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The tsunamis of educational attainment and part-time employment, and the change of the labour force 1960-2010

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The tsunamis of educational attainment and part-time employment, and the change of the labour force 1960–2010: what can be learned about self-reinforcing labour-market inequality from the case of the Netherlands, in international comparison?

Wiemer Salverda

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This paper builds on Salverda (2015a), adding an international comparison. More detail about data construction prior to 1996 can be found there. I am very grateful to Eelco de Jong for his committed treatment of the SILC data, and I also like to thank Peter van der Meer and Ronald Batenburg for making available the underlying set of tables from Batenburg et al. (2003). I thank Bea Cantillon and Jeroen Horemans for their comments and suggestions.

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Abstract

This paper argues that the sharp growth of educational attainment has won Tinbergen's race as the qualification structure of employment lags increasingly behind, with a large and increasing underutilisation of individual attainment on the job as a result. With its strong gender dimension this has fostered the demise of the single-earner model of society to the advantage of dual-earner households. That shift has gone together with a strong expansion of part-time employment, albeit at different speeds internationally. In several countries this part-time growth is stimulated also by the combination of employment participation with the rapidly growing educational participation that underlies the growth in educational attainment.

Taken together this has resulted in a steep uphill battle for the less educated when they try to secure jobs that allow making a living and sustaining a career in the labour market. This group faces strong competition from better-educated additional earners who are a member of dual-earner households, which often have an income found higher up the household income distribution. This institutes a self-reinforcing mechanism of income and labour-market inequalities. High-income households compete with low-income households for the same low-skill and low-paid jobs, and they do so frequently on a part-time basis that contributes to the fragmentation of those jobs. This process has established a job's working time as an increasingly important vector of labour-market inequalities.

In the paper the argument is first developed for the Netherlands because the country offers a special statistical classification of occupations (1960-2010) that directly links the occupational levels to levels of educational attainment. This case study is complemented with an international comparison using the ELFS and extending to incomes and earnings with the help of SILC. It shows the presence of similar effects found for the Netherlands for Austria, Belgium, Denmark, Finland, France, Germany, Italy, Sweden and the UK.

Keywords: Educational attainment, Occupational structure, Underutilisation, Bumping down, Crowding out of low educated, Female employment, Part-time jobs, Elementary jobs, Household earnings, Household income distribution, Paid and domestic work, Paid work and educational participation.

JEL codes: D31, D63, I24, J11, J16, J21, J22, J23, J24, and O15

1 Introduction

Richard Freeman (2006) has launched the famous thesis of the doubling of the global labour force due to the integration of the former Communist countries and also India into the world economy and asks for 'new creative policies to assure that workers fare well during this transition and that the next several decades do not repeat the experience of the past twenty or thirty years in which nearly all of our productivity advance ended up in the pockets of so few'.

As his reference to a period begun between the mid-1970s and mid-1980s already implies there must be more to rising labour-market inequalities than just this global doubling which only began in the 1990s. Here I will argue that, the importance of that doubling notwithstanding, we should not overlook the nature and inequality effects of the within-country growth in labour-force participation in many European countries or the USA. This is combined with an argument that even at the lowest level of educational achievement and occupation there is workers' personal merit that deserves to be rewarded in terms of actual employment and (annual) income. This goes beyond the level of hourly earnings (and the much discussed wage inequality, especially in relation to individuals' educational attainment) and encompasses the very fact of being employed and being that for a reasonable amount of working time, not just a fragmented job offering no decent income. Working time has developed into a new and important dimension of labour-market inequality in addition to the traditional inequality of wages (cf. Salverda and Checchi, 2015).

In the first part of this paper (Sections 2 to 5) I develop a thesis about the long-run changes over 50 years in the size and composition of employment participation in the Netherlands and its effects on the occupational and working-time structure of employment, and the changing chances offered to labour supply by this structure. It substantiates a deteriorating match between educational attainment and occupational level. Unfortunately, a full-fledged comparison between countries over such a long period seems impossible for reasons of data availability and (in)comparability, particularly with regard to education and occupation. In the second part of the paper (Section 6), I consider selected evidence of similar mechanisms and trends in nine other European countries – Austria, Belgium, Denmark, France, Finland, Germany, Italy, Sweden and the UK. There I also investigate the mechanisms' incomes dimension and the possible implication of a self-reinforcing inequality as higher-income households may mount increasing competition in the labour market for low-skill, low-paid jobs. Thus I will be able to extend the Netherlands' case and at the same time explore whether it provides a perhaps extreme but therefore also illuminating case of more general importance.

Over the past fifty years, the society and economy of the Netherlands have changed almost beyond recognition. The general level of educational attainment of the population has increased enormously, for women even more than for men. This has raised the proportion of better-educated workers in the labour force – and simultaneously reduced that of the less educated. Naturally, for achieving this increase it has also amplified the educational participation among young people and affected their labour-market participation. The labour-market supply of adult females has amplified at the same time, a trend which has been accompanied by major shifts from full-time to part-time employment and from single-income to dual-income households. Moreover, demographic changes – falling birth rates leading first to a fall in the number of younger people and more recently to an, and also a growing

minority of ethnic communities – have equally affected the supply of labour. Most of this will sound familiar for other countries.

These developments are reflected in a drastic reshaping of the educational basis and the working-time structure of employment. The central question in the present paper is: *has this influenced the match between individuals' education and their occupational level in the labour market?* Has the role of personal educational achievements in the competition for jobs changed or remained the same? Or has it altered more for some people than for others? Particularly, how has this played out for low-skill employment and for the least-educated individuals – which is where the self-reinforcement of inequality resides?

Habitually, the role in society played by a person's merit attached to his or her educational achievement ties educational performance to the political domain: in meritocracy power goes to the most deserving. However, in a world that revolves around “work, work, work”, it seems obvious to ask what impact merit has in the economic domain. Who holds the power within businesses? For financial markets, that has been and still is a key question since the onset of the financial crisis. However, in applying the meritocratic concept to the economy, it is not enough to look just at the upper echelons of achievement and economic power. Economic power is distributed widely, both vertically (hierarchy, occupational level) and horizontally (division of labour). It is also complex, being more difficult to pin down than political power and perhaps also less personal in nature and, in principle, less self-evident in public and more changeable to the extent that it attaches to the job and not the person – it has to be earned, or has it? Nor is merit identical to outstanding talent, in the sense of being “the best” in absolute terms. Talent can be developed by individuals at different levels and in various directions, and for its societal valuation as merit it must also be appropriate to the task at hand.¹ For example, the successful completion of basic education requires years of personal effort. Therefore even at that level our question concerning the role of merit is relevant. How are the efforts rewarded of people who with effort manage to develop their talent up to that level? In the jobs market, which links the supply of labour to economic production, merit tends to be associated with rewards (have the bonuses really been earned?). But for the individual the simple fact of being in work and staying in it – or not – is also of huge importance. So the labour market is where the focus of this paper lies, and from that vantage point I also consider earnings and incomes, albeit in the international comparison only as appropriate data for the Netherlands are not available.²

Educational attainment is the criterion most often used to define merit. In theory experience – personal development in the workplace – is also part of the mix. Otherwise, what would be the point of “lifelong learning”? When Michael Young (1958) first coined the concept of meritocracy he included effort on equal footing with education. The growth in part-time employment underlines its relevance.³ The study of merit in the labour market can home in on individual selection processes and, for example, enquire as to the effect of such factors as personal background, family relationships and networks alongside – or instead of – the talent developed by the person. At the heart of this paper,

¹ Compare Sen (2000) who attributes merit primarily to actions and not to persons.

² Unlike its counterparts in various other countries, the Dutch annual Labour Force Survey does not cover remuneration.

³ Salverda and Brals (2016) discuss this in more detail for the Netherlands.

however, is the aggregate result: do the merit-related educational requirements imposed by employment correspond with what the working, and work-seeking, population has to offer, especially at the lower end of the educational and occupational spectrum? Tinbergen's (1975) race between technology and education entertains an optimistic view on this – technological demands and educational attainment may be leap frogging but structurally they are in equilibrium with each other. Central to the present study, however, are the discrepancies between demand and supply, which boil down to workers being structurally more often “overqualified”/“underutilised” for the jobs they occupy. My preference is for the term “underutilisation” which takes the perspective of the worker and also factors in that education provides its pupils with qualifications not just for employment but for other roles in life, which are rapidly becoming more demanding – e.g. for managing one's bank account, smart phone, or public transportation card, or for searching and buying on the internet. As far as merit is concerned, the phenomenon of underutilisation has two major effects: on the one hand it disadvantages those whose educational attainment merit is underused, whilst on the other hand it impacts the less qualified, who through a process of bumping down and/or crowding out may be forced into work at a lower occupational level or are even ousted from employment fully or partially, when they find their working time reduced. In adopting that approach, this paper advances and refines the thirty-year tradition of Dutch research into the qualitative structure of employment, begun by Huijgen et al. (1983). That continuity has made it possible to investigate underutilisation in some detail. I fill the gap between the final results of this tradition, which date back to 1999/2000, and the most recent year for which these data are available, 2010.⁴ Moreover, I refine their approach by looking systematically at the jobs' working hours (full-time, part-time and mini jobs) and the age and gender of the worker.

Consequently, via its focus on the discrepancy between offered and required merit, this paper aims to shed light on underlying processes within the labour market, particularly at its “lower” end. The rapid changes in the supply of female labour (developed in a context of domestic duties) and of youth labour (in a context of educational participation) have affected not only these two groups themselves, but exert external effects also on others who are in work or seeking it.

As already mentioned, the available data impose certain limitations. This is due in part to the long period covered, which complicates matters because of series breaks, observational problems and changes in definitions over time. Then there is the somewhat peculiar official Dutch definition of the working population, which until 2015 excludes all those who are employed for less than twelve hours a week and hence systemically overlooks a large – and for this study important – group of about 1 million workers out of 8 million who work fewer hours than that. Statistics Netherlands motivates this definition as being focused on labour “as a social phenomenon”, reflecting people's “intuitive understanding” of the labour force (CBS, 2013, 1). In addition, breaks and observational problems associated with the Dutch Labour Force Survey (Enquête beroepsbevolking, EBB) are concentrated disproportionately at the lower end of the educational and occupational spectrum.⁵

⁴ Actually, it is 2011 but the situation has changed little to 2010 and more importantly, as of 2012 Statistics Netherlands has traded its national occupational classification, which links directly to educational achievement, for the ISCO classification which links less obviously to that attainment.

⁵ The statistical observations by occupational category are incomplete for the period 1992-1995, since they exclude individuals with a contract of employment for six months or less: just over 3 per cent of the

This paper is organised as follows. Section 2 looks at the general population by educational attainment and educational participation, whilst section 3 examines the employed population by occupational level. Section 4 then compares these findings to investigate the relationship between education and the chance of being in work, and the matching between educational attainment and occupational level. In this analysis, there is a particular emphasis upon low-end jobs and workers. Section 5 offers a discussion of the Dutch results and Section 6 elaborates on this in international comparison. Section 7 concludes.

2 Educational attainment and educational participation Results

The rapid advance in overall levels of educational attainment is one of the greatest post-war achievements, not just in the Netherlands but internationally. In 1960, more than 4.3 million people in this country – 64 per cent of the workforce between the ages of 15 and 64 – had no secondary educational qualification. Since then, what can best be described as an educational tsunami has largely swept away this category. Today the least educated comprise just 8 per cent of the active population: one-seventh of the proportion in 1960 and, given population growth, a quarter of the absolute number at the time (Table 1), and also a third less than in 2001. Over the same period, 1960-2010, the proportion of the population with a tertiary qualification has risen from 2 per cent to 28 per cent. Early on in this process, junior secondary education experienced rapid growth as the highest level completed but later subsided in favour of senior secondary qualifications.⁶ Because of this particular evolution, junior secondary has been retained here as a separate category of educational attainment.⁷ Finally, the senior secondary category has witnessed steady growth, from 10 per cent in 1960 to 40 per cent today.

Table 1⁸ provides educational breakdowns for five demographic categories: men and women to the left, and to the right all young people (ages 15-24; taken together as gender differences are small) and older men and women separately (ages 25-64; for the sake of convenience, this age group is referred to henceforth as “adults”). Men have a clear lead in educational attainment in 1960, but by 2010 the sexes are more or less equal at all levels, including in primary and vocational education. The greatest overall advance is seen among adult females. Nowadays young people have yet to reach the levels attained by adults and are overrepresented at lower levels while in 1960 they were underrepresented in the lowest educational category, as they rapidly advanced their educational attainment ahead of the rest. The average level of educational attainment rises more rapidly prior to 1990 as the

workforce at the time (Asselberghs et al., 1998, p. 73). The situation in the years immediately preceding and following this hiatus, 1991 and 1996, suggests that such contracts are concentrated in the elementary and lower occupational categories. Moreover, a 2001 revision of the EBB has shifted 100,000 workers from above the 12-hour threshold to below it. Finally, there appears to have been a substantial redefinition of educational categories between 1995 and 1996 and smaller redefinitions later.

⁶ Junior secondary education attainment comprises the first three years of VWO and HAVO and diplomas of VMBO and, at the time, ULO, MULO and MAVO; senior secondary educational attainment is reached with diplomas of VWO, HAVO and MBO. For an overview of the Netherlands educational system, see <https://www.epnuffic.nl/en/publications/find-a-publication/education-system-the-netherlands.pdf>

⁷ Primary education together with junior secondary education are commonly comprised in the category ‘low’.

⁸ The years listed are dictated by the data available and are neither analytically determined nor necessarily economically comparable.

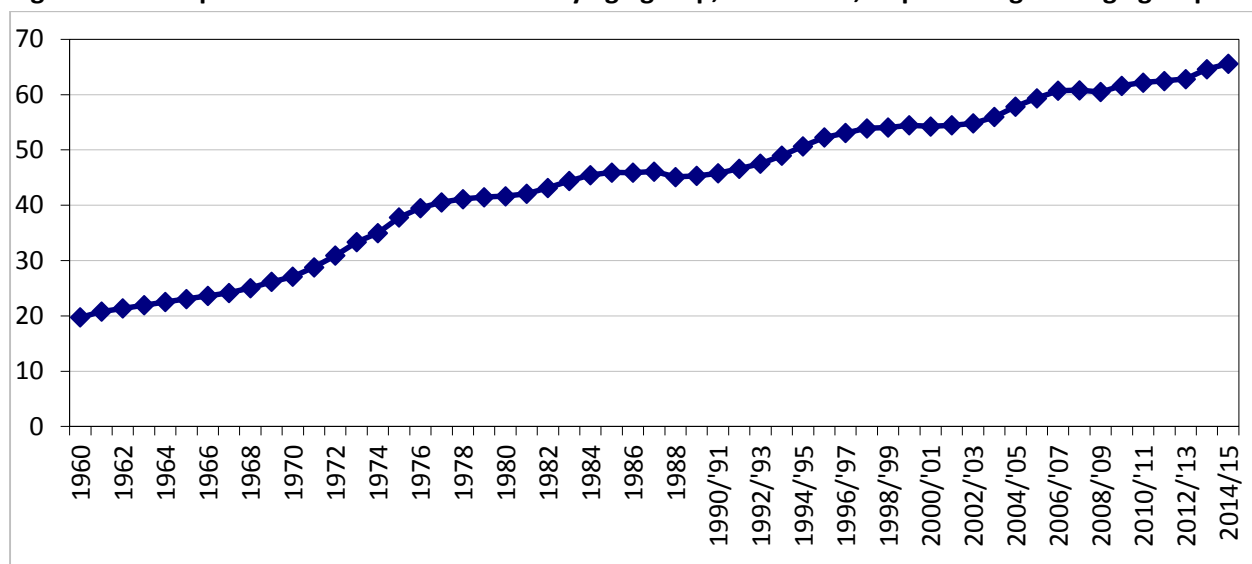
accelerated growth in the higher categories is reinforced by the massive decline in the lowest category.

Table 1. Population aged 15-64 by age, gender and highest level of educational attainment, 1960–2010, as percentages of relevant cohort.

	Primary	Junior second- ary	Senior second- ary	Vocation al higher	Academi c higher	Pri- mary	Junior second- ary	Senior second- ary	Vocation al higher	Aca- demic higher
	1. All					3. All aged 15-24				
1960	64	24	10		2	52	39	9		0
1990	19	29	36	11	5	18	40	37	3	1
2001	12	26	40	13	7	17	36	40	4	0
2010	8	23	40	18	10	11	39	40	7	1
	2. All men					4. Men aged 25-64				
1960	52	28	16		4	52	25	18		5
1990	17	26	38	11	7	16	22	39	14	8
2001	12	26	40	13	7	10	21	41	16	11
2010	8	23	40	18	10	7	18	40	21	13
	3. All women					5. Women aged 25-64				
1960	79	16	5		0	65	29	6		0
1990	21	32	33	11	3	22	30	31	13	3
2001	13	28	40	13	5	13	27	39	14	6
2010	8	23	41	18	9	8	20	40	20	10

Sources: Statistics Netherlands (CBS), 1960 census, section 8A, tables 1a and 5a; CBS StatLine, Labour force since 1800 and Labour force by sex, age, ethnic background and education.

Figure 1. Participation in full-time education by age group, 1960-2010, as percentages of age group



Source: CBS, various educational statistics – compare Salverda (1992, Chapter 7).

Underlying the higher levels of educational achievement is a sharp rise in educational participation (Figure 1). It has more than tripled amongst young people since 1960, from one fifth of the young population to two thirds. The rising participation lends education a dual significance in the labour

market: apart from the educational level *achieved*, the actual process of *achieving* that in itself also plays a significant role, influenced by the way in which educational and employment participation are or are not combined with the help of part-time employment as we will see later, and with important international variation.

