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Testing Sen's capability approach to explain objective and subjective well-being using German and Australian Panel Data?

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Abstract

There is renewed interest in Sen's capability approach but still a dominant lack of empirical research in measuring and testing his theoretical model especially in a dynamic context. We elaborate a 'stock-flow-outcome' approach to explain objective (OWB) and subjective well-being (SWB) indicated by income and employment security and life satisfaction. We use two of the richest panel data sets in terms of breath (GSOEP with 24 years of data) and depth (HILDA with 6 years of data but broad coverage of issues). They provide evidence for two countries which represent according to the VOC literature (Hall and Soskice, 2001) two different types of market economies: a strongly coordinated (Germany) and a weakly coordinated, more or less liberal type (Australia). The main question addressed is to what extent Sen's CA model is able to explain well-being in these two regimes. We particularly view the separate effects of stocks, functionings and events. The findings strongly support Sen's capabilities framework for explaining well-being. Capabilities indicated by 'stocks of social, human and cultural capital' contribute most to explaining income security and life satisfaction whereas functionings indicated by flows and investments in stocks including life course events contribute most to explaining people's employment security. Sen's CA model seems therefore promising for explaining well-being. The results show that the capability approach makes 'Sen-se' and they also echo the contended particular features of the so-called coordinated and liberal or unregulated types of market economies.

Keywords: Income and employment security, flexicurity, Sen's capability model, panel data, career effects, life course events

JEL: I32, J21, J24, J64

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1. Introduction

There is a vast amount of literature on the theoretical aspect of the CA approach of Sen, but there is undoubtedly lack of research dealing with the measurement of capabilities and functions especially in a dynamic perspective. The need to address empirical quantitative research on the CA approach is however acknowledged (see e.g. Schokkaert, 2007). In this preliminary paper we address the issue to elaborate and test an empirical model explaining the development of WB translated into the level of income and employment security and life satisfaction over time based on what we call a 'stocks-flows-outcome' approach. It builds forth on an earlier attempt to combine economic and psychological approaches to well-being (see Headey, 1993). We use two of the richest panel data sets in terms of breadth (GSOEP, 1984-2007) and depth (HILDA, 2001-2006) to explain and set out our approach and findings.

The structure of the paper is as follows. In the second section we discuss our stock-flow-outcome approach in more detail. Then in section three we explain our empirical model before we discuss in section 4 some evidence on our well-being measures. Section 5 presents the estimations results for the RE and FE models to end in section 6 with some general conclusions.

2. A stocks and flows approach to capabilities: theoretical framework and conceptual model

Well-being: objective or subjective

In much of Sen's work he views the concept of well-being in an objective sense, whereas others, especially in the realm of psychology, add a subjective interpretation (Headey and Wearing, 1992; Diener et al., 2000, Kahneman, 2003, Kahneman and Krueger, 2006; Clark et al., 2008, Headey 2008; Headey, et al., 2008). Sen was critical about SWB measurement because disadvantaged people might report high levels of SWB partly due to ignorance or deficiencies in their knowledge of the range of choices that ought to be available to them (Headey, 2005, p. 22). Another argument is

related to adaptation and anticipation: people in their subjective assessment of the quality of their lives adapt themselves rather quickly to a new situation (e.g. a rise in income or wealth) or even anticipate to future changes and adjust their judgement and behaviour accordingly, suggesting that income or resources improvements hardly affects people well-being or poverty status (Easterlin, 2001; Clark, 2001, 2008, Ball and Chernova, 2008). The first argument seems to hold especially in the developed countries whereas the second might hold especially in richer countries though probably only for people with incomes beyond a certain threshold. We believe that the joint use of objective and subjective well-being measures might give us a better clue on how people cope with or respond to poor social and economic conditions and with financial and economic stress. The literature on the subject shows that well-being and ill-being measures are defined rather differently in the various disciplines engaged in this type of research: economics (income, welfare, health), sociology (social deprivation, happiness) and psychology (life satisfaction, stress). In all disciplines one notices the distinction between objective and subjective definitions of well-being (Schokkaert, 2007).

Sen's notions of capabilities and functionings

Capabilities are in Sen's world the real freedom people have in terms of the choice of functionings. Capabilities reflect the opportunities and choices people have to achieve alternative combinations of functionings. Central is the notion of 'freedom of choice' that might be translated into 'freedom to act'; people, in Sen's view, should have the opportunities to achieve the functionings they have reason to value most for their personal lives (Sen, 1983, 1993, 1999 a,b, 2004, 2005; Muffels et al., 2002; Alkire, 2007). Capabilities are distinct from resources because resources are just instrumental to or the means to enhance people's well-being whereas what matters more to people is the ability to achieve certain functions. Because, as Salais and Villeneuve (2005) conclude: "given equal resources, when faced with the same contingencies some people do not have the ability to overcome them". In essence what matters are the conversion factors of transforming resources or means into ends, which are the 'freedom' or opportunities that people have. For Sen the freedoms are ends in

themselves, not requiring any further justification on their instrumental effects on other outcomes such as economic growth (Muffels et al., 2002, p. 5). Sen's focus is neither on outcomes nor on people as passive recipients of these outcomes, but rather on individuals' acting and bringing about change, where the achievement can be judged in terms of people's own values and objectives. People make decisions during their life courses which are partly affected by these contingencies and partly are strict personal but in either case they have a temporary or lasting impact on their outcomes in terms of well-being. Capabilities are in Sen's world therefore not purely idiosyncratic personal characteristics or traits while they are shaped in the interaction of 'agency' and 'structure', that is, in the societal and economic context. The wider context including policies affect the 'opportunity set' of people and define the 'freedoms to act' and the contingencies they face simultaneously.

A stock and flow/event approach

The main thrust of the paper is to elaborate a stocks-flows/events framework to test the relevance of Sen's capability model to explain well-being. Stocks bear resemblance to the notion of capital, be it economic, social or cultural capital. Economic capital - as we see it - deals with wealth, human capital endowments and skills (Becker, 1975), social capital (Putnam, 2000, 2005) with the level of trust in other people and the social networks people have, indicated by the contacts with relevant others (bonding social capital) and with memberships of organisations and associations or clubs such as trade unions, social and sport clubs (bridging social capital). Cultural capital deals with shared norms and beliefs, social values, life goals and risk attitudes (Dohmen et al., 2006). Psychological capital concerns people's personality traits, generally indicated by the so-called 'big five': extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience (e.g. Diener, 2000).

The second component of the model entails flows or functionings which might be thought of as investments and disinvestment (consumption) in, and returns to capital and is similar to what Sen has named 'beings' (e.g. income, consumption, leisure

time, married, received care, autonomy) and 'doings' (e.g. volunteering, caring, training, job searching, exercising, time spending on social events). We argue that events can be viewed as functionings while they are associated with 'beings' and 'doings'. They either result from voluntary choices (endogenous shocks) or from involuntary constraints (exogenous shocks). People make decisions to marry or divorce, to change jobs, or to reduce working hours but often people confront involuntary choices, such as dismissal, divorce, separation through death etc. The inclusion of events brings also the notion of 'path-dependency' into the model because what happened in the past tend to affect current decisions.

Stocks and functionings

A stock like wealth and income drawn from wealth fits perfectly in this stock-flow-events approach. But also human capital, health and social capital which are seemingly more difficult to interpret in this way fit to the framework. The level of professional education people attain is a stock that renders people opportunities to find the job they like most. Further education and training can be viewed as an achievement or an investment in human capital, just like overtime work. Health can also be seen as a stock because it is to a considerable extent determined by people's genetic heritage, but it is also an achievement or flow because a good or bad health is also the outcome of or return to an investment in a healthy or unhealthy life style irrespective of his/her initial genetic condition. Exercising, sport activities and smoking and drinking act as investments respectively disinvestments in health and it improves in the end one's stock of health. Through the impact on health they also affect the value of someone's human capital and therewith impact on achievements and outcomes in the form of well-being.

