Pushed into Unemployment, Pulled into Retirement
Facing Old Age in Gothenburg, 1923-1943

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Abstract: Along with rapid growth and improved standards of living, the first decades of the twentieth century saw the introduction of new technology and new ways to organize production. There are contrasting views on what impact these developments, often summarized as the Second Industrial Revolution, had on the situation of old men in the labour market. Some contemporary observers and modern-day historians have described how old men were crowded out of the labour force and pushed into an 'industrial scrap heap'. Other researchers have maintained a more optimistic view on the opportunities of old men and argued that labour force withdrawal often was made possible by rising real earnings and savings. Since most of the research in the field has been based on cross-sectional data, the debate has relied on anecdotes, indirect evidence and assumptions. This paper uses data from a longitudinal panel of men living in the city of Gothenburg during the period 1923-1943. In contrast to most previous studies, this one takes up actual transitions into retirement and how such transitions were associated with access to resources. The main result is that a lack of resources was associated with a higher risk of retirement. This association appears even clearer when the sample is restricted to working-class men and to the latter half of the period of investigation, when unemployment was lower and pension benefits higher. Thus, it would appear that transitions into retirement were most frequent when push and pull mechanisms were combined.

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1. Introduction

Along with rapid growth and improved standards of living, the first decades of the twentieth century saw the introduction of new technology and new ways to organize production. There are contrasting views on what impact these developments, often summarized as the Second Industrial Revolution, had on the situation of old men in the labour market.[1] Some contemporary observers and modern-day historians have described how old men were crowded out of the labour force and pushed into an 'industrial scrap heap'. Other researchers have maintained a more optimistic view on the opportunities of old men and argued that labour force withdrawal often was made possible by rising real earnings and savings.

The nature of old men's withdrawal from the labour force in the decades around the turn of the twentieth century has implications for our understanding of several big issues in economic and social history; for instance, the emergence and development of welfare states, capital markets, and family and employment relationships. Yet, the present state of research leaves room for diverse interpretations, partly because most existing studies have been based on cross-sectional data and relied on indirect evidence and assumptions.

This paper looks more directly at transitions into retirement. The main question at issue is whether old men were pushed out of the labour market by the lack of employment opportunities or whether they were pulled into retirement. In order to answer the question, I employ data from a longitudinal panel of men living in the city of Gothenburg during the period 1923-1943. The data is drawn from poll-tax records and includes rich information about the panel members' socio-economic position, including occupation, family situation and access to various incomes.

The paper breaks new ground in two ways. Firstly, it adds a longitudinal dimension to the research on retirement, which has been largely based on cross-sectional data. Secondly, it adds a new setting to a research field that has been dominated by studies on the United States. Sweden is more representative of the European experience with somewhat lower incomes per capita, earlier welfare reforms and different labour market structures.

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[1] The work and retirement patterns of old women is an issue that requires other methods and sources to investigate. The present paper is delimited to men.

The main result of paper is that a lack of resources was associated with a higher risk of retirement. This association appears even clearer when the sample is restricted to working-class men and to the latter half of the period of investigation, when unemployment was lower and pension benefits higher. Thus, it would appear that transitions into retirement were most frequent when push and pull mechanisms were combined.

The paper is outlined as follows: section 2 reviews previous research; section 3 introduces the setting for our study – Sweden and the city of Gothenburg during the first half of the twentieth century; section 4 presents the data and descriptive statistics; section 5 analyses the determinants of older men's exit from the labour market; section 6 reports results from a large number of robustness checks; section 7 concludes the paper and points at questions for further research.

2. Previous research

Over the years there has been a substantial decline in old men's labour force participation. From 1890 to 1990, gainful employment among men over 65 dropped from levels over 70 percent to about 20 percent in the United States, and to below 10 percent in Great Britain. (Costa 1998: 8-9) Countries such as France, Germany and Sweden showed similar long-run trends although from somewhat lower starting points.[2]

How can we understand the withdrawal of men from the labour market? One way of approaching this question would be to make a distinction between push and pull factors, analogous to migration theory. Applied to retirement, push factors are circumstances that make it difficult for old men to remain in gainful employment, whereas pull factors are circumstances that make leaving gainful employment an attractive and wished-for option.

Industrialization in general has often been described as having a negative influence on the chances of old men to remain gainfully employed. For example, it is commonly held that the possibilities of adjusting work intensity according to physical and mental capabilities diminished as farming and other kinds of self-employment became less common. The more elaborated forms of mass-production and management introduced

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[2] Swedish official statistics do not allow studying gainful employment of old men at the aggregate level until 1910. However, at that point Sweden had about the same percentage of old men reporting an occupation as Great Britain. 20 years later, the equivalent share was 53 percent. (Elmér 1960: 370-375; Högman 1999: 68)

around the turn of the twentieth century are often thought to have pushed men out of the labour market even more actively. From his viewpoint in early twentieth-century United States, the economist and social reformer Abraham Epstein (1928: 31) wrote that "in the world of the machine, age and experience are no longer assets but insurmountable handicaps".[3] Industrialization was associated not only with technological change, but also with more pronounced business cycles and fluctuations in unemployment. Studying the early impact of the Great Depression on the London labour market, Dudley Baines and Paul Johnson (1999: 949) conclude that old men's withdrawal "was determined primarily by the absence of employment opportunities, rather than the presence of substantial assets or non-labor income". Some researchers have equaled unemployment in old age with retirement (Ransom & Sutch 1986; Quadagno 1985). Robert Margo (1993) and Chulhee Lee (1998) dismiss such a view, but agree upon the importance of unemployment as an experience often leading to retirement. In the United States, the difficulties of escaping unemployment could have been related to institutional changes, as some employers introduced age as a barrier to hiring in the first decades of the twentieth century (Segrave 2001). Carole Haber and Brian Gratton (1994) add that the increased spread of seniority rights contributed to a more segmented labour market, with stronger employment protection for some old men and higher barriers of entry for others.

