5. *The effect of institutionalized breaks on careers*[58]

5.1 Introduction

The career detour focus of this chapter is an institutionalized career interruption and answers the research question: "How does an institutionalized break from working life affect the careers of individuals?" Making use of the experience on the Belgium labor market with career breaks since the implementation of this system in 1985, this research looks directly at the effect, both short and longer term, of institutionalized career breaks on careers.

Belgium and the Netherlands simultaneously attempted to tackle their high levels of unemployment using seemingly different methods. More than two decades later, the policies implemented by both countries are becoming ever more similar, while still retaining unique elements reflecting cultural differences in labor market policy. International comparisons (Oosterhout, 2003; Stier, Lewin-Epstein and Braun, 2001; Van der Aa, *et al.*, 2001) reveal similarities and differences in international policy systems conceived to promote labor participation while creating facilities to combine work with other life domains (care, training, and leisure). The problem remains that while each study focuses on forms of career breaks intended for individuals, the studies' approaches are, for the most part a macro-perspective. Nowhere is explicitly asked what the effects of institutionalized career breaks are for the individual employee and whether an institutionalized career break has lasting effects that carry on throughout the career. This study applies to exactly this gap in information. Belgium and the Netherlands have both proven to be enterprising enough to pioneer new methods of labor market reform designed to accommodate their own unique labor market demands. Seriously affected by the economic recession of the eighties, both countries suffered high levels of unemployment especially among the most vulnerable groups.[59] The extremely high percentage of youth unemployment was of particular concern. In response to this the Wassenaar Agreement was established in

58 This chapter is based on Román, A., J.J. Schippers and L. Heylen (2006), 'Career breaks in Belgium: how they affect labor participation and individual careers,' Tilburg: OSA, Institute for Labour Studies and Leuven: WAV, The Resource Centre for Labour Market Research.

59 The Netherlands had at its peak 847000 registered unemployed, totaling 16% of the labor force (SCP, 1988 p.377).

1982 and with it, the creation of part-time jobs in the Netherlands.[60] Confronted with an increasing unemployment rate, the unions agreed to wage moderation in exchange for working time reduction, believing that this would facilitate the distribution of labor. While their neighbors were thus engaged, in 1985 the Belgian government implemented a policy of career breaks designed to allow workers to temporarily exit the labor market for a pre-defined period during which they would receive a government subsidy while retaining job security. The odd thing about this development is that while both the Dutch and Belgian policies were designed to redistribute labor and combat the high youth unemployment, the two methods have seemingly evolved to become independent forces in these labor markets and in both markets it is women who have used these instruments overwhelmingly (but not exclusively).

The elaborate legislation guaranteeing equal rights for part-timers and legal rights to work less (or more) have taken on a new dimension and the Dutch are now faced with the problem of a part-time economy and need new answers to the question of just how to get their citizens to work *more* hours. At the same time, Belgium is continually revising its system, including more possibilities for reduction of hours because they see this as a key factor in achieving a higher participation rate. In research done by Devisscher and Peeters (2000) they find evidence that institutionalized career breaks are often used as an intermediate step in the transition to working part-time. Traditionally, Belgium has a lower overall participation rate than the Netherlands, but those employed work more hours per week than the average Dutch employee.[61] Other concerns to both countries are the low participation rates among the age group 55-64 years, along with the knowledge that their aging populations will need to extend their working careers in order to assure an affordable welfare state.[62]

In 2002, a new system called Time Credit was introduced in Belgium for the private sector only, resulting in a definite break from an employment oriented policy measure to the current policy which is designed in aiding workers in combining paid work with other major life domains: care, education, and training, and leisure. The scope of investigation here will be limited to the effects on participation by the career breaks policy and how the use of this measure affects careers in terms of continuity and wages. Much can be found in existing literature as to who uses the institutionalized

60 The Wassenaar Agreement, from 1982 was an agreement between government (Stichting van de Arbeid), employers' organizations, and the labor unions. The three parties were unified on the position that wage cost reduction was necessary to enable international economic competition. Working time reduction was agreed upon in exchange for minimal wage increase.

61 In 2002, the net labor participation rate for the labor force in the Netherlands was 65.6, 76.5 for men and 54.3 for women. The average number of working hours per week is 34.6 for men and 24.8 for women. (http://statline.cbs.nl).

62 According to recent calculations from the OECD, the average pension age in Belgium for men is 58.3 years and for women 56.9 years, with the one of lowest participation rates for 55-64 year olds (less than 40%).

career breaks as well as the intensity of use. However, little is known concerning their effects on labor market participation. Using a sample from the administrative data from the Crossroads Bank for Social Security called the Panel Mobility of Working age Population (PMWP) with waves running from 2nd quarter 1998 through 4th quarter 2002, and eleven waves (1992-2002) from the Panel Study of Belgian Households (PSBH), it is possible to observe career break users and how their career develops in terms of returning to their job, and once back, their wages. It has already been noted in research by Debacker, De Lathouwer and Bogaerts (2004) that little is known regarding the effects of institutionalized career breaks on individual careers, and what research has been done is limited to the effect up to six months after returning to the labor market. This gap in knowledge concerning the longer-term effects is something addressed in this research and leads to the research question:

1. *How do institutionalized career breaks affect careers?*

Do individuals return to the workplace after making use of the career break system? One can expect that most individuals that have used an institutionalized career break will return unless he or she decides not to continue working for personal reasons. There is no structural or legislative barrier for reentry. After all, the employer is required by law to reinstate the worker returning from leave. Furthermore, is the career break system effectively being used as a ticket out, a supple exit from paid labor? There have been several revisions and amendments to prohibit this type of use, but are they actually effective or are institutionalized career breaks still being used as subsidized labor market exits? If they do return, how does the prior use of a career break affect their career? Does it matter how long they remain away from their job? Does it matter at what point during their working life the career break is taken? Are part-time career breaks better than full-time breaks from working life? In essence, are all career breaks equal? This leads to the next research questions:

1. *How does the duration of the institutionalized career break affect careers?*
3. *How does the timing of the institutionalized career break affect careers?*
4. *How does the type of the institutionalized career break affect careers?*

Upon return, the employee is further protected for a period of six months during which his contract cannot be terminated. Even so, what happens to these employees after their legal protection has expired? There is some evidence (Elchardus and Cohen, 2003) that institutionalized career breaks have a significant effect on deterring premature labor market exit in terms of retirement, but how other (younger) users of the career break system are affected is still mostly unknown. By following the career paths of career breakers for a period of time it will be possible to observe whether they again become and remain active participants, i.e. regain *continuity* in the labor market and how they fare in terms of their *wages*. From a human capital theory perspective one expects that an institutionalized career break will be less de-

trimental for workers than non-institutionalized career breaks (voluntary labor market exits and unemployment) because the bond with the labor market is not severed and remains contractually intact. This attachment to the labor market should be conducive to a better reentry, resulting in less erosion of human capital (less time away, smooth re-entry). Regarding statistical discrimination theory, there should also be less chance of stigma or signaling, because the career break is institutionalized and hence, an accepted phenomena whereby an employee is less likely to suffer any negative labeling for his or her absence from the workplace.

Previous research shows that it is especially women that use this policy instrument. Devisscher and Peeters (2001) state that there is evidence that persons using institutionalized career breaks are less likely to permanently exit the labor market prematurely, as do Elchardus and Cohen (2003). But this was research in respect to premature permanent exit associated with pension-related exits, and their findings show a weaker effect for women. It is among others the low level of labor market participation by Belgian women that the career break system is intended to tackle. Although a majority of the users is women, the policy can certainly not be considered a success if women are using the career break as an interim step towards labor market exit. Regarding labor market continuity during prime working age, there is some evidence that the effects of career breaks are negative for women making use of full-time career breaks over extended periods of time. The longer the woman remains away from her job, the less likely she is to return to it (Deven, 2000).

The theory of tournament models can be used for the deduction of additional hypotheses regarding the career development once back at the job. Tournament model theory states that on an internal labor market (within organizations), there is competition between workers to climb the organizational ladder of success. Workers who, due to career breaks, are not present, will miss one or more rounds of competition for promotions, bonuses and other rewards. Although the data do not allow for insight into one particular organization (allowing for an actual examination of an internal labor market), it is still possible to test tournament model hypotheses indirectly. After all, persons making use of institutionalized career breaks remain on contract with one organization. In this manner it is possible to compare their wages to those of persons not using career breaks (using control variables).

The organization of this chapter is as follows: section 5.2 sketches the background of career breaks as a policy instrument in Belgium while describing parallel developments in the Netherlands. Section 5.3 uses the main theoretical frameworks to build hypotheses allowing specific analysis of institutionalized career breaks. Section 5.4 introduces the three data sources. Section 5.5 is an in-depth exploration and descriptive study of career breaks in the Belgian labor market during the period 1998 through 2002. In section 5.6 wage is analyzed as a determinant for use of the career break system. Section 5.7 moves on to the multivariate analyses to answer the first

research question: how do career breaks affect participation and continuity? In section 5.8 we turn to the question: how career breaks affect individual careers in terms of continuity and wage? Section 5.9 uses two methodological approaches to better understand the patterns of labor careers and the place of career breaks on a transitional labor market. Section 5.10 is a summary of the most relevant conclusions of this research on institutionalized career breaks, reverting back to the main research questions from chapter 1.

5.2 Background and parallel development in Belgium and the Netherlands

In describing the historical development of the Belgian institution of career breaks, it is important to reflect on the occurrences during the same time frame in the Netherlands. Facing many of the same problems and arriving at many of the same answers, the two countries are essentially entwined in a mirrored process as they both struggle to raise levels of labor participation while dealing with their own unique labor market cultures.

5.2.1 Same problems, different responses

This account begins in the mid 1980s, when most Western countries were faced with economic setbacks characterized by sluggish or even shrinking economies, soaring inflationary rates and alarming levels of unemployment. It was especially the disproportionally high youth unemployment that called for drastic measures. In response to this, the Dutch implemented working time reduction schemes and the way was made free for part-time work.[63, 64] Labor unions were skeptical of part-time work, fearing that it would undermine their efforts for collective agreements on working time reduction, and create another form of 'poor' labor belonging to the secondary labor market.

At the same time, the Belgians introduced a system of career breaks to deal with these problems which would allow individuals to exit the labor market while still retaining their binding labor contract with their employer. Employers were then obligated to replace the worker on leave for a discrete period of time with someone that was currently unemployed and receiving unemployment compensation. This was essentially designed to be a self-financing employment oriented policy measure. The system was innovative in that, up to that time, individuals wishing to take any kind of extended leave from work were forced to quit their jobs, be it for health reasons, to care for young children, care of spouse or extended family member, or

63 Working time reduction was as such indirectly responsible for the surge of part-time work, although the impetus was certainly women's emancipation.

64 Part-timers in the Netherlands are primarily women (66%) but a growing number of men are also opting for fewer working hours (15%), OSA Labour Supply Panel, 2002.

educational training. The research in chapter 4 focuses on the effect of exactly this kind of 'voluntary' nonparticipation on careers. Initially the design of the Belgian policy was quite rigid, requiring immediate hiring of an unemployed person in the temporarily vacated position. Over the years, several amendments have allowed for a more flexible implementation both for employers and employees.[65]

The new life course arrangement developed by the Dutch government allows all employees to participate, with the goal that more persons will thus be capable of a better combination of paid labor with other life domains. Employees may save up to 12 percent of the gross wage earned per year to help finance unpaid leave; time that can be spent in the form of a career break much as Belgium has been doing since 1985. A maximum of 210 percent of the gross year salary can be saved at any one time. This amount can then be used to finance unpaid leave. Once the balance has been used, an employee can begin to save again to the maximum amount. The system is flexible in that it applies to the individual employee with no restrictions on participation, and there are no restrictions on the reasons to take a career break. It creates individual freedom while at the same time places responsibility for the financial affordability with the employee who must make all necessary arrangements with the employer concerning any insurance contracts or even pension continuity. It is therefore a system that relies on good communication between employee and employer. The employee has no statutory right to take a career break (only to save for one). Actually taking the break is only possible in cooperation with and after receiving permission from the employer.

In the Belgian career break system, during the period of leave-taking, the worker receives no salary, does not accrue vacation time, but does continue to build pension. Although the government provides subsidy for the worker taking leave, it is a small, lump sum of a few hundred euros per month with some minor adjustments for full-time/part-time, lone parents, and lower income groups. It does not compensate for the missed earnings, nor is it intended to. What it does create is a buffer of security for the employee to temporarily exit the labor market knowing that his or her place will be there upon return. This type of security is especially important when labor markets are more dynamic and non-institutionalized exits can translate to longer than intended absence from working life with all the social and financial repercussions that ensue (see Román and Schippers, 2005).

The Belgian career break system is also flexible in many ways. The exit or hours reduction is not restricted by the reason for taking leave. The individual is completely

65 The Netherlands also introduced a leave taking system, albeit it quite a bit later, in 1998 called the Finlo Act (De Wet Financiering Loopbaanonderbreking). The Finlo Act ceased to exist on June 1st, 2005, mainly because of the high administrative costs, which were in no way compensated due to the low number of requests.

free in choosing his or her reasons for the exit and is not obliged to even justify the desire to take a career break. On the other hand, the employer is required to permit the career break as long as the maximum level is not exceeded or, if work continuity without the employee is not possible, the employer is obligated to well-motivate the denial. This is a major difference from the Dutch life course arrangement. The current maximum period of time for the (time credit) break is one year although extensions are possible through many of the collective labor agreements. In the second half of the nineties, a new amendment introduced three thematic leaves: parental, medical care and palliative.[66] Thematic leaves have priority over regular career breaks and are not subtracted from the amount of time allowed for regular career breaks. Thus, thematic leaves are *in addition to* career breaks. Individuals taking a thematic break are also entitled to a higher compensation than individuals taking regular career breaks. There are some logistic restrictions however. Leave-taking is not necessarily full-time. It can also be a reduction of working hours by one-fourth, one-third or one-half, which is essentially an official introduction of part-time work to the Belgian labor market albeit for temporary periods.

Regarding the use of the career break system for lifelong learning, there have been rigorous attempts by the Belgian government to stimulate this use. Since 1994, there has been a formal arrangement for employees using career breaks or working hour reductions providing a supplemental premium from the Flemish government. The Flemish incentive premiums are the result of the social agreement between the Flemish government and its social partners: the representatives of employers and employees. In 2002, this was substantially revised resulting in the current VAL system. The VAL premium is available under certain conditions to Flemish workers who take a career break.[67] This premium is doubled for the period that the employee is involved in occupational training, an added incentive for lifelong learning. Even with this additional incentive, actual requests made for the training premium remain low. According to the Flemish department for labor administration, applications for training premiums account for only 3 to 4 percent of the total number of yearly requests.[68]

5.2.2 Who uses the career break system and why?

When studying the effects of career breaks on the continuity and development of careers, it is important to differentiate between why and how these career breaks are being used. A complete descriptive overview will be given in section 5.5, but leading up to this, a general overview of the types of career breaks is relevant at this point.

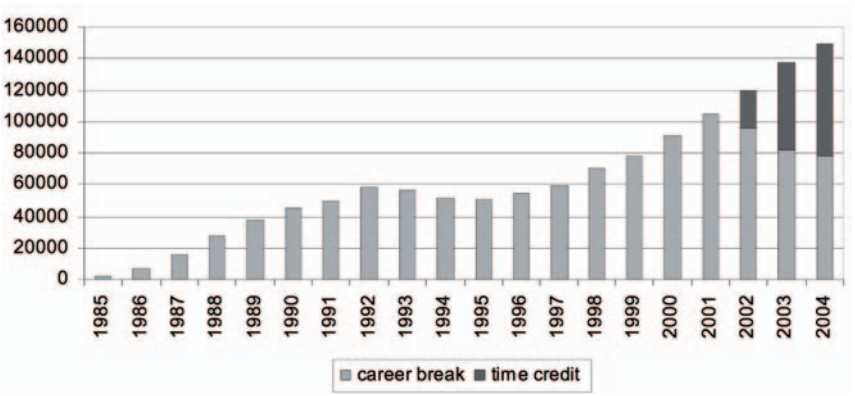
66 Palliative leave is restricted to terminal care for one month, which can be extended by one month per patient.