Trust in other people is part of people's stock of social capital while it induces cooperation which might pay-off in terms of returns to effort and social support. The time invested in cooperation and collaboration can be seen as an investment in trust. The frequency of social contacts, another dimension of social capital, indicate the ability of people to maintain their social network - even though it gives no clue about

the quality of the relationships in the network- but it is also the outcome of people's investments in supporting their networks.

Risk attitudes, but also life values can be seen as being part of people's cultural capital just as religion or religious convictions are. There is ample evidence that life values matter for explaining SWB (Headey, 2006). Risk attitudes in the form of risk seeking or risk averse behaviour is an important economic component influencing people's achievements and outcomes. Investing in a new job or starting a business might be risky but might pay-off in terms of an improved career. Life values can be distinguished between economic (success in job, affording luxuries, owning a house etc.) and social life values (have children, importance of partner, altruism, good relationships with friends)². According to Headey (2006) economic values represent zero sum and social values positive sum domains. In zero sum domains gains for one always imply failures for others whereas in positive sum domains, gains are either not at the costs of others or even improve those of others. We therefore might view spending time in paid work (work more than one wishes and overtime), volunteer work or in caring as an investment in cultural capital.

Events

Events are functionings from the past that affect future outcomes. Divorce can be seen as an event following a decision to split with large consequences for people's well-being. But also marriage tends to have long-term consequences just like unemployment or stopping a business. There is ample evidence in the literature on the positive effects of marriage and the negative or 'scarring' effects of divorce and of unemployment, temporary work or low paid work on the career and on SWB (e.g. Gangl, 2006; Muffels, 2008, Clark, 2008). The two panel surveys contain information on events but especially the HILDA panel contains an extensive list being much broader than the short list of household formation or labour market events usually available. The list also includes detainment in jail or being a victim of a crime such as

² We first performed a factor analysis using principal components analysis with Varimax rotation. The items importance of own house and of travel and political activity seem to load very low on the two components and were removed. The items left clustered very clearly into an economic and a social component.

violence. The HILDA also asks when the event had happened and how long ago that was. In the German panel study we lack such an extended list but we were able to derive events from the annual and monthly information on current and last year's household formation and labour market changes. The German panel contains a calendar in which information is asked about the socio-economic status of the respondent for each of the 12 months preceding the interview date.

In Table 1 we summarise the way we applied Sen's CA model to develop a stocks-flows-outcome approach to well-being.

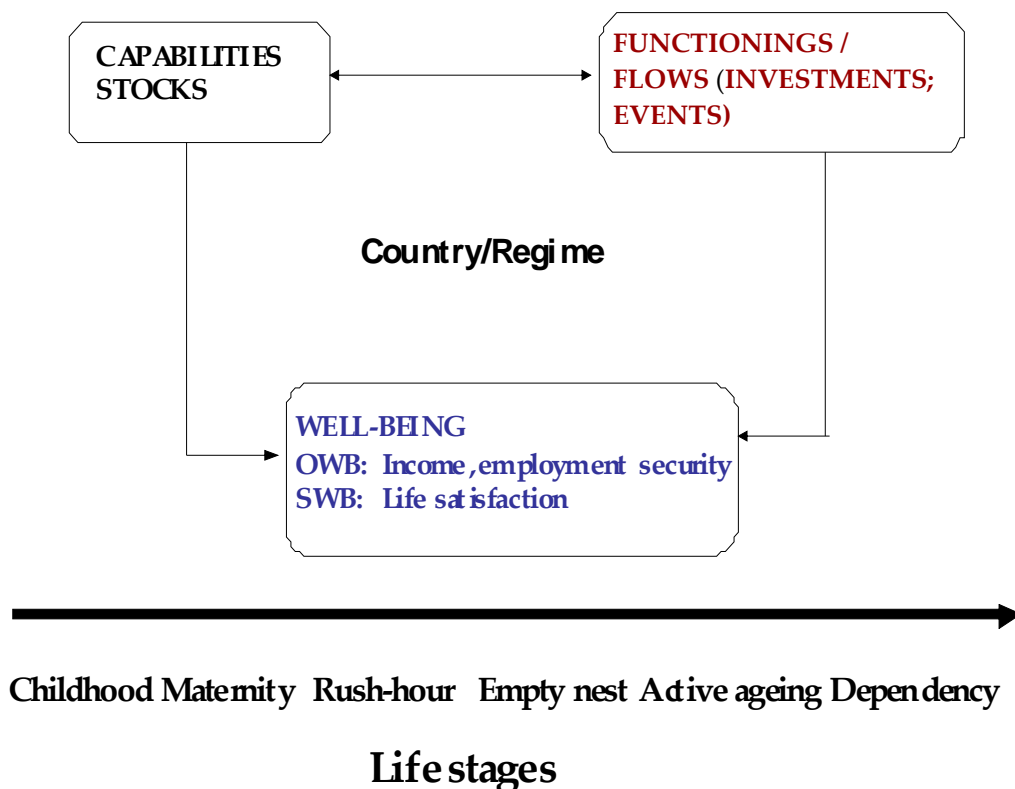
Table 1. Sen's CA approach and the measurement of stocks, flows and events

Capabilities	Functionings	
Stocks (capital)	Flows (investments)	Events (choices/constraints)
<i>Human capital</i>		
Education level	Training, courses	Completing education/drop out
Health status	Exercise, healthy life-style (smoking, drinking) Visit doctor	Accident/ Disability/Being cured
Job/Employment Quality	Job search Working time, job preferences Wage expectations	Lay-off, dismissal/New job Unempl./temp job/Change hrs Start-up/ Stop Self-Employment
<i>Social capital</i>		
Social contacts (bonding)	Frequency of social contacts	Change of residence
Membership union etc. (bridgeing)	Time spent to memberships, union, clubs	Change of residence
Living in a sustainable consensual union	Caring time	Marriage/cohabitation divorce/separation
Trust in other people	Time spent on community events, working together etc.	Working together/teamwork Victim of crime
<i>Cultural capital</i>		
Willingness to take risks	Invest in new job/ self- employment	Change of job/business/career
Life values	Volunteerwrk, social activities	Social events, life shocks
Religion	Church visits	Personal events
<i>Psychological capital</i>		
The big five (open, agreeableness, extraversion, emotional stability, conscientiousness)	Investment in one-self (self- development)	Personal events

The conceptual model

The conceptual model is now presented in Figure 1. The flows/events exert a central role in the model while they are seen as reflecting people's behaviour along which outcomes are shaped. The model presumes that decisions are subject to the particular life stage of people but that they at the same time also shape the life course and therewith well-being (see Klammer et al., 2008). Well-being is therefore the outcome of the interaction process between stocks and flows/events. The functionings or achievements (beings and doings) are affected by the stock of capital people possess but at the same time contribute to raising or reducing someone's capital. There seems to be a reciprocal relationship between stocks and flows - stocks allow people to invest and investments lead to accrual of stocks - which is hard to disentangle in a cross-sectional perspective but less so in a dynamic or panel perspective. Using our panel data we can associate causes and consequences viewing the sequences over time.

Figure 1. A stock-flow-outcome approach to Sen's capabilities model



The empirical model

The empirical model departs from the stocks-flows-outcomes approach where outcomes are defined in terms of well-being. In a behavioural context it is assumed that people experience events as a result of voluntary decisions (free choice) and involuntary decisions imposed by others (context/ constraints). The model looks as a purely 'rational choice' model but it is not while it views the impact of personal traits, religious and other attitudes and life values on these decisions which are included in the stocks/capabilities part. Well-being is considered the outcome of the interaction process between stocks and flows/events.