While Epstein and others have highlighted the importance of push factors, there are also researchers, such as Dora Costa (1998), who emphasize the role of pull factors for explaining the trends in men's labour force participation. In many countries, rapid economic and institutional changes brought about rising real earnings and life expectancy, along with more sophisticated financial instruments and a growing public sector. Overall, the development may have created opportunities as well as incentives to set aside resources and save for the future. There are various mechanisms through which economic growth may have pulled old men out of gainful employment. Referring to the middle- and upper-classes in late nineteenth-century England, Leslie Hannah (1986) accounts for an established pattern of gradual withdrawal from gainful employment, and supposes that such behavior was imitated by people from the working class as their living standards improved. The fruits of economic growth were also used to expand welfare benefits to

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[3] Early studies of the U.S. Social Security Administration also underlined the involuntary nature of retirement (see Quinn & Burkhauser 1994: 65-66).

elderly people, with Germany as an early example. In the United States, veterans of the civil war received pensions amounting to 30 percent of the income of an unskilled labourer (Costa 1998). In many other countries, such as Great Britain, pension benefits were low and only seen as supplementary incomes (Baines & Johnson 1999). Apart from state-granted pension systems, there were also benefits that were tied to particular occupational groups or firms (Hannah 1986).

As often noted in the literature on migration, push and pull factors may well operate simultaneously or be interrelated. One possible scenario is high frequencies of transitions into retirement among relatively well off and relatively poor, while men of more average standing remain gainfully employed. Moreover, as noted by Costa (1998), taking a definite step into retirement is unlikely in the absence of alternative means of support. Thus, although pushed out of employment, an unemployed man without access to resources – in the form of own savings, income from other family members or pension benefits – is likely to remain in the labour market as a job seeker for a longer period. In other words, without pull mechanisms, push mechanisms may be less effective in creating transitions into retirement. Lee (1998) has found some evidence of interaction between pull and push factors. He finds that unemployed old American men were more sensitive to the level of pension benefits than those who were employed.

Most historical studies on the labour-force participation of the elderly are based on census data (Carter & Sutch 1996; Costa 1998; Johnson 1994; Margo 1993; Ransom & Sutch 1986; Wollard 2010). The meaning of key concepts in the censuses, such as 'gainfully employed', is often blurry and inconsistent over time, with consequent difficulties in interpretation (See Dillon, Gratton & Moen 2010; Ransom & Sutch 1986; Margo 1993; Moen 1987; Ransom & Sutch 1989). Some studies have complemented the censuses with cross-sectional surveys on labour conditions for specific locations, occupations or industries (Baines & Johnson 1999; Costa 1998; Ransom & Sutch 1986; Weiler 1989). While surveys often provide richer information on retirement patterns than censuses, both sources are basically snapshots from which it may be difficult to draw firm conclusions on cause and effect. For example, if retirement is found to be negatively associated with home ownership, it is difficult to tell whether non-owners are more likely to leave the labour market or whether those who leave the labour market are forced to sell their properties in order to sustain themselves. The data on American civil war veterans used by Costa (1998) represents an exception in the field as it follows individuals over time. Yet, despite its

longitudinal nature, it is sometimes approached as if it was a cross section in that what is focused on is the probability of being retired at a certain point in time, rather than transitions from one point in time to another. Lee (1998) links veterans to the censuses of 1900 and 1910 and is thus able to study how transitions into retirement were related to earnings, unearned incomes, property holdings, family structure and health. His analysis suggests that long-term unemployment increased the likelihood of retirement. Yet, Lee has only two points of observation with ten years in between, which limits the value of his analysis for an understanding of the process of retirement. The data introduced in this paper is more fine-meshed as it follows individuals in four-year intervals.

Much of the debate on retirement in the past has centered on the United States. While the long-term trends in old men's labour force participation, as mentioned, were similar in the larger European countries, the relatively generous pension benefits for civil war veterans, high real earnings and high degree of labour market segmentation made the United States somewhat of an outlier. If we want to understand the historical evolution of retirement, it would be fruitful to add countries with different pension systems, lower levels of real earnings and less segmented labour markets. Sweden is one such case that is of particular interest.

3. The setting

Sweden experienced an industrial breakthrough in the last decades of the nineteenth century. From 1880 to 1913, the real wages of workers in the manufacturing industry doubled and surpassed those of British workers (Prado 2010). In about the same period, life expectancy at age 50 was prolonged from about 21 to 24 years for men. If surviving until the age of 65, a Swedish man in 1920 could expect to approach the age of 78. Probate inventories show the accumulation of financial assets among working-class households in the nineteenth century and suggest a decreased reliance on kin or real estate holdings (Lilja & Bäcklund 2013; Lilja & Bäcklund 2014). Life insurance was one type of financial asset that became increasingly popular. Fredrik Andersson and Liselotte Eriksson (2014: 5) estimate that two thirds of the Swedish households were insured by 1914. Most of the life insurances offered the insured person payments after reaching a certain age. Over 50 percent of these "endowment insurances" were terminated in the age span 45-55 (1928 års pensionsförsäkringskommitté 1932: 117). However, the opportunities to accumulate financial assets differed among individuals, depending, among other things, on their family

situation. Old workers with few children were typically in a better position than those with huge families to support (Lilja & Bäcklund 2013).

