women have taken filial leave (nursing relatives in need of care), at all (old Laender: 14%; new Laender: 10%).¹ By contrast, men's family-related non-employment periods are virtually nil, at least for the age cohorts analysed here.

The cohort approach reveals a significant change in female biographies: Child-raising and care-giving breaks are decreasing in the old Laender, as are other non-employment periods (such as education/training, housekeeping without raising children, unemployment, ill health), while, in the new Laender, the main increase is in unemployment periods while family-related breaks remain largely constant. As a result, the youngest cohort of women in both parts of Germany born between 1957 to 1961 spend 32 years of the 50-year period under consideration in paid employment, which are only about four economically active years less than for men – in the oldest cohort (women/men born 1942 to 1946), this gap still amounted to more than eight years.²

2.2 Careers are interrupted at different ages

Non-employment periods due to child-raising have greater equality-policy relevance than care-giving periods, not only because of their longer duration, but also due to their early onset which more critically impacts on women's future biographies: While the first child-raising period starts at an average age of 25 years, the majority of women interrupt their career only after age 50 years to act as care-givers for relatives or other persons. Hidden behind the average age at the start of the phase we find, according to region, up to one fifth of women who interrupt their working lives for more or less extended periods even before their 20th birthday, that is midway through their (vocational) training or at the very start of their career. In this context, additional analyses show that women with children –

1 The old Laender comprise all of West Germany, the new Laender comprise all of East Germany.

2 However, the increase in periods worked is, among younger women in the old Laender, largely accounted for by part-time and marginal employment, which are far more common than in the new Laender (cf. TNS Infratest Sozialforschung 2011b, table A-3.08).

on average – never recover the income level they had prior to their first child’s birth.³ Against this background, the focus of the analyses here is on employment breaks for child-care – also with respect to women’s personal pension entitlements.

2.3 Child-raising compromises gainful employment more heavily in the West than in the East

In the old Laender, half the women take less than one year off for their first child-raising break; in the new Laender, it is as many as three quarters of all women. Conversely, while long ‘non-active’ periods of 10 or more years are very rare in the new Laender, they are relatively frequent in the old Laender (21%). As a result, the first child-raising phase of women in the old Laender is, at 4.7 years, almost four times that taken by women in the new Laender, which amounts to as little as 1.2 years – however, a slow convergence is emerging across cohorts. As the number of children rises, so does the overall duration of employment breaks both in the East and in the West, although the respective rates still differ: Women with one child interrupt their career for six years in the old Laender, but only 1.4 years in the new Laender; with three and more children, all career breaks add up to 13.7 years in the West and only 4.6 years in the East.

Apart from region (which mainly reflects different historical employment systems) and the number of children, the level of qualification also influences the duration of family-related employment breaks. The higher the vocational qualification, the shorter the career breaks. In the old Laender, women with the highest professional qualification (university graduates) spend an average of 6.3 years less outside the labour market for family reasons than women without vocational qualification; even in the new Laender, there is a five-year gap.

2.4 Child-related employment breaks are ‘game-changing’ biographical events

While the majority of women worked (full-time) right up to their first child-raising period, the situation afterwards is more heterogeneous: In the new Laender, approx. 90% of women resume full-time work; after two years, approx. 70% still work full-time and only a minor percentage go on to be child-raisers in the long term. In the old Laender, by contrast, the share of working women drops directly after the end of the first child-raising period, from more than three quarters to only half within two years, mainly due to the many women who start a new child-raising phase (either having another child or to go on raising the children born earlier). Obviously, part of these women were unable to successfully negotiate the labour market in the long term following their first child-raising phase, a trend that, by the way, can be observed mainly for less qualified women and, by the same token, job-seeking women. In the old Laender, moreover, the number of women working part-time after their first child-raising phase is increasing and (this also goes for the new Laender) in most cases, neither part-time nor marginal employment can be said to act as a bridge towards later full-time work (and the resulting higher pension entitlements).

³ Calculation based on the credits (‘earnings points’) from statutory pension insurance acquired in social security-covered employments at an average interval of five years.