Country/regime

We use evidence for two countries which represent according to the VOC literature (Hall and Soskice, 2001) two different types of market economies: a strongly coordinated (Germany) and a weakly coordinated, more or less liberal type (Australia). The question addressed is to what extent Sen's CA model is able to explain well-being in these two countries representing two different market economies and two different 'policy regimes'. The distinction is relevant for Sen's framework because people's 'capabilities' are to a large extent influenced by the level of their human capital endowments obtained through education, learning on the job and training. The coordinated type is now typified by a so-called 'specific skills' regime and the weakly coordinated one by a 'general skills' regime (see also Estéves-Abe et al., 2001). We therefore suspect that because of the insider-outsider issue a 'specific skills' regime due to the non-tradability of these skills meet particularly problems to ensuring employment security for in particular the low-skilled over the entire career whereas a 'general skills' regime due to market forces might encounter problems to ensure low-skilled workers income security or income stability over the career. The Australian education system seems to have 'meritocratic' features because a large fraction of low educated are in the upper 25% of the income distribution and even more than the high educated (39% against 28% over the period

2001-2006). Still though, the low educated are more likely to be in the lowest 25% incomes compared to the highest educated (43% against 23%).

3. Data and methodology

3.1 Data

We used the German panel for the years 1984-2007 and the HILDA panel for the years 2001-2006. We included all persons of workable age of 16 years to 65 years. All incomes were deflated by the consumer price index in 2001 prices. The data were weighted with the product of the cross-sectional weights and the staying factors (the probability to stay in the panel across two consecutive waves). We created a person-year file while including information from the monthly calendars for the entire period. We also included the retrospective information as asked for in the first contact round on work (first job) and life history.

The information on risk attitudes and life values were collected in only one (HILDA) or a few years (GSOEP) of the panel. Though values might change over time there is reason to believe that overall they are rather stable particularly when the period is not too long. We therefore imputed the values for the missing years in between by taking the closest value or the average of the values between two years if available for that particular person. We also used the information on time use which were available for all years in the HILDA panel but missing for some years in the German panel. Even though time use variables might change over time we needed to impute the values for the missing years.

3.2. Our measures

In this paper we use objective and subjective measures of well-being indicated by three yardsticks: income and employment security and life satisfaction:

- Income security is measured as the ratio of equivalent household income in proportion to the 60% income poverty threshold as used by the European Commission. We use the modified equivalence scale as developed by the OECD that is also used by Eurostat. The income measure is a rather well-

known continuous measure of 'relative income' which in the US context is referred to as the 'income-to-needs' ratio. As such, the measure is very similar to Sen's well-know 'income inequality' or 'income deprivation' index though his inequality index was defined as a weighted gap between income and the income threshold (weighted with the level of inequality among the poor) instead of the ratio (see Muffels et al., 2008 a, b). The income information in both panels refers to the last year's income period but in Germany this is the last calendar year whereas in Australia it is the last financial year running from June last year to June this year. For Germany we therefore assigned the $t+1$ incomes to the current year whereas for Australia we used the information as it is given for the current year.

- Employment security is defined as the proportion of months of full-time or part-time employed during the preceding year. Whether people actually worked full-time or part-time employed does therefore not affect the measure. If people prefer to work part-time and they are able to realise their preferences they should be considered as being employment-secure. For that very reason we correct for whether the part-time or full-time work corresponds to people's working hour preferences or not. We also try to correct for the voluntary nature of a low attachment to the labour market by deriving a variable indicating whether people want a job or prefer not to work. Employed people are assumed to want a job and for unemployed people we know their job search behaviour in both panels. The Australian panel further asked people, including the inactive population, whether they look for a job or not. We used that to construct a variable whether people want a job or not but for the German panel we had to rely on other information. If people reported that they are retired or engaged in education or vocational training, are caring for children or other people or engaged in volunteer work, we assumed that they were unavailable for the labour market and not wanting a job. When they are still working but for a few hours we considered them attached to the labour market and we assumed they were looking for a job. For the remainder categories of unemployed and

inactive people we made use of a question on how people judge the importance of success in a job. If they had the lowest score, which is zero, we assumed that they were not looking for a job. We used this 'job search' dummy to correct for the impact of people's labour market attitudes or preferences for work.

- Life satisfaction is measured in the usual way on a scale of 0 to 10, 0 indicating the lowest level and 10 the highest. The life satisfaction question is asked every single year. Apart from life satisfaction the surveys also contain information on income, job, living standard and health satisfaction which we don't use here. According to set-point theory (Diener, 2000; Headey, 1995) people's life satisfaction score remains rather stable over time because each individual tend to stay on his or her own track, dependent in particular on a person's score on the 'big five' social-psychological traits. Shocks associated with health impairments or life events (such as unemployment, marriage/divorce) may cause people to depart from their long-term path but only temporarily; people tend to recover rather quickly to return to their quasi permanent baseline track.

Income or consumption

Even though we used an income measure here, there is reason to argue for measures viewing the combined effects of wealth, income and consumption (Headey et al., 2008). For well-being the level of consumption over time matters more than income while people can share resources with others. In economics as well as in sociology there is also increasing attention to bring the capabilities approach within the multi-dimensional poverty or the human rights framework (Alkire, 2001; Sen, 2005; Nussbaum, 1997; Vizard & Burchardt, 2008, Bartelheimer et al., 2008). Within sociology much work is done on what is called the 'relative deprivation' approach to multi-dimensional poverty (see Townsend, 1985; Sen, 1983). Even though the approach is interesting there is lack of information in our panels. The German data contain for some years some information on social exclusion but the information is limited to 11 items dealing with deprivation on

food and clothes, amenities in the house, some durables and social contacts (dinner with friends). There is no information in the Australian panel on these social exclusion items. We examined the information collected in the German panel but decided to focus on the income poverty concept as widely accepted and used in the European context.

3.3. The variables included in the empirical model

We employed random and fixed effects panel regression models to allow correcting for unobserved individual effects. This is important because capabilities are latent or unobserved factors which are likely to be associated with the observed measures for capabilities that we included in our models such as education level and participation in training. Even though we were able to incorporate much more capability/functionings indicators than usual we cannot rule out the possibility that we only partly capture the unobserved heterogeneity related to factors as ability, motivation and effort.

More specifically, we estimated random and fixed effects panel regression models separately for income security (*IS*), employment security (*ES*) and life satisfaction (*LS*):

$$IS_{it} = \alpha_0 + \beta X_{it} + \delta_0 TRAILS_{it} + \delta_1 STOCKS_{it} + \delta_2 FLOWS_{it} + \delta_3 EVENTS_{it} + \gamma_t + \mu_i + \varepsilon_{it} \quad (1)$$

$$ES_{it} = \alpha_0 + \beta X_{it} + \delta_0 TRAILS_{it} + \delta_1 STOCKS_{it} + \delta_2 FLOWS_{it} + \delta_3 EVENTS_{it} + \gamma_t + \mu_i + \varepsilon_{it} \quad (2)$$

$$LS_{it} = \alpha_0 + \beta X_{it} + \delta_0 TRAILS_{it} + \delta_1 STOCKS_{it} + \delta_2 FLOWS_{it} + \delta_3 EVENTS_{it} + \gamma_t + \mu_i + \varepsilon_{it} \quad (3)$$

where income security (IS_{it}) is the ratio of equivalent income of each individual at time t to the level of the poverty line in the country for year t as defined by the 60% of the median household income threshold as used by the European Commission (Y_{it}^{eq} / pl_t). Employment security is defined as the number of months employed in the current year and life satisfaction or subjective well-being (SWB) as the score on the life satisfaction scale in the current year ranging from 0 to 10. The βX_{it} 's represent

a set of control variables either time invariant like sex, birth cohort or ‘born in a foreign country’ or time varying, like age, age squared, education level, number of children, life course stage and whether people are seeking work or not. The traits, stocks and events variables are also included either as time invariant variables, like personal traits or risk attitudes (part of stocks), or as time varying such as functionings and events. The γ_t represents a time-specific effect that is assumed to correct for business cycle influences indicated by year dummies with the first year acting as the reference year. The u_i represent the unobserved heterogeneity or individual effects and the disturbance is given by ε_{it} . The SWB scale is ordinal and ranges from 0 to 10³. However, a cardinal treatment of it renders more or less the same results (Diener 200., Clark, 2008). The advantage of treating the life-satisfaction scale in a linear manner is that we can correct for unobserved individual effects estimating GLS random and fixed effects models.