3 Employment, occupational level and full-time versus part-time employment

3.1 Employment and working hours

The Dutch workforce has grown by 4.2 million since 1960 (table 2), assuming that in that year hardly anyone worked less than 15 hours and was not covered statistically. Almost 90 per cent of that growth consists of part-time employment (defined as less than 35 hours a week) and 65 per cent concerns adult-female employment. The overlap between the two is more than 50 percentage points. These trends have accelerated over time, so that the number of full-time jobs ultimately came to fall and the number of working men stagnated after 2001. The number of young people in work fell at first, concomitant with the rise in their educational participation, but has been increasing in parallel with the latter since 1984. Today there is a two-thirds overlap between these two groups: young people in work and in education. The young have “lost” 800,000 full-time jobs but “gained” 920,000 part-time ones, half a million of which are for less than 12 hours a week. Henceforth referred to as “mini” jobs, these are held by a quarter of the entire young population between the ages of 15 and 24 years. The change was enabled by the increasing opportunities of working part-time offered by employers who gradually came to realise the advantages of part-time employment, which they first resented and deemed more costly than full-time employment well into the 1980s. This was reinforced when youth realised the ease of earnings in addition to their universal study grants, when the government lowered those and strongly expanded the allowance of additional earnings in the 1990s (Salverda, 2008).

Gender differences are concentrated among adults. Women have enjoyed a very substantial rise in their employment participation, and men a strong decline. There are now four times as many women as men in part-time employment. The number of adults with mini jobs has also risen, but far less so than among young people: up to 6 per cent for the adult female employment and 2 per cent for males. Surprisingly, perhaps, the number of women in full-time employment in 2010 is not that much higher than the figure in 1960 (968,000 now, 821,000 then). Indeed, their full-time employment rate has fallen from 24 per cent to 18 per cent. This outcome results from a sharp decline in the number and share of young women in full-time employment combined with a relatively modest increase amongst adult women, by 500,000 in absolute terms and 6 per cent of their population. This leaves adult women with a full-time employment rate of 19 per cent far short of the adult male figure of 71 per cent, and just above the young (17 per cent).

Evidently, the *volume* of employment measured in hours worked has grown significantly less than the numbers of people on work suggest.

Table 2. Employment of persons aged 15-64 by gender, age and working hours, 1960-2010 (including self-employment).

	A. Numbers (x 1000)						B. Employment participation (percentage of relevant cohort)					
	<i>Total</i>	<i>Men</i>	<i>Wome n</i>	<i>All aged 15-24</i>	<i>Men aged 25-64</i>	<i>Wome n aged 25-64</i>	<i>Total</i>	<i>Men</i>	<i>Wome n</i>	<i>All aged 15-24</i>	<i>Men aged 25-64</i>	<i>Wome n aged 25-64</i>
1. 12+ hours/week#												
1960#	4032	3132	900	1130	2471	430	59	92	26	66	97	16
1990	5644	3686	1958	973	3184	1487	55	71	39	42	79	38
2001*	6935	4176	2759	851	3721	2360	64	76	52	45	83	54
2010	7391	4119	3272	756	3724	2914	67	74	60	38	82	65
2. 1+ hours/week												
1990	6327	3911	2416	1229	3267	1803	62	75	48	54	82	46
2001*	7838	4459	3379	1322	3791	2736	73	82	63	70	84	62
2010	8233	4428	3805	1264	3780	3177	75	80	69	63	84	71
3. Of whom full-time (35+ hours/week)												
1960#	3947	3126	821	1124	2471	351	57	91	24	66	97	13
1990	4279	3324	956	755	2897	627	42	64	19	33	72	16
2001*	4621	3650	971	508	3337	776	43	67	18	27	74	18
2010	4397	3428	968	339	3200	857	40	62	18	17	71	19
4. Of whom part-time (12-34 hours/week)												
1960#	85	6	79	6		79	1	0	2	0		3
1990	1365	362	1002	218	287	860	13	7	20	9	7	22
2001*	2314	526	1788	343	387	1584	21	10	34	18	9	36
2010	2994	691	2304	417	521	2057	27	12	42	21	12	46
5. Of whom mini jobs (<12 hours/week)												
1990	683	225	458	284	83	316	7	4	9	12	2	8
2001*	902	283	620	471	55	377	8	5	12	25	1	9
2010	841	309	533	507	71	264	8	6	10	25	2	6
#) 1960: ≥15 hours.												
*) After revision of the EBB. This makes no difference to the totals by gender and age, but does shift 100,000 workers from 35+ to 12-34 hours and from 12-34 to <12 hours, so that overall there are more mini jobs.												
Sources: Statistics Netherlands (CBS), 1960 census, section 8A, tables 1a and 5a (see Appendix for adjustments); CBS StatLine, Labour force since 1800 and Labour force by sex, age and ethnic background.												

The employment figures quoted here represent an attempt to shake off the rather restrictive definition adopted by Statistics Netherlands (Centraal Bureau voor de Statistiek, CBS) and still in force at the end of the period considered here. This definition actually omits a substantial proportion of the workforce: the 10 per cent who are in paid employment but work less than 12 hours a week. More even than “formal” part-time work, i.e. jobs from 12 to 34 hours, these mini jobs are a distinctive feature of the Dutch labour market when compared with other countries. And they are particularly important at the lower end of the educational and occupational spectrum. It is therefore vitally important that they not be overlooked when seeking to understand the relationship between education and work at that level, not least because of the contributions they make towards productivity for the employer and towards employment participation as well as income for the employee. Unfortunately, the details Statistics Netherlands publishes about this group do not extend very far back in time. We know little about the educational background of the workers concerned, or indeed about the type of work they are doing. This complicates both the research in this area and its

presentation here. Wherever relevant, I try to state whether or not the “twelve-hour limit” applies. De facto, though, it is possible to provide a comprehensive picture for the past decade only.⁹

3.2 The qualification structure of employment: occupational level and working hours

The education that is actually demanded – and, in principle, rewarded – by employment is expressed most clearly by the occupational level of a person’s job, since that reflects the type of qualifications needed. There is an important Dutch tradition of research in this area, beginning with Huijgen et al. (1983) and their systematic classification of the so-called “qualification structure” of employment. This and subsequent publications (Asselbergs et al., 1998; Huijgen, 1989; Batenburg et al., 2003) cover the period 1960-2000 and are based upon the system of occupational classification used by Statistics Netherlands. The guiding principle behind this – then¹⁰ as now – is the level of education needed to practise a particular occupation, as defined in accordance with the Dutch educational system. Unfortunately, this guiding principle is missing in the International Classification of Occupations ISCO, particularly at the one-digit level at which its data are often presented. Therefore the presence of the Dutch classification makes the country a good example for developing the argument. This occupational-educational match is a fine principle, which makes it easier to identify discrepancies and polarisation in the employment structure, though it does require that the level of education needed for individual occupations be assessed by experts on a regular basis, independent of the qualifications of those actually holding the positions. The system recognises five occupational levels, ranging from “elementary” jobs demanding no more than primary education to “academic” ones for which a graduate or postgraduate degree is considered necessary. When taking such an approach, of course, it is also important how educational levels themselves are classified. That system was revised substantially in the 1978 version of the Dutch Standard Classification of Education (SOI 1978), when vocational post-school qualifications obtained after leaving daytime education (originally *Leerlingwezen*; since 1997 *Beroepsbegeleidende Leerweg*, BBL) were upgraded from “junior secondary” to “senior secondary” status. On the occupational side, Huijgen et al. present the effect of this change by reporting the results for 1977 using both the old and the new systems. On the educational side, however, no such “overlap” is provided (see Appendix for an estimate). In this paper I add to this literature, firstly, by adding the period 2001-2010 to what has been previously reported and, secondly, by extending to the mini jobs.

Table 3 summarises all the data, including the additional material from 2001-2010 presented according to both the traditional definition of the workforce as those employed for at least 12 hours a week – which, inevitably, is also used by Huijgen et al. – and the broader definition that includes mini jobs from as little as one hour a week. To correspond with the existing literature, where possible only wage earners are counted.¹¹

⁹ Using customised tables bought from Statistics Netherlands.

¹⁰ This system has been revised on several occasions (BRC-84, SBC-92). Batenburg et al. (2003) show two classifications alongside one another for as long as Statistics Netherlands continued to apply the old one (1987-1993). In the earlier version, experience also played a role.

¹¹ On average, the self-employed – and particularly the less well-educated amongst them – attain a somewhat higher occupational level. In part, this may be due to their higher average age (older cohorts contain more talented people with low educational achievement).

Combining the two periods, we find that the average occupational level¹² increases by a quarter. This does not mean that there is upward movement across the board, though. Strikingly, and perhaps contrary to expectations, the proportion of employment at the lowest level, in “elementary” occupations, has remained virtually unchanged (also De Beer, 2015) regardless of whether mini jobs are considered or not. On the other hand, the next level up, that of the “lower” occupations, has shrunk considerably, both before 1990,¹³ when that level embraced the then categories “semi-schooled”, “schooled” and “schooled plus experience”, and under the present classification. Meanwhile, the “higher” and “academic” levels display strong and consistent growth. Developments since 2001, which have been studied for the first time here, confirm the previous divergent picture.

Table 3. Occupational levels as percentages of total persons employed (wage earners aged 15-64), 1960-2010.

A. Old-style classification: BRC-84			B. New-style classification: SBC-92						
	12+ hours/week#			12+ hours/week				1+ hours/week	
	1960	1990		1990	2001	2001*	2010	2001*	2010
1 Unschooled	6.8	8.2	1 Elementary	7.3	7.5	7.8	7.9	10.6	10.5
2 Semi-schooled	22.1	19.7	2 Lower	30.4	25.7	27.6	23.9	29.6	26.2
3 Schooled	26.9	16.6	3 Middle	37.8	38.4	38.2	36.7	35.7	34.4
4 Schooled + experience	30.0	18.6	4 Higher (vocational degree)	17.9	19.9	18.9	21.8	17.3	20.1
5 Specialised	6.1	15.0	5 Academic	6.6	8.5	7.6	9.7	6.9	8.8
6 More specialised	7.1	15.7							
7 Highly specialised	1.1	6.1							
<i>Average level**</i>	<i>3.33</i>	<i>3.84</i>		<i>2.86</i>	<i>2.96</i>	<i>2.91</i>	<i>3.02</i>	<i>2.80</i>	<i>2.90</i>

#) 1960: at least 15 hours per week.
 *) After revision of the EBB. **) Weighted means of the five (BRC-84) and seven (SBC-92) occupational levels (as per Huijgen et al., 1983)
 Sources: underlying data from Batenburg et al. (2003) and author's own calculations based upon EBB data from Statistics Netherlands (CBS), 2001-2010.

The shrinkage and stagnation observed in the middle of the occupational spectrum, a phenomenon that appears surprisingly early, is consistent with the hypothesis that employment in the Netherlands is polarising. This idea has been attracting more and more interest in recent years (Autor, 2010 and 2011; Autor and Dorn, 2011; Goos and Manning, 2007; Manning, Goos and Salomons, 2009). That said, it should be noted that the “mid-level” shrinkage becomes less pronounced when calculated per head of population, since overall employment participation has risen at the same time.

Including mini jobs in the calculations produces major shifts in the percentages for all five occupational levels, as proportions of total employment (two columns at the right). Moreover, the shift is larger the lower down the scale we go: the elementary category rises from 7.8 to 10.6 per cent and the lower one from 27.6 to 29.6 per cent. At the three higher levels, by contrast, the changes are downward,

¹² Calculated using the obvious weighting system, as also adopted by Huijgen et al., from 1 (elementary) to 5 (academic). But other approaches which place less emphasis upon the higher levels also produce similar results.

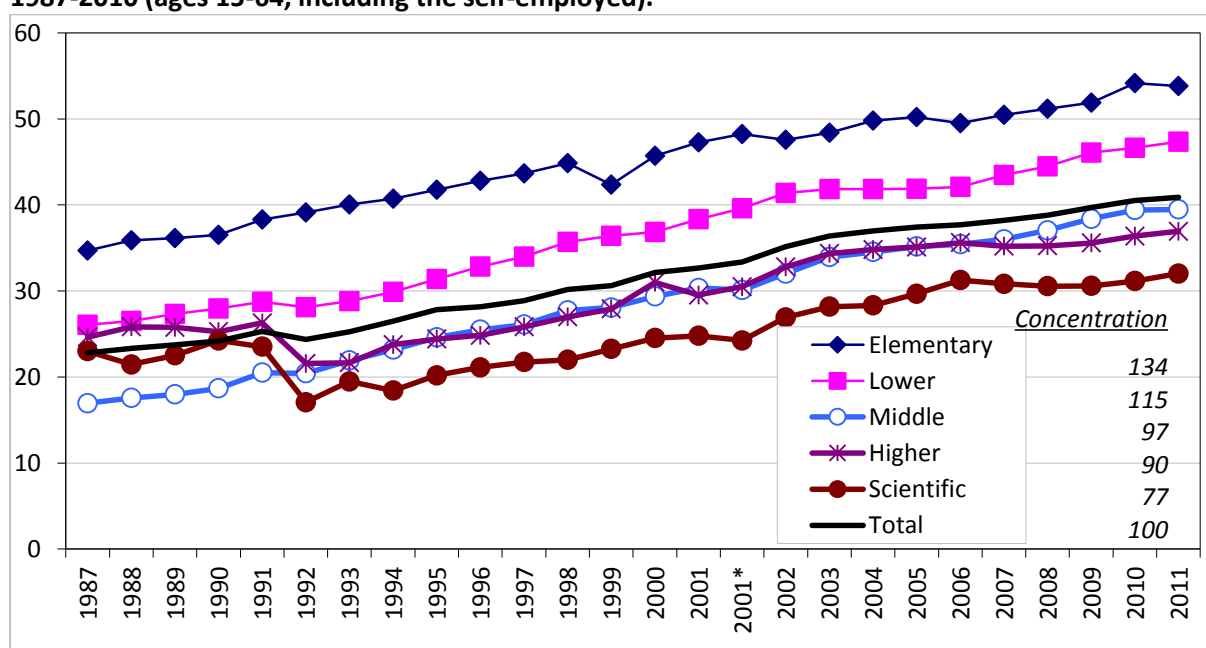
¹³ It seems quite natural that the strong increase in productivity of the 1970s and the concomitant shrinking of the manufacturing sector has gone along with a reduction in middle level jobs at the time, which was compensated only gradually by a growth of service-sector jobs.

with the falls increasing somewhat as we progress up the scale. This finding confirms that including the mini jobs is very important when studying the occupational structure of employment.

3.2.1 Part-time employment

Let us now look at these developments in conjunction with the ever-increasing importance of, firstly, part-time employment and, secondly, female labour (for the sake of clarity I shall leave the age factor until the next section). Evidently, the huge increase in part-time employment should be reflected in the occupational figures. There is indeed a strong upward trend in its significance at all five occupational levels. Figure 2, which shows the shares of larger part-time jobs (12–24 hours),¹⁴ reveals that the proportion of part-timers rises as the occupational level falls. As of 2010, it ranges from 54 per cent in elementary jobs to 31 per cent in academic positions. This makes the concentration at the elementary level 34 per cent higher than the overall average. The graph also shows that part-time percentages at all levels have been growing steadily and in parallel ever since 1993. Despite lower percentages but owing to their larger scale and faster growth the middle and higher categories account for 70 per cent of the total growth of the larger part-time jobs in the period 1990-2010 (1.2 million of the 1.6 million increase).

Figure 2. Percentages of part-time workers (12–34 hours per week) at the five occupational levels, 1987-2010 (ages 15-64, including the self-employed).



*) The year 2001 is shown twice because of a series break.

Source: Statistics Netherlands, *Labour Force Statistics (EBB) for occupations*

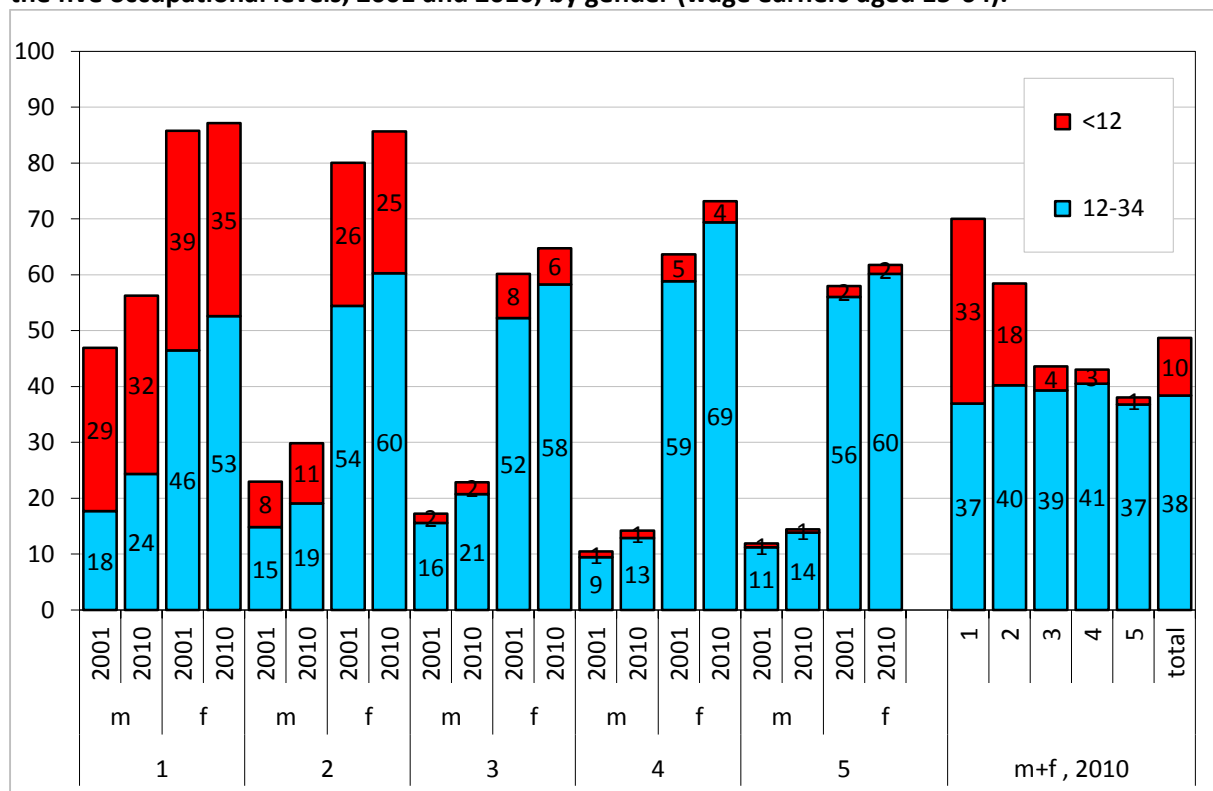
Figure 3 shows mini jobs alongside part-time jobs, comparing the situation in 2001 with 2010. The gradient over occupational levels appears much stronger for mini jobs than for part-time jobs.¹⁵ At the

¹⁴ Unfortunately, the figures for the category of employees are not known separately.