2.5 Child-raising and types of career breaks

If we group similar biographical patterns of women with child-raising periods into various types by means of sequential data analysis (cf. chapter 4.2), we find some similarities between the old and the new Laender, but, at the same time, remarkable differences (cf. tables 2-1 and 2-2): In the West, the predominating type at more than 40% is that of 'long-term child-raiser' who only returns to the labour market after a very long child-raising period – if at all. Second come the 'part-time (re)entrants' (20%), followed in turn by the 'late (re)entrants' (16%), who end up in various forms of gainful employment after a relatively long child-raising period. The type of 'full-time (re)entrant' accounts for 13% in the old Laender, whereas almost one in ten women (9%) '(re)enter the labour market via marginal employment'. The predominant type in the East is that of full-time (re)entrant (53%) and late (re)entrant (42%), with the latter mainly resuming employment through full-time work after a relatively long child-raising period, whereas, in the West, the majority of late (re)entrants change to part-time work. Finally, the type of 'part-time (re)entrant' can also be found in the new Laender, although it accounts for a mere 5 per cent.

Table 2-1:

(Non-)Employment periods and projected net income at age 65 years for various types of child-raising periods

– German women of birth cohorts 1942 to 1961 with child-raising periods in the old Laender

	full-time (re)entry	part-time (re)entry	late (re)entry	marginal employ. (re)entry	long-term child-raiser	all women
Share of type (in %)	13	20	16	9	42	100
a) (non-)employment periods (in years)						
employment periods	39.6	36.8	29.6	36.9	20.7	29.2
child-raising/ care-giving periods	2.5	5.3	7.8	4.8	17.8	10.6
other	7.9	7.8	12.5	8.3	11.5	10.2
periods overall	50.0	50.0	50.0	50.0	50.0	50.0
b) projected retirement income (in €/month) ¹⁾						
personal net income						
- married women	1,109	867	892	585	427	668
- single women	1,211	1,117	944	842	776	969
personal and spouse's net income (married couples only)	1,275	1,272	1,232	1,141	1,157	1,202

1) Net per capita amount after deduction of the pensioner's contributions to the health and long-term care insurances for pensioners and after assessment on income, if appropriate; the calculations for the entire simulation period are based on the current pension values of 2005; the model does not consider convergence of the values between East and West.

Across cohorts, the rates of long-term child-raisers can be seen to fall clearly – by one third – in the old Laender and those of full-time (re)entrants are decreasing slightly, too; conversely, rates of part-time (re)entrants and (re)entrants via marginal employment are soaring. In the new Laender, by contrast, the share of full-time (re)entrants in the youngest cohort (women born 1957 to 1961) has fallen to about half the rate of previous cohorts – obviously a reaction to German unification and its long-term impact on the labour market in the new Laender, since, on the other hand, the rate of late (re)entrants is doubling.

Table 2-2:

(Non-)Employment periods and projected net income at age 65 years for various types of child-raising periods

– German women of birth cohorts 1942 to 1961 with child-raising periods in the new Laender

	full-time (re)entry	part-time (re)entry	late (re)entry	all women
Share of type (in %)	53	5	42	100
a) (non-)employment periods (in years)				
employment periods	37.5	39.3	28.7	33.9
child-raising/care-giving periods	1.6	3.0	5.1	3.1
other	10.9	7.7	16.2	13.0
periods overall	50.0	50.0	50.0	50.0
b) projected retirement income (in €/month) ¹⁾ personal net income				
- married women	1,018	792	824	923
- single women	949	–	734	851
personal and spouse's net income (married couples only)	1,049	940	970	1,009

1) Net per capita amount after deduction of the pensioner's contributions to the health and long-term care insurances for pensioners and after assessment on income, if appropriate; the calculations for the entire simulation period are based on the current pension values of 2005; the model does not consider convergence of the values between East and West; case numbers: (...): 9 > n > 30; - : n < 10.