67 The premium is available for a maximum period of two years and amounts to 123,90 euro gross per month, 74,37 euro gross or 49,58 euro gross depending on the career break percentage (total working hours per week), and the labor agreement or contractual conditions between employee and employer.

68 Year Report 2004. Incentive premiums for career breaks and time credits. Ministry of the Flemish Community.

Figure 5.1 presents trends in career break use over the period 1985 to 2002. From its first introduction in 1985 until 1992 there is an observable increase in use to almost 60000 employees. Then, from 1992 until 1997 there is a period of stabilization in the number of career breakers. Another period of increased use follows through 2001 showing total number of users at more than 100000. The introduction of the time credit scheme in 2002 marks the beginning of a decrease in career breaks as users change over to the new system of time credit. Total use (of the combined systems) has risen to approximately 150000 users in 2004.

Figure 5.1: Trends in career break use 1985-2004*



Source: National Office of Employment (RVA), * in 2002 the time credit system was introduced.

Although the career break instrument is intended to promote labor, the career break itself is a temporary exit from the labor market used most commonly by women to better coordinate caring tasks at home. Women use the break in this way both as a reduction of hours and an actual break from paid work. Men, on the other hand, use the career break primarily as an intermediate step in the transition to retirement. Whereas initially the career break was used mainly in the form of a full-time exit from labor, there has been a definite increase in the number of men using the break as an hours reduction which could be an indication that men that otherwise may permanently (prematurely) exit the labor market are still actively involved in paid labor.

The Belgian career break system has proven itself to be a dynamic system, capable of change to more adequately meet the needs of the Belgian worker while allowing the kind of flexibility necessary for a successful implementation by Belgian employers. It is in any case a labor market instrument that is in increasing demand. However, demand does not measure actual effectiveness of the policy instrument. The career break system and the more recent time credit system are designed to effectively stimulate labor participation among women and older workers. A third goal is its use in accommodating lifelong learning. Answering the research questions should provide

a clear picture of just how successful this Belgian system is in achieving these goals. In addition to this, by analyzing how institutionalized career breaks affect individual careers, we hope to provide additional knowledge regarding the effects of career deviations.

5.3 Theoretical perspectives

This section borrows from three theoretical frameworks to build hypotheses for the analyses. Section 5.3.1 introduces the first and main theoretical framework, human capital theory. Section 5.3.3 applies statistical discrimination theory to institutionalized career breaks. Section 5.4.1 is an introduction to how tournament models are used to arrive at additional hypotheses concerning internal labor markets.

5.3.1 Career breaks seen from a human capital theory perspective

Up to now, human capital theory has not been (widely) used to build hypotheses regarding institutionalized career breaks. Even the more recent work modeling Mincerian wage equations (Kunze, 2002; Spivey, 2005) does not cover institutionalized systems of career interruptions. Taking the most extensive form of career break, full-time leave from work over an extended period of time, the employee is faced with more than one kind of human capital loss. The first type of loss is the simple erosion due to aging. The second kind of loss is due to the lack of growth or experience that would have occurred had that employee been at work. However, because there is no actual separation between the employer and the employee, no loss of organizational specific capital takes place. Now that the employee is not gaining experience at work but is otherwise occupied (or not), the erosion component is not compensated so that a reduction in human capital results. The additional loss of human capital through skills disuse, referred to by Mincer and Polacheck (1978) as atrophy is only likely to take place after an extended period of time. The longer the career interruption endures, the greater the chance that skills atrophy will occur, especially in view of the speed of knowledge obsolescence as influenced by technology. There are indeed few areas of the labor market that are not affected by developments in technology, and skills constantly need to be refurbished.

Additional training and education can compensate human capital loss. If the employee takes a career break for training, there is much less problem of skills disuse, and certainly the human capital gained on the training course should compensate any experience missed at work. The assumption is thus that career breaks used specifically for training should have a positive effect on both participation and individual careers. If the career break is for any other reason, are the chances of skills investment prior to the absence from work (*anticipation*) reduced as in the case in nonparticipation? Here, too the assumption is that institutionalized career breaks should differ with traditional career interruptions (as described in chapter 4) regarding prior investments in training.

In regard to the institutionalized career break, one could argue that individuals know that they are leaving the labor market for a well-defined, temporary period, whereby a lack of investment in their human capital would be detrimental to their career well-being. However, it is a fact that a sizeable number of individuals use the career break system as a bridge to exit the labor market, with no intention of returning their jobs at all. Investment in training prior to the career break may be an indication of actual intentions to return to the workplace. This creates a possibility to construct an indicator for intended labor market return. This raises the issue of whether it is possible to establish causality and its direction in advance. It may be difficult to establish use of occupational training as a tendency proxy due to the simple fact that older workers make less use of training facilities than their younger co-workers. But in the case of women, and certainly women younger than 50 years of age, prior investment in training (or a lack of it) it could be a good indicator of whether she truly intends to return after the break. If the employee does intend to return after the institutionalized career break, prior investments in training should not be significantly lower. Admittedly, it may be difficult to test intent without survey questions to directly inquire about future plans. Even then, it is difficult as described by Gronau (1988) who was confronted with a similar issue and stated that actual exits far exceeded reported intentions to exit. Still, the system of career breaks is designed for use as a break, not an exit.

The effects of human capital loss due to labor market absence are different depending not only upon the number of interruptions, and the length of the interruption, but the timing or placement of the interruption in the career path as well. When calculating working life earnings of women, Mertens *et al.* (1995) suggest that women are better off delaying exits related to childbearing until their careers are further developed. Women are making greater investments in their education before starting their professional careers. The longer educational period and career investments are further delaying the plans for starting a family, resulting in progressively older mothers with all the added problems for reduced fertility rates and other complications.[69]

In a recent study by Heylen and Mortelmans (forthcoming), they find that the timing of children plays an essential role in the continuity of women's careers. This timing issue concerns not only the age of women, but also the number of years of education (thus, the age upon entering the labor market), the age of the woman at the first birth, as well as the spacing of the children. Women juggling infants on career ladders tend, for the sake of balance, to take a few steps down, and when a third child is involved, there is a greater tendency to get off the ladder all together. The negative effects on labor market continuity and, after reentering the labor market, on wage

69 According to Eurostat, the mean age at which European women are giving birth is 29.2 years and the trend over the past two decades has been an increase in mean age.
See http://europa.eu.int/comm/eurostat/newcronos/queen/display.

caused by using non-institutionalized career breaks are described in chapter 4. The assumption is that institutionalized career breaks will better enable women to combine caring tasks and paid work, taking breaks (either full-time or part-time) and preserving the bond with the labor market, resulting in better labor continuity and higher wages. The use of an institutionalized career break creates a buffer of security for the employee to temporarily exit the labor market, knowing that his or her place will be there upon return.

The use of an institutionalized career break is also expected to alleviate much of the gender wage gap that has been created due to women's broken histories in the labor market. Numerous exits and patchy work histories have resulted in wage loss as well as a lack of wage growth as has been established through numerous studies (Albrecht *et al.*, 1999; Blau and Kahn, 2000; Budig and England, 2001; Corcoran, *et al.*, 1983; Mertens, *et al.*, 1995; Mincer and Polachek, 1978). It can be thus assumed that women making use of institutionalized career breaks and retaining their labor market continuity will have a higher wage and better wage growth resulting in a reduction of the gender wage gap. In addition, working mothers who do not take a career break may actually have a tougher time organizing their combined tasks. This is the basis for an interesting postulate. It is quite likely that working mothers who use a career break will, upon their return, be able to perform better than their colleague mothers who have not taken time off. This leads to the first hypothesis:

> *Working mothers who use the career break system will retain a better labor market continuity and wage development than mothers who continue working without using career breaks.*

5.3.2 Statistical discrimination theory

Institutionalized leave-taking implicitly has the benefit that because leave-taking is part of an institutionalized system it (should be) an accepted phenomenon. The chance that a worker will become stigmatized by exiting the labor market in this manner is minimal or even non-existent. Where other types of labor exit can result in lasting negative and scarring effects, institutionalized labor market exits will be less likely to do so. An interesting position is that of employers in the career break system. After all, they are required by law to grant employees leave. They are confronted with numerous logistical and administrative complexities by the career break system. They may be required to grant leave but they still have the ability to discriminate. If they feel that workers are less reliable because they have made use of an institutionalized career break, thus have a questionable level of productivity, they may be less likely to promote them. They could be less willing to select workers who have taken an institutionalized career break for higher positions.

Albrecht *et al.* (1999) find indications that employers consider male workers less *loyal* for taking leave even though they are entitled to do so in Sweden's parental leave

taking system. They find that the great number of women taking leave has neutralized any kind of stigma for female workers making use of the system. However, the fact that so few men use the system makes the level of job commitment by those men that do take parental leave questionable in the eyes of the employer.

If this is the case, the legal system of protection will not help if employers remain a barrier to career promotions. What will the position of employers be towards personnel who make use of the system? Will the effects be different for men and women as was observed in the study by Albrecht *et al.*? If the system is indeed an accepted phenomenon, employers should not view returning career break users as untrustworthy or undependable. Workers returning from a career break should not suffer the negative effects from stigma that have been observed in analysis results in chapter 4 on voluntary exits. This is the second hypothesis:

> *Employers using the career break system will not suffer negative effects on wages and wage growth after returning to their job*

5.3.3 *Tournament model views on career breaks*

The tournament model is useful in conceptualizing career path mobility, especially regarding the internal labor markets of organizations. Based on the premise that within organizations employees are in competition with one another for promotions to higher functions, the tournament model assumes that upon entering an organization, new employees are 'selected' or sponsored for the promotion track or not. Early career path decisions by individuals will thus be crucial for whether an employee can achieve upward mobility by way of promotion. In essence, the pre-selection is the basis for getting through to the top (of the organization). Without being in this pre-selection, the route is inaccessible (Rosenbaum, 1976). However, this pre-selection is not a guarantee for reaching the top. An ongoing competition takes place, in which there are losers and winners. Winners go on further in the competition, and losers are 'knocked out' of the game. Winners can thus go on to compete for even higher positions. Losers can only compete with the other losers for less attractive jobs with no chance of regaining the greater opportunities whose doors remain barred. Turner previously (1960) referred to this as sponsored and contest mobility. Sponsored is the act of pre-selection, and contest is each following round of competition.

Tournament models have been modified and repeatedly tested over time, many studies using sporting competitions to enable further mathematical and statistical modeling: Nascar racing, basketball, PGA golf championships, sumo wrestling, and stud poker, to name but a few. The original tournament model is quite strict, being a single elimination tournament where once knocked out, the way was barred from further competition at the highest level. The round-robin tournament takes early competition rounds into account, but relies more heavily on later success to predict outcome. The horse race uses the later position as the best predictor of winning

(Forbes, 1987). Building on tournament model theory, one can assume that making use of a career break early on in the career will be more detrimental for career continuity and upward mobility than a career break later on in the career, as early career competitions are the most decisive in upward mobility. Thus the timing of an institutionalized career break will have diverse effects on careers. This leads to the following hypothesis:

> *Institutionalized career breaks taken earlier on the career path will be more disadvantageous to labor continuity than career breaks taken later in the career path.*

Following this line of reasoning and now using the round-robin version of tournament models, individuals taking career breaks for longer periods will miss more rounds of competition, thus having a stronger negative effect on career continuity and upward mobility. Although this hypothesis could also be constructed using human capital theory, it is more appropriate for a round-robin tournament model because, part of human capital states that the duration of the interruption is only partly responsible for the loss of human capital. The anticipation effect, i.e. knowing that one will exit, will also cause the employee to be less likely to invest in human capital prior to departure. For this reason, the aspect of duration is more directly captured using the round-robin tournament model than human capital theory. Utilizing the round-robin version of tournament models, it would therefore be likely that the longer an individual does not take part in the competition, the less likely he or she will be to attain an advantageous position, thus making no advances on the career ladder. This leads to the following hypothesis:

> *The greater the duration of the career break, the more detrimental it will be in terms of career continuity and wage.*

Where these first two tournament model hypotheses assume negative effects for employees using career breaks, and in essence make no distinction between using the career break system and simply exiting the labor market similarly to the voluntary exits described in chapter 4, the next hypothesis tests whether institutionalized career breaks are more conducive to employees career continuity and career building.

The horse race version of tournament models states that there are no knockout rounds, nor is it essential to take the lead throughout the race. Winning by a nose can be achieved by a good end sprint. This allows for a more positive twist and one for all individuals using career breaks. It is based on the assumption that the career break literally allows the employee a 'breather' or a period of rest during the ongoing career with all of its pressure and competitive rounds. The career breaker, upon his or her return will thus have more effective staying power, remaining in the race longer and having more energy reserves allowing a better dash for the finish. Following this line of reasoning we are led to the third hypothesis for tournament theory:

Use of an institutionalized career break will have a positive effect on labor market continuity and wage.

The predicted positive effect is a direct comparison of employees who simply continue working and do not use a break, as well as making an indirect comparison to the effects found for non-institutionalized voluntary exits in chapter 4.

The use of tournament models is indirectly tested in this research, as the data do not allow for testing within organizations. However, because the nature of the career break is that the employee remains under contract with the same employer, it is possible to indirectly test the hypotheses by comparing the continuity of employment and wage level to that of employees who have not made use of career breaks.

5.4 The three data sets

The analyses in this research chapter on the Belgian career break system are performed on three data sets. The first data set is a large administrative sample providing a vast source of information on more than 600000 respondents, which is described in section 5.4.1. The second data set used for this research is eleven waves of the Belgian Household Panel (1992-2002) that is introduced in section 5.4.2. The third and last data set is a unique module from the 2002 wave of this same Belgian Household panel, called the career module, which is described in section 5.4.3.

5.4.1 The PMWP data sample

In order to answer questions regarding how institutionalized career breaks affect participation, and more particularly the labor market participation of those groups specifically targeted by this policy measure (women and older workers), it is necessary to look into larger data sources that allow for more descriptive analyses. In Belgium, one of the best resources for these data is the Datawarehouse Labour Market (DWHLM) at the Crossroads Bank for Social Security (CBSS).[70] In this Datawarehouse all administrative data from several Belgian social security institutes are linked via the national insurance number which is a unique identification number held by all individuals known to those institutes. These data, although vast in numbers, have obvious limitations due to privacy restrictions, even though the identifying number is made anonymous.

For this research project on career breaks, a sample from the DWHLM of the adult working age Belgian population totaling 609971 respondents is used. This sample

70 This Datawarehouse Labour Market was created within the context of the Agora Program of the Public Office for Scientific Research. WAV, The Resource Centre for Labour Market Research is charged with the scientific steering and counseling of this Datawarehouse. The PMWP sample has been created on request of the Resource Centre within the context of their own multi-annual research program to study transitions and career paths on the labour market.

called the PMWP (Panel Mobility of Working Age Population) was drawn on the basis of statistics from the last quarter of 1998, the first quarter for which the DWHLM data were created at the CBSS. The sample has been followed every quarter up to and including the last quarter of 2002, which at this time is the most up-to-date available data from the CBSS. Individuals who are in the sample in the first quarter remain in the sample throughout all 19 quarters unless they have died. This also means that the population ages and additions are only newborn infants. Each year, the research population is one year older. The sample includes all individuals known to any of the institutes during the period covered. This means that any persons not participating in the labor market and not receiving any kind of unemployment benefit will not have entered the sample at the start. However, persons already in the sample may change their labor market position, becoming inactive, and will remain in the sample.