Decreasing mortality in combination with huge streams of emigration brought about a general trend towards population ageing in Sweden. Around the turn of the twentieth century Sweden, along with France, had a much higher share of people over the age of 65 than other countries in the Western world (Högman 1999: 39). At that time, the situation of the elderly had entered the political agenda and, in 1913, Sweden became the first country in the world to introduce a universal pension scheme that was unrelated to previous occupation and earnings (Elmér 1960; Edebalk & Olsson 2010; Hagen 2013). The system had two parts; one based on contributions paid up to age 66 (or earlier in the case of inability to work), and another part consisting of supplementary benefits to disabled persons, irrespective of age. Initially, the pension benefits were low; a single person who retired in 1914 received benefits that corresponded to about 5 percent of the earnings of a prime-age male worker (Elmér 1960: 252, 256). In reality, the low benefit level meant that many pensioners had to rely on poor relief (Edebalk 1991: 29).

Early twentieth-century Gothenburg was an industrial metropolis, influenced by the same trends as the Swedish economy as a whole (Stråth 1983). By 1920 about 50 percent of all men were employed in industry and manufacturing, a share that did not change much over the next two decades. More changes were seen within the industrial sector, particularly in the 1910s, when the centre of gravity shifted from textiles and foodstuffs to heavy manufacturing and engineering.

The emphasis on heavy industry also meant that the men's labour market in Gothenburg became strongly influenced by swings in the business cycles, with notable depressions in the early 1920s and 1930s. Unemployment among unionised workers, which was almost 35 percent in 1922,was pushed down below 10 percent in 1924, which was still a relatively high level historically. The situation in the labour market became worse again with the coming of the Great Depression. Evidence from the mechanical engineering industry suggests that this crisis had more serious effects on the situation of old men than the crisis of the early 1920s, when more senior workers had been given priority to jobs. (Olsson 1970: 21) The situation in the labour market improved towards the second half of the 1930s. At the same time, the Social Democratic government introduced welfare reforms, including active labour market policies with market-based wages. In 1935 and 1937, pension levels were raised and linked to regional cost-of-living indexes, which were

particularly beneficial for pensioners in big cities. In 1941, the nominal benefits for a single man amounted to SEK 737 (Elmér 1960: 252). In real terms, the value of the pension benefit had increased threefold since 1914. The pension benefit corresponded to 20 percent of the average earnings of a worker, (Elmér 1960: 256). According to Per-Gunnar Edebalk et al (1998), the benefits were still too low to allow independence from poor relief or alternative sources of income.

Like other parts of the Swedish labour market, Gothenburg was affected by the spread of Scientific Management during the inter-war period; more specifically seen in the use of performance-based pay, time studies and increased division of labour between blue and white collar workers (Wallentin 1978: 42-51). Yet, the extent of rationalisation along Taylorist lines and the use of piece rates differed between industries. In shipbuilding, which was one of the most important industries in Gothenburg, work was typically team-based and remuneration was paid to the whole team after the completion of a task (Svensson 1983). The team leader then divided the money among the team members according to the prevailing hourly wage rates. The implications of team-based piece rates for the situation of old men have not been investigated empirically. Åke Elmér (1960: 373) maintains that such systems of remuneration could have hastened the retirement of ageing workers. On the other hand, it may also have been the case that team-based production and remuneration made it easier for elderly men to find a place in the work organisation.

Overall, the Swedish labour market came to be characterised by its high degree of organisation and standardisation of wages and employment conditions (Lundh 2010; Swenson 2002). The organisation of workers in Gothenburg gained momentum relatively late (Stråth 1983), but the share of workers (including white-collar) covered by collective agreements in Gothenburg increased from 37 to 59 percent between 1920 and 1940.[4] If white-collar workers are excluded, the share covered is even higher. Collective agreements typically protected workers from unfair dismissal and arbitrary wage setting, which may have been particularly important for elderly workers. Some agreements also included explicit paragraphs that protected senior workers from layoffs.[5] However, unlike the American labour market, blue-collar wages were not tied to seniority.

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[4] See *Statistisk årsbok för Göteborg* for the years in question.

[5] In 1938, this norm became codified in the General Agreement between the parties in the Swedish labour market.

To sum up, there were many economic and social forces in motion in Sweden and Gothenburg during the inter-war period, with various consequences for the situation of old men. It is not possible to disentangle the impact of all these forces in this paper, but it may be noted that the period of investigation includes two distinct phases: before the Great Depression and after. The situation in the labour market can be described as moving from poor to worse between 1923 and 1935. In this sub-period, pension benefits were so low that they did not allow complete withdrawal from gainful employment, unless there were other sources of incomes. From 1935 onwards, unemployment levels were pushed down at the same time as retirement appeared as a more realistic, if not attractive, option.

