



The Role of Job related Factors to Prolong Working Life: An Analysis for the German Labour Market

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Abstract

Labour markets and companies in some developed countries have to consider general demographic changes. While the group of elderly workers grows, their sustainment will become more important in future (e.g. Höhn et al. 2008; Dittrich et al. 2011). Especially in combination with an ageing population and a later entrance into the labour market a future shortfall of active workers can be assumed. Germany – as one example of such countries – has only a limited number of options that policy makers and companies can use in the coming decades. One of these is the increased use of the three growing segments in the population: older people, immigrants and an increased participation of women in the labour market. This study focuses the first segment as a potential work force.

When promoting that a higher employment rate of older workers can be considered as serious alternative for dealing with the current shortfall of skilled labour force, the motivation of these workers has to be investigated. The works of Alavinia et al. (2007) and Wang, Shultz (2010), which discuss factors influencing the decision to prolong the working age, can be used as starting point. In this context, we analyse the German labour market as an example for a developed country. For the analysis, we use a representative data set of the Federal Institute for Population Research of Germany from published in 2008. Here, 1,500 employees (blue collar workers, white collar workers, civil servants) aged between 55 and 64 years were asked about their work situation, motivation and related factors (e.g. further education, job rewards; Büsch et al. 2010). During the data analysis we identify groups of elderly workers using cluster analysis (e.g. Cormack 1971) to develop recommendations for companies.

By using existing work motivation and related findings, as well as a representative empirical data set, our study reveals a possibility to identify, classify, and enhance the motivation of workers at the end of their career. This is necessary to keep the quality of goods and service production at an appropriate level. The value of the paper comes from the large number of respondents of the data set and the high relevance of the German situation for other developed countries. At the end, powerful recommendations for companies how to involve and motivate elderly workers for longer periods of employment can be derived.

Introduction

Due to lowered replacement fertility and raised life expectancy the population in Germany is decreasing and simultaneously the average age of workers is increasing. The combination of an ageing population and a later entrance into the labour market will lead to a future shortfall

of active workers. Policy makers and companies in Germany have three options (using the potential of the three growing segments in the population: older people, immigrants and an increased participation of women in the labour market). This paper focuses on the first segment as a potential work force for maintaining the country's competitiveness on global markets in the long run (Brusch et al. 2012).

Therefore it is extremely important to identify powerful instruments for motivating elderly workers to stay longer in the labour market (or even in the company). For a long time in Germany negative age stereotypes of older workers have been widespread (Büsch 2009). Even though it has been shown that age is not a good measure for workability at all (Ilmarinen 2005). It can be shown that the older an age group is, the more heterogeneous is the group. As a matter of fact it is necessary to develop a typology of older workers in order to use appropriate tools to prolong working life.

So the goal of this paper is to detect similar groups of workers at the end of their career. Therefore, the German labour market situation will be analysed using a representative data set of the Federal Institute for Population Research of Germany from 2008. In total 1,500 employees (blue collar workers, white collar workers and civil servants) aged between 55 and 64 years were asked about their willingness to prolong working life (e.g. Büsch et al. 2010).

The paper starts with an overview about demographic factors concerning broadly the EU and more specifically Germany and its population, as well as the challenges that are facing their current labour market. Then, job motivation and working ability of elderly workers and their motivation to stay longer in the German labour market will be discussed. In the following paper, a cluster analysis is carried out using the method of Cormack (1971) based on our empirical data base. Groups will be identified within a specific occupational group (blue-collar workers) using different variables (e.g. work ability, motivation). We will come up with results that describe the identified groups and their comparisons. We will close with a short summary and some suggestions for further research.

Demographic factors in the European Union and the German labour market

The Eurostat 2008 projections of Eurostat indicate that in Europe the working age population (20-64) will start to shrink, as the large baby-boom cohorts begin to retire by 2014. In fact, the number of people aged 60 and above in the EU is now rising by more than two million every year (Eurostat 2010a). Furthermore the working population in the EU is ageing and the proportion of older workers is growing compared to the cohorts made up of younger workers (Eurostat 2010b).