The data sample also includes important information regarding the partner. Beyond basic information known previously, such as sex and relation to the head of the household, it is now known whether the partner works, whether this is full-time or part-time, as well as specific information on wages. In addition to the partner information and extended time period, there is some information on whether the break was thematic as well as possible activities while on the career break (i.e. training).

Administrative data, quite different from survey data, is not acquired specifically for social science research. No questions are designed with detailed methodologies enabling research analysis. This leads to all kinds of difficulties when using administrative data for social science research. There are for instance no variables on the level of education or any kind of information on occupational coding, which mean that it is not possible to do analyses on the socio-economic status or function level. It is however possible to trace the employment (sec) as well as drawing cautious conclusions regarding wage levels. These data also, simply by their sheer numbers, are a welcome addition to survey data in researching questions on how the institution of career breaks affect labor market participation and continuity. A list of variables used from this sample can be found in Appendix B, table B1. WAV has been authorized to analyze this PMWP sample for several research projects including this project in cooperation with OSA.[71]

5.4.2 The PSBH panel data

There are two sets of data from the PSBH panel used in this research. The first set is the actual longitudinal panel from the Panel Study on Belgian Households (PSBH) which is a survey originating in 1992 with annual waves following the original 4439

71 See Data Request Art5/02/002 at the CBSS, authorization of 19 July, 2005. Authorization for use by the Commission for the protection of the Personal Privacy nr. VT4003404. For this research the utmost of care has been taken to ensure complete anonymity of the individuals in the sample population. All analyses are done in cooperation with and under the supervision of WAV on their premises in Leuven, Belgium.

random selected household counting 11000 individual members. The survey is conducted using face-to-face interviews. Respondents are adults in private households (age 16 to 75 years). All of Belgium is covered with an achieved sample size of 4439 households and a response rate between 85 and 93 percent. The fieldwork is expedited during the period from May to November. The sampling frame is the Postcode Address File of the National Registration Office.

Regarding the registration of career breaks in the PSBH; only those individuals using a full-time career break are registered as career breakers. This does not mean that part-time career breakers are not in the data, only that it is not possible to discern whether they are making use of a career break, or are simply part-time workers. It is also not possible to ascertain the motivation for taking the career break (thematic or otherwise). Still, the use of the panel is essential for controlling for variables that are not included in the administrative data from the PMWP. This additional information allows for more insight into background characteristics as well as allowing us to follow respondents over a longer period of time (eleven years versus the four-and-three-quarter years from the PMWP sample). This time element is of particular importance when answering questions regarding labor market continuity, differences in effects through duration of the break, and establishing any intermediate-term effect on wage after returning from a career break.

Approximately 3 percent of the Belgian working population makes use of the career break per year. The PSBH is sampled from the entire Belgian population known to the postal registry, which means that the population is broader than only the population of working age. Another reason for the under representation of career breakers in the PSBH is due to the fact that only full-time career breakers are registered in the data. The total percentage of known career breakers in the PSBH panel is just over 1 percent. Table 5.1 presents the number of respondents making use of a career break during the period covered in the panel by sex.

Table 5.1: Career breakers by sex and duration of break in the panel population

	No break	1 year	2 years	3 years	4 years	5 years	6 years	Total
Men	5989	21	0	3	0	0	0	6013
women	6264	80	20	7	5	1	1	6378
Total	12253	101	20	10	5	1	1	12391

Source: PSBH 1992-2002

During the period covered by the eleven waves of the PSBH (1992 through 2002), there are a total of 138 respondents that make use of a full-time career break. The greater majority uses a career break for a period of one year. The number of female career breakers outnumbers the male users 4 to 1.

5.4.3 The PSBH career module

The second dataset used from the PSBH is from the 2002 wave of the panel, in which a special module on careers was included. It was completed by 4453 respondents answering questions on the entire career path starting with the moment that their initial schooling was completed or terminated through to their retirement and pension. Of the 4453 individuals completing the career module, a total of 99 persons registered having made use of a career break (between 1985 and 2002) at some time during their working career (just over two percent). There are obvious drawbacks to using retrospective data, especially when the survey questions are covering such lengthy periods of time. However, the career module is designed using questions that carefully guide respondents to register their periods of labor participation, inactivity, unemployment, schooling, etc., using major life course events as their historical markers (i.e. marriage, birth of children, etc.).

This last dataset is truly unique and invites more advanced and experimental methods of analysis to allow for the best methodological approach for analyzing labor careers. The career module will for this reason be used in section 5.9 in a comparison of two analytical methods used for tracing and making evident the career patterns existing on the Belgian labor market today, allowing for a better perspective on the place of career breaks as a labor market instrument within those labor market patterns. It will also allow for a better perspective of the long-term effects that career breaks have on labor market participation.

To properly address the main research question at hand and to adequately test the hypotheses based on the theoretical framework, a very broad range of data resources are used in this research. Descriptions of the methodologies, the data, and the variables used, will be given in more detail with the presentation of each of the different types of analysis. Human capital theory has been the theoretical basis in approaching the instrument of institutionalized career breaks. Human capital theory states that the worth or value of an individual erodes as we age, and this in itself is a somber note, faced as we are by an aging population (there are a lot more of us worth a lot less). On the other hand, human capital can be gained, refurbished and refreshed through training and education, which is certainly an important argument to support and sustain lifelong learning. Does an institutionalized career break provide the secure basis so that breaks from paid labor do not have the (lasting) negative effects as in the case of traditional (nonparticipation) labor market exits?

There are still many employees that use institutionalized career breaks to exit the labor market. In this sense, there is an exploratory element to this research. Has the *institutionalization* of career breaks changed how temporary labor market exits affect careers? Does an institutionalized career break alleviate the detrimental effects found in previous research (Román and Schippers, 2005) on non-institutionalized career breaks? Hypotheses derived from tournament models are used to indirectly

test for any negative effects that this institutionalized form of labor market exit has on labor market continuity and income experienced due to the fact that employees miss out on important rounds of competition on the internal labor market, making them less capable of successfully climbing career ladders. Finally, the last possibility is that a break, no matter how disadvantageous to income, will still prove to be the only feasible approach to effectively realizing longer working careers, allowing the breather that will keep employees working right on down the line.

5.5 Career break use 1998-2002

All analyses in this section are performed on the data sample from the PMWP. This section begins with an introduction of the career breaks in the data throughout the period covered 1998 through 2002. Section 5.5.1 provides a descriptive picture of total use, the types of career break taken as well as career breaks by proportion of working hours. Next, in section 5.5.2 the population throughout the period under study is presented with a specific look at how household composition affects the use of career breaks.

5.5.1 Career break use by type and size

This first section presents an overview of institutionalized career breaks during the period 1998 through 2002. It allows for a first indication of the type of career breaks being used; regular or thematic leave (palliative, medical care, or childcare) and whether they are applied as full-time leave or as reduction of working hours. Table 5.2 shows the distribution of career breaks by type in the population.

Table 5.2: Distribution of institutionalized career breaks by type (total numbers)

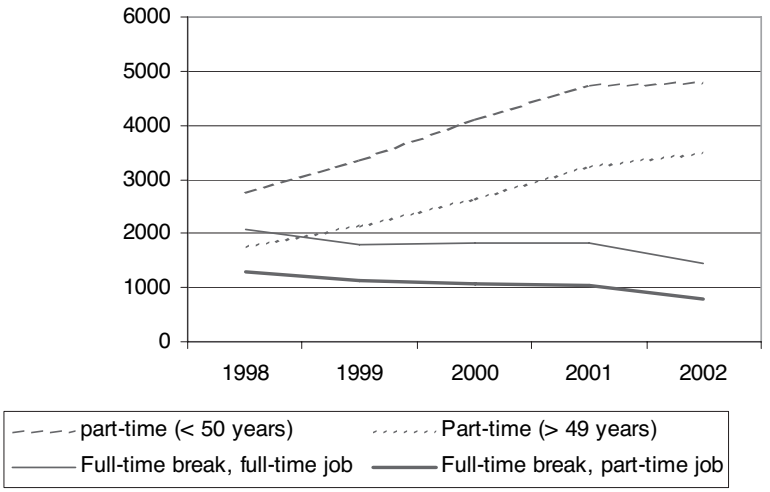
	1998	1999	2000	2001	2002
Regular career break	7789	7890	8892	9965	9341
Thematic leave:					
Medical	4	58	119	145	204
Childcare	72	440	644	719	828
Palliative	7	3	5	2	10
Total	7875	8397	9665	10833	10467

Source: The Datawarehouse Labour Market at the Crossroads Bank for Social Security, PMWP sample (own calculations).

The table makes manifest that regular career breaks are by far the most common type of career break used. Of the thematic leaves, childcare is most frequently used. As was stated earlier, palliative leave is quite specific and very restricted in its use. The overall trend is an increase in the thematic leaves, constituting approximately ten percent of all career breaks in the population in 2002, which is not surprising when considering that thematic leave is additional to the total amount of time

allowed for career breaks and that the premiums for compensation of wage loss are higher as well. The next figure presents the distribution of career break use by size: either as full-time leave or as a reduction of working hours.

Figure 5.2: Number of institutionalized career breaks by full-time leave and reduction of working hours



Source: The Datawarehouse Labour Market at the Crossroads Bank for Social Security, PMWP sample (own calculations).

Figure 5.2 shows some obvious trends in career breaks. In the legend, part-time stands for a reduction of working hours by full-time employment. This is delineated by the special arrangements for workers younger than 50 years of age and those who are 50 years and older. One of the most significant trends observable here is the increase in career breaks taken as a reduction of working hours. A marked increase in a part-time reduction of working hours by older workers is observable. This supports earlier findings by Elchardus and Cohen (2003) that older workers are beginning to use a reduction of working hours to remain active in the labor market (see Table 5.3). This is helping to reduce the high percentage of labor market exits among older workers.

At the same time, a new trend is also visible through the increase in the number of career breaks used as a reduction of working hours by persons younger than 50 years of age. Devisscher and Peeters (2000) find evidence that career breaks are often used as an intermediate step in the transition to working part-time. This total increase in part-time career breaks is reflected in the reduction of full-time career breaks. Part-time work as a solution for both older workers easing into retirement and younger workers combining paid labor with caring tasks are clearly new trends on the Belgium labor market.

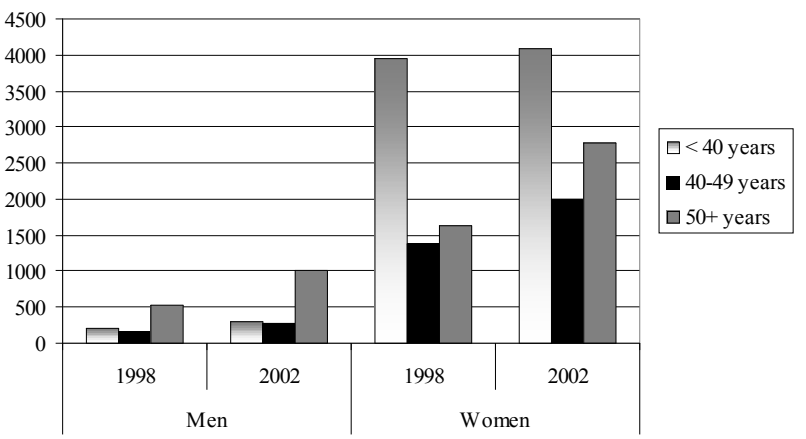
Table 5.3: Belgian labor participation rate of persons 50-64 years of age by sex, 1998-2002 (percentages)

	1998	1999	2000	2001	2002
women	25.3	26.4	27.6	28.4	29.3
men	51.1	50.2	52.9	52.7	52.6
total	38.0	38.2	40.1	40.4	40.9

Source: Eurostat, National Institute for Statistics (NIS)

Table 5.3 presents the national labor participation rate of persons 50 to 64 years of age for the period 1998-2002. During the five-year period, a modest increase can be observed in the participation rate of older workers on the Belgian labor market. This, together with the increased use of part-time career breaks by older workers, is an indication that use of the career break system by older workers is slowly changing from premature exits, to longer participation, albeit in the form of a reduction of working hours.

Figure 5.3: Number of persons with career breaks in 1998 and 2002 by sex and age



Source: The Datawarehouse Labour Market at the Crossroads Bank for Social Security, PMWP sample (own calculations).

Figure 5.3 presents the use of career breaks by sex and age in 1998 and 2002. A shift in distribution over the three age groups is evident. Career break use is evolving as we see an increasing percentage of use among the employees age 40 and older accounting for most of the growth in total number between 1998 and 2002. Note must be made of the fact that the PMWP sample is representative of the Belgian population for the year 1998, the year in which the sample was taken. Respondents remain in the sample and no additions are made except for newborn children. This results in an

increase in the average age in the population of one year for every following year. However, this is not substantial to explain the shift in career break use by age as can be observed in the figure. The total number of women younger than 40 years of age is stable at approximately 4000. The increase in use can be observed in the age group 40-49 years of age with an increase of some 700 women using the break and for the oldest age group, an increase of almost 900 women using a career break. Men show an overall increase, with the greatest increase found in the oldest age group (almost double).

During the period under study, there has only been a very gradual shift in distribution by sex. Of the total number of career breaks taken in 1998, men took only 12 percent and the women 88 percent. In 2002 men have increased their share of breaks using 15 percent in 2002 (and women 85%).

5.5.2 Household factors

Taking an institutionalized career break is influenced by a number of factors, and the actual decision to do so is usually not taken by the individual alone but at household level. It is for this reason that variables regarding household composition such as the presence of a partner, and whether the partner has an income, the number of children, and the age of the youngest children are essential in gaining insight into an individual's motivation for use of career breaks.

Table 5.4 presents the use of career breaks by the household demographics of the respondent. Career breaks are most commonly used by persons with a partner and children. The next highest percentage can be found by persons with a partner and no children. Single parent families experience a double economic handicap when using a career break due to the reduction of their own income and the non-existence of a partner's income. This is certainly one of the groups expected to be the most hindered in using career breaks. To establish whether household composition is indeed a barrier to use, a comparison of use by actual household distribution in the population is necessary. This is shown in the third column, the ratio of use.

Table 5.4: Career break use per household type, distribution of household type in population and ratio (in percentages)

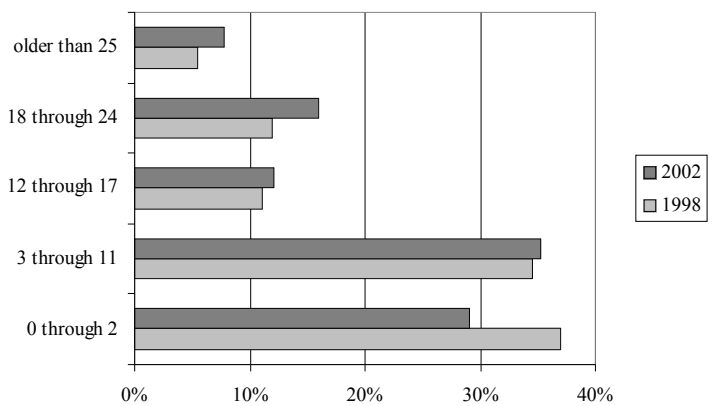
	Career break use	Household	Ratio
lives with parent	2.4	6.7	0.4
single	6.2	14.4	0.4
couple no children	21.3	22.8	0.9
couple with children	64.6	47.0	1.4
lone parent	4.2	6.9	0.6
other	1.2	2.2	0.6

Source: The Datawarehouse Labour Market at the Crossroads Bank for Social Security, PMWP sample (own calculations).