4. Data and sample characteristics

This study employs data from the Gothenburg Population Panel (GOPP) version 6.0 for the period 1923-1943.[6] GOPP is a random sample of adult individuals living in Gothenburg, augmented by those married to the sample individuals. A central register of the city's whole population has been used to obtain a sampling frame from which individuals have been tracked in poll-tax records every fourth year. The central register contains information on addresses, year of death or outmigration, though it is sometimes incomplete wherefore it is not always possible to find a person in the poll-tax records. The poll-tax records include information concerning demographic characteristics (date of birth, place of birth, civil status and under-aged children), occupation and incomes (from property, capital, business and employment). All occupational titles in the database have been coded into HISCO (van Leeuwen, Maas & Miles 2002) and the related scheme of social stratification, HISCLASS (van Leeuwen & Maas 2011).[7] GOPP is an unbalanced panel which means that individuals are allowed to enter and leave over time.[8]

For the purpose of this paper, the sample is restricted to men over the age of 45 who report an occupation in year t, but including spouses of sample individuals. In the event of

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[6] GOPP also covers the period 1915-1943, but individuals over the age of 65 are underrepresented for the years before 1923. Therefore this paper is delimited to the period 1923-1943. GOPP is introduced in greater detail in Karlsson & Lundh (2015).

[7] Due to small numbers in some cells, we have collapsed some of the social classes. We have also made some adjustments of the HISCLASS codes to better fit the historical setting.

[8] Entrants are those who come of age or move into Gothenburg. Leavers are those who die or move out of the city.

TABLE 1. *Sample characteristics (means)*

Variable	1. All years	2. HISCLASS>5	3. 1923-1935	4. 1935-1943
Age group				
>=45<50	0.335	0.338	0.344	0.324
>=50<55	0.253	0.245	0.243	0.265
>=55<60	0.191	0.184	0.194	0.188
>=60<65	0.127	0.139	0.121	0.134
>=65<70	0.065	0.066	0.070	0.060
>=70	0.029	0.029	0.028	0.030
Family situation				
Unmarried	0.163	0.184	0.186	0.137
Married, wife without income	0.731	0.717	0.732	0.729
Married, wife with income	0.106	0.099	0.082	0.134
Social class				
Higher managers & higher professionals	0.057		0.059	0.055
Lower managers	0.089		0.097	0.079
Lower professionals, clerical & sales	0.124		0.118	0.131
Lower clerical & sales	0.058		0.050	0.067
Foremen, medium skilled workers	0.297	0.442	0.317	0.274
Lower skilled workers	0.150	0.222	0.130	0.173
Unskilled workers	0.226	0.336	0.229	0.222
Income from employment	0.829	0.835	0.824	0.835
Income from business	0.118	0.072	0.112	0.125
Other income	0.229	0.151	0.205	0.257
Year *t*				
1923	0.167	0.165	0.311	
1927	0.173	0.178	0.321	
1931	0.198	0.199	0.368	
1935	0.214	0.219		0.464
1939	0.247	0.239		0.536
Retire before *t+4*	0.100	0.099	0.099	0.100
Number of observations	**1,457**	**980**	**785**	**672**

Comment: See text for variable and sample definitions.

Source: Own calculations. Data from GOPP version 6.0, last accessed 3 February 2015.

the death of a married sample person, the spouse has been tracked forward until death or out-migration.[9] Table 1 presents the sample characteristics for the full sample, as well as three samples that are further restricted: men belonging to the working class (HISCLASS>5) and men who appear in the panel in the periods 1923-1935 and 1935-1943, respectively. As expected, the age structure is skewed, with the largest shares found in the relatively younger age groups. Most of the panel members are married and about 11 percent have wives with declared income. This latter group seems to have grown over time. Having a wife with a declared income was most common among men older than 70 (not shown in the table). In the 1935-1943 sample, the share of men with income earning wives is 14 percent. About two thirds of the panel members have working-class occupations; of these somewhat more than half have lower skilled or unskilled occupations. About one fifth of the men in the samples lack income from employment (somewhat less for 1935-1943). This is an indication of un- or underemployment, to the extent that the same individual did not declare income from business. The share of men with income from business is around 12 percent in the full sample and 7 percent in the working-class sample. There are also substantial proportions of the men who declare other income from property or capital; 23 percent for the full sample and 26 percent in the later years of investigation. Though the share with income from property or capital is lower among working class men, it is still as high as 16 percent. Income from property or capital indicates that an individual has accumulated resources, which may be used to secure retirement.

The last variable displayed in table 1 is the share of men who retire in the coming four-year period. Retirement is defined as a transition from having an occupation to having a 'former occupation', or having no occupation at all. Defined this way, retirement seems to have been a once-in-a-lifetime transition for most of the panel members. Of those who did retire between year *t* and *t+4*, there are only nine cases of re-entry into gainful employment between year *t+4* and *t+8*.

Most of the panel members (77-78 percent) remain gainfully employed four years later. The differences between the samples are small in this regard. Slightly less than 10 percent retire before the next observation, with a somewhat lower share in the 1935-1943

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[9] This is a supplement of the GOPP done specifically for this paper. Göteborgs stads centralregister: män, avlidna och utflyttade, CIV aa, vol. 1-201, Göteborgs mantalskontors arkiv (hereafter GM), Landsarkivet i Göteborg (hereafter GLA); Göteborgs stads centralregister: män, aktuella 1967, CIV ab, vol. 1-180, GM, GLA; Mantalslängder 1916-1944, FI aa, vol. 329-947, GM, GLA.

sample. Moreover, the mortality rate is somewhat lower for the latter period. About 9 percent of the men leave the panel for other reasons every four-year period. Notably, the share is lower among working-class men.

Table 2 reports retirement by age group for the full sample. As revealed by the table, over 80 percent of the men remain gainfully employed in the next year of observation, until the age of 60. Thereafter, the shares that remain decrease substantially to about 33 percent at age 70 or over. The share that leaves through retirement more than doubles between the ages 55-60 and 60-65, from 9 to 19 percent and reaches 45 percent among men aged 65 to 70.