Variables

The most important variables are of course the variables indicating the stocks and functionings/events. Table 2 gives the operationalisation of the variables included in the empirical model. For the controls we included a variable indicating whether people want a job or not and a dummy for being early retired. We also constructed a life-course oriented household type variable indicating the different life-stages of people (single, single parent family with young children, couple with young children, empty nest etc.).

For the stocks we included variables measuring human, social and cultural capital. Human capital is measured through education level that is however measured very differently in the two countries. For Germany we used the international education level classification called ISCED to distinguish between three levels of education (high, intermediate and low. For Australia we did not have the ISCED codes and used the classification as it is included in the panel though recoded into three levels.

³ Because SWB is basically an ordinal scale most authors in the field use an ordered probit or ordered logit for estimation. However, because the scale ranges from 0 to 10 (and hence contains 11 mass points), the linearity assumption as implied by treating it as a cardinal scale is not seriously violated.

Table 2. List of variables used in the empirical model

Variable	Germany	Australia
Controls		
Birthcohort	Based on birth year. Split into 7 periods, born before 1940, 1940-1945, 1945-1955, 1955-1965, 1965-1975, 1975-1985, 1985-1995.	Panel is too short to define birth cohorts. Too high correlation with age.
Interaction age and birthcohort	Age*birth cohort	n.a.
Household type (life course stages)	Couple yngst ch<5; couple yngst child between 6 and 15, single with children, single parent, yngst child <5, single parent, yngst child between 6 and 16, other	Similar
Number of children	In-living child between 0 and 16 years of age	Similar
Number of employed	All members with self-reported employment status.	Similar
East-Germany and Immigrant	Living in East-Germany; Not born in Germany	No region indicator used; Not born in Australia
Not looking for work	To unemployed asked whether people are looking for work. For the inactive people we only consider those being attached to the labour market to be looking and the rest not.	Asked people whether they want a job or not.
Year and period correcting for business cycle	Period is split into the 1980s, the 1990s and the 2000s	Year included as dummy with first year as reference
Stocks		
Physical and mental health	Based on standard list of questions on health conditions (physical, mental health)	Similar
Bad health	Self-reported health from very good to very bad. Bad and very bad are taken together.	n.a.
Human capital	Education level using ISCED codes and recoded into low, intermediate and high.	Education level consisting of 8 categories based on years of education and certificates. 1=11 and below, 3=advanced diploma, bachelor, and master graduate; 2=everything in between.
Social capital	<i>Bonding</i> : Frequency contacts relatives/friends, Trust other people (4 categories from totally agree to totally disagree) <i>Bridging</i> : Membership trade union/association, clubs	Frequency contacts friends Ttrust: "I don't have anyone I can confide to" (from totally agree to totally disagree)
Cultural capital	Religion: Catholic, Protestant, Other Christian, Other religion, No denomination Life values: importance of altruism, success in life, self-fulfilment, family, friends, partner, owned house Willingness to take risks (11 points scale)	Religion (similar) Importance of religion, scale 1-10 Life values: family, work, health, house, leisure. Willingness to take risk and financial risk attitude asked 2 times.
Functionings/Events		
Training, apprenticeship Interaction training/employment	Training for job or vocational training to unemployed	Training on the job or not
Investment in job	Working hours more or less than preferred number of hours: overworked, underworked	Similar, plus overtime
Investment in health	Healthy life: active sports, exercising,	Similar + drinking, smoking
Investment in social activities	Time with friends, attending community and social events, volunteer work. <i>Time weekdays on</i> : housework, shopping, work, visiting friends	Attending social and community events Time use: homework, errands, playing with children, volunteer work and social time with relatives/friends
Events	Constructed from the calendar	N of negative job events (job loss, sacked) ; N of negative family events (divorce, separation, death) , N of crime events (jailed, violence)

Social capital is measured through the frequency of contacts with friends and relatives and through the level of 'trust in other people'. For Australia we added also variables like the support people get from others and the number of friends people report they seem to have. The amount of cultural capital is measured by the so-called life values dealing in Germany with the importance of certain aspects in life such as altruism, success in job, what people can afford, self-fulfilling, being happy with the partner, having children, friends, travel and social or political activities and owning a house. The life value list in the HILDA panel deals with the house, the employment and work situation, the financial situation, the involvement in the local community, health, family and leisure activities (sports, hobbies, contacts with friends). We employed for both countries a principal components factor analysis on these life values and the results (not given here) show that there remain basically two main factors which we called the economic (in Germany success, afford, self-fulfilment and in Australia employment and financial situation) and social values (in Germany have children, happy with partner, altruism and in Australia family, health, local community and leisure). Because of the low loadings in Germany of 'owning a house' and 'travel and political activity' we removed these items. We did not weight the factors with the factor loadings but just took the aggregated scores on the variables belonging to the two dimensions. We also included variables measuring the willingness to take risks and the willingness to take financial risks in particular which are supposed to affect people's labour market behaviour (see e.g. Dohmen, 2005). We see the level of risk aversion as a stock while it might affect in particular people's income prospects as well as their employment career opportunities.

Eventually we included a number of events as listed in Table 1. For Germany we constructed a limited set of events based on the information in the panel with a view to employment and marital status whereas for Australia we had a long list asked for to the respondent. The constructed well-being indicators for income (IS) and employment security (ES) and life satisfaction (LS) refer to the current year whereas the events refer to the last calendar or last financial year.

4. First evidence on our well-being measures

We have opted for three well-being indicators: income security (IS), employment security (ES) and life satisfaction (LS). We created annual measures for all three indicators of well-being. In Table 1 we show some descriptive evidence on the levels of our well-being measures (IS, ES, LS) by employment status. We also include some information on being income poor (below 60% of median equivalent income), employment poor (below 50% of median number of months at work during last year) and life satisfaction poor (a score below 6 on the scale of 0 to 10).

Table 3. Well-being according to several well-being indicators, males and females by employment status and gender, GSOEP 2001-2006; HILDA, 2001-2006

Empl status	GSOEP						HILDA					
	IS	IP	ES	EP	LS	LSP	IS	IP	ES	EP	LS	LSP
<i>Males</i>												
Employed	2.14	0.06	96.24	0.05	7.05	0.17	2.32	0.07	93.40	0.04	7.89	0.07
Self-employed	3.50	0.05	96.81	0.04	7.02	0.19	2.17	0.19	96.25	0.02	7.85	0.08
Unemployed	1.24	0.43	0.00	0.78	5.42	0.52	1.50	0.36	31.67	0.59	7.64	0.10
Inactive (incl s	1.73	0.18	5.34	0.94	6.88	0.22	1.39	0.44	7.40	0.91	7.91	0.08
Total	2.06	0.12	59.03	0.39	6.89	0.21	1.97	0.21	62.67	0.35	7.88	0.07
<i>Females</i>												
Employed	2.13	0.09	94.15	0.08	7.01	0.19	2.29	0.07	93.09	0.04	7.98	0.07
Self-employed	3.01	0.08	93.81	0.07	7.11	0.19	2.10	0.19	95.61	0.03	7.97	0.08
Unemployed	1.25	0.45	0.00	0.83	5.71	0.46	1.45	0.37	29.61	0.63	7.85	0.10
Inactive (incl s	1.68	0.22	4.96	0.93	6.89	0.23	1.39	0.44	7.58	0.91	7.98	0.08
Total	1.91	0.17	44.21	0.56	6.89	0.22	1.92	0.22	60.29	0.37	7.97	0.08

Note: IS=income security (income-to-needs ratio); IP=Income poor (<60% of median equivalent income); ES=Employment security (% of months employed current year); EP=employment poor (<50% of median of ES); LS=life satisfaction (0-10); LSP=life satisfaction poor (< 6.0 on LS scale).