¹⁵ Asselbergs et al. (1998, p. 74) briefly discuss the “missing” mini jobs in the period 1987-1991 and find a similar degree of concentration based upon the old-style occupational classification and remarkably low absolute numbers (rising from 392,000 in 1987 to 514,000 in 1991; the EBB figures for this period rise from 620,000 to 686,000).

elementary level mini jobs were three times more common than average in 2010 (33 versus 10 per cent; Figure 3, right-hand section), and at the lower level almost twice as common (18 versus 10 per cent). Remarkably, though, there is very little difference between the five occupational levels in terms of part-time employment rates (12-34 hours per week) when this broader employment base is used (right-hand section of Figure 3). The variations between levels therefore lie mainly in the mini jobs, so again it makes a real difference whether or not we consider them. The growth in the number of mini jobs between 2001 and 2010 has been limited. Looked at from the opposite perspective, the average occupational level of a mini job is only just above 2.00, far below that of a larger part-time (1987-2010: 2.73→2.90) or full-time (2.89→3.26) position.

Figure 3. Percentages of part-time (12+ hours per week) and mini workers (1+ hours per week) at the five occupational levels, 2001 and 2010, by gender (wage earners aged 15-64).



Note: Occupational levels: 1. Elementary, 2. Lower, 3. Middle, 4. Higher, 5. Scientific.

Source: see Figure 2.

Overall, little has changed between 2001 and 2010. Mini-jobs have grown somewhat faster among men but their number is still well below that for women. The amount of part-time work for both sexes has grown to a similar extent. Their part-time factors at the elementary occupational level are relatively close together, but at all other levels there is a wide gap, with the part-time shares among men lagging well behind those among women.

The concentration of mini jobs makes the base of the occupational pyramid very wide in terms of the number of people in work, whereas the difference in the total number of hours worked is more limited precisely because these are such “small” jobs. The 10 per cent of all workers employed for fewer than 12 hours a week account for a mere 2.6 per cent of all hours worked. A full-time equivalent distribution

of employment makes little difference to this picture, and even at the lowest occupational level some 60 per cent of all hours worked still are put in by full-timers. In other words, in terms of both jobs and workers a lot of employment has been maintained at the lower occupational levels in the form of part-time jobs.

3.2.2 *Female labour*

The second important point relates to the growth in female labour and its effect upon the gender gap in employment. Comparing them first in terms of average occupational level, we find that women's traditional disadvantage – which still amounted to some 8 per cent of the male average in 1987¹⁶ – has all but evaporated since 2003. This is due almost entirely to the constant improvement in female occupational levels, whilst those of men have stagnated, especially during the 1990s.

Of the nearly 900,000 women who joined the workforce on balance in the 1990s and the 550,000 who have followed between 2001 and 2010 (see Table 2.A.1) , three-quarters have taken up jobs at the middle and higher occupational levels. In recent years, though, the role of the academic level has rapidly become more important. This category accounts for up to a quarter of the growth between 2001 and 2010. By comparison, the picture for men is quite different. Their absolute growth has lagged far behind, despite a respectable half a million entering the workforce. As with women, there was limited absolute growth and stagnation at the elementary and lower levels in 1990s, but unlike their female counterparts working men have experienced strong occupational polarisation with a drastic decline of their representation in lower and middle-level jobs since 2001. At the higher level, male growth has also been lagging well behind in recent years. As a result, over time the proportions of men and women active at each occupational level have more or less equalised. This has been the case at the middle and higher levels since the early 1990s, with the lower and elementary domains following suit not long thereafter. The only exception in 2010 still is the academic level, where men maintain a clear – but rapidly shrinking – lead. At the base of the occupational pyramid, both sexes experience the stable share of elementary-level jobs discussed earlier.

From all this we can conclude that there is now a strong concentration of part-time work at the lower occupational levels, which becomes more and more marked as fewer hours are worked. Men and women are now almost on an equal footing in terms of their occupational levels, as we have already found is the case for their educational attainment.

4 Education, work and occupational level

The unique and historic improvement in levels of educational attainment has caused the lower attainment categories to wither away. However, the increase in average occupational level has not had the same effect, but it has led to polarisation. I now bring these two trends together to ask how education leads to work, whether that work is likely to be full or part-time and at what occupational level it will be, given the level of education achieved. First, in section 3.1, I discuss the link between education, work and working hours, and then in 3.2 the occupational level of that employment.

¹⁶ And, according to Huijgen (1989), 11 per cent in 1971. Unfortunately, no figures are available for 1960.

Of course, the supply of and demand for employment are not unrelated. One of the reasons people choose a particular type of education is the employment opportunities it affords, whilst jobs are created and filled according to the nature of the candidates available. Conversely, however, supply and demand are by no means determined entirely by one another. So there is every reason to compare developments on both sides of the coin, at least descriptively.

4.1 Education and chances of finding work, full or part-time

Table 2 has shown that, after an initial fall, the total level of employment participation in the Netherlands had clearly increased by 2010 (67 per cent). Table 4 breaks down the figures according to educational attainment. At the lowest of the five achievement levels, that of primary education only, participation has fallen or, at the very least, changed substantially in nature when mini work is taken into account. But surprisingly, all the higher levels have also seen a decline compared with 1960. The overall rise is therefore due to the greater prominence in the composition of employment of higher educational attainment levels which have a greater than average rate of employment participation.

Underlying this finding are a number of quite diverse trends. Young people have experienced very sharp decreases in their employment participation rates: minus 46-47 percentage points for those with primary and junior secondary education only, and 25-40 percentage points for those at higher levels. These falls were ongoing in 2010. Mini jobs make a major difference for this age group, but except at the senior secondary level not even they are enough to check the decline; in every respect, youth employment participation is well below the national average. Adult males have undergone very substantial falls, too, which become more pronounced the lower they are down the educational spectrum. The figure at the primary level is especially dramatic: down 37 percentage points. This is not offset by mini jobs, although the decline has levelled out since 1990. Adult females, on the other hand, have seen their participation rates rise, although only in part-time work. This increase is observed across the board, except at the senior secondary level if mini jobs are not taken into account. Moreover, it becomes more pronounced as the level of educational attainment rises. As a result, the male-female gap in employment participation has narrowed considerably in the higher and academic categories. It remains very wide at the primary and junior secondary levels, though, also when mini jobs are included. There are still sizeable educational disparities between working men and women, then, in contrast to the distribution of attainment levels within the general population as well as to that of occupational levels in employment. This implies the existence of a “merit discrepancy” between jobs and the people in them. With mini jobs taken into account, the position of young people is comparable with that of adult women in the three lowest educational categories. At the higher levels, both vocational and academic, women are almost on a par with adult men.

In part, at least, the explanation for the rapid decline in the extent of employment participation by all men with no more than primary schooling could lie in increased educational participation. For adult men, however, that factor is irrelevant; their chances of finding work really have fallen. In the case of young people, the picture is complicated by the greater overlap between education and work, which

removes the complementarity but also implies a specific behaviour in the labour market: the tendency to look for mini jobs. I shall return to that point at the end of this section.

Table 4. Employment participation by educational attainment level, gender, age and working hours, 1960-2010# (ages 15-64, including the self-employed).

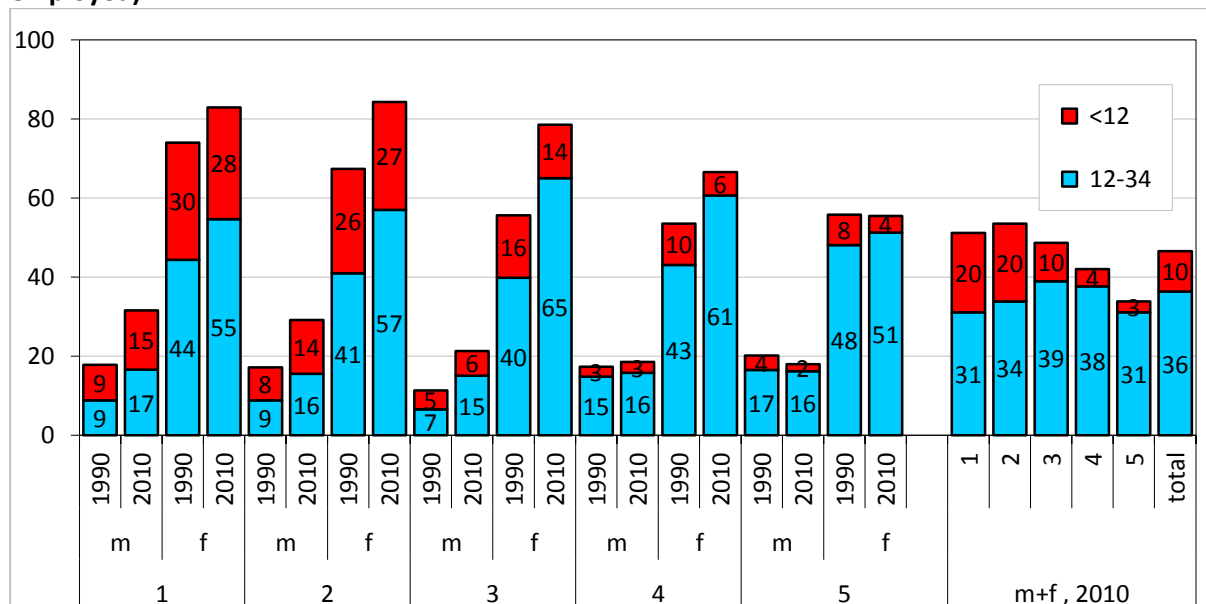
		<i>Pri- mary</i>	<i>Junior second- ary</i>	<i>Senior second- ary</i>	<i>Vocatio nal higher</i>	<i>Aca- demic</i>	<i>Primary</i>	<i>Junior second- ary</i>	<i>Senior seconda ry</i>	<i>Vocatio nal higher</i>	<i>Aca- demic</i>	
		A1. All						A4. All aged 15-24				
12+	1960	46	78	86		95	59	75	71		97	
	1990	32	47	64	75	82	19	39	53	78	46	
	2001	37	53	71	80	86	18	43	55	72	75	
	2010	38	51	71	82	85	12	29	47	62	58	
1+	2001	48	65	79	84	88	49	70	77	83	75	
	2010	48	63	79	86	88	37	57	70	77	58	
FT*	1990	24	35	51	53	61						
	2001	24	35	47	53	63	9	24	34	50	75	
	2010	23	29	40	50	58	5	12	21	31	35	
		A2. All men						A5. Men aged 25-64				
12+	1960	90	93	91		98	99	96	91		98	
	1990	49	67	77	87	86	58	80	84	87	87	
	2001	51	71	81	87	89	63	79	86	88	89	
	2010	49	62	77	86	88	62	77	84	87	89	
1+	2001	61	78	85	89	90	65	80	87	89	90	
	2010	58	72	82	88	90	65	79	85	89	91	
FT	1990	44	60	72	74	72						
	2001	44	61	71	77	75	56	72	77	78	75	
	2010	39	51	65	72	74	52	68	73	74	74	
		A3. All women						A6. Women aged 25-64				
12+	1960	15	68	58		64	8	51	61		63	
	1990	17	30	50	63	71	17	28	47	61	72	
	2001	24	38	60	73	82	27	38	61	72	82	
	2010	26	40	65	79	82	31	46	69	81	83	
1+	2001	37	53	72	79	85	35	49	70	79	85	
	2010	37	55	75	84	85	37	54	75	85	87	
FT	1990	6	14	26	33	34						
	2001	6	11	20	28	41	7	10	19	26	41	
	2010	6	9	16	28	38	7	10	16	28	38	
#) See Appendix for an explanation of the estimates for 1960. *) FT = full-time (35+ hours per week).												
Source: See table 1.												

4.1.1 Part-time employment by educational attainment levels

Table 4 shows overall employment participation also including mini jobs. The latter play a role for all groups, but – given the difference with the rate for 12 or more hours a week, as shown for 2001 – it is exceptionally important for young people (Panel A4, 12+ versus 1+). Depending upon their educational attainment, for this group such jobs add between 10 and 40 percentage points to their rate of employment. The significance of mini jobs is much more limited for adult women than it is for all females, but it remains more important for them than for adult men. The table also reveals that the proportion of full-time (FT) workers in employment increases rapidly with educational attainment

(Panel A1: 23→58 per cent). However, it also indicates that that attainment makes little difference when it comes to part-time and mini jobs. This phenomenon deserves further attention.

Figure 4. Percentages of part-time (12+ hours per week) and mini jobs (1+ hours per week) at the five educational attainment levels, 1990 and 2010, by gender (ages 15-64, including the self-employed).



Note: Educational levels: 1. Primary, 2. Junior secondary, 3. Senior Secondary; 4. Higher vocational, 5. Academic. Results in the right-hand section are sometimes lower than in Figure 3 because this chart includes the self-employed.

Source: Statistics Netherlands, Labour Force Survey (EBB).

Like Figure 3, Figure 4 highlights the significance of part-time and mini jobs – but this time over a twenty-year period beginning in 1990. Just as previously there were few differences between the occupational levels in terms of part-time employment rates (12-34 hours per week), in the right-hand section of this chart we see a remarkably consistent picture across all levels of educational attainment. And again the incidence of mini jobs rises as we move down the spectrum. At the primary level, it is twice the overall average. This, however, is still rather less than the three times higher than average incidence which was observed for elementary occupations. Among men, the differences in part-time employment rates according to educational attainment are less pronounced than we found in the case of occupational levels. Nevertheless, here too it is the low end which makes the difference: 32 per cent of the least well-educated men work part-time or in mini jobs, whilst 52 per cent of male-held elementary jobs are part-time or mini jobs in the previous figure. For women, though, exactly the opposite applies: higher levels of educational attainment outstrip higher occupational levels in terms of part-time and mini job working rates, especially in the “middle ground” (79 per cent versus 65 per cent). This leads us to suspect that many of those better educated women who work part-time are in jobs at a lower occupational level. The average educational attainment of workers in mini jobs, currently about 2.5, is again clearly lower than that of the rest of the workforce, but the differences are not as marked as with occupational levels. Moreover, the figures for part-time workers (1990-2010: 2.82→3.12) and full-time workers (2.80→3.25) are now very similar, although the latter is rising at a somewhat faster rate. Here it seems to be the full-time female workers who are racing ahead

(2010: 3.50) – or, to put it another way, they are forming an increasingly selective category in terms of educational attainment.

Part-time and mini jobs are gaining in importance in the lower educational categories, whereas their importance is stable at the academic level – although, of course, this is to be viewed against the background of the rapidly increasing population in the latter category. The same applies to men with higher vocational education qualifications.

4.2 Education and occupational level: the extent of underutilisation

Figure 5 brings together the educational and occupational trends found above. The average occupational level has risen over the past twenty years (1990-2010: 2.88→3.05, an increase of 6 per cent¹⁷), as have the levels of educational attainment. As we have seen women in the population have bridged the gap in educational attainment with men. However, following the same metric women in employment were always better educated on average than men. At the same time their occupational level lagged behind men but has now bridged that gap, but nonetheless is at a larger distance below their educational level than men. This gives a rough indication only as the averages are sensitive to differing composition changes.

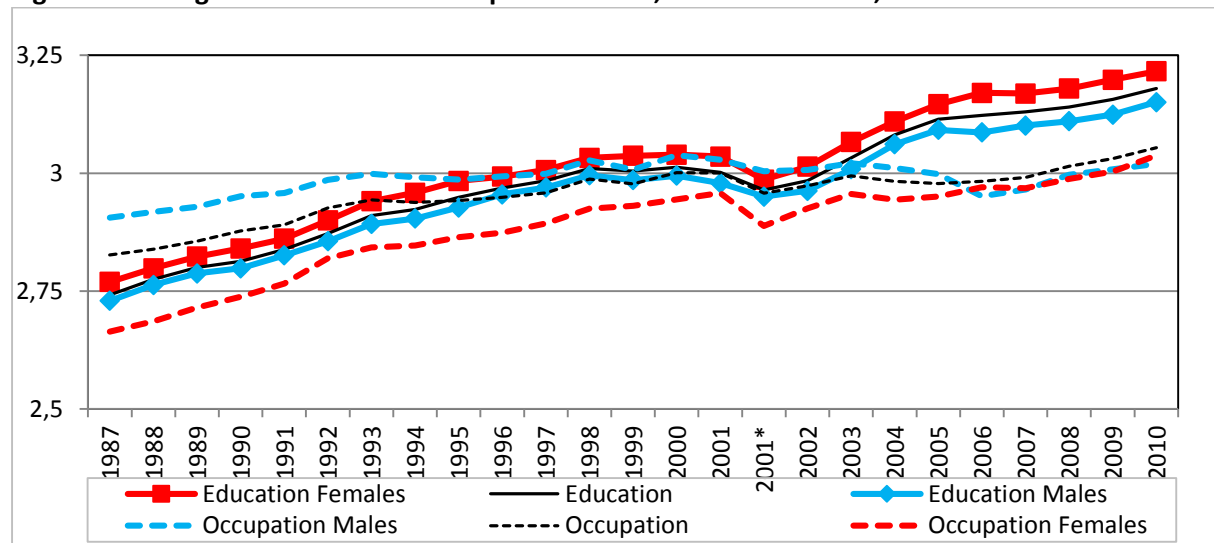
However, significant compositional effects occur. In every separate education category, the occupational level has fallen – by an average of 6 per cent. The greatest decline is at the lowest educational level (1.99→1.73), twice the average decline (not shown). Job prospects have drastically worsened for this group in terms of the standard of work they can expect to find, and that decline appears to have accelerated since 2001. Young people have seen their prospects deteriorate across the board, except in the higher vocational category (although that may be down to the relatively small numbers in that age group). Adult males at the primary level have experienced a sharp downturn, but those with vocational or academic higher education have maintained their occupational level. The position of adult women is stable in the primary, senior secondary and vocational higher categories, but has worsened at junior secondary level. Academically educated women have improved their average occupational level, now outstripping men.