TABLE 2. *Panel status year t by age group*

Age group	Total number of observations	Gainfully employed	Retired	Share who retire from year t to $t+4$
>=45<50	488	473	15	0.031
>=50<55	369	351	18	0.049
>=55<60	278	254	24	0.086
>=60<65	185	150	35	0.189
>=65<70	95	61	34	0.358
>=70	42	23	19	0.452
Total	**1,457**	**1,312**	**145**	**0.100**

Source: See table 1.

5. The risk of retirement

In this section I analyze the risk of retirement in in the next four-year period. For this purpose I use discrete-time event history analysis in the form of complementary log-log models.[10] The following independent variables are used: age (five-year intervals), family situation, declared incomes (from employment, business and property/capital), previous occupational mobility, social class and year of observation. All independent variables are measured in year t. All coefficients have been recalculated into relative risks to facilitate interpretation.

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[10] I also try a number of alternative specifications, see section 6.

TABLE 3.   *Complementary log–log regressions of retirement in the next 4 years (relative risks)*

	1. All years	2. HISCLASS>5	3. 1923-1935	4. 1935-1943
Age group				
>=45<50	REF	REF	REF	REF
>=50<55	1.627	1.388	2.677*	0.969
	(0.567)	(0.612)	(1.356)	(0.484)
>=55<60	3.022***	2.800**	4.688***	1.789
	(1.001)	(1.156)	(2.305)	(0.850)
>=60<65	7.118***	6.153***	10.21***	5.056***
	(2.235)	(2.356)	(4.797)	(2.147)
>=65<70	14.56***	13.76***	19.82***	11.09***
	(4.511)	(5.408)	(9.248)	(5.116)
>=70	15.61***	14.14***	21.63***	10.10***
	(5.733)	(6.801)	(11.85)	(5.606)
Family situation				
Unmarried	REF	REF	REF	REF
Married, wife without income	0.913	0.842	0.838	0.936
	(0.212)	(0.225)	(0.247)	(0.346)
Married, wife with income	1.742*	1.813	2.056	1.413
	(0.575)	(0.732)	(0.950)	(0.654)
Social class				
Higher managers & higher professionals	0.594		1.060	0.254
	(0.321)		(0.692)	(0.254)
Lower managers	1.872**		2.077**	1.569
	(0.514)		(0.745)	(0.754)
Lower professionals, clerical and sales personnel	1.088		0.951	1.309
	(0.397)		(0.455)	(0.610)
Lower clerical & sales personnel	2.083**		2.164	1.966
	(0.695)		(1.148)	(0.861)
Foremen, medium skilled workers	REF	REF	REF	REF
Lower skilled workers	1.270	1.366	1.640	0.934
	(0.380)	(0.428)	(0.607)	(0.481)
Unskilled workers	1.297	1.342	1.125	1.530
	(0.313)	(0.344)	(0.378)	(0.553)
Income from employment	0.517***	0.406***	0.636	0.415**
	(0.120)	(0.110)	(0.202)	(0.154)
Income from business	0.539*	0.512	0.621	0.429*
	(0.185)	(0.216)	(0.326)	(0.188)
Other income	0.891	0.843	0.835	0.937
	(0.216)	(0.287)	(0.300)	(0.322)
Year *t*				
1923	1.062	1.082	0.937	
	(0.277)	(0.356)	(0.272)	
1927	0.714	0.665	0.647	
	(0.202)	(0.237)	(0.187)	
1931	1.095	1.106	REF	
	(0.271)	(0.339)		
1935	0.906	0.997		0.897
	(0.225)	(0.299)		(0.224)
1939	REF	REF		REF
Constant	0.0481***	0.0630***	0.0330***	0.0830***
	(0.0219)	(0.0341)	(0.0187)	(0.0540)
Observations	1,457	980	785	672

Comment: Robust standard errors (clustered on individuals) in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Theoretically, there are various push and pull factors that influence flows out of the labour market. The empirical strategy in this paper is to focus on what the situation looked like before labour market exit. The available data makes it possible to tell whether old men left from a position where they lacked resources and strong attachment to the labour market, or from a relatively favorable position characterized by access to resources and steady employment. The former case is more likely associated with retirement as unplanned and involuntary transition, driven by push factors, whereas the latter suggests that retirement is the outcome of planned and voluntary choices, driven by pull factors. Consequently, variables measuring access to incomes of various kinds become central in the analysis.

The results from the analysis of the full sample are summarized in table 3, model 1. As expected, age is clearly related to retirement. The relative risk of retirement of men aged 60-65 is seven times as large compared to those aged 45-50. The relative risk of retirement of men over 65 is more than 14 times higher compared to the same reference group.

The family situation makes a clear difference. The important distinction is not between unmarried and married men, but between those with a wife who has a declared income and the rest. Having a spouse who contributes to the household budget increases the relative risk of retirement by 1.7 times. The association between spouse income and retirement may be interpreted as a household response to a weak labour-market position of the male breadwinner, a so-called added-worker effect (Woytinsky 1940). It seems like the spouse enters gainful employment when the husband begins to experience income losses or unemployment; thereafter the husband leaves the labour force and the wife take over the role as breadwinner. A limitation of this study is that it does not control for the presence of adult children in the household. It would have been interesting to study the relationship between the labour-market attachment of children and parents. A preliminary study shows that considerable numbers of young men and women in Gothenburg remained in their parental home well into their twenties. However, it is possible that inter-generational co-residence in Gothenburg, as in other settings, more reflected the difficulties of young people in entering the labour and housing markets, rather than being an expression of the vulnerability of elderly people.[11]

With regard to social class, lower managers and lower clerical and sales personnel had about two times the relative risk of retirement compared to the reference category

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[11] See Ruggles 2007 for further references to the literature on inter-generational co-residence.