Source: GSOEP, 2001-2006, HILDA, 2001-2006

The self-employed and the employed have the highest income and employment security scores in Germany and Australia. In Australia the self-employed and inactive are considerably worse off than their counterparts in Germany. The proportion of income poor (IP) is higher for males as well as for females in Australia compared to Germany. The proportion is particularly high among the self-employed,

the unemployed and inactive people. Viewing the picture for females it is shown that women exhibit generally lower levels of income security and lower levels of employment security in Germany and Australia compared to men but also that women in Australia perform much better than German women. This reflects the traditionally higher participation of females in the 'liberal' labour market. Females exhibit on average equal (Germany) or slightly higher (Australia) levels of subjective well-being (LS) compared to men, even though more women score below 6 on the SWB scale. Note however also the much higher levels of income poverty in Australia but also the higher levels of subjective well-being, both for men and women, compared to Germany.

5. Results on the model estimations

The empirical model we want to test departs from the stocks-flows/events perspective. We are particularly interested in the separate contribution of the stocks and flows/events variables on well-being and therefore estimated four separate models on each of the three WB indicators. These are the following:

- Model I. The *base-line model* with the usual controls (age, age squared, sex, household type, number of children, region (West and East German region only), and being an immigrant).
- Model II. The *stocks model* with controls and the stocks variables included (except for the personality traits).
- Model III. The *stocks-traits model* with the controls, the stocks and the personality traits.
- Model IV. A *full model* with controls, stocks, traits and the functionings/events.

For each of our three WB indicators we estimated four random effects models to examine the added value of stocks, traits and functionings/events on explaining well-being. In Table 4 we show the fit indices of the four RE models of our WB measures.

Table 4. Contribution of stocks, traits and functionings/events on explaining well-being by comparing four random effects models in Germany and Australia (R-squares)

	Germany (GSOEP)				Australia (HILDA)			
	MI Contr.	M II + Stocks	M III + Traits	M IV + Fcts/Ev.	MI Contr.	M II + Stocks	M III + Traits	M IV + Fcts/Ev.
Income security	0.091	0.192	0.192	0.227	0.129	0.186	0.189	0.211
Employment security	0.389	0.406	0.407	0.511	0.492	0.520	0.522	0.581
Life satisfaction	0.051	0.214	0.223	0.236	0.005	0.094	0.148	0.139

Source: GSOEP, 1984-2007, HILDA 2001-2006

The stocks seem particularly important for explaining income security because adding the stocks to the model raises the explanatory power of that model strongly (the R-square is almost doubled from 9.1% for controls only to 19.2% for the stocks plus the controls). The traits seem particularly important for explaining life satisfaction but only in Australia (the R-square is raised from 9.4% to 14.8%) but exert hardly any additional effect on explaining income and employment security. The effects of functionings and events are particularly strong in the employment security model and to a less extent also in the income security model but exert hardly any effect in the model for life satisfaction.

Fixed effects (FE) models

In the second stage we estimated also fixed effects models but only for Model IV the full model. We employed the Hausman model selection test showing whether the fixed effects model should be preferred over the random effects model. For Germany we find that the fixed effects specification should be preferred for all three WB measures indicating that the unobserved individual effects indeed correlate strongly with the observables. For Australia it appears that the fixed effects specification is performing worse especially for the SWB or life satisfaction model. The reason is that for Australia we only had information about the personality traits for one year because of which the traits, which explain most of the variance in LS, dropped out in the FE models. For Germany we therefore present the random and fixed effects

models while for Australia we only present the random effects results. The results are given in Table 5 (Germany) and 6 (Australia) in Annex 1.

Below we discuss shortly the outcomes of the full model (IV). The FE model is assumed to be the appropriate model from a methodological point of view because we assume that the individual unobserved effects are associated with especially our observed (indirect) capability measures because of which the FE estimates are consistent and efficient. The FE model explains the level of well-being at each point of time compared to the mean level of well-being over the observation period. Because of this transformation time invariant variables like sex or country of birth drop out. For that reason we also present the results of the RE models for Germany.

5.1 Results from the random and fixed effects models: Germany and Australia

5.1.1 Germany

Controls

Viewing the results of the income and employment security models for Germany we find that the relationship with age is inversely U shaped, first increasing and then decreasing after some age threshold. Age seems to have no significant effect on life satisfaction. The post-war generations see their employment security continuously reduced compared to the pre-war generation. The picture might be blurred because we observe uncompleted careers of the younger cohorts. The interaction between age and birth cohort shows that within each birth cohort the higher the age is the higher employment security is.

Children seem to harm a person's income and especially employment security but raise his life satisfaction (Muffels & Headey, 2008). Families with very young children tend to experience substantial problems to maintain their income security. The single parent households with young children seem particularly vulnerable with a view to their levels of income insecurity but their life satisfaction is larger than with couples with no kids or kids with older children. The more workers there are in the household the better the income and employment security and the better also

subjective well-being. The East-Germans and the immigrants have a worse record in maintaining income and employment security. Immigrants also have a lower life satisfaction. We included a variable indicating whether someone is looking for a job or not. The results show that those who are not looking for a job attain indeed the lowest income and employment security levels but whether that reflects true preferences or constraints remains unclear. The early retired seem also to attain lower levels of income and employment security.

Stocks

The more human, social and cultural capital endowments people have the better they appear capable of maintaining one's income and employment security. The inclusion of stocks raises the explanatory power of especially the income security model strongly though also has strong effects in the employment security model. In particular the effect of health shows up very strongly in all models. A bad health seems to threaten the level of income and employment security strongly whereas a good physical and mental health has a strong positive effect.

Interestingly, we do find rather strong effects for the variable 'willingness to take risks' showing that economic risk seeking behaviour seems to reward in terms of income as well as employment security but it seems to lower people's life satisfaction. That it exerts such a strong effect on employment security is somewhat unexpected. Another interesting finding deals with the positive impact of social capital (trust, memberships). It is shown that '*trust in other people*' exerts a particularly strong positive effect on income and employment security which effect is even stronger than the effect of risk seeking behaviour. The impact of social capital on long-term income and employment security is also reflected in the strong positive effect of membership of a trade union or association. Both results render firm support to the social capital thesis put forward by Putnam and others (Putnam et al., 2005). The positive effects of social and economic values appear stronger in the employment security model than in the income security model which is slightly unexpected. Religion exerts no effect whatsoever on permanent income security though people with no denomination seem better able to maintain career-long

employment security than religious people but their subjective well-being appears also lower (the latter effect disappears in the FE model). The traits exert strong effects particularly in the LS model. Neurotic people have a lower SWB and extravert and agreeable people a higher SWB. The neurotic people also score low on income and employment security and nice (agreeable) people turn out to be less income secure

Functionings: investments in stocks

Functionings are considered investments in stocks. Working hard through working longer hours than one wish might be seen as an investment in the career. That turns out to be true while it indeed improves people's income and employment security. That it also raise their SWB is slightly surprising. People working less that they wish pay a price in terms of income security but their employment security is not endangered. People active in sports or exercising are less income secure but more employment secure and more satisfied in life, at least if we believe the FE model (they are less satisfied in the RE model which is puzzling). For training we found rather strong and puzzling negative effects on all measures of WB but the reason is that it just resembles the adverse outcomes for the unemployed/inactive who participate strongly in (vocational) training in Germany. For that same reason we also found negative effects for apprenticeship. Inclusion of an interaction term with employment status learned us that job related training has a negative effect on income security, a strong positive impact on employment security and no effect on SWB. To examine the effects of training we should compare a matched group of workers with and without training in their subsequent careers but that goes beyond the purpose of this paper. That people with job related training tend to have better employment opportunities suggest that training matters for people in Germany and might reflect the 'specific skills' type of the Germany labour market

The investments in social capital not always pay off while it seems to be related to the amount of time invested. The time spent to visit relatives and friends during weekdays indeed harms the income career as well as one's SWB though visiting

relatives and friends occasionally (social networking) appears good for employment security.