Generally, the representatives of the full-time and part-time types as well as, in the old Laender, (re)entrants via marginal employment, hardly differ in terms of the total number of years worked. Their biographies between the ages of 15 and 65 years reveal that they work for nearly all of this period, specifically between 37 and 40 years, while late (re)entrants have a work record of just under 30 years and long-term child-raisers as few as approx. 20 years, so that the latter spend almost equal periods working and raising their children. However, dramatic differences between hours worked are apparent for the first three types (referring to social security-covered employment): While full-time (re)entrants in both parts of Germany have a full-time work record of altogether approx. 35 years, it is only 14 years for part-time (re)entrants in the old Laender and 17 years in the new Laender. Unique to the old Laender, (re)entrants via marginal employment spend a total of about 16 years in full-time work.⁴

⁴ Late (re)entrants complete approx. 20 years of social security-covered full-time work and long-time child-raisers only somewhat more than 10 years (cf. TNS Infratest Sozialforschung 2011b, table D-03.08).

2.6 Employment continuity at near full-time level strengthens women's own pension entitlements

Throughout Germany, full-time (re)entrants achieve the highest projected amounts of personal retirement incomes at age 65 years that, in the old Laender, are sometimes more than half above the rates for all women with child-raising breaks (cf. tables 2-1 and 2-2) and even above those for women without children (cf. TNS Infratest Sozialforschung 2001a, section 5.1). In so far, the foregoing might be considered as a 'biographical success model', at least under aspects of women's personal pension rights that, however, has been implemented to a disproportionate degree by women with only one child and, in the new Laender, also by older women. It must be stressed in this context that correlation with the number of children is only probable but not deterministic in the sense that women with more children do not per se have to pass on career and old age income prospects – although their chances are far worse than those of women with fewer children.

Lagging somewhat behind, but, at least in the old Laender, with retirement incomes of up to one third above the total average, come part-time and late (re)entrants. While in the West (at the time of survey, 2002), single women of this category fared better than married women, the reverse applied in the East – incidentally, this was also true for the previously discussed full-time (re)entrants. This almost 30% difference that is mainly seen in part-time (re)entrants in the old Laender is largely due to a longer working life.

The personal pension incomes of (re)entrants with a long history of marginal employment and, above all, long-term child-raisers in the old Laender are consistently below average. Married long-term child-raisers achieve only about two thirds of the pension income of all women with child-raising breaks and must therefore be considered as a 'problem group' – at least in terms of their own pension entitlements – in which the lack of personal income prospects in working life persists even in old age.

The analyses of 'non-active' periods due to caregiving (here, identification of various phase types was not possible), show that the personal pension rights of women aged 65 years decrease as their care-giving periods increase, although the links here are clearly weaker than for child-raising periods. This is due first to the shorter duration of care-giving periods and, second, to their later timing in the women's biography, both of which prevent a major impact on their future biography in terms of missed employment periods.

2.7 Bridging the retirement income gaps between spouses

If we look at the net pension income of married couples – shown as per capita amounts in tables 2-1 and 2-2 for ease of comparison – differentiation by type of child-raising period gives a completely different picture for married women, since the average entitlement gaps observed so far between different types within the old and the new Laender almost disappear. Especially the situations of the foregoing 'problem type' of long-term child-raiser and the (re)entrants via marginal employment in the old Laender improve when analysis is broadened beyond their personal income. The differences between couples' incomes in both parts of the country result from the clearly lower pension incomes of married men in the new Laender compared to those in the old Laender.

III.

Conclusions

Female work biographies differ from male work biographies: that is widely known. While men have had next to no family-related employment breaks so far, the impacts of such breaks tend to ripple through women's entire biography, mainly in West Germany. The resulting lower personal incomes that haunt them throughout almost their entire working life also continue in old age and reflect women's and men's unequal opportunities for participation in the world of work. However, female careers also differ among themselves – this is being documented in this study – first due to more or less extended family-related career breaks, and second due to differences in the amount of working time. The study reveals how family-related employment breaks can have highly different impacts on the women's future employment trajectory and documents that the real problem is not the intermitten- cies per se, but their consequences for the subsequent biography. However, differentiated analysis reveals changes towards an ever stronger labour force participation of women and suggests that they are enjoying scope and latitude for organising their career that can be extended and shaped through consistent equality policy into a life course perspective.