Our understanding of the relationship between educational attainment and occupational level can be improved by looking more closely at the education of all those in work at each occupational level. The same overall average, after all, can be associated with either a condensed distribution or a polarised one. And in any case, such averages are dependent upon arbitrary cardinal weightings. Direct comparison of educational attainment with occupational level, on the other hand, is ordinal: is the former higher than the latter? Then we can speak of “underutilisation” from the perspective of the worker. To quantify this we need to look at the percentage of workers employed at an occupational level lower than that which corresponds with their educational attainment. The discrepancy can be anywhere between one and four levels, the latter applying to academic graduates in elementary

¹⁷ Mini jobs make little difference as far as this trend is concerned.

jobs.¹⁸ Underutilisation is first defined on a level-by-level basis, then aggregated for the population as a whole.¹⁹

Figure 5. Average educational and occupational level, men and women, 1987-2010



Notes: Averages determined with simple weights 1...5. Employment including self-employed and excluding mini jobs. *) Series break

Source: Statistics Netherlands, EBB for occupations and see Table 1.

The opposite of underutilisation is overutilization which comes with underqualification: when the education a person has received falls short of that deemed necessary for the occupational level they have reached. This is no trivial matter, especially when we consider the very large number of people with only basic schooling – at one time a very substantial proportion of the population – who have gone on during their careers to hold positions at higher levels. This is a group we can characterise as possessing hidden talents, not reflected in their educational achievements. Because of that, underqualification should not be regarded simply as the mirror-image of overqualification but rather as a phenomenon worthy of investigation in its own right. Only once all talents are fully developed within the educational system, something which clearly has yet to be achieved given the fact that the overall level of education is still increasing. And it is for this reason that my principal focus here is underutilisation.

¹⁸ By definition, people with only primary education cannot be underutilised and, conversely, nobody can be underutilised on an academic job. Degrees of under-utilisation are not addressed here; single-level discrepancies account for 75-80 per cent of cases, while a difference of two levels accounts for most of the remaining 20-25 per cent.

¹⁹ Unlike in Batenburg et al. (2003), here the denominator in the aggregate does incorporate those individuals with primary education who cannot be underutilised and those academic-level jobs on which one cannot be underutilised. Their rising or falling numbers do therefore affect the results.

Table 5. Underutilisation of employees aged 15-64 by age, gender and education, 1990-2010 (percentages of employees or of jobs, as appropriate).

		A. By educational attainment									
		Total	Junior secondar y	Senior secondar y	Vocation al higher	Aca- demic	Total	Junior secondar y	Senior secondar y	Vocation al higher	Aca- demic
		A1. All					A4. All aged 15-24				
12+	1990	19	12	26	24	29	Not available				
	2001	24	15	28	27	40	30	18	43	28	0
	2010	27	18	28	28	39	37	22	49	39	0
1+	2001	26	18	31	28	40	35	26	52	28	0
	2010	29	23	32	30	40	44	34	58	48	0
FT*	2001	22	12	24	27	41	26	15	35	30	0
	2010	25	14	26	27	40	30	16	39	35	0
		A2. All men					A5. Men aged 25-64				
12+	1990	16	10	22	19	27	Not available				
	2001	22	12	26	26	39	21	10	23	26	39
	2010	26	17	29	28	39	25	15	26	27	39
1+	2001	24	16	29	27	39	21	10	24	27	39
	2010	29	23	32	28	39	25	15	26	27	40
FT	2001	21	11	24	25	39	20	10	22	25	39
	2010	24	14	26	26	40	24	13	24	26	40
		A3. All women					A6. Women aged 25-64				
12+	1990	25	17	31	30	34	Not available				
	2001	26	18	30	29	42	25	19	27	29	42
	2010	27	21	27	29	39	26	21	24	28	40
1+	2001	28	22	34	30	42	27	22	29	30	42
	2010	30	24	32	31	40	27	23	26	29	41
FT	2001	25	16	24	30	45	25	17	22	30	45
	2010	26	19	23	27	38	26	19	21	26	40
		B. By occupational level									
		Total	Elementary	Lower	Middle	Higher	Total	Elementary	Lower	Middle	Higher
		B1. All					B4. All aged 15-24				
12+	1990	19	65	32	9	8	Not available				
	2001	24	72	42	12	12	30	80	39	6	0
	2010	27	78	48	17	13	37	86	50	8	0
1+	2001	26	72	42	12	12	35	72	40	6	0
	2010	29	79	48	17	13	42	81	49	9	0
FT	2001	22	72	39	12	13	26	78	38	6	0
	2010	25	77	47	18	15	30	83	49	9	0
		B2. All men					B5. Men aged 25-64				
12+	1990	16	62	29	7	9	Not available				
	2001	22	73	38	11	13	21	71	39	12	13
	2010	26	80	46	16	15	25	78	46	17	16
1+	2001	24	72	39	11	13	21	72	39	12	14
	2010	29	80	47	16	15	25	78	46	17	16
FT	2001	21	72	37	11	13	20	70	37	12	13
	2010	24	79	44	16	15	24	77	45	16	16
		B3. All women					B6. Women aged 25-64				
12+	1990	25	68	38	13	6	Not available				
	2001	26	71	46	13	10	25	68	47	14	11
	2010	27	77	50	18	11	26	76	49	19	12
1+	2001	28	72	45	13	10	27	70	46	14	11
	2010	30	77	49	18	11	27	77	49	19	12
FT	2001	25	74	48	17	14	25	70	52	19	16
	2010	26	83	52	16	13	26	71	55	27	16
<p>*) FT = full-time (35+ hours per week). NB. Unlike in Batenburg et al. (2003), here the totals include those categories where it is impossible to be underutilised: individuals with primary-only education, and jobs at the academic level. Sources: 1990 data derived from Batenburg et al. (2003); other figures calculated from customised Statistics Netherlands (CBS) tables, 2001-2010.</p>											

Of course, this approach is also affected by the assumptions made – in particular the one-to-one correspondence of the occupational and educational attainment scales inferred from the classification, as well as the more or less arbitrary five-level classification adopted for each and the supposition that everyone and every job can be categorised according to this system.

Table 5 shows that overall underutilisation for all groups taken together in all full and part-time jobs (Panel A1, 12+) increased from 19 to 27 per cent between 1990 and 2010. The latter figure rises to 29 per cent when mini jobs are included. Underutilisation is found at all relevant levels of educational attainment, in line with the decline in the average occupational level at each educational level that was observed above. And it is growing in almost all categories, the only consistent exceptions being adult men and women with vocational or academic higher education for whom it is more or less stable. Amongst young people, on the other hand, rapidly increasing underutilisation is a universal phenomenon (Panels A4 and B4).

Underutilisation is associated rather more strongly with occupational level than with educational attainment. For the great majority (65-80 per cent) of those occupying elementary occupations their educational attainment is underutilised (Panel B1). So, by their very numbers, they effectively “overwhelm” those educated only up to that primary level. In the middle and higher occupations, on the other hand, the extent of underutilisation is less than 20 per cent while in between, at the lower occupational level, the rate is almost 50 per cent.

There is very little difference between the six demographic categories in terms of their underutilisation in elementary and lower occupations. Perhaps surprisingly, nor is there much variation across working hours. The percentages of underutilisation are much the same for full-timers and part-time and mini-job workers. The primary determinant of underutilisation is the occupational level, not the hours worked. The fact that, on average, full-timers enjoy a higher occupational level is down to the full-time distribution across the occupational spectrum, with a rapidly increasing concentration at the higher levels. Full-time workers on elementary jobs are not a distinctive group of, say, less-educated workers surrounded by a mass of better-educated part-timers. This is an important finding.

Naturally, the chances of underutilisation increase towards the lower end of the occupational spectrum, simply because of the widening scope for a higher level of educational attainment. Logically, the reverse is true when we look at it from the opposite perspective: the better educated a person is, the more underlying occupational levels there are in which it is possible to be underutilised. Underutilisation on the job thus increases with educational attainment, reaching a peak of about 40 per cent amongst adults with an academic education. However, this maximum is substantially lower than the 65-80 per cent observed in elementary occupations. And with a lower incidence of 10-20 per cent in the middle educational category, the spread is also more limited than is the case for occupational levels. Amongst young people, by contrast, those educated at the middle level score highest in terms of underutilisation but note that very few of them have already attained the higher level.

When it comes to levels of educational attainment, clear differences can be observed relating to working hours. Mini jobs display much higher rates of underutilisation. This confirms that they are

distributed over occupations in a completely different way from part-time and full-time jobs. But that is something we have already seen. It is not the choice to work part-time in itself which results in greater underutilisation, then, but the concentration at lower occupational levels of the part-time jobs that workers can choose from, which given the educational attainment of the candidate population, increases the likelihood of underutilisation.

The existence of so much part-time employment at the elementary and lower occupational levels tends to “suck in” many better-educated individuals who seek to combine work with study or domestic duties. These are two “combination scenarios” between paid and other work to which I now turn. They may explain that in a trade off to other activities people may be accepting part-time hours with underutilisation attached. As a result other labour supply which in itself is sufficiently qualified for low-skill occupations may be crowded out. I turn to these scenarios now.

4.2.1 The low end: educational participation and other duties

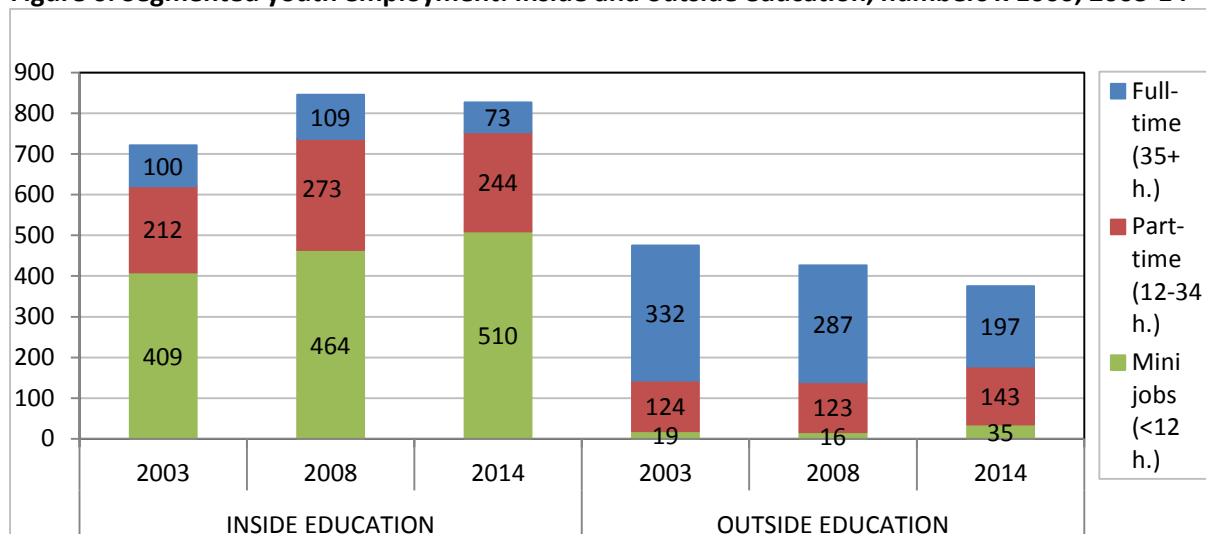
Labour-market participation has fallen massively amongst the least-educated men, particularly before 1990, with a slight recovery after that (Table 4). For the least-educated women the participation rate remains as far below their best-educated sisters as fifty years ago; it is also still considerably below that of the least-educated men. Amongst least-educated young people the rate continues to decline until this day. A more detailed study of the adult population is not possible here with the data currently available, but more about this will be said in Section 6. Therefore I look now at the situation for young people to sketch their combination scenario and its effects.

More than half of those aged 15-25 are – so far – at the lower end of the educational attainment scale (primary or junior secondary), but only a limited and still declining proportion of them (27→16 per cent) have left education.²⁰ Labour-market participation in that group – low educational attainment, not in education – is considerably higher than for young people as a whole, but declining (74→61 per cent). Amongst the low-educated who are still in education, by contrast, this participation is more or less stable, at around 50%. As we might expect of youngsters who have to start laying the foundations for their working lives and thereto best commit themselves to work full-time, only very few of those not attending education are in mini jobs (only about 7 per cent).

Figure 6 pictures the strong segmentation in youth employment between students who are still in education and have a job at the same time, and those who have left education for a job. Almost all of the mini jobs – more than a half million – occupied by the under-25s are held by those still attending school or college. The much-needed full-time employment among those who have left school has fallen dramatically, somewhat to the advantage of part-time employment and mini jobs.

²⁰ Data derived for 2002–2013 from Statistics Netherlands (CBS) StatLine, *Arbeidsdeelname, 15 tot 25-jarigen* (Labour market participation, 15-25-year olds). Unfortunately, these statistics do not distinguish between primary and junior secondary education. Consequently, I have also combined the elementary and lower occupational levels. Because of the resulting lack of detail, this causes underutilisation to be underestimated.

Figure 6. Segmented youth employment: Inside and outside education, numbers x 1000, 2003-14



Source: Statistics Netherlands, Labour Force Survey (EBB).

Two-thirds of the “low attainment, not in education” group have a full-time job, but this category is under pressure: within just a few years (2002-2013) their share in the category has fallen from 50 to 30 per cent – not because of a shrinking population, but because a larger proportion are staying in education. Over the same period their rate of employment has declined by 47 per cent and their actual numbers are down more than 60 per cent, from 133,000 to 48,000 between 2002 and 2013. When young people leave education with only basic qualifications at best, they enter a labour market of elementary and lower occupations in which they find themselves competing with a huge supply of often substantially better qualified workers. That competition comes in the first instance from their peers who have stayed on in school or college. The lower occupational levels account for approximately two-thirds of youth employment, with those in education doing a growing proportion of that work: two-thirds rising to three-quarters. In turn two-thirds of that occurs in the form of mini jobs. But a far from negligible group is combining schooling with part-time and sometimes even full-time work. As a result, full-time work, something essential to the initial development of a career and to earning a living, is becoming more and more difficult to find for the less-educated school-leavers. Many of those available for work but still in education dispose of comparable formal qualifications with those who have left, but by definition they are working towards a higher level of attainment and so already improving their standard of education over those who have finished schooling. Thus the underutilisation figures given in table 5 on the basis of formal qualifications are actually an underestimation. On top of this less-educated school-leaving youth face the competition from young people who have actually left education with better qualifications and, last but not least, from adults – predominantly men working full-time and women working part-time, who together account for two-thirds of employment at the lower occupational level.

I briefly turn to the other scenario that combines paid labour with domestic care. In the 1970s there were more single-earner than dual-earner households in the Netherlands. Since then the situation has more than reversed, so that the number of households with two wage earners now far exceeds those with just one. This trend is closely associated with the increase in the number of working women, of course, many of whom are employed on a part-time or mini-job basis. In particular, it can be stated

that – in a situation analogous with that of young people in education – almost all of the adult women (more than 90 per cent) and the majority of adult men (50-75 per cent) with mini jobs are part of a couple.²¹ To this can be added that large majority of three quarters of Dutch employed youth are children in a household, including more than 50% aged 18 or older. To the extent that their parents are dual earners this implies a large swath of multiple-earner households. Thus the two combination scenarios may partially reinforce each other.

All in all, in occupational terms the lower end of the labour market can be characterised as dominated by mini jobs which are almost exclusively held by young people, who combine these jobs with pursuing an education, or by adults who combine them with domestic duties. The situation from 1990 onwards has been heavily influenced by these two scenarios. It largely explains why the recovery in labour-market participation by less well-educated adult men since that year has been limited, given the extent of its previous fall. It also provides another reason for the deteriorating labour-market position of the less educated, next to the effects of globalisation and Richard Freeman's famous doubling that I started with.

5 Interim discussion and conclusions

The past half-century has seen two great waves sweep across the Netherlands: one of increasing educational attainment and another of swelling part-time employment. The Dutch population has undergone a quantum shift, from a situation in which two-thirds had no more than basic schooling to one in which two-thirds have completed senior secondary or higher education. This has been supplemented by a massive increase in educational participation, so that three-quarters of those aged 15-24 are now in education. Over the fifty-odd years the overall numbers in employment have doubled, but almost all of this growth has been in part-time jobs, including a striking increase in the number of mini jobs of less than twelve hours a week. Indeed, the spread in the number of hours worked per week has emerged as a significant aspect of the structure of employment and of labour-market competition. And its importance continues to grow. The qualifications required for employment have failed to keep pace with the level of educational attainment achieved by the workforce. In a sense, Tinbergen's race between education and technology was lost by technology, as mirrored in actual jobs, already quite a while ago. The range of occupations for which good to very good qualifications are needed has certainly increased very significantly. However, at the other end of the scale the educationally least demanding jobs have not shrunk in numbers while those at the lower occupational levels immediately above have. In other words, we have a process of polarisation, resulting in growing underutilisation of employed persons in their jobs with a strong gradient over the levels of educational attainment. More than a quarter of the working population are in jobs that require fewer qualifications than they have actually obtained. This figure rises with the level of educational attainment – up to 40 per cent for those with academic degrees.²² Conversely, the lower

²¹ These are maximum estimates, assuming that there are only few couples aged under 25.

²² CBS (2016) finds underutilisation for some 30% of those with a higher vocational or academic education taken together, with the help of a different approach, which considers as the requirement for a job the level of attainment most frequently found among all persons on the job, following the international ISCO qualification. As this requirement will increase with growing underutilisation this approach tends to underestimate the level of underutilisation.

the occupational level of a position, the more likely it is to be held by someone who is underutilised. At the bottom of the scale, in elementary occupations, this is so in up to three-quarters of cases. This situation undermines the meritocratic ideal behind the educational expansion which implies that qualifications on the supply and demand sides of the labour will be matched. Instead it tends to devalue the merit which people can successfully derive from the long years of education aimed at developing their talents. For those who have difficulty climbing the educational ladder, this works as a disincentive to obtaining even a basic qualification and mounting the lower rungs of the educational ladder.