Events

Events in the German case seem to exert a strong impact on all three WB measures. Unexpectedly, we find that the birth of a first child raises people's income and employment prospects. It might be that fathers after childbirth tend to work harder to compensate for the income loss of their partner and to raise the household income to cover the additional costs of children (Fouarge et al., 2009). The effect of second and following childbirths is however negative for employment security. Divorce works out badly and marriage good to income and employment security as well as to SWB. The transition into early retirement harms especially the employment security but not people's income security. Rather strong adverse effects on income and employment security but also on SWB are observed for the total length of the unemployment spells in the past. These results confirm the existence of strong 'scarring' effects of unemployment on WB and suggest that people seem to recoup with great difficulty from unemployment experiences in the past (see Clark, 2008, Muffels, 2008b).

5.1.2 Australia

Viewing the results for Australia it is shown that they are generally in line with the ones for Germany. There are only a few striking differences. First we observe couples with young children and singles without children to have worse income security levels compared to couples without children and secondly, immigrants appear not worse off in terms of income security compared to native Australians, but do show worse employment security levels.

Viewing the effects of stocks we find remarkable small effects of the impact of human capital variables indicated by education level which were rather strong in the German case. Even when we use the detailed classification of education level and using dummies for each of the 8 levels we find hardly any effect on any of our WB

measures. There is a positive effect of high education in the stocks model on income security but a negative effect on employment security but both effects turn insignificant in the full model including the functionings and events. This might indeed signal the 'general skills' or meritocratic feature of the Australian labour market. To check this further we added a variable measuring "required skills in and complexity of the job" and found that this exerts a rather strong positive effect on income and employment security.

Again we found strong positive effects of health and of social capital (frequency of contacts) on income security in Australia though not on employment security or on SWB. We do however find positive effects of trade union and club membership on income and employment security but no significant effect of trust. Bridging social capital in the form of memberships seems to pay-off for the career but makes people no more satisfied with life.

We found no positive effect of social values on income or on employment security though rather strong positive effects on SWB. Also the economic values show no effect on income and employment security but a rather strong negative effect on SWB supporting Headey's 'zero sum' hypothesis. For the same reason we find that willingness to take financial risks⁴ has a strong positive effect on both, income security and employment security though no effect on SWB, which effects are for employment security even stronger than in Germany. This might also reflect the typical feature of the unregulated, uncoordinated Australian labour market with large returns to risk taking behaviour. The impact of personal traits for Australia is almost absent in the income and employment security model but rather strong in the LS model. Neurotic people have a low SWB whereas conscientious and extravert people a high SWB. Remarkably though, people more open to experience pay a price through a lower SWB.

With a view to the functionings the investment in working indicated by working more than one seeks seems to pay off also in Australia but only for income security while working less than one wants (underworked) has a negative impact on both,

⁴ We included financial risk here instead of willingness to take risk because we retained much more observations and the effects turned out to be very similar.

income and employment security. The negative effects we found in Germany with respect to training are confirmed for Australia though only for employment security. The interaction term with employment is positive indicating that training for workers pays off in terms of employment security even in this 'general skills' regime. Exercising does raise your income security as well as your SWB. The time spent in commuting to your work raises your income and employment security. The time spent to homework harms your employment security but not your income whereas volunteer work harms both, your income and employment.

Finally, viewing the effects of the large number of events it is shown that the effects are rather small. Especially the length of people's unemployment experience affects their income and employment career adversely which is not surprising. Financial gains and losses have a positive respectively a negative effect on people's income security. Contrary to what was found for Germany early retirement seems to exert a negative effect on people's income security. That the effects are rather small might be associated with the different way in which these events were derived in both panels though this needs further scrutiny. One option might be to build in longer time lags and to look at the cumulated effects of events over time.

6. Conclusions and discussion

The empirical findings render strong support for the capabilities and functionings approach of Sen. The results are all very plausible and confirm the findings of other research in the area. A number of effects such as on human and social capital are rather strong in both countries. The outcomes show the added value of Sen's capability approach for explaining well-being and their evolution over time. The stocks seem to exert the largest effect on the explained variance in the models for income security and SWB whereas functionings or investments contribute most to explaining differences in employment security, especially in Germany. The effects of human, social and cultural capital are largest in the income security model whereas the personality traits have the largest impact in the LS models. All models perform rather good with a view to the explained variance, including the fixed effects models

for Germany. The reason might be that the long-running German panel but even the much shorter Australian panel allow the researcher to include a rather rich set of covariates in the models that is required to be able to test Sen's theoretical CA model.

Overall, the results appear fairly robust in the models and we consider it reassuring that the fixed effects models reveal no different picture from the random effects models except for a very few variables indicating that correcting for the correlation between the unobserved individual effects and the observables does not do much harm to the parameter estimates of the models suggesting that most of the variance is captured with the observables in the models.

We also show that the results with respect to especially human capital seem to differ between the two VOC regime types or flexicurity pathways. We indeed find that Germany has a better record in maintaining income security and Australia a better record in maintaining employment security especially for females. Whether that should be attributed to the different 'skill' regime remains to be seen. But we do find evidence in our models that the human capital variables such as education level and training efforts are much less influential in explaining income and employment security in the unregulated 'general skills' regime of Australia than in the strongly regulated 'specific skills' regime of Germany. Though the evidence is not conclusive yet, there is reason for further scrutiny into the issue using more information contained in these panel studies on training and learning practices than we used for this paper. We also find rather strong positive effects of social capital variables like trust and social networks (bonding) and memberships (bridging) on income and employment security though not on SWB, but also of cultural capital factors like the willingness to take risks and social and economic life values such as altruism and success in a job. Strong positive effects are observed for risk taking behaviour on income and employment security but negative effects on life satisfaction whereas social values raise people's life satisfaction. The effects of these risk factors for Australia were even stronger than for Germany also pointing to the 'liberal' nature of its labour market. For future research we therefore want to add more information on

risk attitudes as included in the panels than we used here in order to get more insight into their effects. The results therefore convincingly show that along with human capital and economic values social capital and social values do significantly contribute to explaining differences in well-being.

There is no single discipline therefore that can claim the truth in being able to explain well-being while the use of a set of measures derived from the rich theoretical literature in the various disciplines add to our knowledge about what raises people's well-being with a view to income and employment security and how satisfied people are with their lives.

Annex 1.

Table 5. GLS random and fixed effects models on income security (IS), employment security (ES), life satisfaction (LS), Germany, males and females, 16-64 years