(foremen and skilled workers). Lower skilled and unskilled labourers had about 1.3 times the relative risk of retirement, if related to the same reference category. The groups that were more likely to retire were highly diverse, and retirement probably meant different things for them; while at least lower managers and clerical personnel could have been covered by private pension plans, manual labourers typically would not have had the same benefits.

Having access to resources in the form of income from employment or business was negatively associated with retirement, suggesting that those that had a relatively strong attachment to the labour market were likely to retain their position. Having access to other incomes (that is, from property or capital) was less clearly associated with the risk of retirement.

Table 3, model 2, reports the results of the equivalent analysis when the sample is restricted to working-class men. In broad terms, the results are similar to those obtained for the full sample, but some differences are worth observing. The finding of lower relative risk of retirement among men with income from employment or business appears even stronger when the sample is restricted. Among blue-collar workers, it seems like those with the highest status – foremen and medium skilled – had a lower relative risk of retirement than unskilled labourers. If anything, an income from property or capital also meant a lower relative risk of retirement.

Models 3 and 4 in table 3 summarize the results obtained when conducting the analysis on two sub-periods. Although the size of the relative risks in the two periods cannot be strictly compared, these separate analyses show that most of the observed effects go in the same direction, but there are two interesting differences in magnitude between periods. Firstly, the differences between age groups in the relative risks of retirement are more striking in the first period than in the second. Secondly, access to labour income appears to have mattered more in the second period than in the first.

Overall, the above longitudinal analyses of men in Gothenburg points at links between the present labour market situation and future retirement. Being unemployed, or lacking labour-related income for other reasons, made the step into retirement much more likely. This result is in line with the previous findings of Margo (1993) and Lee (1998) concerning the American labour market around 1900, and Eichengreen (1986: 350) with regard to inter-war Britain. The relationship between unemployment and retirement

suggests the importance of push factors. However, looking closer at differences between two of the sub-periods reveals change over time.

Whereas the first sub-period, which included the depression years, was characterized by relatively strong push factors, in the form of high unemployment, and weak pull factors (low pension benefits), the second sub-period had relatively weak push factors (low unemployment) and strong pull factors (high pension benefits). If push factors alone were mainly responsible for old men's withdrawal from the labour force, the relationship between lacking income from employment and retirement would be stronger in the first sub-period and weaker in the second. The pattern turned out to be the opposite. Lacking income from labour was more closely associated with retirement in the period after the Great Depression than before. In this sense, this paper confirms the results of Lee (1998) on American data. One way of summarizing this important finding is to say that old men in Gothenburg were, like American civil war veterans, pushed into unemployment and pulled into retirement.

In line with Costa (1998: 44, 48), but in contrast to Moen & Gratton (1999: S31), lower risk of retirement applied to Gothenburg men with income from property or capital. This is somewhat surprising since this relatively well-off group could be expected to retire earlier. If there were any men who could plan and arrange for retirement in advance, it would be those who owned property or capital. It may have been the case that men with other incomes were employed in occupations that were easier to pursue in old age. The same argument may apply to the weak relationship between white-collar status and retirement. The existence of pension schemes for white collar workers was probably counterbalanced by the fact that they had less physically demanding jobs.

6. Robustness checks

This study defines retirement as a transition from having an occupation to being explicitly retired (indicated in the poll tax records), or not having a recorded occupation at all. The latter type may be problematic since we cannot be certain about the labour market status of individuals without a recorded occupation. Table A1 reports the results obtained with a different kind of definitions of retirement. As seen in the table, the empirical definition of retirement does not affect the results.

Another concern regards the definition of the population at risk. A requirement for being included in the panel is that we have at least two consecutive observations of an

individual. Men who leave Gothenburg or die before year *t+4*, or who we have failed to find in the poll-tax records in year *t+4*, are not included in the analysis. This could be a concern if we believe that these characteristics are related to retirement. If, for example, old men without income commonly moved out of Gothenburg to retire, we would underestimate the importance of lacking income. The same would apply if old men without income were more likely to die or disappear from the records. In order to deal with the issue of selectivity due to panel attrition, I have analysed retirement in a competing risks framework using a multinomial logit model. Here, retirement is seen as one of three possible outcomes, the others being: remaining in gainful employment (having a declared occupation) and leaving the panel.[12] This framework allows me to also include 227 observations that do appear in the panel in year *t* but not in *t+4*. In this analysis, the results of which are shown in tables A2 and A3, remaining in gainful employment is the reference category. Looking at retirement in a competing risks framework does not alter the main conclusions from the complementary log-log models above.

7. Conclusions

This paper seeks a better understanding of retirement in an urban setting in the wake of the Second Industrial Revolution. The central issue is whether old men were pushed or pulled into retirement. This question is approached by using longitudinal, register-based data that tracks individuals in four-year intervals as they age. Some of the panel members remain in the local labour market throughout the period of investigation, others leave through retirement, death or outmigration. Although push and pull factors cannot be directly observed in the data, the longitudinal nature of the study makes it possible to pin-point circumstances that are more or less likely to be associated with retirement and other types of exit. The income situation before retirement is of key importance in the analysis.