Working hours have become an important vector in this process. The fewer hours a person works, the more likely they are to be underutilised in the job they are doing: the rate is 25 per cent for full-timers, 29 per cent for part-timers and 50 per cent for mini-job workers. This is not down to the hours worked themselves – that factor makes little difference at any occupational level – but rather is a product of the concentration of part-time and mini jobs at the lower levels of occupation. The same applies to the relationship between gender and age on the one hand and underutilisation on the other. There are few differences between the underutilisation scenarios of young people and adults, men or women, working full-time. What does vary is the importance of full-time working to these groups. Workers who are prepared or compelled to take up part-time and mini jobs for which they are overqualified, are the principal driver of this phenomenon.

These processes have significant gender and age dimensions. The female population has completely erased the gender gap in education, and two-thirds of all additional jobs created since 1960 have gone to adult women. Female workers are better educated than men, regardless of how many hours they work, but their occupational level is not higher but lower on average though the gap to men is shrinking. Women thus face a steep gradient of employment chances over their levels of educational attainment. On the five-level attainment scale the rate of employment participation amongst the least-educated adult women is 50 percentage points lower than for the best-educated women, and 30 percentage points below that for the least-educated adult men. The former gap is virtually the same as half a century ago, in 1960, though employment rates have increased at both ends, from 8 to 37 per cent for the least educated women and from 63 to 86 per cent for the best educated women (Table 4, panel A4). The gap between males and females is still very substantial though it has declined due to the level increase among least-educated women and the decrease among least-educated men (99 to 65 per cent; Table 4, panels A5 and A6). From the very highest educational attainment level downwards, women are systematically less likely to work full-time than men. For those with an academic degree, the full-time rate is half that of their male counterparts: 38 versus 74 per cent. The result is a cascade of underutilisation, which is significantly enhanced at the senior and junior secondary educational attainment levels by the general decline in the availability of middle-level jobs caused by polarisation. At the bottom of the scale, this cascade ends with the great majority of the least-educated women playing no part in the labour market at all, confronted as they are in the competition for elementary and lower jobs by a huge supply of better qualified candidates be they youths or better educated adult women. The desire to combine work with domestic duties bolsters the demand for part-time and mini jobs and so contributes to augmenting the level of underutilisation in these segments. The massive increase in female employment is concentrated amongst women who

are members of dual-income households: just about all adult women with mini jobs are in this category, as are three-quarters of those in part-time work.

The sharp rise in the level of educational attainment across the population as a whole is the product of an explosive growth in youth participation in education, with up to three-quarters of this age group now attending school or college. This in turn has fundamentally changed their behaviour in the labour market (Salverda, 2008). At one time, schooling and work were mutually exclusive and so the labour-market participation by young people fell as more of them stayed on in education. Later, though, it became all the vogue to combine learning with work, overwhelmingly on a mini-job basis. Today, three-quarters of young people are in education and two-thirds are in work. The upshot is an overlap between these groups of 40 percentage points, which represents two-thirds of total youth employment. More than half of that employment consists of mini jobs. Those in education occupy half of all the elementary and lower positions that are held by young people: all mini jobs, two-thirds of the part-time ones and a quarter of the full-time ones. Moreover, this is an extremely competitive group in supply terms,²³ the extent of whose over-qualification for the work they are performing is actually underestimated because their educational advancement is still ongoing. Meanwhile, less well-educated school-leavers – for whom, understandably, full-time jobs are the preferred option to make a living and establish a career – have experienced more than a halving of their full-time employment over the past decade. This is a good example of how combining work and study has an external impact upon those who have left education. Youths are effectively biting their own tails, as those still in education and having a small job drive out those who have already left school from the same low-level occupations. In employment as a whole, educational participation accounts for up to 10 per cent of underutilisation.

Unfortunately, Dutch data allow us to link this only partially to the household context of the employed, and not at all to their incomes and earnings. However, the international data used in the next section can help to fill part of that hole.

6 Trends and mechanisms internationally shared?

A natural question to ask is how these two combination mechanisms of paid work with educational participation and household care respectively found above for the Netherlands compare internationally and what relevance these findings have for other countries. Thereto I will draw a comparison with the nine countries most similar to the Netherlands (but not identical to the Netherlands, or to each other): Austria, Belgium, Denmark, Finland, France, Italy, Germany, Sweden, and the UK. The comparison focuses primarily on the current situation and draws on trends since the 1990s to show the direction and speeds of changes where that is helpful.

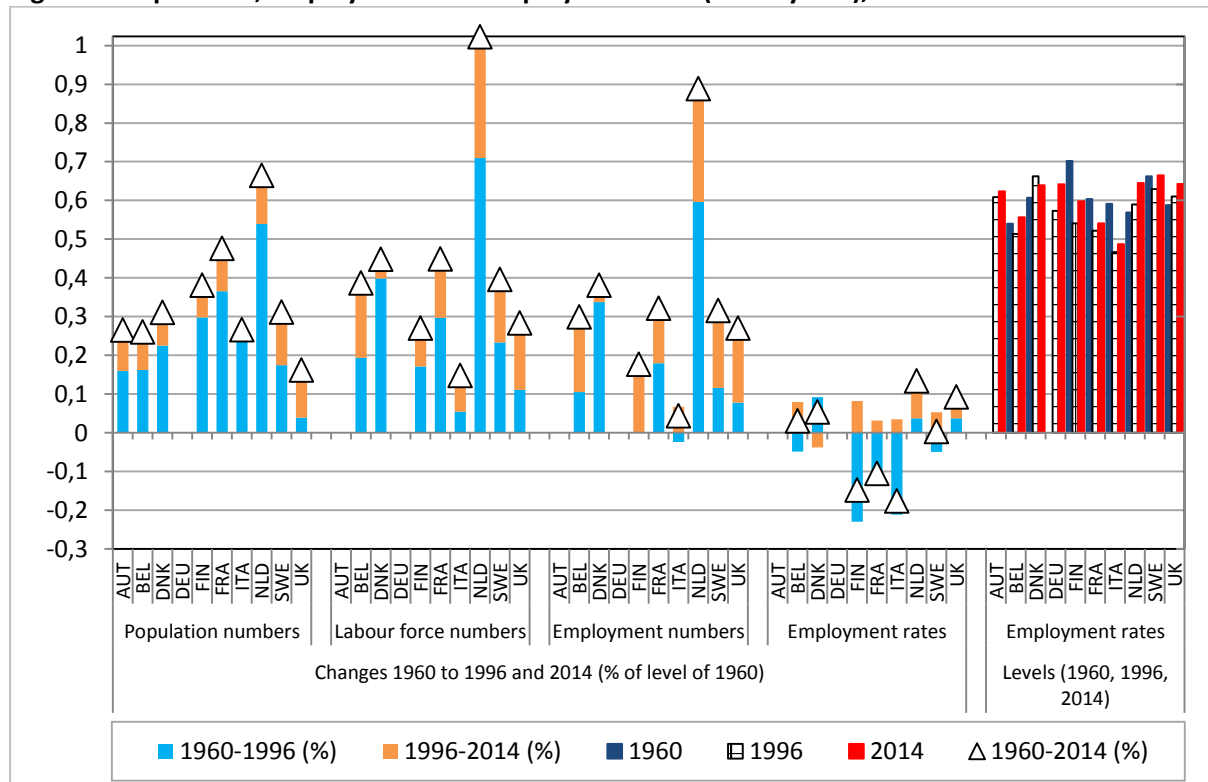
The comparison is approximate, as, evidently, the wide range of data needed is not available from a single consistent data source. I will draw mainly on two sources: tabulated data from the European Labour Force Survey (ELFS) and microdata from Eurostat's Statistics on Income and Living Conditions (SILC). The former provides valuable insights into many of the labour-market outcomes including

²³ Also financially, as the net/gross ratio of wages, which is determined on an annual basis, is more favourable to part-time and mini jobs.

trends,²⁴ while SILC enables extending to the household, its combination of earnings and its income. Particularly, the latter helps filling the glaring gap on household earnings and incomes which was left in the above analysis for the Netherlands.

The lay out of this section is to subsequently consider the same aspects explored above: demographics (sex, age and educational attainment and educational participation), jobs (working time and occupations), and households, while adding earnings and incomes. Before turning to those details let us draw a rough comparison for population and employment growth since 1960.

Figure 7. Population, Employment and Employment rate (15-74 years), 1960-2014



Source: OECD, *Economic Outlook* (author's calculations).

Figure 7 pictures this, indicating for convenience the sub-period since 1996 that has to be used below for some trends. The figure does show a doubling of labour force numbers in the Netherlands (the highest peak at 102%) but not for the other countries. Belgium, Denmark, France and Sweden hover between 40 and 50% labour force growth – impressive nonetheless. The Dutch peak reflects both strong population growth and increasing labour force participation. The strong growth is equally visible in the expansion of the number of employed persons, another peak of almost 90%. However,

²⁴ Mostly since 1996 – still a substantial period even if it is much shorter than the period since 1960 covered above. Detailed trend graphs referred to are found in the Appendix.

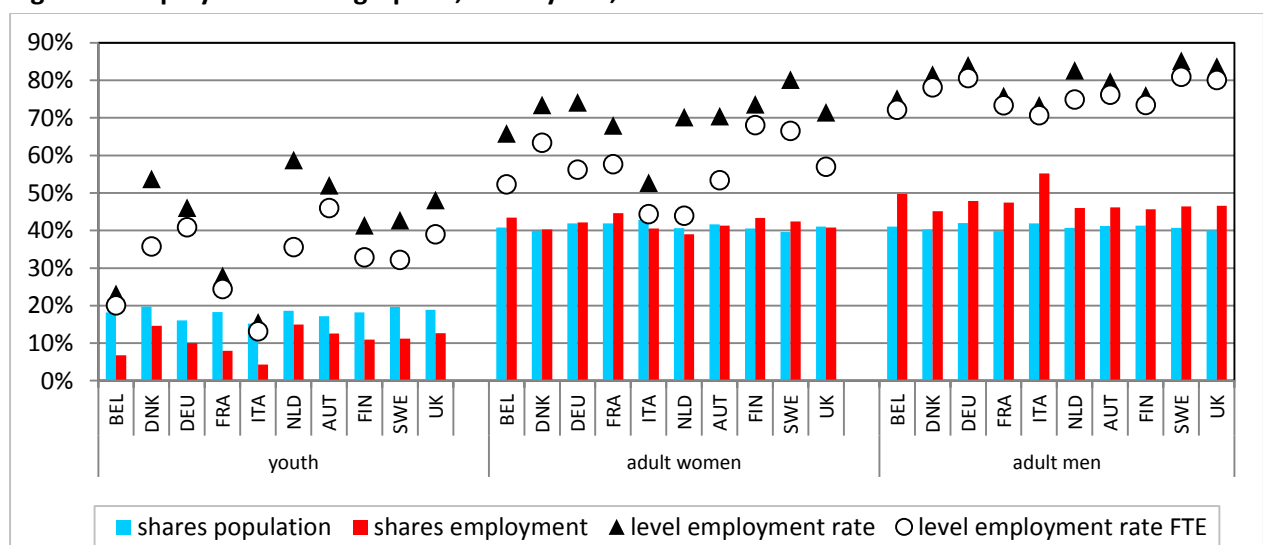
I ignore smaller and larger series breaks and variations in definition, e.g. of part-time employment in the ELFS where part-time definitions differ between countries (legal, self-declared, less than 35 hours/week). Only the OECD LFS tabulations allow choosing a uniform working-time measure but, unfortunately, do not comprise essential detail such as on educational attainment and occupations. Additional data concern educational participation from Eurostat and Not in Education, Training or Employment (NEET) from OECD.

the evolution of the employment/population rate, shown at the right-hand side of the graph, provides a sobering contrast. Indeed it has increased in the Netherlands and more so than in other countries, where it sometimes fell, but the increase has been rather small (13%) relative to the country's other peaks. In addition, it is important to note that it has not resulted in a markedly superior outcome at the end of the period compared to the other countries – the Dutch employment rate for 2014 (64.5%) is very similar to those of five other countries, while Italy, Belgium, France and Finland clearly lag behind. In other words, the sizeable employment growth has mainly bridged the gap that existed between the Netherlands and the other nine countries and has kept pace with their growth, if any. Thus trends may have differed but the outcomes are roughly the same and there is no a priori reason to expect that the Dutch mechanisms cannot be found elsewhere.

6.1 Demographics: Youth and adult women, educational attainment and participation

First I look at the demographics based on the three segments that were distinguished above: youth, adult women and adult men respectively. Figure 8 indicates their current shares in the population and employment, as well as the level of their employment rates. International differences appear to be very small for the population shares. Apart from lower youth shares for Italy and Germany (15-16%) the other eight countries including the Netherlands have youth shares close to 20% of the total working-age population. Differences are larger for employment, again mainly concentrated among youth. The divergences between population and employment shares show in the employment rates. The Netherlands has the highest youth employment rate (59%), closely followed by Denmark and Austria above 50%. Rates for youth employment are much low for Italy, Belgium and France (16-28%). Adult female (66-80%) and male (75-85%) rates respectively are highly comparable internationally, except for Italy where women and men trail the rest (53 and 73% respectively). The lower aggregate employment rate found for this country in Figure 7 is a general phenomenon that extends to all three demographic groups. The Netherlands may have the highest employment rate for youth but it does not for the two adult groups (70 and 83%) where it fits the pack.

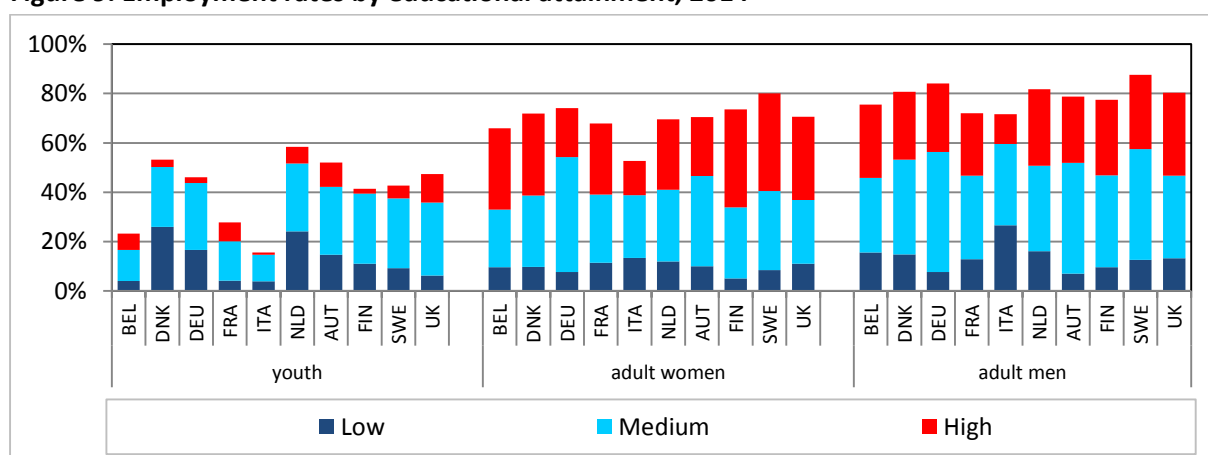
Figure 8. Employment demographics, 15-64 years, 2014



Source: ELFS [lfsa_eggais] and lfsa_egaed]

The figure also indicates an estimated²⁵ full-time equivalent (FTE) employment rate, which accounts for the greatly diverging incidence of part-time work that I will discuss below. This significantly lowers rates for youth and adult women and makes them more similar to other countries. The Dutch youth and adult female rates fall by 23 and 26 percentage-points respectively. The full-time employment rate for Dutch youth (12%) lags the rest of the countries very strongly in the company of Italian youth (11%). This contrasts with Belgium, France and Italy that show hardly any effects for the shift towards full-time equivalents (fte). For the national fte employment rates (not shown) Denmark and Finland are here at the top (64-66%), while the other eight countries are found in a range from 52% (Belgium) to 60% (Germany, UK) with the Netherlands and France (both at 56%) in the middle. It implies that important differences may exist in the role of part-time jobs in the mechanisms under scrutiny. For now I focus on the head count and I will come back to the role of part-time employment later.

Figure 9. Employment rates by educational attainment, 2014



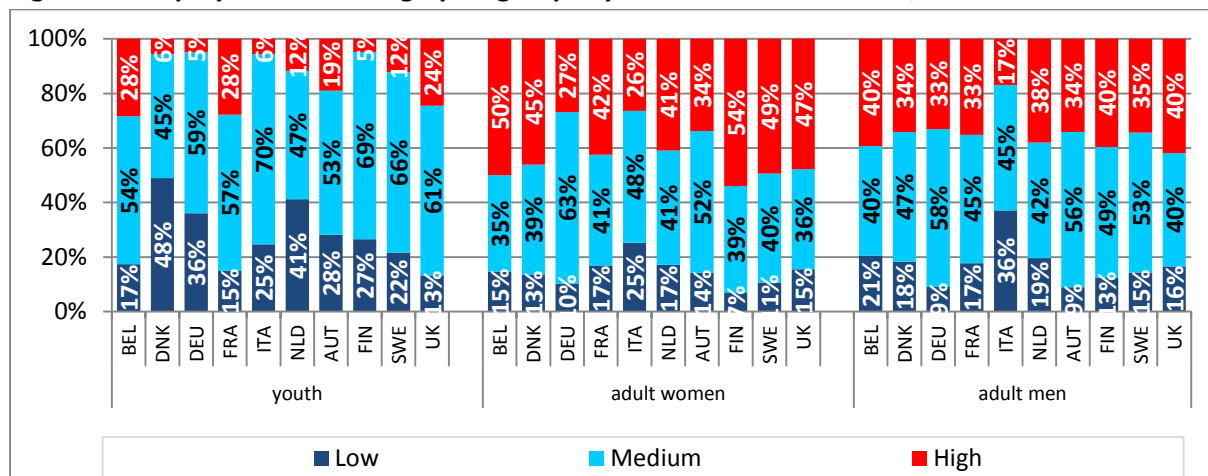
Source: ELFS [lfsa_epgaed]

Figure 9 provides the (cumulative) breakdown of the employment rates by the three commonly used levels of educational attainment, low-middle-high.²⁶ International youth differences seem to be driven by the low educated (rates varying from 4 to 26%) and to a lesser extent by the high educated (1-12%). Adult rates in Italy are explained by very low shares for the high educated for all three groups. For most countries the high-educated contribution to male employment rates hovers close to 30 percentage points, for women it is somewhat higher on average. It implies that, though adult women in the working-age population as a whole have not obtained a better education than men, women have in fact when employed (as already found for the Netherlands, since 1960). High educated women have a higher share among all employed women compared to their male counterparts in all countries except Germany where it is the other way around, and Finland where both are equal levels. In several countries more than half of all employed women are now high educated, following a steady upward trend from a share of around 25% in 1996 (Figure A.1). Naturally, this implies lower shares for middle and low educated (Figure 10).