By comparing the distribution of households by career break use, a discrepancy can be established for all categories. This discrepancy is depicted by the ratio of use (percentage of career break use per household type divided by percentage of household in population), a shortage of use for all groups (they use less than their 'share') except by the group of couples with children where career break use far exceeds their representation in the population. The lack of career break use is the greatest for the group of singles and persons living with their parents. This is not surprising as these two household types are less likely to need a career break for either of the most common uses: childcare and reduction of working hours of older workers. But there is also a deficiency under the lone parent households showing 40 percent less use than their representation in the population. It indicates that there may indeed be structural barriers for this labor market instrument by this group. Aid for individuals combining paid labor and caring tasks is a major policy goal for institutionalized career breaks. Lone parents are less able to utilize this instrument, which suggests that additional measures are necessary for this group.

Up to now it has been established that career breaks are predominantly used by women to combine paid labor and caring tasks. At what point is the career break being used and at what age of the children are women able to return to their careers? The next figure provides answers to these questions. Figure 5.4 presents career break use by the age of the youngest child. Comparing the first and the last years in our data, a shift can be observed. There is a more equal distribution of use throughout the age groups of the youngest children. This is at least in part a reflection of the increased use by men, who are using the break to reduce working hours and continue participating in the labor market but also because women are apparently taking career breaks at later stages (hence the older ages of the children).

Figure 5.4: Career break use by age youngest child



Source: The Datawarehouse Labour Market at the Crossroads Bank for Social Security, PMWP sample (own calculations).

Using the PMWP sample at WAV in Leuven has enabled us to gain insight into the trends in career breaks and shifts in those trends over the period 1998 through 2002. The career break system is becoming increasingly more popular in Belgium, evident through the total increase in use. The thematic breaks are gaining ground and now represent a total of ten percent of the total career breaks used. The lower percentage of use of thematic leave can more than likely be attributed to the greater restrictions and shorter periods of time allowed for the break. The size of break is also experiencing some changes. There is an apparent shift from full-time career breaks to part-time breaks. These reductions in working hours are being used by older workers who in this manner remain active in the labor market before exiting all together into retirement. Younger age groups, especially for combinations of paid labor and caring tasks, are also using working hour reductions. There is a subtle shift in the distribution of use by sex. Men are starting to use career breaks more than in the past. Nevertheless, women take 85 percent of the breaks.

As most decisions that directly effect household income are taken at the household level, we also looked directly into these factors influencing use. Couples with children are the main users by household demographics. Couples without kids are the second largest group. Even when controlling for (household) distribution in the population, we see that couples with kids use the greatest share of career breaks. We find some evidence that lone parents are hindered in using career breaks. As stated previously, it is working mothers that make the greatest use of career breaks so it was necessary to get an impression of how old the children are when their mothers are using the career break system. During the period of study, there is an observable shift in the age of the youngest child in the home by career break use. The aging data population (average age increases one year each year) is not sufficient to explain this. Where the largest group could be found using career breaks when the youngest child was 0-2 years old, this has moved up to the age group of the youngest child being 3-11 years. This is interesting when keeping in mind that parental leave as a thematic leave can be included to the age of 6 years and up to one year per child. After that age, working mothers can use regular career breaks (just as everyone else).

5.6 Wage as determinant for career break use

A major criticism of the Belgian career break system is that it is not equally available to all participants in the labor market because of the reduction in household income during the break. In this section a critical examination is made of how accessible the career break system is to labor market participants in regard to income, both in terms of the wage of the individual and his or her partner. The career break system may not be affordable for all income levels considering that the wage compensation is minimal, even with additional subsidies for lower incomes, single parent households, and thematic leaves. We first look at the role of the partner's wages (5.6.1),

following which; a series of analyses is performed to estimate the selectivity in use of career breaks by higher wage earners in section 5.6.2. All analyses in this section are performed on the data sample from the PMWP.

5.6.1 Partner wage as determinant

We have already observed that single households are less likely to use a career break than households where there are two partners. It is important to establish in households where there is a partner, whether the partner's income is also essential in whether a career break can be taken or not. In other words, is the possible barrier to use due to the missed earnings or the missed partner or both? This is the next step in establishing the possible barriers for using career breaks. If economic factors are involved here, one of the most direct methods for testing is to analyze the chances for use of a career break by the presence of a partner's wage. It is certainly one of the most decisive factors when considering household information as being influential in career decisions.

Model 1 is a logistic regression that calculates the chance that an individual who is currently working in (T0) will take a career break in one of the years following observed in the data and is illustrated as follows:

a logistic regression to predict the chance of taking a career break in one of the following years as predicted by the current level of the partner's net daily wage:

$$\frac{p_1}{1-p_1} = e^{a+bX} \qquad [1]$$

The logistic regression predicts the chance that the dependent variable (career break) is equivalent to 1, where e is the base for the natural logarithm (e = 2.71828...), a and b are the regression constants and X is the independent variable. In this equation, X denotes the set of covariates to control for variables affecting taking a career break (partner wage) and the control variables:

- partner's net daily wage (included as dummies: 50-60 euros, 60-70 euros, 70-80 euros, 80-90 euros, 90-100 euros, 100-110 euros, 110-125 euros, and 125-150 euros);
- sex;
- age (included as five age group dummies: 18-24, 25-34, 35-44, 45-54 and 55-64);
- children and the age of the youngest child;

The dependent variable is 'career break'. Career break is computed for those individuals working in year T0, as a dichotomous variable (0/1) to indicate whether the person takes a career break in any of the following years (T1, T2, T3 or T4). The key explanatory variable 'net daily partner wage' is computed for the base year (T0).

Table 5.5 is a logistic regression of use of an institutionalized career break. A total of 966426 observations are included in the analysis using a stacked person period dataset. The standard errors are corrected for repeated observations. Dummy variables are included in the model to isolate the effect of each level of the partner's daily net wage on the chances of taking a career break.

Table 5.5: Logistic regression of taking a career break (model 1)

Partner's net daily wage (ref. = more than 150 euros per day)	
50-60 euros	-1.175***
60-70 euros	-0.995***
70-80 euros	-0.815***
80-90 euros	-0.596***
90-100 euros	-0.427***
100-110 euros	-0.341***
110-125 euros	-0.233***
125-150 euros	-0.147***
Sex (ref. = male)	2.298***
Age (ref. = 55-59 years of age)	
18-24 years old	-2.329***
25-39 years old	-0.831***
40-49 years old	-0.625***
50-54 years old	0.630***
60-64 years old	-0.585**
65+ years	-2.687**
Age youngest child (ref. = no children)	
0-2 years	1.615***
3-11 years	0.912***
12-17 years	0.165***
18-24 years	0.059
25 years or older	0.046
Constant	-7.337***
Observations	966426
R-squared	0.13

Source: The Datawarehouse Labour Market at the Crossroads Bank for Social Security, PMWP sample (own calculations), **significant at 5%, ***significant at 1%.

Model 1 explains 13 percent of the variance in the population. The wages are net wages per day with more than 150 euros as the reference category, this because the highest level for partner wage is also the modus for the group of career break users. Compared to this category, one observes a significant difference in the chance of using a career break. The chances lessen for each wage level lower than the reference category. What we observe here is that the effect of a partner's wage is indeed important for whether individuals take a career break or not. Career break use is more likely in households in which the partner (not taking the career break) has a higher net daily wage. What we do not see here is any evidence that when the partner belongs to a

lower wage group, that individuals are being *excluded* from using career breaks. There is however a significantly lower chance of using an institutionalized career break among those households where the partner's daily net wage belongs to a lower wage group. All in all, there is some substantial evidence found regarding economic barriers for career break use regarding households with couples. The evidence from Table 5.4 indicates that the presence of a partner is an important factor for being able to take career breaks; it appears that exactly what he (or she) earns is also an important factor in the household decision regarding career breaks.

An important question has been addressed in this section concerning restrictions due to income levels in households. We have seen that lone parents have a lower use of career breaks, which may or may not be due to economic restrictions. If it is only due to economic barriers, than lower income households would also show a significantly lower use. This is first tested using partner wage to determine the chance of using a career break. We find no evidence that lower income groups are excluded from using career breaks, but do find a significant reduction in the chance of use when lower partner wages are involved.

5.6.2 Employee wage as determinant

The next step is to establish how the individual's wage functions as a determinant for career break use. It is after all, this wage that is sacrificed during the career break. There have been indications that the wage level of an individual could be important in whether or not a career break is used. To assess this, three logistic regressions are run which also serve as an indirect test for selection bias of who takes a break using individual wage as an explanatory variable. Any significant effect found, whether positive or negative will establish whether there is selectivity, and if this is the case, just how great the selectivity is. The first logistic regression analysis (Model 2) is the chance of taking a career break using no break as the reference category. Because we also assume that there are differences in who actually takes a full-time break and who takes a part-time break or reduction of working hours, two additional models are required. Model 3 tests the chance of taking a part-time career break with, as the reference category, no break or a full-time break. Model 4 analyzes the chance of taking a full-time career break with no break or a part-time break as reference category.

In the PMWP data set, wage is registered as net wages per day using a ten-point scale running from 1 (low) to 10 (high) with corresponding daily earnings scales identical to those included in Table 5.5. This time, for each wage category an approximate middle point is taken to calculate the logarithm of the daily net wage in euros for the base year 1998. This wage is calculated as a full-time equivalent. The actual hours worked in 1998 are entered as a logarithm of the part-time fraction of a full-time working week. The three models can be written as follows:

$$\frac{p_1}{1-p_1} = e^{a+bX+\lambda+\gamma} \qquad [2\text{-}4]$$

Where e is the natural logarithm, a and b are the regression constants, X represents the covariates, and λ is the logarithm of the employee's wage recorded in 1998, and γ is the logarithm of his or her working hours as registered in 1998.

Model 2 uses a dependent variable: career break with no break as a reference, Model 3 uses the dependent part-time break with no break or a full-time break as a reference category, and Model 4 has a full-time break as the dependent variable with no break or a part-time break as a reference category. The results are presented in Table 5.6. A total of 309038 cases have been included in each of the three models and all three models explain 13 percent of the variance in the population.

Table 5.6: Three logistic regressions of career break and career break size (part-time or full-time)

	Model 2	Model 3	Model 4
	Break (ref. = no break)	Part-time break (ref. = no break or full-time break)	Full-time break (ref. = no break or part-time break)
Logarithm of wage 1998	0.499***	0.606***	0.183**
Logarithm of hours 1998	1.220***	1.904***	0.244**
Sex (ref. = male)	2.218***	2.227***	2.205***
Age (ref. = 55-59 years of age)			
18-24 years	-0.524***	-1.454***	0.518**
25-39 years	-0.034	-0.396***	0.698***
40-49 years	0.050	0.053	-0.058
50-54 years	0.686***	0.805***	-0.064
60-64 years	-1.522***	-1.312**	-2.334**
Partner	0.826***	0.869***	0.709***
Age youngest child (ref. = no children)			
0-2 years	0.914***	0.964***	0.758***
3-11 years	-0.129**	0.065	-0.480***
12-17 years	-0.405***	-0.209**	-0.981***
18-24 years	-0.147**	-0.022	-0.528***
25 years or older	0.051	0.117	-0.100
Constant	-10.591***	-11.380***	-10.577***
Observations	309038	309038	309038
Pseudo R-squared	0.13	0.13	0.13

Source: The Datawarehouse Labour Market at the Crossroads Bank for Social Security, PMWP sample (own calculations), ***significant at 1%, **significant at 5%, *significant at 10%.

Model 2 is the chance of taking a break in any of the observed years following (1999 through 2002) using the logarithm of the net daily wage as reported in 1998 along with the logarithm of the working hours as a part-time fraction of the full-time working hours from 1998. We observe a significant positive effect for the individual's wage level in 1998 on the chance of taking a break in any of the following observed years. This means that the higher the level of the personal wage, the greater the chance of taking a break in one of the next years.

It was established earlier that there was a significant effect for the chance of taking a break by level of the partner's wages. Now we observe that the wages of the individual are also a significant factor in whether or not a break is taken. Remember, this is the wage that will be missed during the period of time that the employee would be on the break. On the one hand, higher wage earners will have more to lose by taking a break, but they also are able to afford the temporary reduction in income. The significant positive effect observable by the logarithm of the working hours demonstrates that the greater the number of weekly working hours, the greater the chance of taking a career break. Part-timers have thus less need for a break than full-time employees.

The observed effects for age are interesting. There is a negative effect found for the youngest age group compared to the reference group (age 55-59 years). This could be expected, as this age group is not likely to already need a break. The effects for the age groups of 25 through 49 (time squeeze in the life course) do not significantly differ from the reference group. The age group 50-54 has a greater chance of using a break than the reference group, and the older workers have a significantly lower chance of using the break than the reference group. This seems to indicate a select group of older workers who have already made the decision to keep working until the actual pension date.

Model 3 is the chance of taking a part-time break compared to not taking a break at all or taking a full-time break. Here we observe a stronger positive effect for wage than in Model 2. There is also a stronger effect for the logarithm of hours in 1998. This indicates that a greater number of working hours per week will dictate a part-time break even more strongly. Here, just as in the other two models, women are much more likely to take a break than men. The effects found for age are similar to Model 2, with stronger negative effects for the age group 25-39 years in comparison to the reference category and a stronger positive effect for the age group of 50-54 years. Regarding the age of the youngest child, there is no significant effect found for 3-11 year olds. Part-time breaks are evidently used by women with younger (0-2 years) children.

Model 4 is the chance of using a full-time career break as compared to no break or a part-time break. The effect of wage is quite a bit smaller here than was observed in the first two models, but it still has a significant positive effect. The effect of the logarithm of the hours is also quite a bit less than in the other two models. The effects for the different age groups are almost all different than in the first two models. Younger age groups show a positive effect on taking a full-time career break compared to the reference age group (55-59 years). The sign turns negative at age forty but is not significant until the age group of 60-64 years of age. At this point it has a strong negative effect on the chance of taking a full-time career break as compared to the 55-59 age group.

Here too it seems that there is a group of employees decidedly against early exit. If one has not left the labor market by the age of 55-59, it is very unlikely that one will leave before reaching the age of 65. In this model more of the effects for the age of the youngest children are significant (all excepting 25 years or older) than in the other two models and all are negative compared to the reference group not having children except the youngest age group of 0-2 years. It appears that individual wage does play a strong role in the decision to take a career break or not. This effect is stronger for part-time career breaks than it is for full-time breaks.

We have observed that the individual wage does indeed play a significant role in whether or not an employee takes a career break. These findings in combination with the effects found earlier for the wages of the partner, establish that there is a certain amount of selectivity in the group of career breakers. This issue is something that we will come back to in section 5.8.

5.7 Effect of career breaks on labor participation and continuity

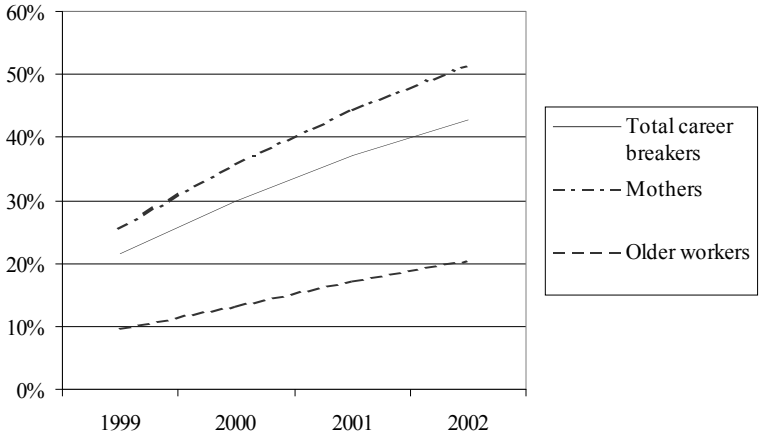
Although inherent in the institutionalized career break is the assumption that employees will return to their jobs, this is not always the case. This section begins with an inquiry into the effects on labor continuity by analyzing whether employees return (5.7.1) and remain on the job once they have returned (5.7.2). In this section both the PMWP data set and the PSBH data set are used. The PMWP is used for those analyses that require a greater number of respondents, and the PSBH panel is used for those analyses where a longer time period is essential for modeling effects.