In June 2010, one of the responses to counteract this demographic trend was included among others in the Europe 2020 economic policy strategy (Growth and Job Strategy) in Lisbon by the European Council to increase the labour force participation of older workers. Since Germany is compared to other EU industrialized countries extremely affected by the demographic challenge it has already enacted different reforms. In Germany, one third of the population will be over the age of 60 in 25 years. Compared to the EU, Germany will therefore have the largest proportion of those aged 65 or over, with 20.7% (Eurostat, 2010a). In order to adjust the German Bismarckian Pension System to recent demographical challenges, three substantial legislative reforms have been enacted in Germany since 2001 (Müller/Raffelhüschen 2011):

- “Riester Reform” in 2001 implemented an additional private and occupational component to the traditional public pension (Börsch-Supan/Wilke 2006).
- Introduction of a so called “sustainability factor” in 2004 to adjust the pension rates accordingly for an increasing proportion of pensioners (Börsch-Supan/Wilke 2006).
- Law for Adjusting the Standard Retirement Age in 2007. Under this law, the standard retirement age will progressively rise to 67 years, starting with the cohort of 1947 (Bundesministerium für Arbeit und Soziales (Ed.) 2012)

As a first result the focus changed in Germany from early retirement to prolonged working lives. As a matter of fact the labour participation rate of people aged 50-55 years increased from 2000 to 2010 by almost five percentage points. In the age group 55-60, 66.0 % were economically active in 2000 and 77.2 % in 2010. The most significant increase in labour participation occurred in the age group of 60-65 year-olds. While 21.5 % of those were economically active in 2000, the share increased to 44.2 % in 2010 (Statistisches Bundesamt 2011).

We retain that the promotion of elderly people is a key factor to face the demographic challenge. So the question is not any longer whether older people should continue working, but rather how they wish to continue working.

Factors influencing the desire to continue working

So far most research has been done on early-retirement decisions in Germany (for a comprehensive overview see Feldman 1994) but little is known about the intentions of older people to continue working after they have retired. Only recently, the focus of research is changing (Kapteyn et al. 2007). Whatever the reasons to prolong working life, it would be preferable that people continue working because they would like to, rather than only because they have to (Hult/Edlund 2008). Thus, it is important to increase our understanding of the individual and company related factors that influence ageing people’s decision to stay in or to leave the labour market. In this respect, especially American literature focuses on profound research concerning bridge employment (Wang and Shultz 2010). This type of employment takes place in the transition period between full-employment and full-retirement and involves continued paid employment after a worker has officially retired (Ruhm 1990).

If workers are willing to prolong their working life, human resource managers should assure that firstly workers are motivated at work and secondly they are able to accomplish their tasks. In the following we are going to summarize shortly the main findings in the literature with respect to

- age and prolonged working life,
- age and motivation as well as
- age and work ability.

Prolonging working life has been discussed only recently as an issue. According to McNair (2006), there is a division amongst attitudes to remain in the older workforce. Some people need to work due to resource issues, and others enjoy the chance to work. Also Saba and Guerin (2005) claim that, besides financial rewards, non-financial factors like perceived recognition play an important role in extending work beyond retirement age. Also support of colleagues and executive managers are seen as motivating factors that are playing an essential role to the wish to prolong working life (van Dam et al. 2009).

Pienta and Hayward (2002) suggest that it is more likely that workers with high intrinsic motivation will stay longer in their jobs. They used data from the 1992 Health and Retirement Study.

Since *motivation* seems to explain the willingness to enhance working life it can be pointed out that the motivation between younger and older workers does not differ a lot, but the factors influencing the motivation are quite different. While young workers focus on security and on how the supervisor relates to them, older workers are putting a higher attention to independence (Stamov Roßnagel 2009; Kooij et al. 2010). But for both age groups, enjoyment and being proud of the job, plays an important role for the motivation.

In comparison of *work ability* negative age stereotypes continue to persist and older worker are still seen as less productive than younger worker. But age alone is not a good predictor for abilities, since the “older age group” is a quite heterogeneous group (Büsch 2004). Although only a minority of an age group loses productivity over time, the majority of them seem to remain productive (Ilmarinen et al. 1997).

In the following we are focussing in four research questions for blue-collar workers in Germany:

1. Do older workers wish to work beyond legal retirement age?
2. Is there a relation between job motivation and the decision of prolonging working life?
3. Is self reported work ability and the decision of prolonging working life somehow connected?
4. Is it a possible to develop a typology of motivation and work ability for blue-collar workers to have insights how to promote older workers individually, instead of using age?

Due to the fact that older workers are a quite heterogeneous group and motivation and work ability are not necessary correlated with age, we intend to develop a typology of workers at the end of their career. A development of a typology for human resource management is a helpful tool to deduce a course of action accordingly for productive aging. Since motivation and work ability are central requirements in the job, the intended typology aims to cross the different levels (Table 1).

Work ability Motivation	Low	Medium	High
Low	I	II	III
Medium	IV	V	VI
High	VII	VIII	IX

Table 1: Typology of workers with respect to work ability and motivation

In the following we want to give a short example on the explanation for type VII in Table 1: A low WA correlates with high motivation. As a result, it becomes clear for the human resource manager that this type of worker has a high job motivation and would need further qualification in order to increase their work ability. In the following chapter we attempt to create such a typology with our data via clustering.