²⁵ Using the rule of thumb that full-time hours on average equal twice part-time hours.

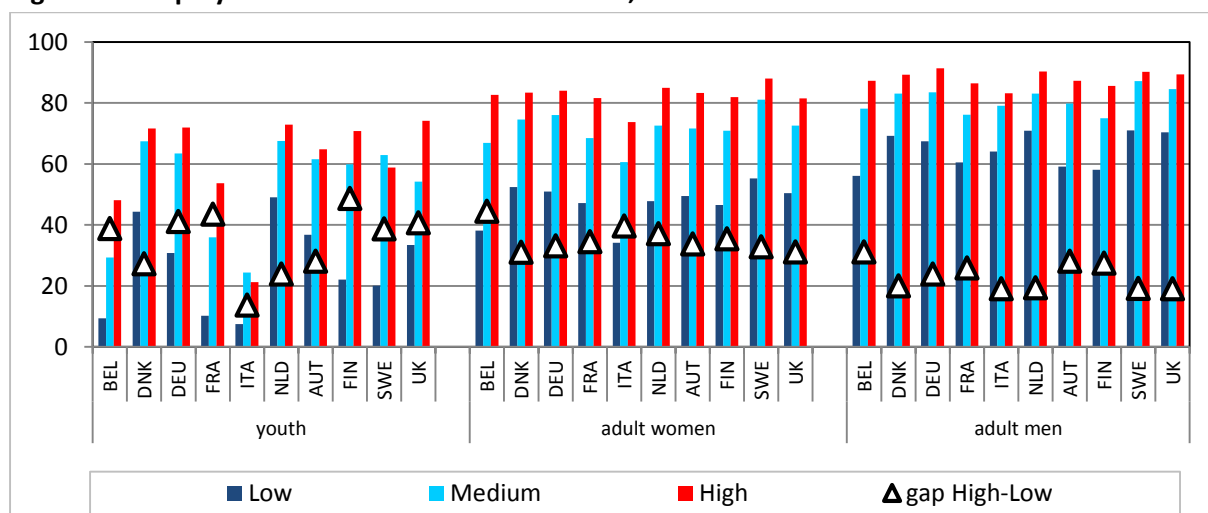
²⁶ Low: up to junior secondary education (ISCED 0-2), middle: senior secondary education (ISCED 3-4), and high: tertiary education (ISCED 5+).

Figure 10. Employment of demographic groups by educational attainment, 2014



Source: ELFS [lfsa_epgaed]

Figure 11. Employment rates for educational levels, 2014



Source: ELFS [lfsa_ergaed]

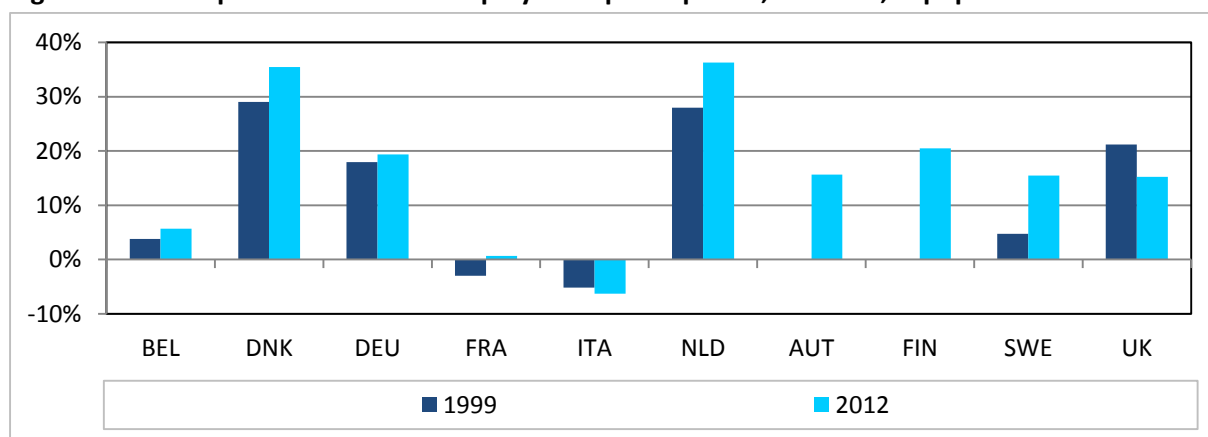
In all countries the employment rate of the low educated is significantly below the rest, and the gap has tended to increase. The greater importance of higher educational attainment among employed adult females mirrors the fact that the female employment rate increases strongly with the level of education, significantly more than among men (Figure 11). Consequently, the employment-rate gap between high- and low-educated women is larger, and as Figure A.2 shows, very similar between the average of the nine comparison countries and the Netherlands. In addition, it is largely unchanged if not growing over time. Thus in spite of the very considerable growth in female employment participation, mutual differences by education among them have remained largely as they were or they are even increasing. Also in a comparison between men and women the employment rate gap is largest for the low educated on both sides and larger for the Netherlands than the other countries, especially on a full-time equivalent basis (see Figure A.3).

This situation makes women in the labour market more prone to the underutilisation of their qualifications in their occupations in the labour market than men – in spite of their better education,

women in general are not better paid, to the contrary –, and it may lead to the crowding out from the labour market of the least educated women.

For youth I can add that the important international differences that were found for their employment rates (Figure 8) seem to relate strongly to the work of students as this can be derived from a comparison of youth participation rates in education and employment respectively after deduction of the NEET rate (not in employment, education or training). Figure 12 indicates for 1999 and 2012 the minimum extent of potential overlap between both that can be expected on the basis of aggregate data. There is an overlap when both rates add up to more than 100% of the youth population, after deduction of the NEET rate. The countries such as the Netherlands and Denmark with the highest overlaps also show the highest youth employment rates while Belgium, France and Italy have small or no overlaps at all (and very little part-time jobs at that).

Figure 12. Overlap educational and employment participation, ex. NEET, % population 15-24



Note: A negative number indicates that there is no overlap.

Source: ELFS [*lfsa_epgaid*] and [*educ_thpar*], and OECD, NEET statistics.

Thus we universally find a very compelling role for the high educated in employment, far ahead of the low educated especially for women, and a considerable international difference in the combination of educational participation with paid labour, which is much more developed in the Netherlands and Denmark followed by Finland, Germany and the UK.

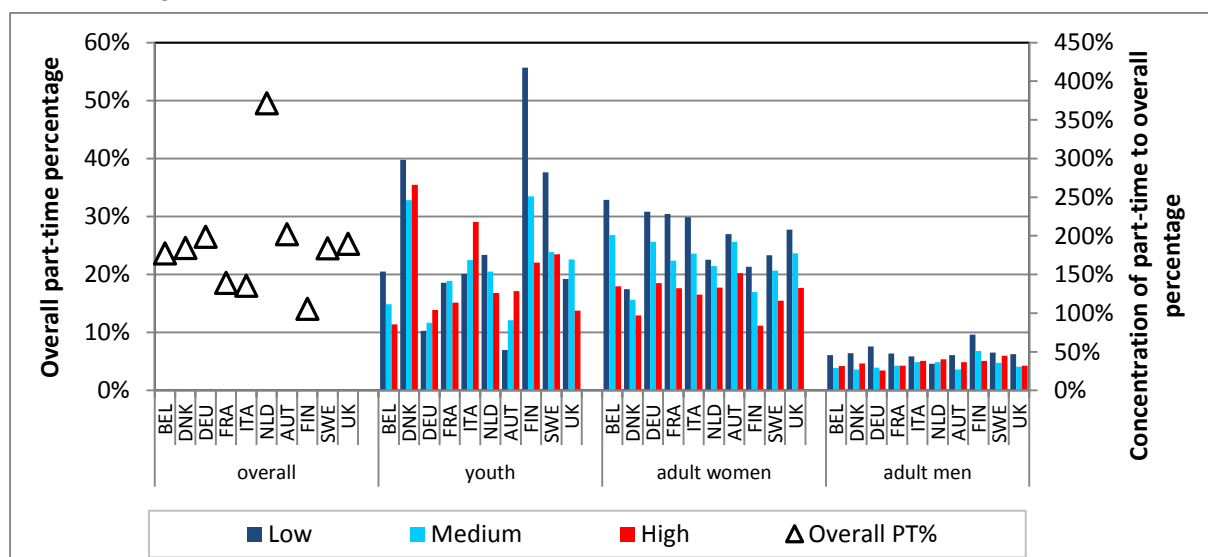
6.2 Jobs: working time, and occupations

So far I have discussed head-count employment, i.e. the number of persons in work regardless of the amount of work they perform in terms of working time effort (read part-time work). For the Netherlands, unsurprisingly because of its world championship in this field, part-time employment is found to be an important vector for the mechanism through which youth and adult women are involved in the labour market. Figure 13 shows the national incidence of part-time employment as a percentage of all employed at the left-hand side of the graph, and spells out its relative importance across the three demographic groups and their educational attainment. Levels differ significantly but all countries share a trajectory of growth (Figure A.4). Since 1996 the Dutch part-time share grew by 31%, that for the average of the nine comparison countries by 38% - least (6%) in Sweden and the UK

and most (179%) in Italy. Also, in spite of – or just because of – its very high incidence, the pattern of concentration among the three demographic categories in the Netherlands is comparable to the other countries. Generally speaking, youth and women work more often part-time compared to adult men, at levels that across the board are largely similar for both. Low-educated persons work more often part-time in all three categories as the incidence decreases with the level of education in most cases.

Working part-time is an important aspect of the combined participation in education and employment by youth. The higher the overlap between educational participation and employment (Figure 12) the higher is also the incidence of part-time employment among youth. Dutch and Danish part-time working youth reach levels of about 70% of all youth employment. They have also seen their incidence grow between 1999 and 2012, but so have Italian and British youth whose overlap declined. Generally, part-time hours are not exclusively due or restricted to the overlap.

Figure 13. Concentration of part-time employment by demographic group and educational level, 2014

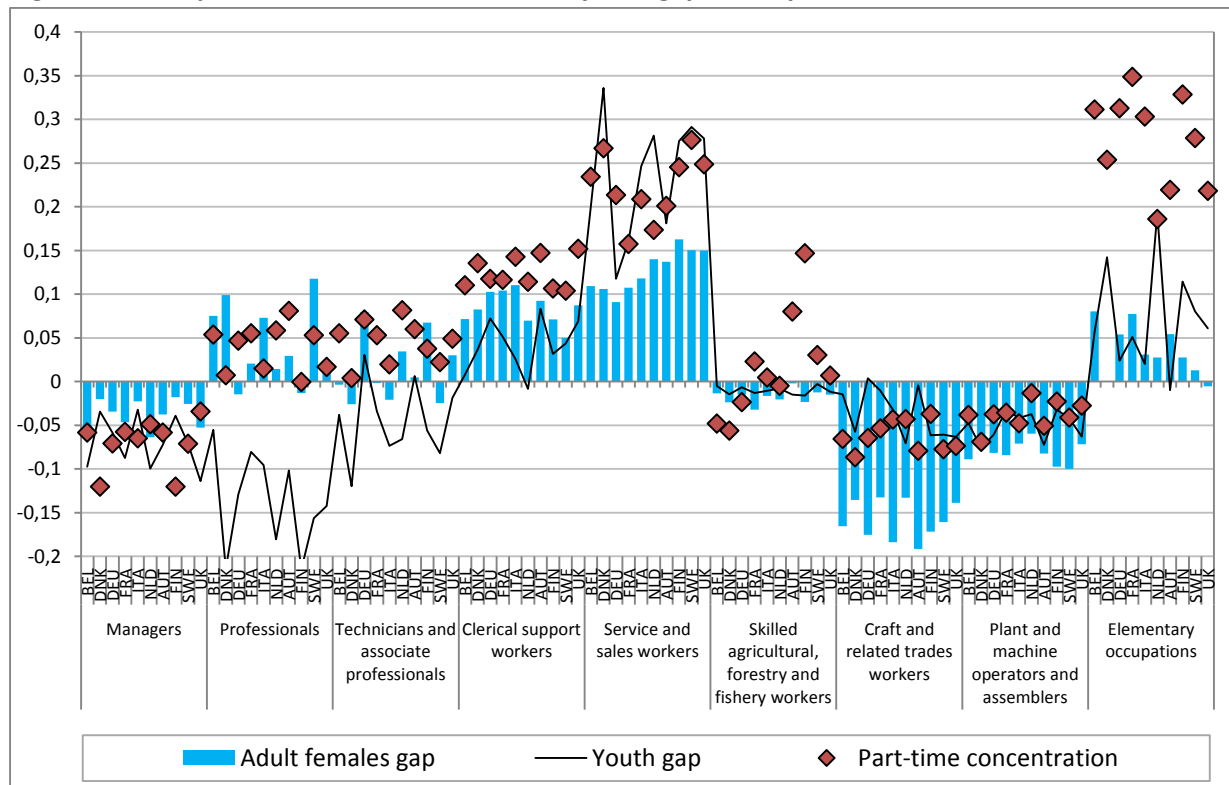


Source: ELFS [lfsa_epgais]

To gauge the actual importance of educational attainment on the job it is important to consider the occupational structure of employment. As already indicated, strictly speaking the ISCO classification does not reflect the educational requirements for the occupation. Nonetheless, many services jobs and certainly the elementary jobs may be considered less qualified and therefore a match to low-educated labour supply. Figure 14 draws a comparison of the occupational structure of adult women and youth respectively to that of adult males, by deducting the employment shares across different occupational classes of the former from the latter. Thus the positive gender and youth gaps indicate the occupational concentration of those two groups. Clearly they are rather differently distributed over occupations from men, and partly also from each other, and the patterns compare well internationally. The overrepresentation of women among professionals reflects educational and health services. They are also found in office work and other services and sales and to some extent albeit less also in elementary jobs. Youths are even more strongly concentrated in sales and other services and elementary occupations. The two broad structures of overrepresentation correspond well with the concentration of part-time employment across occupations, which reaches its highest

level among elementary occupations. The overrepresentation at lower occupational levels suggests at least for adult women, whom we know to be better educated on average than men, the presence of an important underutilisation of their educational qualifications in their employment.

Figure 14. Occupational structure: Gender and youth gaps* and part-time concentration, 2014



Notes: Gaps defined as the percentages among adult females and youth respectively minus the corresponding percentage among adult males. No scale shown for concentration of part-time employment; this runs up to 250% of national average.

Source: ELFS [lfsa_eggais]

To this can be added that middle-educated persons and elementary jobs show an increasing overlap on both side (see Figure A.5). The concentration of those jobs among the middle educated is growing and so is the share of the middle educated among those jobs. The overlap seems to be smaller in the Netherlands than elsewhere but that difference will plausibly be less or even absent if considered on a full-time equivalent basis.

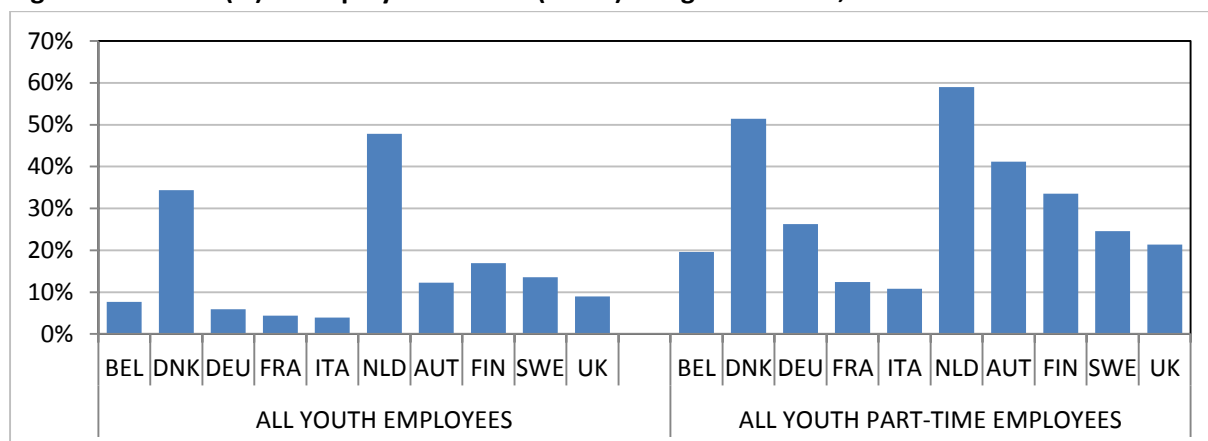
6.3 Households, earnings and incomes

The household dimension of the labour market has been begun to be charted in statistics only recently, unduly long after the demise of the single-breadwinner model. Recent data from the ELFS (since 2005) indicate a large and further growing role of couples in employment participation even though their share in the population is not rising. The explanation is a rising employment rate of the female partners in couples. Dual-earner individuals have become by far the predominant source of labour supply, providing between 51% (Italy and Austria) and 70% (Finland) of all adult workers in

2014. There are also hardly any differences left in employment rates between persons who are a member of a couples and the rest of the adult population (not shown).