5.7.1 Returning to the labor force

Addressing the first research question, it is essential to pay particular attention to how career breaks affect labor participation by the groups targeted: older workers and women with young children. The next figure illustrates the total percentage of career breakers returning to their jobs as well as the percentages of the targeted groups returning to work in the years following a career break. This is estimated using the PMWP data set which allows for an observation of a maximum number of respondents.

Figure 5.5 presents the return percentages for career breakers in the first year of the sample, 1998. By following respondents over the next four-year period, percentages are displayed for the total group of career break users returning to the job for each consecutive year. Note should be taken that for those persons using a career break in 1998, there is no information regarding how long they have been on the break. Approximately 43 percent of the total number of persons taking a career break in 1998 has returned to work by 2002. More than half of the women using career breaks to combine paid labor and caring tasks have returned (51.4%). This group is

Figure 5.5: Total percentage of career breakers in 1998 by percentage returning to work in consecutive years per targeted group



Source: The Datawarehouse Labour Market at the Crossroads Bank for Social Security, PMWP sample (own calculations).

selected as being female, younger than 50, having children, and taking a career break in 1998.

Only 20.5 percent of the older workers (50 years and older) have returned to their jobs by 2002. Nevertheless, if one-out-of-five older workers using the career break is actually returning to work, this may indeed be the beginning of a new trend where career breaks are being used by older workers to continue their participation in the labor market instead of using career breaks as a ticket out of active labor. This allows for a tentative answer to the question of how the career break actually affects labor market participation among the targeted groups women and older workers. It is, as stated previously impossible to know how long persons taking career breaks in 1998, the first year of our dataset, have actually been on the career break. It is for this reason, that results here must be used as indications.

5.7.2 Staying in the labor force

The next step is to assess how individuals are affected by their past career break once they have re-entered the labor market as an active participant. This is part of the first of our research questions: how does past use of a career break affect further labor participation? To answer the question of how career breaks affect labor market continuity, all eleven years of the PSBH panel are utilized. The panel is needed for the continuity model so that respondents can be followed for the maximum possible number of years. The model used is a logistic regression that calculates the chance

that an individual who is currently working will continue to be working in the next year (staying active in the labor market) by their prior use of a career break. The model is illustrated as follows:

a logistic regression to predict the chance of having paid work in the next year as predicted by past career break use and the duration of the current working period:

$$\frac{p_1}{1-p_1} = e^{a+bX+\lambda} \quad [5]$$

The logistic regression predicts the chance that the dependent variable (working) is equivalent to 1, where e is the base for the natural logarithm (e = 2.71828...), a and b are the regression constants, X is the independent variable, and λ is the duration of the current working period (1, 2, 3, 4, or 5 years). In this equation, X denotes the set of covariates to control for variables affecting labor participation while still remaining flexible for life course variation. Keeping life course theory in mind, a woman age 25 may have a youngest child in the age group 0-5, but so may a woman age 30, 35, 40 or even 45. For this reason, we have opted to use control variables in such a way as to allow for a complete realm of variety. These control variables are:

- duration of current working period (dummies included for 1, 2, 3, 4, or 5 years);
- sex;
- age (included in the models as five age group dummies: 18-24, 25-34, 35-44, 45-54 and 55-64);
- educational level (dummies for three levels: primary and lower secondary, higher secondary, and higher professional and university);
- partner (*living* with partner whether cohabitating or married);
- children and the age of the youngest child.

The dependent variable is 'stay'. Stay is computed for those individuals working in year T0, as a dichotomous variable (0/1) to indicate whether the person is working the next year (in T1). The key explanatory variable 'prior career break' is computed for each year whether a respondent has had a career break in any of the panel years previous. The results are presented in Table 5.7.

Table 5.7 shows the results of a logistic regression on a stacked person period dataset measuring the effect of having taken a career break (during the panel years) on the chance of remaining active in the labor market. The standard deviations are corrected for repeated observations. The analysis is done separately for men and women. The total number of observations included in the analyses is 100882. Model 5 explains 36 percent of the variance in the male population and 31 percent of the variance by women. All the dummy variables for the duration of the current working period have positive effects on women's chances for labor continuity, but this effect

Table 5.7: Logistic regression of staying in the labor force (model 5)

	Men	Women
Duration of current working period		
one year	0.826***	1.334***
two years	0.853***	1.294***
three years	0.768***	1.199***
four years	0.751***	1.106***
Prior career break	-0.789*	-0.810***
Duration of career break	0.147	-0.270***
Age (ref. = 55-64 years)		
18-24 years	0.658***	0.348**
25-34 years	1.534***	1.542***
35-44 years	1.715***	1.673***
45-54 years	1.592***	1.434***
Educational level (ref. = primary and lower secondary level)		
higher secondary	1.540***	1.780***
higher professional and university	1.592***	2.330***
Partner	1.962***	1.118***
Age youngest child (ref. = no children)		
0-5 years	0.785***	0.021
6-11 years	1.173***	0.897***
12-18 years	1.259***	0.897***
18-20 years	0.895***	0.524***
Constant	-4.228***	-4.453***
Observations	50095	50787
Pseudo R-squared	0.36	0.31

Source: PSBH panel 1992-2002, *** *significant at 1%, ** significant at 5%, * significant at 10%.*

lessens the longer the duration of the current working period. This means that the positive effect for working duration decreases, or the greater the likelihood that she will exit the labor market. Men show a similar pattern, although the effect is smaller than it is for women and this effect only lessens after two years of continuous work. Prior use of a career break shows to have a significant negative effect on labor market continuity. This effect is stronger for women than for men.

The duration of the career break also has a negative effect on women's labor participation showing that the longer the woman uses a career break, the stronger the negative effects will be on her labor market continuity thereafter which supports the second tournament model hypothesis. The effect of duration is not significant for men. Compared to the oldest age group (55-64 years), employees age 35-44 years have the strongest chance of remaining active on the labor force. The age effect shows clearly support for the first tournament model hypothesis, namely that career breaks taken early in the career will be more detrimental to labor continuity. The small positive effect for the youngest age groups cannot compensate the negative effect

found for taking a career break as well as the strong positive effect found for older age groups.

The effect of educational level is clear. The higher the level of education, the stronger the positive effect on labor market continuity. The effect of education on women's participation is much stronger than it is for men, especially the effect of a higher professional or university level education. This is important to remember when reviewing the wage models in section 5.8.[72] Having a partner has a strong positive effect on labor market participation, and this effect is stronger for men than for women. The presence of children has a positive effect on men and women's continued labor force participation except by the youngest age group.

The next model (Model 6) is done exclusively for women and uses an interaction term for the effects of having used a career break and having children. The model can be written:

$$\frac{p_1}{1-p_1} = e^{a+bX} \qquad [6]$$

Again with the chance of remaining active in the labor market with 'stay' entered as a dichotomous dependent variable (1/0), a and b are the regression constants, e is the natural logarithm and X represents the covariates. Here, the main explanatory variables are having taken a career break in the past, being a mother, and the interaction of these two variables. The assumption is that working women with children who use a career break will have a better labor market continuity upon their return to the labor market than working mothers who have not made use of a break. This is based on the idea that working mothers who use an institutionalized break to combine paid labor and caring tasks will be better able to continue their careers with less chance of having to drop out of the labor market altogether. They have used the break to rest, recover, organize and prepare themselves for their jobs. Working mothers who do not take a break will be more likely to suffer from fatigue, pressures from less organized households, and stress resulting in more burn-out and a greater likelihood of labor market exit.

Table 5.8 presents the results of Model 6 testing whether working mothers who make use of institutionalized career breaks have a better labor market continuity (afterward) than working mothers who do not take career breaks. The negative effect of a prior career break as shown in the table was already established. This effect is only for women taking career breaks, as men are not included in the analysis. The

72 For the wage models in section 5.8, no control variables for educational attainment are included due to data restrictions. The strong positive effect of higher educational levels on women's labor continuity implies a certain amount of selectivity bias in the wage models.

Table 5.8: Logistic regression of staying in the labor force (model 6)

Prior career break	-0.824**
Mother	0.435***
Prior career break and mother	-0.112
Age (ref. = 55-64 years)	
18-24 years	0.253**
25-34 years	1.550***
35-44 years	1.744***
45-54 years	1.509***
Educational level (ref. primary and lower secondary school)	
higher secondary level	1.015***
higher professional and university	1.699***
Partner	2.216***
Constant	-4.083***
Observations	50787
Pseudo R-squared	0.27

Source: PSBH panel 1992-2002, *** significant at 1%, ** significant at 5%, * significant at 10%.

effect of being a mother has a significant positive effect on labor market continuity. Belgian mothers are right out there playing an active role in the labor market as could be seen by their relatively high participation rates. Getting down to the key coefficient, and the human capital hypothesis, the interaction term of being a mother and having made use of a career break shows to have no significant effect. The coefficient is negative. This does not provide support for the hypothesis. The positive effect found for working mothers would certainly support the opposite postulate, namely that being a working mother has a significant positive effect on labor market continuity, and that working mothers that do take a career break have less chance of remaining active in the labor market than mothers who simply continue working. We do not find evidence that taking a career break enables working mothers to have a better labor continuity upon their return than working mothers who have not made use of a career break. There is indeed some evidence to support exactly the opposite postulate in terms of labor continuity.

5.8 The effect of institutionalized career breaks on individual wages

This section deals with the possible effects of taking a career break on individual careers in terms of wage and wage growth. Do career breakers suffer in wage development due to having been away? This involves including a number of variations in the wage models. The first attempts using the data from the PSBH panel proved unsatisfactory, which is unfortunate because it would have been more ideal to follow the effects of career breaks on wage and wage growth over longer time periods. For this

reason we use the dataset from the PMWP which, although having a shorter time frame (4.5 years), does include a far greater number of respondents (609971).

Using tournament model theory we can assume that both when a break is used and how long the break is taken are essential factors in explaining effects on careers. The following step is to present the wage models to ascertain whether or not taking a career break has an effect on the wages of individuals, if the duration of the break matters in this effect, and, if there are observable effects, whether these effects are persistent. For these analyses, three OLS regressions are performed to model effects on wage and this is done separately for men and women. For the regression analyses wage is included as the logarithm for the net daily wage. The model can be written as follows:

$$\ln(Y_{t+n}) = \alpha + \beta X + \lambda \ln(Y_t) + \gamma CB + \varepsilon$$

By including the logarithm of the net daily wage as an explanatory variable in the model, it can also be seen as a growth model expressed as:

$$\ln\left(\frac{Y_{t+n}}{Y_t}\right) = \alpha + \beta X + (\lambda - 1)\ln(Y_t) + \gamma CB + e \qquad [7\text{-}9]$$

In these equations, X denotes the set of covariates including age, partner, children and age of the youngest child. CB is career break included both as part-time and full-time, and a duration dummy for the two-year maximum duration. α, β, and λ are the parameters to be estimated, n is the year in which wage is measured, with ε being the error term. Of particular interest is in γ being the effect of a prior career break on the wage growth. As stated previously, there are no variables available in the PMWP sample to control for the educational attainment of respondents or their partners. There are two main questions to be answered by this analysis: how does a career break affect individual careers in terms of wage? Are breaks more detrimental the longer the duration? Here it is important to distinguish between effects for a complete break (full-time break by a full-time or part-time working contract) and a part-time break, or a reduction of working hours.

The three models are run separately for men and women. The number of observations varies per model. Included in the analysis are those individuals who report wages in 1998, for 1999, and 2000, are salaried employees or are on a career break, and in 2001 and/or 2002 are salaried workers.[73] In these models, if a career break is taken, it occurs in 1999 and or 2000. This selection is necessary to isolate effects. The key explanatory variables in the model are the dummies for a part-time/full-time career break in 1999, and part-time/full-time career break in 2000. A dummy variable

73 For 2001 and 2002, those individuals not reporting wages are omitted from the analysis.

for duration is used which measures when a part-time or full-time career break is taken for both years (the reference is no career break or a one year career break). Other covariates in the models cover age, partner, and age of the youngest child. The models are illustrated in the following three figures.

Figure 5.6: Career pattern of the sample under scrutiny (model 7)

	Year			
	1998	1999	2000	2001
Employment status	Salaried employee	Either salaried employee or career break	Either salaried employee or career break	Salaried employee
	wage level	→	→	wage level

Model 7 covers effects over a four-year period, using 1998 as a base year. All covariates are entered for this base year as well as the logarithm of the net daily wage. This model measures real wage change between 1998 and 2001.

Figure 5.7: Career pattern of the sample under scrutiny (model 8)

	Year				
	1998	1999	2000	2001	2002
Employment status	Salaried employee	Either salaried employee or career break	Either salaried employee or career break	Salaried employee	Salaried employee
				wage level →	wage level

In Model 8 covariates are also included for the base year (1998). The model measures the real wage change over a much shorter time period, namely between 2001 and 2002.

Figure 5.8: Career pattern of the sample under scrutiny (model 9)

	Year				
	1998	1999	2000	2001	2002
Employment status	Salaried employee	Either salaried employee or career break	Either salaried employee or career break	Salaried employee	Salaried employee
	wage level	→	→	→	wage level

Model 9 covers the entire period from 1998 through 2002. This model also takes op covariates and the logarithm of net daily wage from the base year 1998. The real wage change is measured over the full time window (1998 to 2002).

It is now time to return to the issue of selection in the group of career breakers. We know it exists. We know that the chance of taking a part-time break is quite a bit more likely for individuals with higher wages. However, by including wage in the model, selection is greatly tempered. It does nothing to alleviate the matter of selection we found in terms of participation and continuity where women with higher levels of education exhibit a greater labor continuity. Nevertheless, the career break system is for *workers*, and for this reason, the selection bias for who works and who does not, are not essential to the models. The effects of wage on taking a break are included (and thus controlled for) in the model.[73]

Because the three models are analyzed for men and women separately, the models for men are labeled 7a, 8a, and 9a. The three wage models for women are number 7b, 8b, and 9b respectively. The three wage models for men are presented in Table 5.9.

In Model 7a for men, 146637 cases are included and the model explains 53 percent of the variance in the population. The model explains more than half of the variance in wage. The wages from 1998 used in the model have a strong positive effect on the real net daily wage in 2001. It has the strongest effect of all the coefficients in the model. Nevertheless, we observe a significant negative effect on the wage in 2001 for those men who have taken a part-time career break in 1999. Of all the key explanatory variables, only the part-time break taken in 1999 has a significant effect on wage. This means that coming back from the part-time career break taken in 1999, men have an initial set-back in terms of their wage development.

Switching over to the men's next wage model (8a), the explained variance has jumped to 76 percent. The strongest explanatory variable is the logarithm included for wage in 2001. This now has a much stronger explanatory power due to the shorter time period (2001-2002) between the measures of the real wage levels. Of the key explanatory variables, two are significant and have more explanatory power than all the remaining covariates included except for the oldest age group. The negative effect for a part-time break has been compensated. There is even a significant positive effect observable on men's wages. After taking a part-time career break, men experience a slight increase in wages which would indicate an initial rebound effect as they recover from their time-out. There is also a significant positive effect for a part-time break taken in 2000. Why this effect does not show the delay as in the break

73 Additional analyses including partner income did not increase the explained variance. Although the effect was significant, it was less than .001, and because a substantial number of cases would have been excluded, this covariate was not included in the final version.