The analysis shows that absence of income from employment or business, a proxy for being unemployed, was associated with a higher likelihood of retirement within the next four-year period. This result appeared even stronger when restricting the sample to working-class men. However, dividing the period of investigation into two parts – 1923 to 1935 and 1935 to 1943 – reveals change over time. The relationship between income from

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[12] Due to death, out-migration or failure in the process of data collection. For a discussion on attrition from GOPP, see Karlsson & Lundh (2015).

labour and retirement was weaker in the first sub-period, with high unemployment and low pension benefits, than in the second sub-period, when unemployment was lower and pension benefits higher. The conclusion from this is that flows into retirement were strongest when push and pull factors interacted.

The findings have wider implications for our understanding of the behavior of individuals, households and employers. To the extent that people accumulated resources over the life cycle, it was not so much to enable early and complete withdrawal from the labour market, as it was to insure against income reductions related to age. The involuntary nature of retirement suggests that employers were selective in their hiring and firing decisions and sorted out low-performing individuals. The old men who remained in the labour market would be those who were able to perform at levels similar to those of prime-age men. The consequence was a more compressed structure of earnings with regard to age, which is something that has been observed in Gothenburg and elsewhere, but has not been systematically studied. A challenge for further research would be to disentangle the importance of age-discriminating personnel policies, new technology and other specific push factors.

The results from this study may not be representative of the experiences of all old men during the various phases of industrial development. Yet, the setting includes many features that were seen more generally in the Western world during the first decades of the twentieth century, for example low but increasing pension benefits, mechanization and other forms of rationalization and more fixed structures in the labour market. Even though retirement dynamics certainly have changed over time, it is likely that the frequent unemployment experienced by old men in the inter-war period came to affect subsequent policy making and pension reforms in many countries. In Sweden, pension benefits were high on the political agenda and formed a central feature of the emerging welfare state. The pension reforms in the 1940s and 1950s did not take away the involuntary nature of retirement; it was rather the other way round as new legislation prescribed mandatory retirement. Instead, the reforms were intended to improve the living standard of old people. The reforms also made retirement a more foreseeable and general experience, rather than something that would affect those who were unable to keep up with the pace of change represented by modern machines. Being pushed out of the labour market in the period after World War II was certainly not the same thing as before.

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Appendix

TABLE A1. *Complementary log–log regressions of retirement in the next 4 years (relative risks)*

	1. All years	2. HISCLASS>5	3. 1923-1935	4. 1935-1943
Age group				
>=45<50	REF	REF	REF	REF
>=50<55	1.840	1.401	3.040**	1.089
	(0.704)	(0.651)	(1.664)	(0.603)
>=55<60	3.210***	2.685**	4.470***	2.166
	(1.179)	(1.164)	(2.420)	(1.141)
>=60<65	8.266***	6.237***	10.24***	6.878***
	(2.834)	(2.487)	(5.321)	(3.193)
>=65<70	17.03***	13.51***	22.97***	12.77***
	(5.788)	(5.595)	(11.55)	(6.589)
>=70	19.87***	14.72***	27.18***	13.19***
	(7.846)	(7.421)	(15.74)	(7.876)
Family situation				
Unmarried	REF	REF	REF	REF
Married, wife without income	1.054	0.985	0.967	1.071
	(0.274)	(0.298)	(0.316)	(0.433)
Married, wife with income				
	2.300**	2.288*	2.645*	1.953
	(0.824)	(0.993)	(1.314)	(0.958)
Social class				
Higher managers & higher professionals	0.344		0.838	
	(0.251)		(0.639)	
Lower managers	2.029**		2.126**	1.732
	(0.560)		(0.767)	(0.861)
Lower professionals, clerical and sales personnel	0.869		0.738	1.087
	(0.346)		(0.394)	(0.546)
Lower clerical & sales personnel	2.212**		2.158	2.326*
	(0.725)		(1.121)	(1.041)
Foremen, medium skilled workers	REF	REF	REF	REF
Lower skilled workers	1.112	1.146	1.193	1.130
	(0.371)	(0.392)	(0.525)	(0.602)
Unskilled workers	1.310	1.337	1.083	1.608
	(0.341)	(0.360)	(0.383)	(0.625)
Income from employment	0.594**	0.437***	0.797	0.433**
	(0.153)	(0.128)	(0.300)	(0.171)
Income from business	0.591	0.469*	0.714	0.462*
	(0.221)	(0.215)	(0.406)	(0.208)
Other income	0.753	0.748	0.561	0.950
	(0.197)	(0.275)	(0.226)	(0.342)
Year *t*				
1923	0.998	1.000	0.815	
	(0.283)	(0.350)	(0.259)	
1927	0.722	0.681	0.603	
	(0.220)	(0.254)	(0.188)	
1931	1.193	1.080	REF	
	(0.311)	(0.347)		
1935	0.955	0.951		0.944
	(0.253)	(0.304)		(0.255)
1939	REF	REF		REF
Constant	0.0308***	0.0516***	0.0242***	0.0488***
	(0.0156)	(0.0299)	(0.0154)	(0.0351)
Observations	1,428	959	765	627

Comment: Robust standard errors (clustered on individuals) in parentheses. *** p<0.01, ** p<0.05, * p<0.1

TABLE A2. *Multinomial logit regressions of panel exit in the next 4 years*
(relative risks, remain in *panel base case)*

