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Shortages in an ageing labour market: an analysis of employers' behaviour

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Different policies are being promoted to increase the labour supply in ageing labour markets. This article presents the results of a large-scale survey carried out among Dutch employers into their management of the constraints presented by a tight labour market. Organizations take different measures in response to staff shortages, which can in fact be distinguished as four strategies. The first relates to the recruitment of new groups of workers: groups that traditionally were perhaps not a preferred choice. The principal measures in this strategy are the recruitment of women and ethnic workers, and to a lesser extent the elderly. The second strategy focused on increasing the labour supply of existing workers. Overtime, encouraging part-timers to work extra hours and a structural increase in the length of the working week were part of this strategy. The measures constituting the third strategy were of a different type. Generally, these measures were adopted in order to cope with temporary peaks. Work was outsourced, a recruitment agency used, and higher wages offered to try to fill a vacancy. The fourth strategy focused on substituting technology/capital for labour. Regression analyses is carried out to explain which strategies organizations use to deal with shortages.

Keywords: ageing; employers; labour supply; workforce decline

Introduction

Most countries in the Western world are confronted with an ageing population. As a result of this demographic phenomenon a decrease is expected in the effective labour supply in the next few decades. Large baby-boom cohorts will reach retirement age in the coming years, and the question of how to deal with this outflow of workers is of paramount concern, not only for governments but also for individual employers (EC 2005). Projections for the European Union predict a declining labour force after 2010 (De Jong and Eding 2000; Bijak, Kupiszewska, Kupiszewski and Saczuk 2005). Moreover the number of regions within the European Union experiencing a labour force decline will increase sharply in the next two to three decades. De Jong and Eding (2000) calculated that around 2015 half of EU's labour force is located in regions with a declining labour force.

A variety of measures are being promoted to increase the labour supply in these ageing labour markets (Kok 2003, 2004). Raising the participation levels of older workers is a key objective of policymakers in most countries (OECD 2001). In addition, the United Nations (UN Population Division 2000) has suggested that European countries should allow large numbers of foreign immigrants to enter the European Union as a means to combat the ageing of their populations, despite mixed feeling of citizens regarding the number of foreigners (Van Dalen and Henkens 2005b). It is interesting to note that whereas these measures are frequently suggested, or even promoted, by national and international advisory boards, there is much less

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insight into how employers actually view the challenge of dealing with the expected decrease in the labour supply.

As a consequence of these demographic changes, it seems inevitable that a situation will result which differs fundamentally from that which organizations experienced in the final quarter of the twentieth century, when the labour market was chiefly characterized by excess supply. The labour market will change from a “demand-driven market”, in which employers are in a dominant position, to a “supply-driven market”, in which employees assume a dominant position. It is unclear how employers will respond to this change. In this respect, the Netherlands presents us with an interesting case study. Due to the economic expansion in the second half of the 1990s, the Dutch economy was confronted with – contrary to most other European countries – low unemployment rates, and employers were increasingly confronted with a situation in which on many occasions no, or only very few applicants responded to vacancies. The number of vacancies almost exceeded the number of unemployed people, after decades of excess in labour supply (see Figure 1). This implies that only the hard core of (long-term) unemployed of which one may wonder and worry whether they will ever be able to return to the labour market, had not succeeded in finding a job. Behaviour of employers became increasingly geared toward *filling* a pool of applicants instead of *selecting from* the existing pool (Bijsterbosch and Nahuis 2000; Lievens and van Dam 2001). The way in which Dutch employers responded to this development may be viewed as a prelude to a not-too-distant future, in which the effects of ageing work forces will not be masked any longer by high unemployment rates. As of then many European employers will be struggling to cope with a structural shortage of labour (Börsch-Supan 2002; Ekamper 2003, 2006).

Moreover, from a sociological point of view it is interesting to know who will be the winners and losers of these labour market developments. Is it true that increasing tightness in the labour market offers new opportunities for groups that have earlier been discriminated against, like women, older workers and immigrant ethnic minorities? And, if so, do they benefit equally and throughout the economy or do some groups benefit more than others, depending on factors like education and branch of industry? This is an important issue not only for the Netherlands which has been traditionally characterized by a high percentage of part-time workers and a low labour force participation of women, elderly and ethnic workers, but also for other European countries that have relatively high unemployment rates for these categories of workers.

Our study presents the results of a large-scale survey carried out among Dutch employers into their management of the constraints presented by a tight labour market. Data were gathered in spring 2002 among more than 1,000 companies and organizations, building on earlier studies into labour shortages and ageing workforces (Visser, Remery, Henkens and Schippers 2003).