Table 5.9: Three wage models for men explaining real wage change for three periods

	Model 7a 1998-2001	Model 8a 2001-2002	Model 9a 1998-2002
Wage			
logarithm wage 1998	0.647***		0.606***
logarithm wage 2001		0.836***	
Career break			
part-time break in 1999	-0.088**	0.065**	-0.003
full-time break in 1999	-0.052	0.039	-0.032
part-time break in 2000	-0.003	0.039*	0.001
full-time break in 2000	0.012	0.028	0.039
duration full-time break	-0.033	-0.027	0.025
duration part-time break	-0.013	-0.073	-0.053
Age (ref. = 55-59 years of age)			
18-24 years	-0.066***	-0.028***	-0.070***
25-39 years	-0.015***	-0.017***	-0.023***
40-49 years	-0.010**	-0.013***	-0.022***
50-54 years	-0.010**	-0.018***	-0.033***
60-64 years	0.160***	0.106***	0.228***
Partner	0.023***	0.008***	0.025***
Age youngest child (ref. = no children)			
0-2 years	0.000	0.002	0.000
3-11 years	-0.005**	0.002	-0.005**
12-17 years	-0.004*	0.001	-0.005**
18-24 years	0.004*	0.003**	0.003*
25 years or older	0.003	0.001	0.006**
Constant	1.718***	0.822***	1.957***
Observations	146637	137238	137036
R-squared	0.53	0.76	0.50

Source: The Datawarehouse Labour Market at the Crossroads Bank for Social Security, PMWP sample (own calculations), *** significant at 1%, ** significant at 5%, * significant at 10%.

taken in 1999 is uncertain. The full-time breaks do not have significant effects on wage. The duration variables also do not have any significant effects on the wage of men which means that no support is found for the second tournament model hypothesis. There are fewer cases included in this model due to the additional year in the model (2002). The positive effect found for the part-time break support the third tournament model hypothesis.

Model 9a includes 137036 cases and explains 50 percent of the variance in the sample. Here we observe that the effects of the key explanatory variables are no longer significant and that those men who have taken a break in 1999 or 2000 are back on a normal wage level. They have in fact rebounded back to the wage plane they were on before they took the career break. No significant effects for the duration of the break are observed in any of the men's models.

The three models on wage are now presented for women in Table 5.10. Beyond the effects on wage and the effect of a two-year duration of the break on wage, we look specifically into effects of career breaks on the wages of working mothers. The next analysis compares the effects on the wages of working women, and more specifically working *mothers* by whether they have made previous use of a career break, whether this is part-time or full-time and how the duration of the break affects wage.

Table 5.10: Three wage models for women explaining real wage change for three periods

	Model 7b 1998-2001	Model 8b 2001-2002	Model 9b 1998-2002
Wage			
logarithm wage 1998	0.616***		0.573***
logarithm wage 2001		0.827***	
Career break			
part-time break in 1999	0.003	-0.004	-0.011
full-time break in 1999	0.038*	0.040**	0.085***
part-time break in 2000	0.008	0.009	-0.002
full-time break in 2000	0.056**	0.021*	0.048**
Duration full-time break	-0.082*	-0.100**	-0.172**
Duration part-time break	-0.006	-0.028	-0.017
Age (ref. = 55-59 years of age)			
18-24 years	-0.088***	-0.029***	-0.085***
25-39 years	0.000	-0.003	0.009
40-49 years	0.040***	0.013**	0.046***
50-54 years	0.015**	-0.016**	-0.011
60-64 years	0.326***	0.134***	0.367***
Partner	0.022***	0.005**	0.026***
Age youngest child (ref. = no children)			
0-2 years	0.028***	0.015***	0.031***
3-11 years	0.013***	0.010***	0.009**
12-17 years	-0.005	-0.002	-0.014***
18-24 years	-0.009**	-0.004	-0.015***
25 years or older	-0.007*	-0.003	-0.008***
Constant	1.842***	0.865***	2.091***
Observations	94687	87686	87328
R-squared	0.49	0.72	0.44

Source: The Datawarehouse Labour Market at the Crossroads Bank for Social Security, PMWP sample (own calculations), *** significant at 1%, ** significant at 5%, * significant at 10%.

In Model 7b, 94687 cases are included and the model explains 49 percent of the variance in the population. We observe a strong positive effect for the logarithm of net daily wage as measured in 1998. This coefficient is very similar to the effects of wage found in the first model for men. This variable has the greatest explanatory power in the model. Of the key explanatory variables, the full-time career breaks for 1999 and 2000 both have a significant positive effect on the wages of women. This supports again the third tournament model hypothesis. The part-time breaks have

no significant effects on wages. This is exactly the opposite of what was true for men. Women also experience an immediate positive effect as they return from their full-time break. The positive effect for the full-time break taken in 2000 is stronger than for the full-time break taken in 1999. Where no effect for duration was found for men, there is an effect for women. If they stay out on a full-time break for both years, the positive effect on wage is reversed and a wage penalty results. This duration effect is similar to what was found for women's continuity. The second tournament model hypothesis is supported for women only.

Moving straight onto Model 8b in which 87686 cases are included (an additional year making the selection more stringent) and which explains 72 percent of the variation (this model measures real wage change between 2001 and 2002), we observe that the significant positive effects found for full-time breaks in Model 7b persist in this wage model. Remember, the breaks are taken in 1999 and or 2000. The positive effects found for a full-time break in 2000 means that we are observing the same phenomenon from the first model, namely a rebound effect as women return to their jobs. However, the significant positive effect found for the full-time break in 1999 can hardly still be referred to as a rebound-effect. On the contrary, this has a more lasting positive effect on the wages of these women and provides support for the human capital hypothesis. However, the positive effect of a full-time career break on women's wages is reversed if the full-time break is taken for two years. The negative effect of a two-year duration is more than two times stronger than the positive effect for the full-time break in any one year. This provides support for the third tournament model hypothesis.

Model 9b covers the real wage change over the entire period from 1998 to 2002. It includes 87328 observations and the model explains 44 percent of the variation in the population. The significant positive effect of a full-time career break on women's wage growth can be clearly observed. The positive effect for the full-time career break in 1999 is even stronger than in Model 7b (and significant at 1% as compared to 10%). This is not the case for the full-time break taken in 2000. Although the effect remains significantly positive (at 5%), it has weakened very slightly in comparison to the first model. The significant negative effect for duration is strongest in this last model. Taking a full-time career break has a significant positive effect on the wages of women. But they must come back after one year. If they do not, the negative effect found for duration is much stronger than the positive effect for the full-time break and results in a wage penalty.

The covariates used in the three models sketch a very consistent picture and enable insight into the role of career breaks for working mothers. The effects for the age groups show that compared to the reference group (age 55-59 years) the youngest age group has lower wages and the age group of 25-39 years has no significant effects on wages compared to the reference group. At age 40-49, women are climbing in their

wage levels. The age group of 50-54 years shows little or no significant difference in wage growth to the reference category. Again we observe the die-hard group of workers age 60-64 who are still making quite a good go of it as is expressed in the positive effect on their wages. Significant positive effects are found for having a partner.

Quite contrary to the negative effects on participation, we find a positive effect for career breaks on earnings; that is to say as long as the career break is taken for no longer than one year. Part-time career breaks have a positive effect on the wages of men. This effect disappears once the man has returned to the wage growth rate he had before taking the break. Full-time career breaks have a positive effect on the wages of women. The effect of full-time career breaks on women's wages persists and is observable even three years after the break. Working mothers with young children (0-11 years of age) show positive effects on their wages compared to the reference group of women without children. Being a mother with youngest children 12 to 17 years, seems to be a turning point for which we observe mostly insignificant effects. Mothers of children 18 years and older have significant negative effects on their wages. This may be a cohort effect of older, more traditional women who did not continue working after having children.

One last reflection on the matter of selectivity: wage level plays a more modest role in the chance of taking a full-time break. With this as a background and looking at the results of the wage models, we can say that part-time breaks are more interesting for higher wage earners because they are less of a financial burden. Higher wage levels have more to lose by taking a career break. By taking up the logarithm of the individual wage into the model, we include the very variable for which selectivity applies. If this were not entered in the model, there would be a case for selectivity bias. The significant positive effect of a part-time break on the net daily wage was only seen for men, and then only long enough to put them back on the wage level they were on before they left. The fact that wage level is less significant for whether one takes a full-time break or not is very important here as we have observed the positive effect a full-time break has on women's wages. This effect is persistent as well. Women taking a full-time break, and returning after one year, experience an initial rebound effect that compensates the lack of growth during the break, and the growth persists. The increased wage growth is still observable even three years after returning from her career break.

In terms of the human capital hypothesis: working mothers who take institutionalized career breaks will achieve a better wage development than working mothers who do not take a break and simply continue working, we can say that we do indeed find support. The significant positive effects found for a full-time (one year) career break, combined with the positive effects of being a mother (of young children) provide some support for our hypothesis that working mothers who take career breaks will have a stronger positive effect on their wages than working mothers who do not take

a break. Part-time career breaks have no such effect, and once again, if a woman stays away from her job longer than one year, she ends up with a strong wage penalty.

The hypothesis for the statistical discrimination theory is supported. Employees do not suffer negative effects on wages and wage growth after returning to their job. No significant effects for longer breaks were found for men. The hypothesis that the longer a person takes a break, the more rounds he or she misses which will have a negative effect on earnings remains standing.

The results of the testing of the first hypothesis for tournament models shows: as far as whether it is better to take a break earlier or later in the career, the effects of age on wage are clear for men, earnings are highest at age 50 and older. For women, the earnings pattern is more diverse. Women earn their highest wages between the ages of 40-49 and 60-64 years of age. During a career break, earnings are sacrificed, and although partially compensated by the career break subsidy, this compensation in no way makes up for actual wage loss. On the other hand, strategic moves up the career ladder are made at early stages in the game. Mertens *et al.*, (1995) also advise substantial investment in women's careers *before* interrupting them for family engagements. Because life course events are not always easily planned, it will no doubt be a question of when the break is needed that will more likely be decisive in this matter. Regarding the second hypothesis based on tournament models (the greater the duration of the break, the more detrimental it will be in terms of wage) we find that if women take an institutionalized career break for two years, this has strong negative effects on wages. The effects are so strong that as soon she remains on the break longer than one year, all the good the break did in terms of wages is not only nullified, but a strong wage penalty results. The men's models provided no significant effects for duration.

5.9 The context of institutionalized career breaks as a labor market phenomenon

This section is designed to provide perspective on the career break as a labor market instrument; the magnitude that it currently commands and how its use differs among diverse labor market participants. This seemingly descriptive section on institutionalized career breaks on career paths comes as a last stage in this research. We have presented the Belgian career break from its first appearance, and traced its evolution in legislative labor market regulations in Belgium, comparing these to many similar developments in the Netherlands. This was followed by a descriptive chapter using Belgian administrative data (PMWP sample) presenting who actually uses it and why. The testing of the hypotheses was performed using multiple data sets and several types of analysis. It is now time for an explanation of just what kind of role the career break has in the labor market, how it compares to other forms of career transitions, who is experiencing sequences of career deviations, and whether we can

expect this particular labor market instrument to increase in scale or diminish. This makes it necessary to use a longitudinal data set that follows individual careers over a much lengthier period than has been examined up to now, and preferably includes *entire* career paths.

For this section only, we make use of a special data module from the 2002 wave of the PSBH called the career module. The data allow for a unique exploration of the career paths of the individual respondents following them through their diverse working (and non-working) careers since their departure from initial schooling. The nature of the career module is longitudinal because of the intricate and extensive retrospective questions tracing the work histories over (sometimes very) extended periods of time. This calls for some innovative analysis methods to make fully evident the complexity and richness of the career module. It also allows for an exploratory look into sequences of career deviations that have thus far been rather elusive.

Two methods have been selected, the first of which belongs to the family of sequence analysis, and the second is a Latent Class method of analysis. The first of the analysis methods is Optimal Matching Analysis (OMA) which is covered in section 5.9.1. Section 5.9.2 presents an exploration of the career module using an analysis technique called Latent Class Regression analysis. In the last section (5.9.3) a comparison of the results from both methods of analysis is made to answer the questions regarding whether career patterns are indeed changing, what the role of career detours is in the developing patterns, and more specifically what the magnitude of career breaks is as a labor market instrument and its place as a life course labor market instrument on a transitional labor market.

5.9.1 Using OMA to capture career patterns

Optimal Matching Analysis has its roots in molecular biology and more specifically DNA research. Optimal Matching Algorithms were used to recognize patterns in the DNA and protein sequences. The technique calculates for each pair of sequences how much the second sequence differs from the first. A predefined maximum number of mutations is established whereby those sequences requiring more than that maximum number fall into a new category. The adaptation for the social sciences was pioneered by Abbott (Abbott and Hrycak, 1990).

In terms of our career module data, the employment status of a respondent measured at each point in time forms one sequence that is analyzed as a career path. This is a logical approach to the data because we would like to understand how entire careers are affected by certain career path detours. A transition is a move from one labor market state to another. Persons who are studying and have not yet entered the labor market are not included. Only one labor market status is possible per year assessed by registering the labor market status for which the most time during that year is spent.

The dependent variable employment status is a nominal variable with nine categories: unemployment, unpaid activity, inactivity due to sickness or handicap, study/training, new part-time job, part-time job, new full-time job, full-time job, and pension.

The OMA technique is based on a number of assumptions that are inherent in the structure of the data. A timeline is assumed with multiple points of measurement t_1, t_2, ..., t_n. The variable X is measured at every point in time, which results in a range of observations. In this manner a sequence of observations of variable X at time t is made. This range represents the course or career path for that respondent over the points of measurement of the variable.

Figure 5.9: Sequence measurement

Respondent	X at t_1	X at t_2	X at t_n	Sequence
1	9	7	25	Sequence 1
2	3	6	18	Sequence 2
3	1	4	19	Sequence 3

The distance between sequence one (the first respondent) and sequence two (the second respondent) is calculated using a transformation measure. This shows the 'cost' of transforming sequence 1 into sequence 2. The transformation is made by inserting, deleting, or substituting elements. Each step entails transformation costs with a deletion or an insertion equaling 1 and a substitution equaling 2. The lower the transformation costs, the more similar the sequences are. This results in a distance or dissimilarity matrix. A dissimilarity matrix is used to establish when the maximum distance has been reached.[74] Once the distance matrix is calculated, the sequences are organized into career typologies using cluster analysis, grouping similar cases (Chan, 1995).

The career module includes respondents who began their career as far back as 1931 making a maximum number of 72 measurements possible (1931-2002). There are also respondents who have only just begun their careers with no more than one or two employment status measurements. A total of 4268 respondents have been included in the analysis resulting in a total of 17 identifiable patterns, which again can be reduced to six major grouping types. To simplify the description, each of the 17 career types has been numbered for which a brief explanation of each of the 17 types will now be given.

1. Student – Students are still involved with their initial education and do not actively participate in the labor market.

74 Ward's Minimum Variance Method.

2. Stable entrant – This group has only recently joined the labor market actively. This initial entrance has been without any noticeable problems. The majority of this group has found a full-time job rather quickly; others have started their career in a part-time position. The number of transitions is limited to a maximum of one; this is often a transition from one job to the next.
3. Short limited transitional career – Although this group has participated a bit longer and working in full-time jobs has a central position, many of these respondents have changed jobs already a few times. Others have exchanged periods of full-time work with periods of unemployment or part-time labor.
4. Job hopper – These respondents change regularly both their jobs and their employment status. Job-hopping is the central theme here. Many of the transitions are from full-time jobs to new full-time positions, but by the very tendency to change so often, the image is one of an unstable career pattern.
5. Stable full-time – These respondents fulfill the transitional career image in which full-time work is the common denominator. Full-time employment is carried out for longer periods and in the same job. Some of these individuals change occasionally; others make the transition to another employment status.
6. Transitional full-time – Just as the previous type, here too, working full-time is dominant with the main difference being that these respondents have a less stable career path. In this group, job transitions are more common. Furthermore, full-time career periods are interspersed with short periods of unemployment, part-time employment, unpaid activity or even periods of illness.
7. Stable part-time – These are the real part-time employees displaying a very stable pattern of part-time employment and only a few transitions.
8. Unstable part-time – This group is quite similar to the previous groups but has a much less stable career path. Although part-time work is the predominant pattern here, it is interchanged with periods of full-time work, unemployment or unpaid labor.
9. Stable nonparticipation – The career path for this group is predominantly unpaid labor revealing quite a stable pattern.
10. Unstable nonparticipation – This group also demonstrates a predominant pattern of unpaid activity but their pattern is much less stable, reflecting periods of nonparticipation interspersed with other kinds of employment such as regular full-time employment and unemployment.
11. Unemployed – These respondents have been unemployed for the major part of their career.
12. Sickness or handicap – These careers are characterized by long periods of illness and disablement.