3.1 'All-time' work provides for favourable income prospects

Since, in Germany, pension income tends to closely correlate with work history, labour market integration is highly important for personal pension income purposes. As was to be expected, evaluation of the employment histories prove that the pension entitlements built by the women studied closely correlate with the duration of their social security-covered full-time or near full-time employment. This is most evident in the category of 'full-time (re)entrant' that fares best by far in terms of (retirement) income prospects. However, this career model is pursued by only about one fifth of the women studied. In view of current scientific studies suggesting that a growing number of women prefer to work near full-time hours, a better mobilisation of these work potentials could significantly contribute to strengthening their own pension income benefits.

3.2 Attitudes shape life courses

With its differentiated findings on the different qualities of the labour force participation of women in East and West Germany, this study points to different system-related background situations when it comes to implementing this 'success model'. The employment trajectories of women in East and West Germany reflect different employment regimes that

evolved in the two German states after World War II until unification. In the GDR, a high female labour force participation was a central social policy aim that was encouraged through a well-developed child-care system. In West Germany, female employment behaviour was at first shaped by the so-called ‘male breadwinner model’, later on increasingly by that of the ‘supplementary earner’. These culturally determined employment patterns persist in the cohorts of women studied and prove a strong orientation towards continued full-time work in the East and a trend towards fragmented part-time work attended by, at the same time, a great popularity of very extended employment breaks in the West.⁵

Over the period under study, however, the type of ‘full-time (re)entrant’ was decreasing mainly in the East where this type has traditionally prevailed – a trend that is most apparent among the youngest cohort. However, this is no departure from full-time orientation, but only a trend towards later re-entry – to full-time work. In the final analysis, the ‘late (re)entrants’ still achieve above-average personal pension benefits – measured against the average of all women with family-related employment breaks – that can tend to ensure them a living income.

The insights into the different work attitudes of women and their relevance for life course decisions that can be derived from the study results can provide important guidance for equality policies. They suggest that improved opportunities to participate in the world of work do not only call for structural prerequisites (such as an adequate child day-care infrastructure). Frequently, it takes more time to eliminate prevailing attitudes and social norms on the division of family chores and traditional role stereotypes than to close actual infrastructure gaps (cf. Wippermann 2010).

3.3 Making part-time work an option for fair opportunities – creating more near-full-time work

Somewhat worse off with regard to their personal retirement income prospects are ‘part-time (re)entrants’ whose amount of working time, in spite of a relatively high labour market participation, remains consistently low for the most part after a family-related interruption. Analyses of the study have yielded hardly any indicator of part-time work acting as a bridge towards later full-time work; on the contrary, what they have shown so far is a relatively high stability of chosen employment paths.

Part-time work enabled the massive increase in female labour participation over the past two decades. If we compare the employment behaviour of younger and older women, we see a trend towards shorter family-related work breaks in the West, in most cases to take up part-time work. Bearing in mind the equality-policy aim of securing women a pension income of their own, this development must be seen as an improvement. However, this study also proves that labour participation ‘as such’ is a necessary, but not sufficient prerequisite for a career with fair participation chances.

⁵ For the motives and framework conditions surrounding re-entry as a supplementary earner and on building personal pension rights cf. Wippermann 2011.

The increase in the category of ‘part-time (re)entrant’ makes it clear that part-time work has a key role to play in women’s labour force participation. However, the scope of the inherent chances for labour market participation and integration varies widely. Until now, part-time jobs have predominated in low-skill service segments of the labour market, whereas sectors requiring high-quality work offer rather few part-time options – except for the civil service – and next to none exist at the executive level. Moreover, part-time work is almost exclusively female, universally linked to the expectation that the woman will manage to complete the other tasks assigned to her (exclusively) in addition to her part-time work with a somewhat reasonable amount of stress.