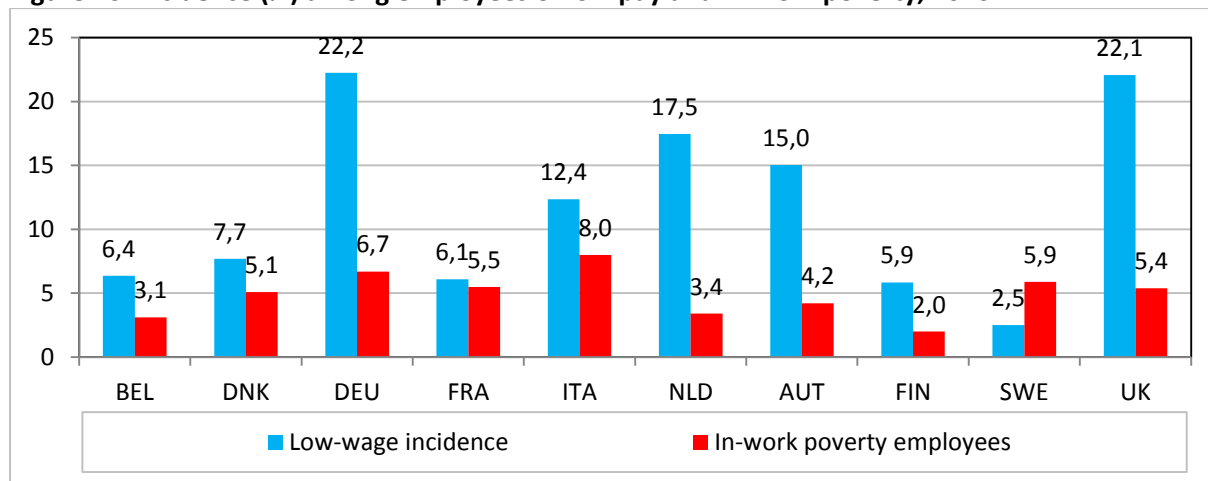
This household concentration picture may be further reinforced by the labour-market activity of students that goes together with their prolonged participation in education. This holds especially for the two countries with very high youth employment rates, Denmark and the Netherlands, as between 30 and 50 per cent of them are still a member of a household with adult, likely their parent(s) (Figure 15). The frequency is higher in all countries for part-time working youth, reaching between 30 and 60 per cent in also in Finland and Austria (right-hand half of Figure 15). One implication is that many households will comprise even more than two earners.

Figure 15. Shares (%) of employed children (15-24) living with adults, 2014



Source: ELFS [fst_hhindws]

Figure 16. Incidence (%) among employees of low pay and in-work poverty, 2010

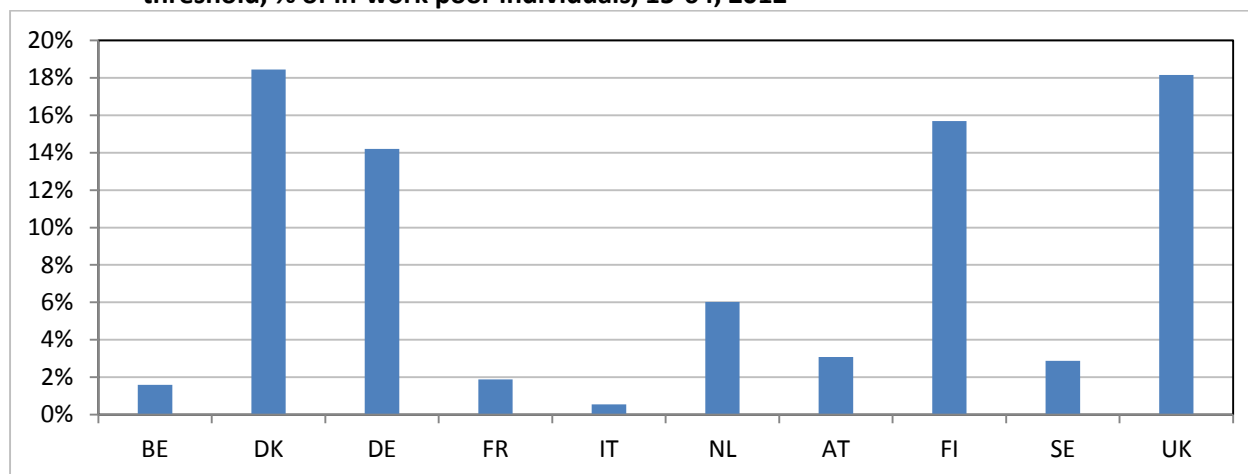


Source: Eurostat [earn_ses_hourly] and [ilc_li04]

The two scenarios have important implications for the functioning of the labour market and the division of joint earnings and therewith of incomes over households. The significant divergence among individual workers between the incidence of low pay (by the hour), which is a property of the worker's job, and the incidence of in-work poverty, a property of the same worker's household, is an important illustration of that importance (Figure 16). With the exception of Sweden, the low-pay incidence

always exceeds the in-work poverty rate, sometimes to a very large extent as in Germany, Netherlands, Austria and the UK.

Figure 17. Main earners in non-poor more-earner households who remain below the poverty threshold, % of in-work poor individuals, 15-64, 2012



Source: SILC 2013 for year 2012, author's calculations

These aggregate data leave open the possibility that low-paid individuals may actually be combining into households which thus pool sufficient earnings to lift the household out of poverty. Figure 17 throws light on that issue as it considers with the help of SILC data how many non-poor households with more than one earner would actually be poor without the additional earner(s). It reports the main earners in non-poor households, whose individual earnings on its own remain below the poverty threshold, implying that other earners have contributed to lifting it above.²⁷ The figure gives the frequency relative to the poor households (with earnings) among "main labour households" (MLHH).²⁸ Note that this is a maximum estimate as for lack of data in SILC we cannot be sure that the additional earners are all low paid by the hour.

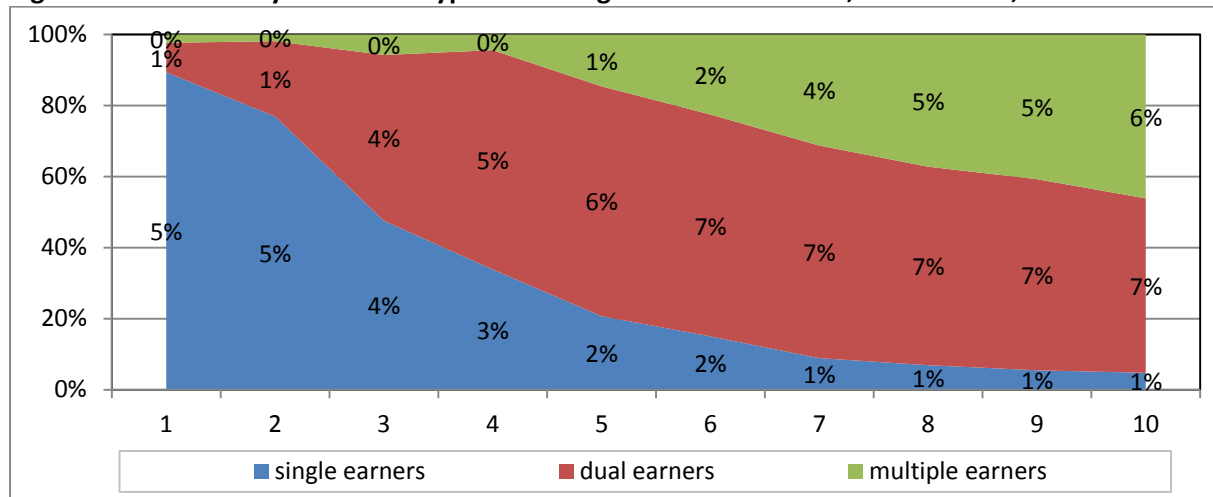
Apparently the phenomenon is non-negligible, but combining with Figure 16 we can see that it is nowhere near closing the gap between the low pay and in-work poverty. The largest increases in in-work poverty are found for Denmark, Germany and the UK. However, even there it would raise the in-work poverty rate by one percentage-point only, which is not enough to bridge even the relatively small gap for Denmark, let alone for the other two countries just mentioned. Considered from the opposite side, the non-poor households, the percentage of households involved in this main-earner poverty is tiny, ranging between 0.1% and 1.5%.

²⁷ Gross earnings (PY010G) are transformed to disposable earnings using the net/gross ratio for the household as a whole (HY020/HY010). These net earnings are compared to the equivalised poverty threshold considering the main earner as a single-person household. Note that as the poverty of the household is determined including other types of gross income than PY010G alone there is also a number of non-poor single earners who appear to be poor on earnings alone. I disregard those as they are normally included in the basic approach to poverty in SILC.

²⁸ These are defined as households receiving more than half their total gross income from gross earnings.

Thus I can start from the stylised fact that low-paid individuals are often a member of a non-poor household. Unfortunately, I cannot elaborate here on this in full as for most countries in SILC data needed for calculating hourly pay are missing for many countries. Instead I focus on the category of elementary jobs on the assumption these are generally less-qualified and low-paid²⁹ while all other categories of the ISCO classification of jobs are a mixture of different levels of qualification. It implies that elementary jobs may not cover all low-skill low-pay jobs but can act only as a *pars pro toto*. Though this evidently this is a second-best scenario for determining the magnitude of the mechanism that I am trying to trace, it is sufficient to show its plausibility.

Figure 18. Persons* by household type in MLHH gross income deciles, Netherlands, 2012



*) % of all earners

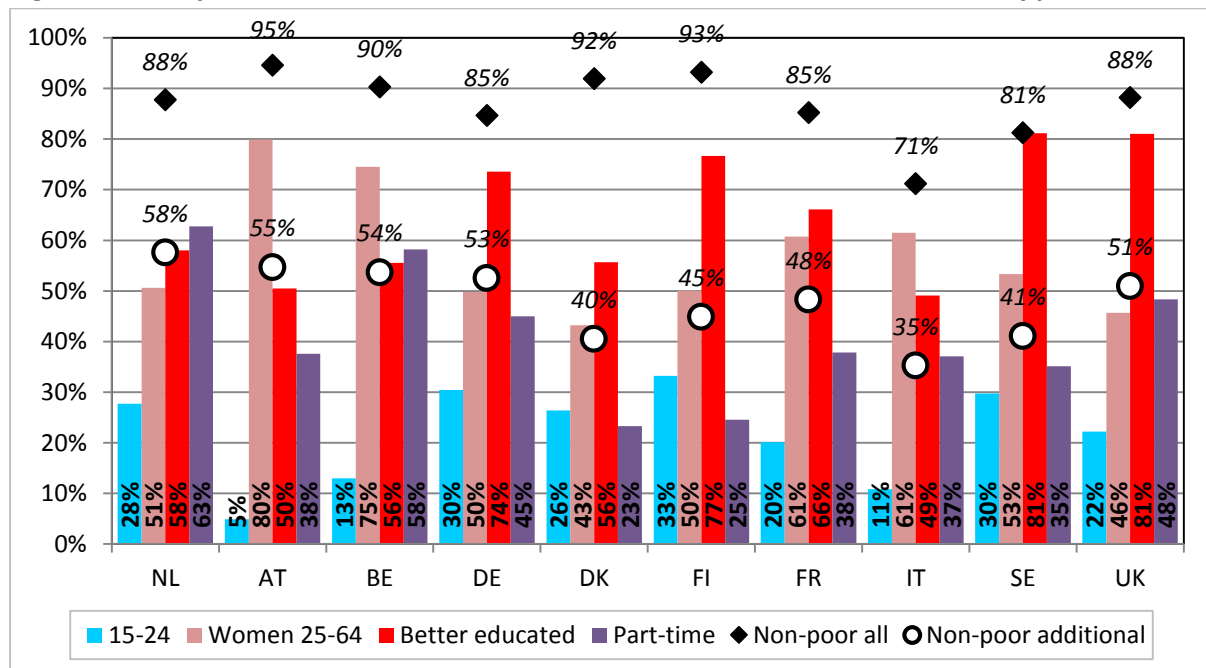
Source: SILC 2013 for year 2012, author's calculations

As this use of SILC not only serves the international comparison but also adds to the preceding analysis for the Netherlands by filling the gap for earnings and incomes, I demonstrate the approach for that case first and then compare to the other countries. The approach updates the example of Salverda and Haas (2014) and fills it in with further data regarding poverty as well as elementary jobs. They consider, for 2010 and also with the help of SILC data, how single-, dual- and multiple-earner households are distributed over the deciles of (gross) incomes from labour, with the same restriction to MLHH. They find a strong concentration of single-earner households towards the bottom of the income distribution and the opposite for multiple earners while dual earners have a strong presence in all but the lowest deciles. Figure 18 shows the same concentration pattern of the individual earners comprised in the households in an update focused on the Netherlands. Of all individual earners over the deciles 24% are members of a single-earner household, 51% are dual-earner individuals and 25% are in multiple-earner households. At the same time only 6% of all workers are in the bottom decile, in contrast to 13% in the top decile. Unsurprisingly, among poor households single-, dual- and multiple-earner households make up 62%, 25% and 14% respectively. Vice versa on average 5% of all workers are in-work poor, varying between 13% of single-earner households to 2% and 3% among dual- and multiple-earner households respectively (not shown).

²⁹ In CBS (2011) the elementary jobs according to ISCO largely overlap with those according to the Dutch classification SBC, which was used for the Dutch case above.

Now I can elaborate on this for elementary jobs, chosen here to represent low-paid employment. Of all individuals on these jobs in the Netherlands 12% are poor – including 28% among single-earner households, 6% and 9% among dual- and multiple-earner households respectively. This shows a larger role for dual- and multiple-earner households than for in-work poverty. At the same time the far majority (88%) of workers on elementary jobs are a member of a non-poor household. Among them 30% are the main earner in such a household, who earns the most. Thus the remaining 58% are non-poor additional earners, be they the second earner in a dual- or multiple-earner household or the third or higher earner in a multiple-earner household,³⁰ and as demonstrated before only very few of them actually lift the household out of poverty.

Figure 19. Non-poor earners of MLHH households, all and additional, on elementary jobs, 2012



Note: Marks relate to all non-poor earners among all ISCO9 earners; bars relate to additional non-poor earners only as percentage of the same type among ISCO9 earners.

Source: SILC 2013 for year 2012, author's calculations

Figure 19 compares this across the nine comparison countries. First in all countries the far majority of earners on these jobs are a member of non-poor households – from a minimum of 71% in Italy to a maximum of 95% in Austria. Among them the role of additional earners varies from 35% in Italy to a majority in five to six (if including France at 48%) countries. The difference between the two percentages regards main earners. Looking at the characteristics the contribution of youth seems comparable in most countries, with lower levels in Austria, Belgium and Italy. Plausibly, many youths may be found in sales jobs and not only in elementary ones, witnessing their occupational concentration (Figure 14). Adult women play a bigger role with majority shares, up to 80% in Austria, with the exception of Denmark and the UK. Particularly the better educated have a majority everywhere, if I include Italy with a 49% share. The presence of these characteristics seems unrelated to the incidence of working part-time in elementary jobs as this shows a different international

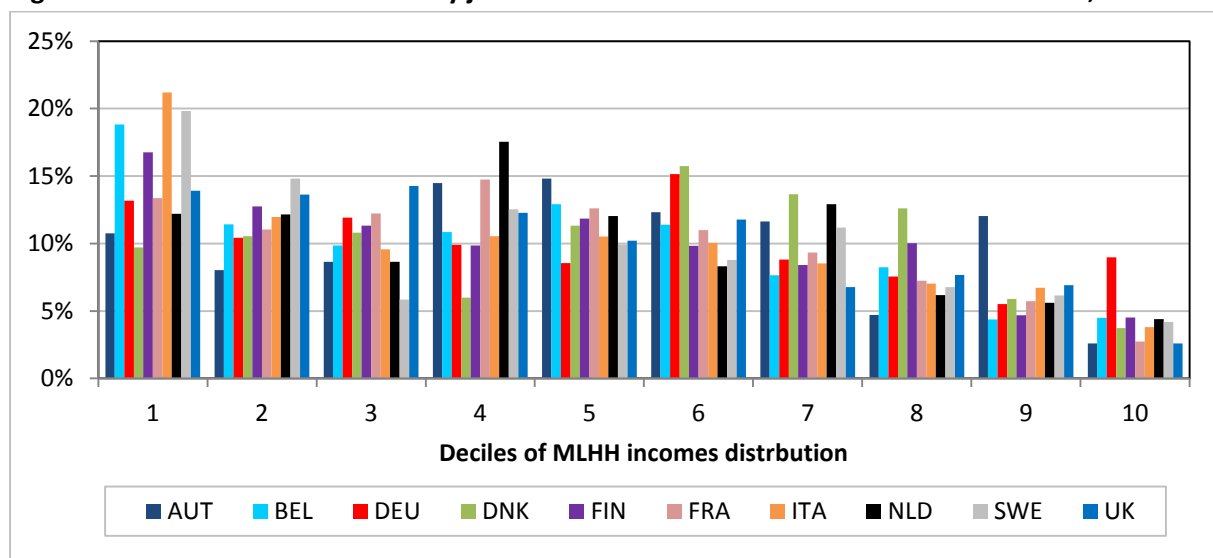
³⁰ Multiple-earner households comprise 3.36 earners on average.

variation. Nonetheless, it is still important as about half of non-poor workers on elementary jobs work part-time in Belgium, Italy, Sweden and the UK, apart naturally from the Netherlands. Thus though it might not be a prime vector universally it is certainly important in half of the countries.

The non-poor contribution to elementary employment spreads all the way up over the ten MLHH deciles which were pictured in Figure 18, and it does so in a rather similar way in all ten countries as can be seen in Figure 20. Even the top decile still holds at least 4% of all such job occupants. In all countries well more than one third up to more than half (Denmark) of all elementary workers are found in households whose incomes are in the upper half of the distribution.