	1. All years		2. HISCLASS>5	
	Retire	**Leave panel**	**Retire**	**Leave panel**
Age group				
>=45<50	REF	REF	REF	REF
>=50<55	1.662	1.274	1.410	1.582*
	(0.592)	(0.269)	(0.629)	(0.434)
>=55<60	3.116***	1.276	2.848**	1.376
	(1.060)	(0.303)	(1.203)	(0.431)
>=60<65	8.030***	2.708***	6.852***	2.733***
	(2.642)	(0.626)	(2.729)	(0.810)
>=65<70	18.68***	3.667***	18.29***	4.274***
	(6.332)	(1.034)	(7.755)	(1.507)
>=70	21.48***	8.421***	19.25***	10.16***
	(8.941)	(2.594)	(10.60)	(4.395)
Family situation				
Unmarried	REF	REF	REF	REF
Married, wife without income	0.793	0.928	0.765	1.082
	(0.213)	(0.202)	(0.241)	(0.301)
Married, wife with income	1.631	1.455	1.914	1.165
	(0.592)	(0.422)	(0.872)	(0.467)
Social class				
Higher managers & higher professionals	0.559	2.082**		
	(0.323)	(0.617)		
Lower managers	1.956**	0.911		
	(0.607)	(0.296)		
Lower professionals, clerical and sales personnel	1.154	1.616*		
	(0.447)	(0.408)		
Lower clerical & sales personnel	2.004*	1.557		
	(0.755)	(0.534)		
Foremen, medium skilled workers	REF	REF	REF	REF
Lower skilled workers	1.192	1.308	1.245	1.324
	(0.386)	(0.308)	(0.418)	(0.324)
Unskilled workers	1.259	0.902	1.289	0.945
	(0.322)	(0.206)	(0.347)	(0.223)
Income from employment	0.492***	0.655**	0.364***	0.532**
	(0.135)	(0.138)	(0.119)	(0.141)
Income from business	0.478**	0.615*	0.429*	0.573
	(0.179)	(0.174)	(0.205)	(0.274)
Other income	0.911	0.966	0.920	1.409
	(0.237)	(0.181)	(0.336)	(0.352)
Year *t*				
1923	1.112	1.299	1.072	1.203
	(0.326)	(0.317)	(0.393)	(0.357)
1927	0.679	0.879	0.618	0.465**
	(0.211)	(0.223)	(0.247)	(0.170)
1931	1.086	1.414	1.007	1.195
	(0.298)	(0.319)	(0.348)	(0.328)
1935	0.939	1.437*	1.013	1.119
	(0.260)	(0.314)	(0.340)	(0.307)
1939	REF	REF	REF	REF
Constant	0.0515***	0.103***	0.0730***	0.110***
	(0.0250)	(0.0365)	(0.0421)	(0.0507)
Observations	**1,684**	**1,684**	**1,118**	**1,118**

Comment: Robust standard errors (clustered on individuals) in parentheses. *** p<0.01, ** p<0.05, * p<0.1

TABLE A3.   *Multinomial logit regressions of panel exit in the next 4 years*

(relative risks, remain in   *panel base case)*

	3. 1923-1935		4. 1935-1943	
	Retire	**Leave panel**	**Retire**	**Leave panel**
Age group				
>=45<50	REF	REF	REF	REF
>=50<55	2.932**	1.501	0.940	1.075
	(1.511)	(0.476)	(0.482)	(0.304)
>=55<60	5.183***	1.880*	1.649	0.776
	(2.599)	(0.611)	(0.800)	(0.294)
>=60<65	12.62***	3.971***	5.183***	1.806*
	(6.177)	(1.284)	(2.322)	(0.605)
>=65<70	27.56***	4.847***	14.40***	2.767**
	(13.93)	(1.915)	(7.193)	(1.186)
>=70	30.37***	12.97***	13.51***	4.537***
	(18.68)	(5.491)	(8.750)	(2.213)
Family situation				
Unmarried	REF	REF	REF	REF
Married, wife without income	0.650	1.034	1.053	0.805
	(0.224)	(0.306)	(0.465)	(0.265)
Married, wife with income	1.873	1.740	1.682	1.242
	(0.971)	(0.753)	(0.883)	(0.514)
Social class				
Higher managers & higher professionals	1.122	1.649	0.192	2.254**
	(0.778)	(0.748)	(0.197)	(0.916)
Lower managers	2.362**	0.970	1.458	0.785
	(0.970)	(0.431)	(0.774)	(0.378)
Lower professionals, clerical and sales personnel	1.181	2.352**	1.117	0.920
	(0.594)	(0.837)	(0.580)	(0.340)
Lower clerical & sales personnel	2.167	2.229	1.705	0.997
	(1.361)	(1.087)	(0.825)	(0.493)
Foremen, medium skilled workers	REF	REF	REF	REF
Lower skilled workers	1.724	1.618	0.758	0.944
	(0.700)	(0.519)	(0.407)	(0.326)
Unskilled workers	1.160	1.115	1.441	0.681
	(0.412)	(0.340)	(0.567)	(0.233)
Income from employment	0.655	0.704	0.331**	0.545*
	(0.237)	(0.196)	(0.146)	(0.194)
Income from business	0.548	0.921	0.341**	0.336**
	(0.306)	(0.326)	(0.173)	(0.168)
Other income	0.833	0.990	1.057	0.957
	(0.315)	(0.256)	(0.388)	(0.255)
Year *t*				
1923	1.005	0.907		
	(0.318)	(0.223)		
1927	0.612	0.597**		
	(0.195)	(0.151)		
1931	REF	REF		
1935			0.911	1.397
			(0.258)	(0.305)
1939			REF	REF
Constant	0.0308***	0.0816***	0.100***	0.231***
	(0.0188)	(0.0348)	(0.0711)	(0.117)
Observations	**905**	**905**	**779**	**779**

Comment: Robust standard errors (clustered on individuals) in parentheses. *** p<0.01, ** p<0.05, * p<0.1

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