Whether or not part-time work ultimately contributes to reducing existing social inequalities between women and men in the life course depends on the extent to which it will be possible to create transitions from employment periods with a ‘supplementary earner’ quality into ones with equal income prospects. But for the promotion of high-quality part-time jobs that, at the same time, offer material participation and career opportunities, and are equally attractive to men and women, there is a risk that a gender arrangement will be perpetuated in the West German supplementary earner model that will never enable women to build social security entitlements of their own.

Equality policy measures to promote family-compatible working hours should therefore focus on part-time opportunities for women and men – especially in skilled occupations – that give women and men a genuine freedom of choice regarding the extent of working hours reduction, reliable options to return to near full-time or full-time work and the distribution of working hours across the entire working life and offer continuous social security coverage.

3.4 Building real bridges towards work that earns a living – reducing incentives for mini-jobs

If we look at re-entrants into marginal employment, analysis of employment biographies and biographical patterns shows very clearly how time spent outside the labour market or working less than full-time can affect the possibilities for professional development and personal income prospects. For the group of women returning to marginal employment, this study proves that building a livelihood during and after their working life is impossible on this basis. Problematic in this context are also the long periods of time over which this form of employment is typically pursued. Analyses of the work trajectories of this returner category suggest that it only acts as a bridge towards social security-covered employment in the rarest of cases. As a consequence, the findings from this study confirm the results of the expert opinion from the ‘First Gender Equality Report’ that refers to this type of work as a biographical dead end in the long term (Sachverständigenkommission 2011: 135) and calls for its rigorous control (ibid.: 105).

To boost the chances of participating in the world of work even after family-related interruptions, a reduction of systematic incentives for marginal employment – that combine mobility barriers and economic dependency with a lack of career opportunities and carry high employment biography risks for women – might make sense under equality policy aspects.

3.5 Freedom of choice throughout the life course: Reducing path dependencies – providing for transitional options

The high rate of long-term child-raisers reflects the male breadwinner model – common mainly in West Germany – in which the husband works full-time over extended biographical phases while the wife stays at home. In many cases, this arrangement does not reflect the actual preferences of the women (and men) affected as, inter alia, the expert opinion from the ‘First Gender Equality Report’ found out and, as such, is frequently not indicative of freedom of choice in the life course (Sachverständigenkommission 2011: 27 and 166f.). The relatively high path dependencies in the biographies of long-term child-raisers that are evident in the evaluations of this study show that a relatively small ‘step’ – such as that from a short family-related break to a long absence from the labour market – can irreversibly change women’s life courses. The question is how it can be ensured under these conditions that the consequences resulting from such jointly made decisions between life partners are also shared between these partners. Specifically, women tend to abandon equal income prospects for good after prolonged career breaks, a decision that will effectively continue to affect them even as pensioners.

Above average rates of long-term child-raisers, a group common mainly in the West, re-joins the labour force via marginal employment. As a result, the pension rights resulting from the work histories of long-term child-raisers cannot guarantee them a subsistence income of their own even in old age. The survivor’s pensions as stipulated by pension law do not have the quality of personal entitlements, since they are derived rights, and are only of limited use as compensatory income (cf. Sachverständigenkommission 2011: 182). From the perspective of long-term child-raisers, the claim for sharing the responsibilities for employment possibilities between the partners might be addressed through permanent pension splitting. Under this approach, long-term child-raisers would promptly acquire pension rights of their own, which could help to strengthen their economic independence.

Even if analyses of retirement incomes on the partnership level show that the labour participation of ‘long-term child-raisers’ tends not to be due to any acute material need, their opportunities for participating in the world of work should be strengthened through institutionalised reintegration assistance. The need to encourage the vocational reintegration of women, who have maintenance claims towards their partner or spouse, may not be challenged unless long-term income risks are to be knowingly perpetuated. The popularity of the male breadwinner model has markedly decreased in the youngest cohort under review – while the rates of part-time (re)entrants and ‘re-entrant into marginal employment’ have been increasing (cf. also Wippermann 2011). This development does not only denote successive changes in gender relations and an improved reconciliation of work and family life, but, overall, also new role perceptions and women’s rising demands with respect to self-reliance and income prospects.