Empirical Investigation

Within our investigation, we analyse the German labour market as an example for a developed country. The empirical analysis is based on a representative data set of the Federal Institute for Population Research of Germany from 2008 where a sample of 1,500 employees (blue-collar workers, white-collar workers and civil servants) aged between 55 and 64 years were interviewed by infratest (e.g. Büsch et al. 2010). An overview about general characteristics of all participants – the total sample – is shown in Table 2.

Characteristics	Percentages (n=1,500)				
Occupational groups	Blue-collar workers: 24.5		White-collar workers: 63.5		Civil servants: 12.0
Age	55: 9.5	56: 17.9	57: 17.3	58: 12.9	59: 12.9
	60: 9.5	61: 7.9	62: 5.3	63: 3.8	64: 3.1
Sex	Male: 48.3			Female: 51.7	

Table 2: Overview about general characteristics of the total sample

Participants can be differentiated in blue-collar workers, white-collar workers and civil servants. In addition, it can be mentioned that respondents with successful apprenticeship or similar, encompass half of the sample (48 %). These are followed by university graduates or graduates from universities of applied sciences (30 %), master craftsmen/technicians or similar (17 %), and people with no vocational graduation (4%). Employees have often jobs with qualified tasks (48 %). Most of the participants (75 %) reported a working time of 35 hours per week or more, while some (20 %) worked in part-time jobs with 15-34 working hours per week and only few (6 %) worked less than 15 hours per week.

The following data analysis focuses on the group of blue-collar workers (for analysis of the groups of white-collar workers and of civil servants see Bruschi et al. 2012). The majority of the respondents work in the field of industry and processing commerce followed by the construction industry and a diverse field of other services. The sample consists of n=367 individual respondents and an overview about their socio-demographic and general job related characteristics is given in Table 3.

Within the analysis the factors work ability (using as item, e.g., “How high do you estimate your present work ability with respect to your job definitions?”), motivation (“My motivation to work is very high.”) and desire to continue working (“Could you imagine to continue working after reaching your retirement age?”) are focused. In addition factors as leadership (e.g., “In case of important issues, my supervisor informs me adequately.”), job demands (e.g., “My work requires strong concentration.”), job rewards (e.g. “The relationship to my supervisor is loyal and fair.”), job satisfaction (e.g., “I am very satisfied with my work.”), exogenous performance expectation (in the following “performance expectation”; e.g., “My company will reach its own objectives this year.”) as well as age and sex are considered.

All these factors – except desire to continue working, age and sex – are measured using a five point scale (with 1...“strongly agree”/“very important”/“very high” and 5...“strongly disagree”/“not at all important”/“very low”; numbers close to 1 represent high or positive judgements). The desire to continue working was measured by using four categories (“yes”, “rather yes”, “rather no”, “no”). The reliability (Cronbach's alpha) and mean values – differentiated for the total sample and the blue-collar workers – are shown in Table 4.

Characteristics	Percentages (n=367)
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Age	55: 10.1	56: 20.7	57: 16.1	58: 13.9	59: 11.7
	60: 11.4	61: 8.2	62: 4.6	63: 1.9	64: 1.4
Sex	Male: 59.7			Female: 40.3	
Hours per week	≥35: 75.7		15-35: 16.1	<15: 8,2	
Branch	Agriculture and forestry: 2.7	Power supply and mining: 2.7		Construction industry: 9.7	
	Industry and processing commerce: 40.7	Trade: 8.8		Banking, credit institutions, insurances: 0	
	Traffic and communications: 3.8	Hotel and catering industry: 1 3.3		Education, social affairs etc.: 8.8	
	Public administration, justice, police, military: 2.5	Unions, public utility institutions, churches: 1.6		Other services: 15.9	
Time-limited job contract	Yes: 7.4			No: 92.6	

Table 3: Overview about socio-demographic and general job related characteristics of the analysed sample

The reliability values in Table 4 show that the necessary requirements are fulfilled in most cases. An exception is the critical low Cronbach's alpha for factor job satisfaction (especially in the total sample), but because of comparison reasons this item remains in the following investigation. However, for interpretation (and ensuing recommendations) this item should be handled with caution.

While the aim of our analysis is the development of a typology of older workers we classify the group of blue-collar workers using cluster analysis as a multivariate classification method. The usage of this method is common in a lot of fields, e.g., medical science, archaeology, biology, also in business administration and economics. Particularly when a total sample has to be divided into subsamples, cluster analysis has often been used as method for classifying objects into groups – so called “segments” or “cluster” – with respect to their similarity (e.g. Baier/Brusch 2008; Cormack 1971).