13. Atypical career – A typical atypical career path is characterized by periods of unemployment, unpaid activity, schooling, and illness and is as diverse as can be imagined. These respondents have experienced just about everything.
14. Insecure career – The insecure career path shows periods of employment that are often interrupted for shorter and longer periods of unemployment and unpaid activity.
15. Standard career – These respondents have followed the traditional career path. After a stable full-time career with few or even no transitions, they retire from the labor market.
16. Transitional full-time – retirement – These respondents have also worked almost their entire career in full-time positions, ending their careers with retirement. Contrary tot the previous group, however, they have a more transitional career in which they have changed employment status a few times for periods of unpaid labor, illness or even a period of unemployment.
17. Atypical career – retirement – This last group has had a less traditional career considering that periods of full-time employment are not necessarily the main ingredient. Career detours are also dominant in their working life prior to their exit from the labor market for retirement.

The following tables are descriptive presentations of the career patterns found in the career module data using the OMA method. In Table 5.11, results are presented regarding the distribution of career typologies in the population.

The largest group is the longer labor careers with most of the respondents showing stable full-time employment throughout their careers. This group also has the second largest subgroup showing a predominance of transitional full-time employment. This is very much the norm and represents the standard career type. Of the six career types the students are yet to begin, leaving actually five discernible groups.

As can be observed in the table, either men or women dominate in a number of the typologies. Although at the start of the career path, women and men are evenly represented as labor market entrants, women are clearly over-represented among the job-hoppers at the start of their careers. Why this is so is not apparent. It would indicate a more transitional nature in terms of career styles. It certainly is worth looking into more directly. Women have more diversity in their career paths. This is well known and was one of the decisive factors in Mincer and Polachek's developing alternative models for analyzing women's earnings. The fact that this diversity is so evident at the beginning of career paths is not well known. Further, it can be noted that women dominate just about every typology where the word unstable or atypical is used: unstable part-time, unstable career of unpaid work, atypical career path and

Table 5.11: Career typologies, distribution by gender, and in population (percentages), and frequencies

Nr.	Type	Men	Women	%	n
1	Students			8	329
	Short full-time careers				
2	Stable entrant	49	51	8	329
3	Less stable entrant	48	52	7	317
4	Job hopper	28	71	4	176
	Longer labor careers				
5	Stable full-time	60	40	20	853
6	Transitional full-time	68	32	12	506
7	Stable part-time	5	95	2	93
8	Unstable part-time	1	99	2	91
	Career breakers				
9	Stable nonparticipation	1	99	9	403
10	Unstable nonparticipation	2	98	1	60
11	Unemployment	42	58	1	51
12	Sickness or handicap	49	51	2	73
	Atypical career paths				
13	Atypical career	21	79	4	188
14	Insecure career (unemployment)	44	56	2	87
	Completed careers				
15	Standard career	65	35	10	431
16	Transitional full-time career – retirement	75	25	6	241
17	Atypical longer career - retirement	8	92	1	40
	Total	46	54	100	4268

Source: PSBH career module, 2002 wave.

even the atypical longer career and retirement. Diversity and transitional are terms with less of a negative connotation to describe the highly varied career paths of women.

The typologies are presented once again, but now by birth cohort in Table 5.12. This gives an impression of which career types are most likely to diminish or increase. Leaving the starters and the retirees out of the picture, we focus on the longer labor career types, the career breakers and the atypical career paths. A higher level of transitional careers can be found for the younger cohorts. This is a first indication of a shift to more transitional careers. The new trend of part-time work is also apparent with a high percentage of stable part-time employment in the 1960-1969 cohort. These are certainly women combining paid labor and caring tasks. Among the career breaker types, we observe that the stable career of unpaid work is definitely a downward trend. This is rapidly disappearing on the Belgian labor market, as is the un-

stable career of unpaid activity, although it still has a rather equal distribution over the cohorts. High percentages of unemployment are most visible among the very young, reflecting high youth unemployment. The atypical career path has a high representation under the youngest cohorts.

Table 5.12: Career typology by birth cohort (percentages)

Nr.	Type	<1930	1930-1939	1940-1949	1950-1959	1960-1969	>1970	Total
	Short full-time careers							
2	Stable entrant				1	4	95	100
3	Less stable entrant				6	56	39	100
4	Job hoppers			1	10	66	23	100
	Longer labor careers							
5	Stable full-time	4	4	23	41	26	2	100
6	Transitional full-time	1	5	22	43	29	0	100
7	Stable part-time	4	12	13	24	45	2	100
8	Unstable part-time	2	15	27	37	19		100
	Career breakers							
9	Stable nonparticipation	34	28	20	12	6	0	100
10	Unstable nonparticipation	15	19	30	22	13	1	100
11	Unemployment	3	2	4	11	26	54	100
12	Sickness or handicap	6	28	42	17	5	2	100
	Atypical career paths							
13	Atypical career path		1	4	15	48	32	100
14	Insecure career (unemployment)	1	7	33	29	18	12	100
	Completed careers							
15	Standard career	48	39	13				100
16	Transitional full-time – pension	40	46	14				100
17	Atypical longer career – pension	85	15					100
	Total	14	13	15	20	23	15	100

Source: PSBH career module, 2002 wave.

Table 5.13 presents the average transitions per typology. The career types with the highest average number of transitions are characterized with terms like unstable, transitional, and insecure. When is a high number of transitions positive and when does it point to negative career patterns?

What we observe here is that not all transitions are positive in their effects on careers and some could better be avoided. Will the job-hoppers of the short-term career evolve into successful transitional careers? Or will they prove to be unstable or even insecure with longer periods of unemployment? More than 70 percent is female, whereas under the full-time transitional employment only 31 percent is female. This

Table 5.13: Average number of transitions per career path type and standard deviation

Nr.	Type	Mean	Std. Dev.
	Short full-time careers		
2	Stable entrant	0.46	0.50
3	Less stable entrant	1.56	0.50
4	Job hopper	5.14	2.11
	Longer labor careers		
5	Stable full-time	0.89	0.84
6	Transitional full-time	4.26	1.72
7	Stable part-time	1.28	0.78
8	Unstable part-time	4.13	1.56
	Career breakers		
9	Stable nonparticipation	0.90	0.88
10	Unstable nonparticipation	4.72	1.50
11	Unemployment	0.60	0.61
12	Sickness or handicap	3.79	2.53
	Atypical career paths		
13	Atypical career	2.65	0.47
14	Insecure career (unemployment)	6.47	2.50
	Completed careers		
15	Standard career	1.97	0.74
16	Transitional full-time – retirement	5.34	1.74
17	Atypical longer career – retirement	3.46	0.51

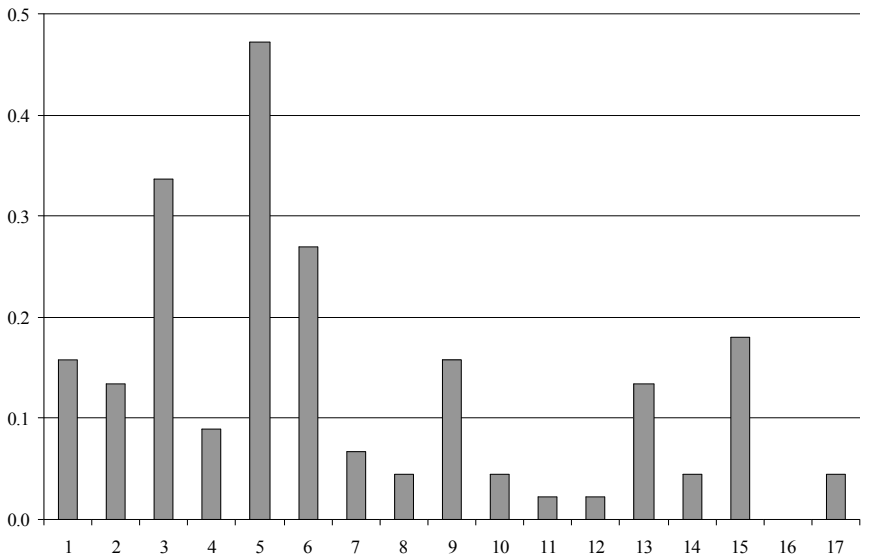
Source: PSBH career module, 2002 wave.

descriptive presentation of career types by transition averages raises many questions concerning how transitions can best be guided or maneuvered into positive career paths where transitions lead to new opportunities instead of dead ends. We observe in Table 5.12 that the more transitional career types can be expected to increase, as these are predominant by the younger cohorts. Older methods of employee protection such as union membership and sector agreements are declining. This calls for new labor market instruments to protect individual workers who are exhibiting a tendency towards a more transitional career path.

The last question to be answered is how the career break users are distributed among the 17 types resulting from the OMA. This is presented in Figure 5.10.

Career break users can be found in almost all of the 17 career types. The total average in the sample is just over two percent. The variation in distribution among the 17 types is presented in Figure 5.10 which demonstrates that the career type showing the greatest percentage of career break users is type 5 (with almost 5%). These are stable full-time employees with longer working careers which indicates that these workers are using career breaks to facilitate a greater participation and extended

Figure 5.10: Distribution of career break users relative to the average over the 17 types (career break user as percentage within type)



Source: PSBH career module, 2002 wave.

careers. Type 3 consists of the less stable labor market entrants that are from younger cohorts. The respondents in type 6 are the traditional full-time workers. What we observe up to now, is certainly not a picture of career break users as labor market drop-outs. The three types in which career break users are most frequently observed are active labor market participants. Those individuals using the career break to exit the labor market can be found in type 9 (the nonparticipants) and 15 (the completed careers). In the last case, they use the career break as an exit for early retirement.

At this point, we turn to our second method of analysis, Latent Class which uses an entirely different methodological approach to discerning patterns in our career module. Where the OMA approaches the career path as a sequential mathematical abstraction, the Latent Class Analysis identifies groups using underlying similarities. This is achieved by looking beyond similar scores to integrate covariates such as gender and age.

5.9.2 Latent Class cluster analysis for identifying career patterns

Unlike the previous method, Latent Class cluster analysis is from the family of latent structure models. Latent means that the analysis is directed to look for similarities that are not obvious or immediately discernible. For instance, in much the same way that a factor analysis can identify underlying dimensions that group similar survey

questions, latent class establishes underlying similarities in scores, with the aid of covariates to identify like groups.

There are no assumptions concerning the measurement level; both indicator and latent variables can be nominal. This is important for discerning career patterns as no hierarchy is entered in the model concerning career paths. Determining the correct number of classes in the model is essential because using too many classes makes for an unstable model, while too few classes does injustice to the variety in the data. This is achieved with the help of the log-likelihood values, the BIC (Basic Information Criterion) values and the number of parameters in the estimated models. It is also important to keep an eye on the classification errors which show the rate of incorrect predictions. Latent Class analysis allows for two types of control variables to be added to the model, predictors or explanatory variables, and covariates for descriptive distributions. The dependent variable is the nominal variable; *labor market status* this time, with five categories: unemployment, nonparticipation, pension, full-time work, and part-time work.

Drawing on our theoretical model, a number of assumptions are now introduced. Especially important is how labor patterns are influenced during particular life course stages. Included in the model as an explanatory variable (predictor) is the variable *age* entered with three categories to reflect major life course stages: younger than 30 years of age, 30 to 49 years of age (time squeeze), and fifty and older. Further, three variables are added as inactive (non-explanatory) covariates to distinguish how personal characteristics are distributed over the classes: gender, cohort (using the same six categories as the OMA) and, with an important additional variable – *past career break* – ever having taken an institutionalized career break in the past.

A total of 4453 cases are included in the analysis. The log-likelihood (LL)[75] decreases as the number of classes increase. Two parameters are essential in discerning the best number of latent classes for the model. The first is the BIC (Basic Information Criterion) a parameter derived from the log-likelihood. The second is the classification error that shows the error rate for predicting the class for each respondent. It is necessary to attain a balance between the simplest model and the model that allows for the greatest variety. As long as the BIC value decreases and the classification error

75 Likelihood is the hypothetical probability that an event, which has already taken place, will yield a certain outcome. This is different from a probability because probabilities refer to future events, where a likelihood refers to past events with known outcomes. Using a logarithm of the likelihood simplifies the calculation of very small numbers. Log-likelihoods are added together rather than multiplied (log-likelihoods will always be negative by discrete variables, and will just get larger (more negative) rather than approaching 0). When optimizing the log-likelihood (minimizing the negative log-likelihood) with respect to the model parameters, we also optimize the likelihood with respect to the same parameters, for there is a one-to-one (monotonic) relationship between numbers and their logs. The log-likelihood is thus statistical support for a hypothesis or parameter value.

does not get too high, increasing the number of classes is justified. The model improves up to and including the 11-class model (see Appendix B, table B2).

The first task at hand is distinguishing the relevant career types resulting from the analysis. This is done using the 11-class model results which are presented in Table 5.14. The program establishes classes in the analysis in a particular order, and class size gets progressively smaller as the class number rises. The numbers assigned by the program will not be changed. For the presentation of the analysis results, the arrangement of classes in the tables is not consecutive by number of class but grouped by type. In the table each of the eleven classes are shown with the most common labor market status per age category. By entering an age category as an explanatory variable into the analysis, it is possible to capture life course patterns during the career path that give a more dynamic view of how labor market patterns evolve during careers and throughout life course stages. Each of the eleven typologies is displayed as a percentage of the population as well with the percentage of women observed for each of the career types.

Class 1: full-time workers who retire early
Regarding the first of the eleven career types distinguished, class one is the largest and consists of 29 percent of the population. These are full-time employees who, for the most part, exit the labor market somewhere around age 50 for early retirement. There is no part-time work observed, no unemployment, and only a small (two percent) likelihood of not participating in the labor market during the early years of the labor career (younger than 30 years of age), probably due to a longer initial educational period. This is one of the two male-dominated classes showing only a third of this class to be female.

Class 2: full-time workers who retire later
Class two is the second largest, with 28 percent of the population. Persons belonging to this class are full-time workers throughout their career. They retire later than the persons from class one as can be seen from the large percentage still working full-time at 50-plus years of age (see Appendix B, table B2). This group also exhibits a small chance of having a late entrance onto the labor market most likely due to greater investments in initial education. This is the second male-dominated class with slightly less than two-thirds being men.

Class 8: full-time to nonparticipation
This class is 60 percent women who work full-time during the first two life course stages and then exit the labor market not as pensioners but as nonparticipants. Possibly these women have not worked enough to receive pension benefits, but leave the labor market at the same time that their partners do.

Table 5.14: Career types resulting from latent class nominal regression analysis, classes 1 through 11

	Age < 30	Age 30 - 50	Age 50+	Class %	% Women
Class 1	full-time	full-time	pension	28.5	33.2
Class 2	full-time	full-time	full-time	27.7	34.1
Class 8	full-time	full-time	nonparticipation	4.3	59.3
Class 4	full-time	full-time	unemployment	6.4	51.9
Class 6	full-time	full-time	part-time	5.3	78.8
Class 9	nonparticipation	full-time	pension	4.0	56.4
Class 5	part-time/ full-time	part-time	part-time	5.5	92.3
Class 11	full-time/ nonparticipation	part-time	part-time/ nonparticipation	3.1	95.8
Class 10	unemployment	unemployment	unemployment	3.7	75.2
Class 7	full-time/ nonparticipation	nonparticipation	pension	4.4	88.2
Class 3	nonparticipation	nonparticipation	nonparticipation	7.3	96.2

Source: PSBH career module 2002 wave.