3.6 Résumé

Under aspects of the political aim of securing women and men equal opportunities to participate in the world of work and fair income perspectives over the life course, the results from this study on the biography-structuring impacts of family-related career breaks on female employment biographies can be interpreted as a challenge and call to action for a consistent equality policy from the life course perspective in which transitions must be retooled as resources and instruments of biographical self-determination. Equality policy relies on giving visibility to gender-specific inequalities. However, for targeted and effective action to be taken beyond that, it needs a guiding vision in which individual preferences are matched to supportive framework conditions. A modern gender policy vision could, on the one hand, lend normative support to egalitarian family employment patterns⁶ – thereby also accompanying work preferences – and, on the other, by designing regulations and institutions, create incentives and corresponding opportunities for action that mitigate existing path dependencies and encourage a genuine freedom of choice in the life course.

⁶ The pension law provisions on the crediting of income in survivor's pensions act as disincentives here.

IV.

Appendix: Data and methods

4.1 Studies on ‘Old Age Pension Provisions in Germany’ (AVID 1996/2005)

To describe patterns of withdrawal from and re-entry to the labour market typical of women with child-raising and/or care-giving periods and to investigate the interaction between these family-related non-employment periods and personal pension entitlements this study re-analyses data from the studies on ‘Old Age Pension Provisions in Germany’ (‘Altersvorsorge in Deutschland’; AVID). The AVID is a joint project of the German Statutory Pension Insurance and the German Federal Ministry of Labour and Social Affairs; it is carried out by TNS Infratest Sozialforschung. The first study was finished in 1996 (AVID 1996) and the second one – which data was used here – in 2005 (AVID 2005).

The AVID studies combine survey data with process-produced data from individual pension accounts and (partially) simulated biographies to calculate future incomes from various sources for individuals and married couples who (at the time of the survey) are between 40 and 59 years old:

- The first step consists of a mail survey of a representative sample of approx. 14,000 persons (the population of the AVID 2005 includes Germans born in between 1942 and 1961 and their spouses, the latter irrespective of age and nationality). Respondents are asked to give in-depth information on their current work status, their different provisions for old age⁷ and their (work) biographies. For the AVID 1996 a single survey was carried out in 1996, whereas for the AVID 2005 it seemed necessary, in addition to the main survey carried out in 2002 (n=13,716), to include a shorter additional survey in 2004 (n = 10,132) focusing on the newly introduced subsidised occupational (deferred compensation) and private (“Riester”) pensions.
- In a second step – in cooperation with the central data management of the German statutory pension insurance (SPI) – the individual pension accounts of the AVID respondents were clarified by the federal or regional institutions which manage the accounts (12,728 of the 13,716 respondents of the AVID 2005 had an SPI account). The clarification process overall took about 18 months since in some cases gaps in the accounts had to be

7 The survey covers all relevant pension schemes in Germany: the statutory pension insurance, the civil servants’ pension scheme, the farmers’ old-age pension scheme, special schemes for self-employed, the public and private supplementary systems and private provisions for old age – other old age incomes like earned income, transfer payments or income on investments are not taken into account.

'filled'. This usually involves the respondents delivering adequate documents, and it is the same process insured persons go through before the start of their pension payments.

- | Thirdly, after matching both data sets with the respondents' consent and checking them for consistency the individual (work) biographies were projected to the age of 65 – at the time of the surveys the legal retirement age in Germany – using a specially developed dynamic microsimulation model. The simulation is based on social dynamics like the 'social employment situation' (SES; cf. chapter 4.2), working time and income.⁸ In contrast, events concerning the family biographies like child birth, marriage or divorce are not taken into account, neither are factors influencing biographies on the macro level such as unemployment rates, growth rates or the like. The macro factors were considered to have brought too much of a forecasting character to the baseline setting of the study and thus would have prevented the possibility of calculating various scenarios.
- | As a fourth step the gross old age incomes from all relevant pension schemes at the age of 65 are calculated. Finally, the net incomes are generated by taking into account current income tax regulations and a specially designed social insurance contribution model. As a rule the legal regulations of the year in which the survey was carried out are applied, for the AVID 2005 the reference year of 2005 is used.