OWB, SWB	Random effects			Fixed effects		
	IS	ES	LS	IS	ES	LS
Controls						
Age	0.030*	0.657	-0.009	0.023	-0.103	-0.021
Age squared div by 100	-0.043**	-3.000**	0.016	-0.042**	-2.618**	0.017
<i>Birthcohort (ref. <1940)</i>						
1940-1945	-0.001	-23.570**	0.071			
1945-1955	-0.107	-48.098**	0.043			
1955-1965	-0.325	-68.276**	0.059			
1965-1975	-0.515	-83.027**	0.163			
1975-	-0.648*	-97.924**	0.275			
Age*birthcohort	0	0.038**	0	0	0.047**	0
<i>Household type</i>						
Couple, yngst ch 0-5	-0.201**	0.709	0.080**	-0.210**	-0.571	0.076*
Couple, yngst ch 6-15	-0.126**	0.708	0.015	-0.124**	-0.256	0.021
Single, no ch	0.077**	11.107**	-0.112**	0.123**	10.715**	-0.089**
Single parent, yngst ch 0-5	-0.152**	2.99	-0.138	-0.120*	2.619	-0.119
Single par, yngst ch 6-15	-0.111**	11.436**	-0.217**	-0.074*	10.975**	-0.207**
Other	-0.073**	-0.268	-0.023	-0.065**	-0.2	-0.035
Sex	0.039*	-8.664**	0.093**			
Number of children 0-15	-0.114**	-0.880**	0.036**	-0.115**	-0.281	0.044**
Number of employed	0.105**	12.909**	0.100**	0.097**	12.534**	0.100**
East-Germany	-0.399**	-5.326**	-0.522**	-0.092*	-4.112**	-0.388**
Immigrant	-0.282**	-2.637**	-0.005			
Not looking for job	-0.060**	-24.013**	0.046	-0.063**	-22.840**	0.037
Early retirement	-0.083*	-6.328**	0.07	-0.064	-5.323**	0.053
<i>Period (ref. 1980s)</i>						
1990s	0.323**	-0.618	0.016	0.359**	1.830**	0.095**
2000s	0.303**	1.403*	-0.009	0.363**	4.655**	0.110**
Stocks						
<i>Education level</i>						
Medium	0.037**	2.819**	0.013	-0.027	2.418**	-0.001
High	0.241**	4.434**	0.114**	0.075**	3.561**	0.118**
Physical health	0.005**	0.114**	0.016**	0.001	0.059	0.004
Mental health	0.004**	0.070**	0.028**	0.002*	0.074*	0.017**
Bad health	-0.024*	-2.945**	-0.722**	-0.025*	-2.277**	-0.670**
Freq. Contacts friends/rel.	0.006	-0.624*	0.113**			
Membership Trade Union	0.042**	5.309**	0.017	0.036*	5.665**	-0.025
Trust in other people (1-4)	0.085**	1.168**	0.268**			
Willingness to take risks	0.040**	0.963**	-0.026**			

(Table 5, continued)

OWB, SWB	Random effects			Fixed effects		
	IS	ES	LS	IS	ES	LS
<i>Religion (ref. Catholic)</i>						
Protestant	-0.014	0.179	-0.014	-0.026	0.711	-0.088
Other Christian	0.008	-0.069	0.046	0.054	0.492	-0.03
Other religion	-0.042	-3.217	0.08	0.035	-2.171	0.001
No denomination	0.036*	1.313*	-0.079**	0.023	2.775**	-0.078
Social values	0.003	-0.285*	0.068**	0.006	-0.171	0.047**
Economic values	0.005	0.489**	-0.014*	0.006	0.512**	-0.009
<i>Personal Traits</i>						
Extravert	-0.014	-0.12	0.035**			
Neurotic	-0.024**	-0.616**	-0.114**			
Conscience	-0.015	1.548**	0.025			
Agreeable	-0.035**	-0.172	0.039**			
Openness	0.046**	-0.343	0.011			
Functionings						
Overtime	0.007**	0.886**	0.007**	0.005**	0.847**	0.008**
Overworked	0.093**	15.350**	0.072**	0.087**	13.381**	0.073**
Underworked	-0.034**	15.446**	0.003	-0.021*	13.587**	0.009
Active sports/exercise	0.018**	-0.126	-0.038**	-0.005	0.250*	0.032**
Participate in training	-0.045*	-24.498**	-0.019	-0.079**	-23.862**	-0.011
Apprentice	-0.149**	-42.846**	-0.160**	-0.137**	-42.531**	-0.164**
Int.training/employment	-0.001**	0.275**	0	-0.001*	0.264**	0
Visit community events	0.029**	0.176	-0.008	0.015	-0.074	-0.015
Visit relatives/friends	0.058**	-0.447	-0.009	0.030**	-0.436	0.001
Time wkd volunteer wrk	0.005	0.313	-0.017	0.004	0.223	-0.005
Time wkd friends/rel.	-0.035**	0.159	-0.054**	-0.018**	0.151	-0.051**
Events						
Voluntary job change	-0.013	-5.005**	-0.004	-0.011	-5.111**	0.008
Start own business	0.027	-4.296**	-0.177**	0.009	-5.076**	-0.142**
Stop own business	-0.067*	4.284**	-0.234**	-0.097**	3.685**	-0.182**
First childbirth	0.243**	4.610**	0.278**	0.243**	4.906**	0.283**
Second, third child	0.090**	-6.098**	0.159**	0.086**	-5.437**	0.161**
Divorced or separated	-0.297**	0.113	-0.313**	-0.319**	-0.262	-0.289**
Got married from t to t+1	0.172**	1.159	0.092*	0.164**	1.012	0.082*
Unemployment						
Experience	-0.054**	-4.690**	-0.039**	-0.041**	-4.891**	0.007
Early retirement event	-0.072	-5.448**	-0.059	-0.076	-5.181**	-0.059
Constant	1.376**	76.606**	4.778**	1.301**	28.962**	6.768**
R2 overall	0.227	0.573	0.245	0.089	0.253	0.207
N	62331	61073	62224	62331	61073	62224

* p<0.05, ** p<0.01

Source: GSOEP 1984-2007

Table 6. GLS random effects models for income security (IS), employment security (ES) and life satisfaction (LS), Australia, males and females, 16-64 years

OWB, SWB	IS	ES	LS
	beta	Beta	Beta
Controls			
Age	0.102**	1.951**	-0.003
Age squared div by 100	-0.116**	-2.255**	0.006
<i>Household type</i>			
Couple, yngst ch 0-5	-0.482**	0.55	0.124
Couple, yngst ch 6-15	-0.498**	1.054	0.095
Single, no ch	-0.489**	3.763**	0.027
Single parent, yngst ch 0-5	-0.456**	-8.707**	0.137
Single par, yngst ch 6-15	-0.472**	3.654	0.057
Other	-0.222**	-1.503	0.093
Gender (1=female)	0.04	-0.495	-0.031
Number of children 0-15	-0.160**	-1.754**	-0.039
Number of employed person	0.137**	5.276**	0.005
Immigrant	0.06	-2.469**	-0.06
Not look for job	-0.123	-41.000**	-0.003
Early retired	0.206	-10.868**	-0.041
<i>Year (ref. 2001)</i>			
2003	0.005	1.708*	0.079*
2004	-0.055	1.612*	0.07
2005	0.008	0.803	0.024
<i>Education level (ref. low)</i>			
Intermediate	-0.005	-0.707	-0.059
High education	0.006	-0.294	-0.051
Physical health imputed~s	0.050**	0.876**	0.011
Mental health condition~	0.012	0.375*	-0.003
Frequency meet friends	0.038**	0.238	-0.007
Trust in other people	-0.004	0.289	0.013
Have friends	-0.002	-0.233	-0.003
Support friends	0.01	-0.116	-0.01
Membership Trade Union	0.107**	3.688**	-0.025
Membership clubs	0.143**	1.274*	-0.048
Importance of religion	-0.004	-0.051	0.005
Financial risk taking	0.197**	0.751*	0
Social values	-0.004	-0.111	0.280**
Economic values	-0.003	-0.143	-0.052**

(Table 6, continued)

OWB, SWB	IS	ES	LS
	beta	Beta	Beta
<i>Personal traits</i>			
Extroversion	0.014	-0.064	0.119**
Neuroticism	-0.027	0.604	-0.265**
Conscientiousness	0.012	0.304	0.065**
Agreeableness	-0.054**	0.764	0.046
Openness to experience	0.018	-0.591	-0.087**
Functionings			
Overworked	0.133**	-0.394	0.004
Underworked	-0.151**	-8.624**	0.019
Exercising	0.021*	0.101	0.064**
Participate in training	-0.023	-24.603**	0.017
Interaction training employed	0.001	0.285**	0
Leisure time	-0.045*	-2.018**	-0.041*
Time use home work	-0.002	-0.238**	0
Time use playing with children	0.001	-0.054*	0
Time use volunteer work	-0.026**	-0.378**	0.002
Time use caring for family	-0.005	-0.08	-0.003
Time use commuting	0.010**	0.594**	-0.001
Events			
First child birth	-0.019	0.669	0.012
Second, third children	-0.049	-1.565	-0.037
Negative family events	-0.004	0.029	-0.013
Positive family events	0.131**	1.082	-0.045
Number of crime events	-0.045	0.6	0.009
Positive health events	0.008	-0.531	0.018
Negative health events	0.092	1.102	0.036
Financial gain	0.245**	-0.682	0.039
Financial loss	-0.228**	2.503	0.09
Early retirement event	-0.463*	-6.716	0.184
Unemployment Experience	-0.065**	-1.945**	-0.004
Constant	-0.946**	29.042**	5.733**
Variance component	0.023	0.021	0.522
R2 overall	0.211	0.556	0.139
N	7110	7110	7107