Class 4: full-time to unemployment
This group is equally distributed among men and women. They are full-time workers throughout the first two life course stages. At age 50, they encounter some bad luck along the way and are for the most part unemployed. For this group, there are no early retirement packages, or at least none that they can afford to take.

Class 6: full-time to part-time
This class is female dominated. They work full-time throughout the first two life course stages and opt for working part-time during their last working phase to ease into retirement.

Class 9: nonparticipation to full-time to early retirement
This group is more or less equally distributed by gender, exhibiting a period of nonparticipation in their early years followed by full-time work from the age of 30 to 50 years before entering early retirement.

Class 5: combinations of part-time work and full-time work to part-time work
This class is made up of more than 90 percent women. They work either full-time or part-time until they are 30 years of age. Then they all work part-time, but do so consistently until reaching retirement age.

Class 11: full-time and nonparticipation to part-time, to part-time or nonparticipation
This too is a female-dominated class (96%) exhibiting diversity throughout the

career. The first phase is either nonparticipation or full-time work. At age 30, they make the transition to part-time work, most likely to accommodate their responsibilities at home. At age 50, they either continue working part-time or exit the labor market as nonparticipants. They have not built up enough rights to exit in early retirement.

Class 10: unemployment
This class is almost four percent of the population, three-quarters of whom are women. This group is unemployed from the start to the finish of their career. It is a relatively large group that never effectively enters and participates in the labor market.

Class 7: full-time work or nonparticipation to nonparticipation to pension
The first stage of this classes' working career is either working full-time or characterized by nonparticipation. It represents more than four percent of the population, and is made up of almost 90 percent women. The second life course stage is one of unpaid work. These women have exited the labor market to take up the more traditional role of housewife. For the last phase of their labor career they opt for early retirement.

Class 3: labor market nonparticipants
This group includes seven percent of the population and is a highly female-dominated class. They are the traditional housewives who do not participate in any form of paid labor during their potential working lives.

Only two of the classes are predominantly male (1 and 2). Six classes are predominantly female (3, 5, 6, 7, 10 and 11). Three classes are more or less evenly distributed by gender (4, 8, and 9). This is support for Hakim's statement that women are more heterogeneous in their labor market behavior. The resulting career types have been possible to characterize by their size in the total population and their gender distribution. But what can be observed regarding whether these are up and coming patterns in the labor market or whether they are more or less dying out? For this, information on the distribution by cohort is essential.

Table 5.15 is the proportion of career types per cohort relative to the overall average where 1 is the equilibrium. Any number higher demonstrates a disproportionately higher representation of the class type in the cohort, and lower than 1 is then a disproportionally lower representation of the class in the cohort. This provides an indication of whether certain career patterns are more prevalent by younger or older cohorts, which in turn is a sign of advancing or diminishing career types. The two more standard, male-dominated careers of working full-time (class one opting for early retirement) and class two (working through to retirement age) are still very strong although, as can be observed, it is the older cohorts that are over-represented in this career type. The two more traditional female-dominated careers of home-

Table 5.15: Proportion of class type per cohort relative to overall average

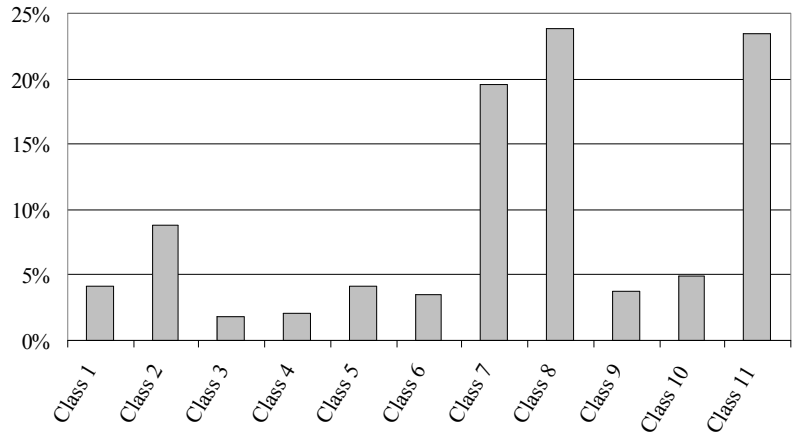
	< 1930	1930 – 1939	1940 - 1949	1950 - 1959	1960 - 1969	> 1970
Class 1	1.54	1.43	0.39	0.91	1.01	1.02
Class 2	0.29	0.35	1.70	1.23	1.03	0.95
Class 8	0.96	1.59	1.15	0.95	0.75	0.90
Class 4	0.38	0.68	1.17	1.16	1.03	1.21
Class 6	0.12	0.29	0.96	1.09	1.40	1.38
Class 9	2.71	2.21	0.60	0.63	0.63	0.46
Class 5	0.20	0.31	0.49	0.91	1.66	1.60
Class 11	0.63	0.92	1.39	1.29	0.84	0.82
Class 10	0.03	0.10	0.36	0.91	1.54	2.14
Class 7	1.95	1.36	0.86	0.91	0.89	0.56
Class 3	2.53	2.37	1.39	0.54	0.28	0.35

Source: PSBH career module, 2002 wave.

maker (class 3 and class 7) are on their way out. This type of career characterized by nonparticipation for the greater part seems no longer an option for younger cohorts of women. Classes 6, 5 and 10 are up and coming career patterns, all three of which are female-dominated. Class 6 and 5 are highly participative, either full-time or part-time throughout the working life. Class 10 shows a high over-representation by the two youngest cohorts and this class is one long state of unemployment. These women have missed their ticket into the labor market. This may be because they have left school without qualifications or with qualifications for which there simply was no work.

The next question to be answered is how the career breakers are distributed over the eleven types. This figure is different the presentation for OMA in Figure 5.10 where that was in relation to the total average. In Figure 5.11 the distribution of the 99 career breakers is presented. With a total of 99 respondents in this data set who have taken an institutionalized career break during some period in their working life, we observe that most of the career breakers fall into three distinguishable classes: 7, 8, and 11. Knowing that class 7 is decreasing in size per cohort, combined with the fact that the career break system is increasing in popularity, we can assume that types 8 and 11 will either increase or that we will see a growth coming from other class types. Class 2 also merits attention, as this is a typical male class, yet still almost 10 percent of the career break users are from this group. It is also the class that works full-time right on through to the pension age which indicates that individuals are indeed using career breaks to enable longer working careers.

Figure 5.11: Distribution of total number of career break users over the 11 classes (percentages)



Source: PSBH career module, 2002 wave.

5.9.3 Summary of the results

What have the two methods of analysis told us about how careers are developing and what can be expected in the future? And what is the role of career breaks among the wide variety of labor market instruments and the great number of transitions made by individuals during their working lives? It is especially with the help of the Optimal Matching Analysis that actual transitions became visible in the research population. Each of the five career type groups identified by this technique revealed one or more highly transitional career paths. One of the problems with the OMA method is that the costs are the same no matter *when* the dissimilarity occurs in the sequence. In layman's terms, whether a transition is made from full-time employment to part-time employment at the beginning or at the height of a career, the costs are the same. This is not consistent with human capital theory nor with our hypotheses from tournament models.

Another problem with the OMA method is that a transition is equal to any other transition. In this manner, the transaction costs for transitions to unemployment are equal to transitions from unemployment to employment. This method does not allow for hierarchical levels or values. The analysis leads to a dissimilarity matrix which than can be used in a cluster analysis to group similar types. Interpretations of these types are, for the most part ad-hoc. More transitional types are then attributed a positive or negative label: job hopper, transitional full-timer (positive), and unstable career of nonparticipation, insecure career (negative).

The Latent Class approach is similar to the OMA in that it too comes to a distribution

of scores over the class types. However, the method is not a simple subtraction, addition or replacement, but a Latent Class analysis allows finer tuning as well as the introduction of covariates to the model. An important plus to the Latent Class analysis was using an explanatory variable for the three major life course stages. This added a dynamic dimension to the model where the OMA was quite static; providing results only for where a person was at that moment. The Latent Class analysis exposed the different labor patterns that were effectively occurring during a particular life course stage. Another plus from the Latent Class analysis was the possibility of focusing more specifically on the institutionalized career break itself. By using the life course covariate, the distribution of career break users was far more accurate than with the OMA, giving a more realistic impression of just who is using it and why.

What have we learned about the career detours from this exploration of the information on life courses and careers of a large group of Belgian citizens? Both the OMA and the Latent Class established a growth in part-time work among younger, female-dominated cohorts, which means that part-time work is also a growing phenomenon on the Belgian labor market as it is in the labor market in the Netherlands. Nonparticipation is decreasing as a labor market option in Belgium similar to the situation in the Netherlands. Career break users show a distribution across cohorts and labor market states, but predominate in three of the typologies. One of these types is diminishing with each new cohort entering the labor market. This is the more 'traditional' use of the career break system as a labor market exit rather than a labor market detour.

The career break is also evident in one of the male dominated classes, a standard career type of full-time work where the career path extends through to the age of retirement. This is quite interesting as it indicates that men and women are indeed using the career break system to continue their working careers over a longer period, and this is precisely one of the goals of the Belgian career break system. The Latent Class analysis also established an increase in the career type of perpetual unemployment, particularly among younger females. This type of career deviation will no doubt continue to be a part of a dynamic market economy. The persistence of the unemployment period within this career type was rather alarming. It would seem that young individuals (three quarters of this class was female) who do not make a successful entry into the labor market are in danger of remaining unemployed for the duration of their potential working life.

The latent class approach is more compact leading to eleven classes (compared to the 17 from OMA) two of which are dominated by men, and six of which are dominated by women, making even more evident the fact that women have more diverse career types than men do. The rise in part-time work in Belgium is almost exclusively a female phenomenon. However, the career break is being used by an increasing number

of men. These men are using the break for the most part to ease into retirement. It appears that this is an option for an increasing number of men instead of premature exits. Still, 20 percent of the population was in the transitional full-time employment, two-thirds of which are men. Although women still have more varied careers than men do, this new type of male career, a transitional one, indicates the new style of working, one where job security is exchanged for individual responsibility for employability. Women have probably always worked under these conditions and we have not found any indications that this is likely to change in the near future.

5.10 Conclusion

This research answers the question: what effect does use of institutionalized career breaks have on individual careers in terms of labor market continuity and wages?

To answer this administrative data from the Crossroads Bank for Social Security (PMWP) is used with waves running from 2nd quarter 1998 through 4th quarter 2002, and eleven waves (1992-2002) from the Panel Study of Belgian Households (PSBH). For persons having used a career break, we can observe how their further career develops in terms of returning to their job, and once back, their labor continuity and wages. An interesting factor here is that the career break for some respondents is already some years in the past. In this manner it is possible to gain insight into the longer-term use and effects of the system.

From the first introduction of the Belgian career break system in 1985 until 1992, there is an observable increase in career break use to almost 60000 employees. Then from 1992 until 1997, there is a period of stabilization in the number of career breakers. Another period of increased use follows through 2001 showing total number of users at more than 100000. The introduction of the new time credit scheme in 2002 marks the first decrease in use of career breaks as users change over to the new system of time credit.

Using the PMWP sample at WAV in Leuven enabled insight into the trends in career breaks and shifts in those trends over the period 1998 through 2002. Career breaks are becoming increasingly more popular in Belgium evident through the total increase in use. Most of the breaks are taken for the duration of one to two years. The thematic breaks are gaining ground and now represent a total of ten percent of the career breaks. The size of break is also experiencing some changes as there is an apparent shift from full-time career breaks to part-time breaks. These reductions in working hours are being used by older workers who in this manner remain active in the labor market for a longer period of time before exiting all together into retirement. Working hour reductions are also being used by younger age groups, and then, especially for combinations of paid labor and caring tasks. There is also a subtle shift in the distribution of use by gender. Men are starting to use career breaks more than in the past although women still take 85 percent of the breaks. As most

decisions that directly effect household income are taken at the household level, these influencing factors for use have also been examined. Couples with children are the main users by household demographics. Couples without children are second largest group. The income of the partner plays an important role in this: higher partner incomes are correlated to greater use of the career break. It is not so that career breaks are inaccessible to lower income groups; they too use career breaks, although the percentage of users for these groups is significantly lower. There is some evidence that lone parents are hindered in using career breaks.

Due to the very small number of respondents in the PSBH that actually are registered as taking part in occupational training prior to a career break, it was not possible to directly test the hypothesis regarding investments in training. An attempt to test the hypothesis using the much larger PMWP sample also proved impossible, as information on occupational training is not included. The reason for the break is only known for those individuals who voluntarily offer this information, which is a very small number of the respondents in the total sample. Unfortunately, because of these data restrictions, the testing of this human capital hypothesis was not possible. The question remains whether institutionalized career breaks do differ from more traditional career interruptions regarding the employee's willingness to invest in training prior to the break. We suspect that institutionalized career breaks do differ and that employees are more likely to invest prior to and during their time-outs.

After the first round of analyses on the PSBH, the much larger PMWP sample is used to establish effects on individual careers in terms of wages. Quite contrary to the negative effects on participation – a significant number of individuals using career breaks do not return to their job – we find a positive effect for career breaks on wages. Men using part-time career breaks experience a rebound effect that brings them back up to the wage (growth) level as though they had never been gone. At this point, the positive effect then dissipates. For women, it is the full-time break that has a positive effect on earnings, and this effect remains, even a number of years after her return. This means that in controlling for other significant characteristics, under similar conditions (*ceteris paribus*) women using full-time career breaks and returning to their jobs actually do better in terms of wages than women who have not taken a break. This, together with the stronger positive effect for age demonstrates that career breaks taken later in the life course are better for wages than those taken earlier in the life course.

Working mothers who have taken a full-time career break have a higher wage than working women in general. It appears that career breaks enable Belgian mothers to maneuver restrictions in the labor market imposed by motherhood so that they experience far less negative effects (from motherhood) on their earning capacity. A control for selectivity has been used in the analysis by including their wage level in the first year. This means that the effects found are *in addition to* and not a matter of

selection bias. This effect is not being exhibited by a group of career 'die-hards', but simply by hard working Belgian mothers.

The last part of this chapter is focused on the questions just what kind of role the career break has in the labor market, how it compares to other forms of career transitions and whether we can expect this particular labor market instrument to increase in scale or diminish. The analyses performed in this framework place the career break system in a broader context. For this part of the research we utilize a special data module from the 2002 wave of the PSBH called the career module. The data allow for a unique look into the (sometimes entire) career paths of the individual respondents following them through their diverse working (and non-working) careers since their departure from initial schooling. This type of complex data required innovative analysis methods, the first of which Optimal Matching Analysis (OMA) belongs to the family of sequence analysis.

The second method presents a Latent Class analysis technique for categorical variables.

The analysis established five (six including students) main groups of clearly discernable career patterns; short full-time careers, longer labor careers, career breakers, a-typical career paths, and completed careers. The largest group (approximately 35 percent) consists of longer labor careers. Included in this group are the 'stable full-time employment' and 'transitional full-time employment'. Other large groups are formed by individuals with a 'stable career in unpaid work' (almost ten percent) and persons with a (completed) traditional career. The analyses corroborate the image that career patterns associated in one way or another with instability are the ones most often dominated by women. In fact, women dominate in only one stable career pattern – a career of unpaid work. The fact that only one – albeit it with approximately one-third still sizeable – minority group of the employees, adheres to a traditional continual and full-time career path, underscores the social and economic relevance of the career break system. The number of potential users appears to be a multiple of the current users. This conclusion is emphasized by the fact that our analyses show that traditional career patterns are primarily a matter for the older generations and more transitional career patterns are to be found among the younger cohorts.