The results of the AVID 1996 and 2005 are published in many reports, publications and presentations in German (c. f. Frommert et al. 2008, Frommert & Heien 2006b, Heien et al. 2007) but some also in English (Frommert & Heien 2006a, 2008, Kortmann & Schatz 2000, Schatz et al. 2009). Further information on the studies can be found on the AVID website (www.altersvorsorge-in-deutschland.de).

4.2 Methods

To identify biographical patterns of women with child-raising and/or care-giving periods (that can be related to old-age incomes in further analysis) the actual study used sequential data analysis. In a first step this statistical method estimates the similarities between biographies or biographical sequences by means of „optimal-matching“-procedures. In a second step the most similar biographies are pooled case-by-case by means of cluster analysis as far as a reasonable number of biographical 'types' remains with maximal internal homogeneity and maximal external heterogeneity allowing for a meaningful interpretation of types (cf. Everitt 2009).⁹ Sequential data analysis is a 'holistic' and 'explorative' approach taking biographical sequences or even complete biographies into account instead of single transitions between different biographical states and analysing existing data without formulating *ex ante* hypotheses.

⁸ The simulation is based on a corridor using individual data on the years 1992 to 2002. Further details concerning the model can be found in Schatz et al. (2002, 2009).

⁹ The software used for sequential data analysis was the R module TraMineR ('Life Trajectory Miner for R'; cf. Gabadinho et al. 2010 and <http://mephisto.unige.ch/traminer/>).

The AVID data allows the use of sequential data analysis since the biographical episodes can be broken down to a monthly level covering the time from the 15th to the 65th birthday. For each of the 600 months (= 50 x 12 months), SES information is available with – next to child-raising and care-giving – ten situations being differentiated for our analysis: 1) full-time employment, subject to social insurance contributions, 2) part-time employed, subject to social insurance contributions, 3) marginal employment, not subject to social insurance contributions, 4) civil servant, 5) other employment, 6) housekeeping without raising children, 7) education/training, 8) unemployment, 9) other non-employment, and 10) old age-pension.

Since child-raising and care-giving periods of women usually take place at very different points of (biographical) time (cf. chapter 2.2) and to allow for a meaningful interpretation of types sequential data analyses were run separately for both types of non-employment periods. Furthermore, analyses were run separately for old and new Laender due to the considerable differences between Western and Eastern female biographies of the cohorts in focus. Finally and also on behalf of a meaningful interpretation of types, analyses were restricted to the first 20 (child-raising) resp. 5 years (care-giving) from the beginning of the first period to avoid ‘disturbing effects’ of other biographical sequences before (e. g. education) or after the relevant period (e. g. retirement).

While the identification of various types of biographical patterns by means of sequential data analysis was not possible for care-giving due to a very limited number of cases especially in the new Laender (n = 102 women with periods), for child-raising five (old Laender) resp. three (new Laender) different biographical types could be identified (cf. figure 4-1). With ‘full-time (re)entrants’, ‘part-time (re)entrants’ and ‘late (re)entrants’ three of them can be found in both parts of Germany (although the latter type differs considerably between the West and the East), whereas ‘long-term child-raisers’ and ‘(re)entrants to the labour market via marginal employment’ constitute a type of their own only in the old Laender.¹⁰

Finally, biographical patterns were related to (future) pension entitlements by analysing SPI entitlements (as the major source of old-age income in Germany) and net incomes for the different types. To control for the impact of the ‘male breadwinner model’, this was done not only for personal entitlements but also under consideration of spouses’ entitlements.