Taken together this supports the thesis that the same mechanism of high-income competition for low-wage jobs that was postulated for the Netherlands, is found also in all nine countries of the comparison. It implies a self-reinforcement of labour-market inequality as the top crowds out the bottom. It is largely based on the two combination scenarios of paid labour and household care or educational participation respectively, albeit in different combinations as the contribution of the educational scenario seems much larger in Denmark and the Netherlands than elsewhere.

Figure 20. Distribution of elementary jobs over deciles of the MLHH incomes distribution, 2012



Source: SILC 2013 for year 2012, author's calculations

7 Summary and policy discussion

In the first part of the paper I find for the Netherlands an increasing mismatch between what the labour force has to offer due to the tsunami of educational attainment and what the labour market is asking in terms of occupational structure. As a result, the underutilisation of personal qualifications grows substantially and reaches high levels. That holds particularly for the highest educated as they have the best chances of staying in employment but at lower occupational levels, In turn they bump down the middle educated towards lower occupational levels, and ultimately this process crowds out part of the least educated from the lowest occupational level. This either ousts them altogether from employment or partially when it restricts them to part-time jobs. In the first case they are left without

earnings in the second case likely with insufficient earnings to make ends meet. This mechanism can be described thanks to the special Dutch occupational classification, at that links directly to educational qualifications. This classification mirrors a long tradition of research into the qualification structure of employment. Unfortunately, it has been replaced with the international ISCO classification as of 2012 which no longer offers that link, and which therefore also thwarts a proper international comparison.

Therefore the second part of the paper considers the same for a set of nine comparable, roughly neighbouring countries: Austria, Belgium, Denmark, France, Finland, Germany, Italy, Sweden and the UK. It attempts to sketch similar phenomena using published European labour force statistics and microdata from SILC-2013 for the year 2012. The latter enable looking directly at the dimension of earnings and incomes for households across countries – at the same this bridges a gap left by the Dutch case study for lack of appropriate data on incomes and earnings. Focusing on elementary jobs from ISCO, on the assumption that they are all low-paid and low-skilled, great international similarities are found. In all countries the far majority of the elementary jobs are filled by labour supply that is provided by non-poor households, especially but not exclusively the additional earners in dual- and multiple-earners households. Though details differ between the countries this supply concerns mostly better-educated persons and often adult females and/or youths. It amounts to what I have called two “combination scenarios”, of employment participation in conjunction with either household activities or participation in education. At the same time the extreme role of part-time employment in the Netherlands, which serves as an important vector for these scenarios there, does not appear to be essential in the international comparison though it certainly makes important contributions in a good deal of the comparison countries (Belgium, Italy, Sweden, UK – Figure 14).

Thus the answer to the question whether the Dutch case may be illuminating for the situation in surrounding countries is affirmative. The mechanism of competition for low-wage, low-skill jobs by better-educated persons who are members of households with earnings that situate them high up the income distribution is found everywhere. This lends a self-reinforcing effect to income inequality. It has important implications for the analysis of in-work poverty and as well as for ensuing policy making. Many agree that contrary to the expectations attached to “work, work, work” policies, recent employment growth has largely gone to households who already hold one or more jobs, and much less to jobless households. This discrepancy is significantly related to the way the labour market currently operates in a condition of rapidly expanding educational attainment that is not matched by a strong growth in the better-qualified occupations. With a polarisation of the occupational structure this mechanism tends to be further reinforced.

Given that situation in the labour market, there is no easy answer to the question how to tackle the mechanism of self-reinforcing labour-market inequality that undermines the level playing field for the less educated in society. The three dimensions that I have considered – rising educational attainment, growing part-time employment, and mounting dual-earners – are intricately related and all merit attention. See also Salverda and Brals (2016) and Salverda (2015b and 2015c).

Certainly, as long as educational bumping down and crowding out will continue, it will be inadequate to just try and raise the educational level of those at the bottom, as this will hardly change the queue of job seekers. Also Tony Atkinson’s (2015) interesting suggestion that the government might try to

steer technological development in a direction that is supportive of the least educated in their work, with the aim of easing their integration into employment, may fail as the better educated could profit from this all the same and may still crowd out the less educated for lack of better job opportunities. Solving the problem by simply adapting the qualifications of labour supply to those of labour demand, which some may be contemplating, would conflict with people's strong desires to learn as much as they can – and the proven social value of that. It would also seem undesirable, for several reasons. First, it is difficult to see how this can work without imposing strict limits on admission into educational participation at various levels. Technically it seems hard to predict the numbers with a specific education that are needed by society – even more so as there is not necessarily a one-to-one relationship between a certain education and a job. It may also hinder the development of jobs which do not yet exist. Second, such admission limits will likely come with considerable selection effects which may end up stimulating inequalities along other lines. Third, restricting numbers may reinforce mechanisms of closed shop, implying increased possibilities for strengthening the labour-market power and concomitant rent seeking of certain groups. Last but not least, daily social life is increasingly demanding a better education for the use of oyster cards, banking, internet shopping and security, etcetera. Ultimately, this may require a reconsideration of the strong employment and income expectations and/or entitlements that presently come with attaining higher levels of education. It may be combined with a broadening of the curriculum to address the needs social life on the principle of “not for labour but for life”.

However, even if the educational problem could be solved, significant inequality effects may remain as a result of the massive role of part-time employment in combination with households' labour supply. The effects of part-time employment might be reduced by regulating job size and adjusting income taxation. New regulation could be introduced following the French example where a new law introduced in 2013 stipulates 24 hours per week as the minimum size of a job to be offered on the labour market. Taxation and social contribution may also make working part-time more advantageous per hour worked compared to working full-time. It is a direct result of progressive income taxation and its usual focus on *annual* incomes and the corresponding structuring. Because of progressivity longer working hours face higher marginal rates. Structuring on an annual basis of e.g. tax rates and tax credit may add further bias. An example can be found in the Netherlands where the labour tax credit reaches a maximum at the level of the full-time full-year statutory minimum wage. Unsurprisingly, about 40 per cent of all working partnered women earn up to that level annually while at the same time only some three or four per cent of them may earn the minimum wage on an hourly basis. A minimum number of hours worked is requested in the existing British Family Credit and will be in a low-wage subsidy scheme the Dutch governments intends to introduce in 2017.

These measures may serve to eradicate the mini jobs but they will leave the larger part-time jobs intact. As a result, they might do away with most of the scenario of combining paid work with an education but not necessarily with the scenario that combines with domestic care. As a result, there would still be a need for redistributive compensation benefiting those – read the low educated – who can no longer secure a job with sufficient hours to make a living. In-work benefits together with an improved minimum wage cannot be missed for this purpose.

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Appendix

Some comparative trends between the Netherlands and the average of the nine comparison countries

Figure A.1 High educated share among employed adult women

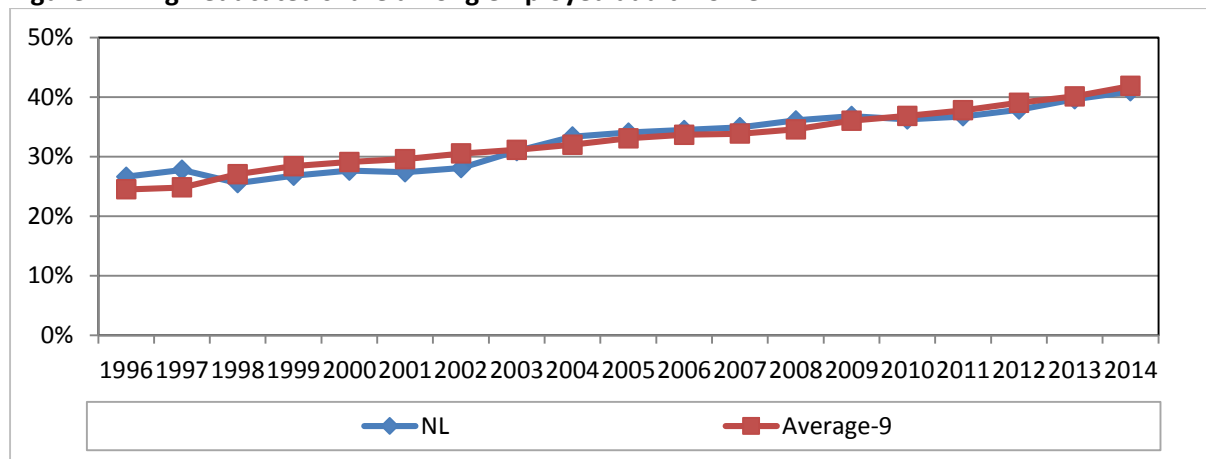


Figure A.2 Employment-rate gap between high- and low-educated adult women

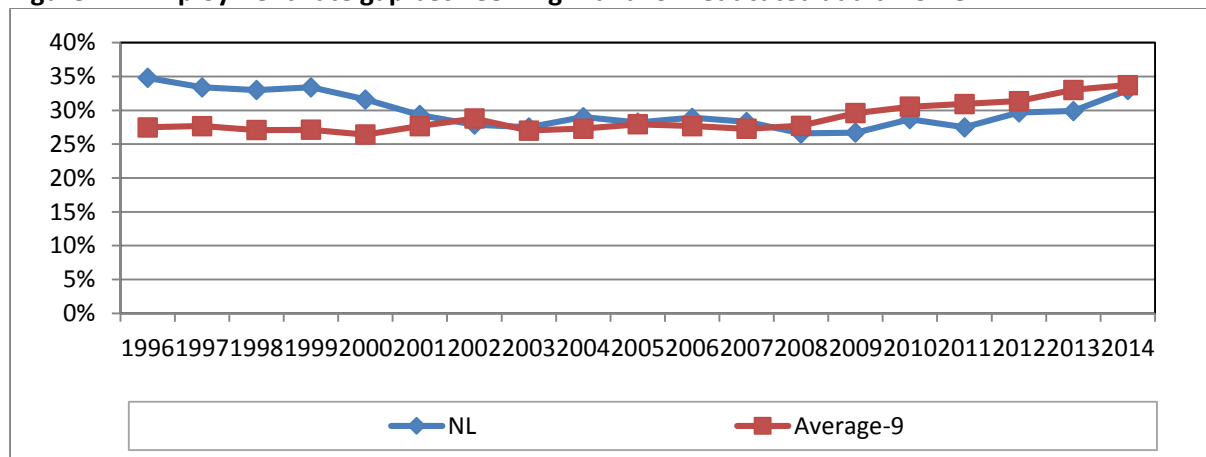


Figure A.3 Employment-rate gap between low-educated adult men and women (FTE)

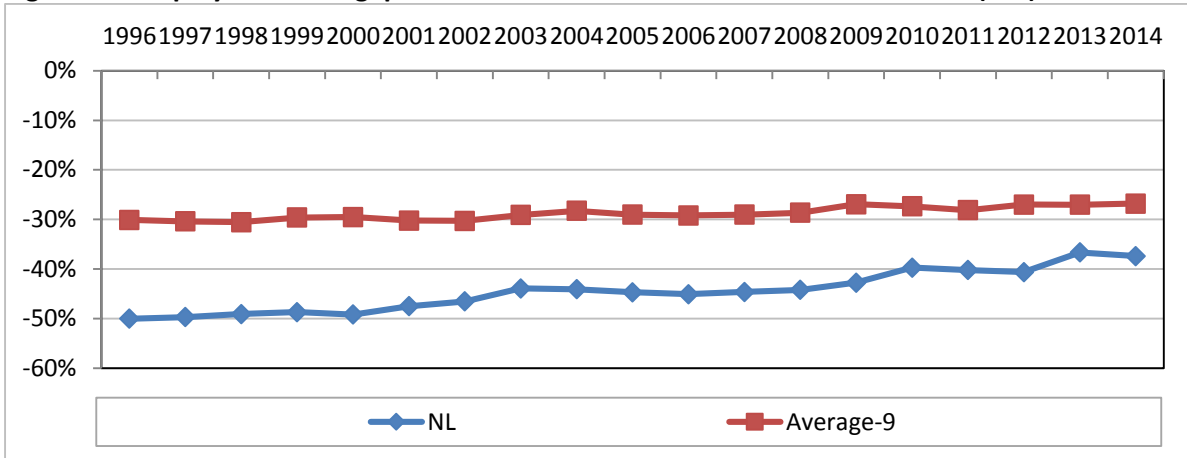


Figure A.4 Share of part-time jobs in total employment

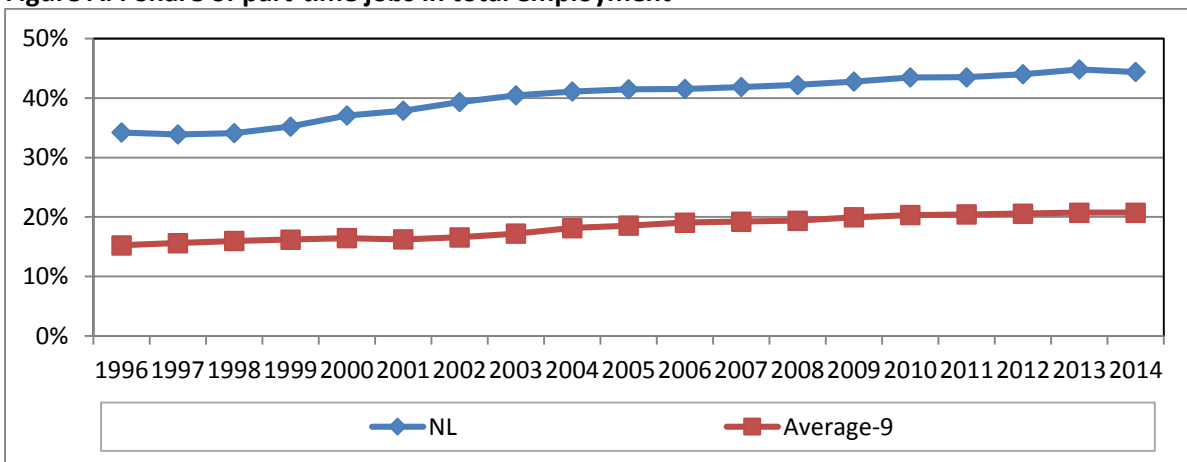
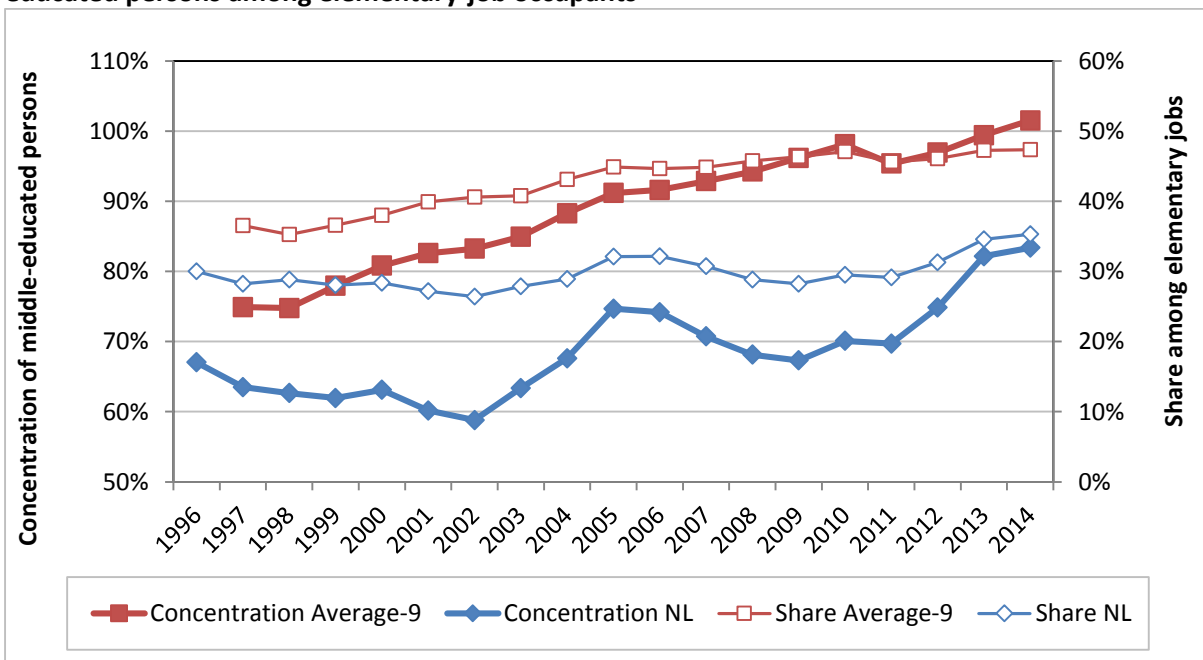


Figure A.5 Concentration of middle educated persons in elementary jobs and share of middle educated persons among elementary-job occupants



Note: Concentration on the left axis, shares on the right axis.

ImPRovE: Poverty Reduction in Europe.

Social Policy and Innovation

Poverty Reduction in Europe: Social Policy and Innovation (ImPRovE) is an international research project that brings together ten outstanding research institutes and a broad network of researchers in a concerted effort to study poverty, social policy and social innovation in Europe. The ImPRovE project aims to improve the basis for evidence-based policy making in Europe, both in the short and in the long term. In the short term, this is done by carrying out research that is directly relevant for policymakers. At the same time however, ImPRovE invests in improving the long-term capacity for evidence-based policy making by upgrading the available research infrastructure, by combining both applied and fundamental research, and by optimising the information flow of research results to relevant policy makers and the civil society at large.

The two central questions driving the ImPRovE project are:

How can social cohesion be achieved in Europe?

How can social innovation complement, reinforce and modify macro-level policies and vice versa?

The project runs from March 2012 till February 2016 and receives EU research support to the amount of Euro 2.7 million under the 7th Framework Programme. The output of ImPRovE will include over 55 research papers, about 16 policy briefs and at least 3 scientific books. The ImPRovE Consortium will organise two international conferences (Spring 2014 and Winter 2015). In addition, ImPRovE will develop a new database of local projects of social innovation in Europe, cross-national comparable reference budgets for 6 countries (Belgium, Finland, Greece, Hungary, Italy and Spain) and will strongly expand the available policy scenarios in the European microsimulation model EUROMOD.

More detailed information is available on the website <http://improve-research.eu>.

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