* p<0.05, ** p<0.01

Source: HILDA, 2001-2007

References

- Alkire, S. (2007). Choosing Dimensions: the Capability Approach and Multidimensional Poverty. In J. Silber (ed.), *The Many Dimensions of Poverty*. New York: Palgrave Macmillan.
- Ball, R. and K. Chernova (2008). Absolute Income, Relative Income, and Happiness. *Social Indicators Research*, vol. 88, 497-529.
- Bartelheimer, P. , Moncel, N., Verd, J. M., Vero J. (2008), Sen-sitising life course research? Exploring Amartya Sen's capability concept in comparative research on individual working lives", Capright working paper for WP3, Goettingen.
- Becker, G. (1975). *Human Capital: A Theoretical and Empirical Analysis, with special Reference to Education*. New York, National Bureau of Economic Research.
- Clark, A. , Frijters, P. and Shields, M. (2008). Relative Income, Happiness and Utility: An Explanation for the Easterlin Paradox and Other Puzzles", *Journal of Economic Literature*, Vol.46, no.1, pp.95-144.
- Diener, Ed and Shigehiro Oishi (2000). Money and Happiness: Income and Subjective Well-Being Across Nations. In: Ed Diener and Eunhook M. Suh (eds). *Culture and Subjective Well-Being*. Cambridge, MA: MIT Press: 185-218.
- Dohmen, Thomas, Armin Falk, David Huffman, Uwe Sunde, Jurgen Schupp, Gert G. Wagner (2005) Individual Risk Attitudes: New Evidence from a Large, Representative, Experimentally-Validated Survey, Institute for the Study of Labor (IZA), RePEc/Discussionpaper/dp1730.
- Easterlin, R., A. (2001). "Income and Happiness: Towards A Unified Theory." *The Economic Journal* **111**(July): 465-484.
- Estéves-Abe, M., Iversen, T. and Soskice, D. (2001). Social Protection and the Formation of Skills: A Reinterpretation of the Welfare State, in Hall, P. and Soskice, D. (ed.), *The Institutional Foundations of Comparative Advantage*, New York: Oxford University Press, pp. 145-83.
- European Commission (2007). Towards Common Principles of Flexicurity: More and better jobs through flexibility and security, Communication, Brussels, pp. 23.
- Fouarge, D, A. Manzon, R. Muffels and R. Luijkx (2009), Childbirth and cohort effects on mother's labour supply: A comparative study using life-history data for Germany, the Netherlands and Great-Britain, *Work, Employment and Society*, forthcoming, p. 1-29.
- Gangl, M. (2006). Scar Effects of Unemployment: An Assessment of Institutional Complementarities. *American Sociological Review* **71**(December): 986-1013.

- Gregory, M. & R. Jukes (2001). Unemployment and subsequent earnings: Estimating scarring among British men 1984-94. *Economic Journal*, 111 (475), 607-625.
- Hall, P. and Soskice, D. (eds.) (2001), *Varieties of capitalism: the institutional foundations of comparative advantage*, Oxford: Oxford University Press.
- Headey, B. and A. J. Wearing (1992). *Understanding Happiness*. Melbourne, Longman Cheshire.
- Headey, B. (1993). An Economic Model of Subjective Well-Being: Integrating Economic and Psychological Theories. *Social Indicators Research*, 28(1): 97-116.
- Headey, B. (2008), 'Life goals matter to happiness: A revision of set-point theory', *Social Indicators Research*, 86, (2), 213-31.
- Headey, B., Muffels, R. & Wooden, M. (2008), 'Money does not buy happiness: Or does it? A reassessment based on the combined effects of wealth, income and consumption', *Social Indicators Research*, 87, (1), 65-82.
- Kahneman, D. (2003). "A psychological perspective on economics. *American Economic Review*, 93(2): 162-168.
- Kahneman, D. and A. B. Krueger (2006). Developments in the measurement of subjective well-being. *Journal of Economic Perspectives*, 20(1): 3-24.
- Klammer, U., Muffels, R. and Wilthagen, T. (2008), *Flexibility and Security over the Life Course. Key Findings and Policy Messages from the Foundation Research*, Dublin: European Foundation, pp.71.
- Muffels, R. and Fouarge, D. (2004), 'The role of European welfare states in explaining resources deprivation', *Social Indicators Research*, 68, (3), 299-330.
- Muffels, R. J. A., Tsakoglou, P. and Mayes, D. G. (ed.), (2002), *Social exclusion in European welfare states*, Cheltenham, U.K. and Northampton, Mass.: Edward Elgar, pp. 366.
- Muffels, R. and Luijkx, R. (2008a), 'The Relationship between Labour Market Mobility and Employment Security for Male Employees: Trade-off or Flexicurity?', *Work, Employment and Society*, 22 (2), 221-42.
- Muffels, R. (Ed.) (2008b). *Flexibility and Employment Security in Europe. Labour Markets in Transition*, Edward-Elgar, 2008, pp. 422.
- Muffels, R., Chung, H., Fouarge, D., Klammer, U., Luijkx, R., Manzoni, A., Wilthagen, T. and Thiel, A. (ed.), (2007), *Flexibility and Security over the Lifecourse: Summary Report*, Luxembourg: Office for Official Publications of the European Communities, pp. 56.
- Nussbaum, M. C. (1997) Capabilities and Human Rights *Fordham Law Review*. 66: 273-300.
- Putnam, R. D. (2000). *Bowling Alone. The Collapse and Revival of American Communities*. New York: Simon&Schuster.

- Putnam, R.D., R. Leonard and R.Y. Nanetti (2005). *Making Democracy Work*, Princeton University Press, Princeton.
- Schokkaert, E. (2007). The capabilities approach, CES Discussions Paper Series (DPS) 07.34
- Salais, R. and Villeneuve, R. (2005). *Europe and the Politics of Capabilities*, Oxford: OUP.
- Sen (1983). Poor, Relatively Speaking, *Oxford Economic Papers*, 35:153-169
- Sen, A. K. (1993) "Capability and Well-Being". In M. Nussbaum and A. K. Sen (eds.), *The Quality of Life*. Oxford: OUP.
- Sen, A. (1999a), *Development as Freedom*, New York: Alfred A. Knopf.
- Sen, A. (1999b), *Commodities and Capabilities*, Oxford: Oxford University Press.
- Sen, A. K. (2004a) "Capabilities, Lists and Public Reason: Continuing the Conversation", *Feminist Economics* 10 (3): 77-80.
- Sen, A. K. (2005). Human Rights and Capabilities, *Journal of Human Development*, 6 (2): 151-66.
- Townsend, Peter (1985). A Sociological Approach to the Measurement of Poverty: A Rejoinder to Prof. Amartya Sen, *Oxford Economic Papers*, 37:659-668
- Vizard, P. and T. Burchardt, (2008). Developing a capability list for the Equality and Human Rights Commission: Paper at the IARIW conference, Slovenia, August 2008.
- Wilthagen, T. and Tros, F. (2004), The Concept of 'Flexicurity: A new approach to regulating employment and labour markets', *Transfer, European Review of labour and research*, **10**, (2), 166-86.