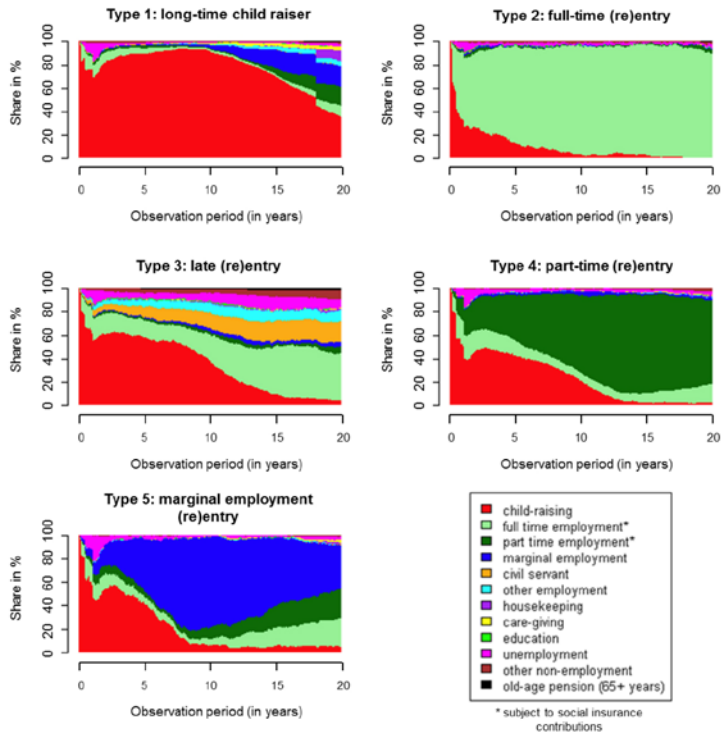
¹⁰ Analysis for child-raising periods was based on approx. 4,000 cases for the old Laender and approx. 1,000 cases for the new Laender (cf. figure 4-1; for the frequency of the various types of periods please refer to chapter 2.5). The plots in figure 4-1 show – for each type – the distribution of the 12 social employment situations (SES) for each of the 240 months considered. Thus, they have to be ‘read’ vertically and not horizontally (since they don’t depict stacked individual biographical sequences).

Figure 4-1:

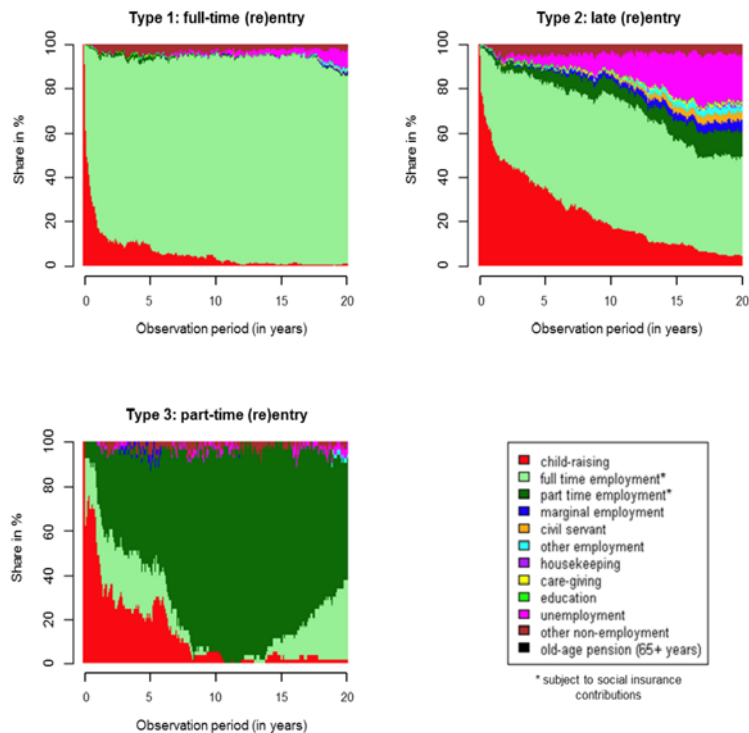
Types of child-raising periods (state distribution plots)

– German women of birth cohorts 1942 to 1961 with child-raising periods in the old and new Laender

a) Old Laender (n=4,067)



b) New Laender (n=1,072)



V.

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Published by:

Federal Ministry for
Family Affairs, Senior Citizens,
Women and Youth – BMFSFJ
11018 Berlin
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