For clustering purposes we use Ward's method as a hierarchical cluster procedure. The analysis is based on z-standardised values of work ability and motivation, as segmentation basis (structuring variables) and after an outlier detection and elimination using single-linkage clustering. The clustering results (for the two structuring variables and all additional factors as description variables) are given in Table 5 for the analysed blue-collar workers.

Factor	No. of items	Total sample (n=1,500)	Blue-collar workers (n=367)
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Value		α	M	%	α	M	%	
Work ability		2	0.617	1.975	–	0.679	2.079	–
Motivation		1	–	1.550	–	–	1.626	–
Commitment		1	–	1.490	–	–	1.651	–
Leadership		2	0.713	2.124	–	0.689	2.165	–
Job demands		7	0.702	2.203	–	0.727	2.040	–
Job rewards		7	0.671	2.066	–	0.638	2.329	–
Job satisfaction		5	0.599	1.498	–	0.610	1.555	–
Performance expectation		2	0.669	2.590	–	0.632	2.921	–
Desire to continue working	Yes	1	–	–	24.3	–	–	21.6
	Rather yes	1	–	–	23.0	–	–	22.5
	Rather no	1	–	–	19.2	–	–	19.7
	No	1	–	–	33.6	–	–	36.2

Table 4: Cronbach's alpha (α), mean values (m) or percentages (%) for selected factors for the total sample and the analysed sample of blue-collar workers

As the results for blue-collar workers in Table 5 show, a solution with three clusters (using the elbow criteria for cluster number selection) can be found. The need for nine different groups (as suggested for the typology of workers with respect to work ability and motivation in Table 1) seems not to be given. In comparison with the nine types of workers (for numbers in parentheses see Table 1), the three clusters are representing the following:

- Cluster 1: medium work ability – high motivation (VIII)
- Cluster 2: high work ability – high motivation (IX)
- Cluster 3: medium work ability – rather low motivation (II)

According to this finding the suggested typology can be reduced e.g. the types I, III and VI are not applying in case of blue-collar workers (for similar findings in case of white-collar workers see Bruschi et al. 2012). The desire to continue working (category “no”) is in the largest cluster 1 at the lowest. Here, low work ability and the highest proportion of women can be found. A potential for the desire to continue working (combination of categories “yes” and “rather yes”) can be identified in cluster 2 with the highest values for work ability and motivation. Altogether, high (work) motivation seems to be a precondition for the desire to continue working, although this is not a sufficient precondition.

Factor	Value	Cluster 1	Cluster 2	Cluster 3	
Size	%	63.1	28.1	8,9	
Work ability	M	2.407	1.292	2.109	
Motivation	M	1.463	1.248	3.844	
Age	M	58.0	58.2	57.9	
Sex	Male	%	58.6	61.4	62.5
	Female	%	41.4	38.6	37.5
Commitment	M	1.549	1.558	2.556	
Leadership	M	2.055	2.248	2.781	
Job demands	M	2.090	1.945	2.040	
Job rewards	M	2.276	2.298	2.842	
Job satisfaction	M	1.516	1.364	2.413	
Performance expectation	M	2.894	2.762	3.578	
Desire to continue working	Yes	%	19.0	26.0	25.0
	Rather yes	%	23.0	21.0	18.8
	Rather no	%	22.6	16.0	15.6
	No	%	35.4	37.0	40.6

Table 5: Mean values (M) or percentages (%) for selected factors of the identified clusters

Conclusion and outlook

In this paper the demographic change in the exemplary case of Germany and the possibility to motivate older workers to stay longer in the labour market has been focused. We based the empirical investigation on a representative data set of the Federal Institute for Population Research of Germany and analysed the answers of blue-collar workers to develop a typology of workers at the end of their career. Finally, we carried out a cluster analysis.

Our investigation indicates that three clusters (that means three groups of blue-collar workers) can be identified. Some clusters show good values with respect to motivation and work ability of the workers (which can be seen as preconditions for prolonging the working time of older workers) and to a certain degree, positive values for the requested desire to continue working. This analysis allows some estimations and interpretations regarding the proportion and the identification of workers who are potentially interested to work beyond retirement age.

However, further research would be needed to identify (and to describe) a cluster (a specific group of workers) with a clear and dominant desire to continue working. Therefore, additional variables, both, as additional items for measuring the desire to continue working and for describing the groups found, have to be selected and proven. Moreover, new samples of the German labour market and of other European countries would be useful for generalisations.

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