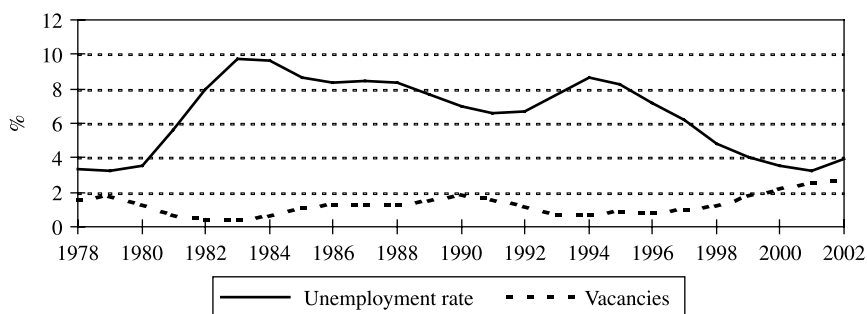


Figure 1. Unemployment rate and percentage of vacancies in the Dutch labour market 1978–2002. Source: Statistics Netherlands.

Earlier research has shown that employers who are confronted with a tight labour market intensify their search behaviour (Marsden and Campbell 1990; Breugh and Starke 2000; Russo, Rietveld, Nijkamp and Gorter 2000; Henkens, Remery and Schippers 2005). Effective recruitment methods may be the solution for an individual employer or group of employers. At the macro level, however, this cannot be a lasting solution unless there is an increase in total labour supply. According to economic theory, there are several ways employers can respond to changes in labour supply. In the event of an autonomous decline in the supply of labour, the employer – so neoclassical theory tells us – has two options in order to try to restore equilibrium. First, he can try to reduce his dependence on labour. Second, he can try to expand the supply of suitable labour (Perlman 1975; Lazear 1998).

In the light of economic theory, section two explores in more detail the various ways in which employers can restore the equilibrium between supply and demand. The measures – or combination of measures – that organizations take to tackle labour shortages depend on the internal and external constraints with which these organizations are confronted, including institutional pressure. The most relevant of these constraints will be discussed in the third section.

In the results section we compare the theoretically expected behaviour of employers with their actual behaviour. Here, we look at the measures that employers actually take. To understand better the combinations and the possible relationship between the measures taken, we explore whether there is a pattern to the combinations opted for: do organizations employ clearly recognizable strategies? Finally, we discuss the extent to which organizations are influenced by the constraints they face.

Theoretical background

Reducing dependence on labour

An alternative combination of capital and labour

If the production factor labour becomes scarce, an employer can opt to replace it by the production factor capital. It may also boost investments in technological development, and in so doing give rise to a restructuring of the economy. Usually, this structural adjustment and the choice for a new configuration of production is an option only in the long term. The marginal changes predicted by neoclassical economic theory are usually prevented by the lumpiness of the stock of capital goods, long-term contracts and other types of inflexibility which hamper changes in the combination of capital and labour overnight. In some cases, it might be an option to reorganize the work so as to shift the dependence on various categories of labour. By having more work carried out by workers from a category that is less scarce, the problem of scarcity can be obviated.

Relocating production

Relocating production elsewhere might also be a way to reduce dependence on labour. One can interpret this measure as a way of seeking new personnel in a geographical sense too. Over past decades, for example, a great deal of production has been relocated from Europe to Asia, which has a labour surplus. This example also shows that the process is a long-term one, which requires considerable investment and entails the destruction of sometimes substantial levels of capital. If the labour shortage is expected to be temporary rather than structural, outsourcing work might be a solution. Collaborating with other organizations – by creating a joint pool of labour for instance – is also a possibility, with work being outsourced to workers employed by another company.

Increasing the effort/deployment of existing worker

A third option to reduce the dependence on the external labour market is to make greater use of existing workers. This can be effected in various ways. First, existing workers may work longer hours (so increasing productivity per worker) by increasing the length of the full-time working week and having part-timers work full time. However, if employees are already in an equilibrium situation in terms of the number of hours (and corresponding income), working more hours will imply this equilibrium being abandoned – unless a new equilibrium between income and hours worked can be established by paying higher wages for those additional hours (Hartog 1992).

Second, companies can also try to improve the employability of their workers. In the event of “overcapacity” among some workers within an organization, it might be worth investing to increase the range of work they can carry out, and thus their employability. Generally speaking, as the employability of workers increases, so the risk of underutilizing those workers decreases (Ester, Muffels and Schippers 2001).

Third, employers can also try to limit their reliance on the labour market by reducing the number of workers leaving that market. Better opportunities to combine work and care for young children by offering different kinds of work-family arrangements reduce the risk that women will withdraw from the labour market (Remery, van Doorne-Huiskes and Schippers 2003b). Retirement reforms and personnel policies may stimulate older workers to extend their working career (van Dalen and Henkens 2002; Adams and Beehr 2003; Remery, Henkens, Schippers and Ekamper 2003a).

Expanding the supply of new labour

In principle there are two options, for a rational employer to expand the supply of new labour. First, ensuring additional labour is supplied by groups from which recruitment already traditionally takes place, and second by tapping into new groups of potential workers. Two key considerations play a role in both options: the relation between wage costs and productivity (“a worker must be worth his wage”), and the relation between actual productivity and the minimum productivity required: workers who lack (and cannot acquire) the necessary qualifications to carry out the work will not be employed – regardless of how cheap they are.

Offering higher wages

According to the neoclassical theory of labour supply, the best way to attract additional labour is to increase wages: higher wages “seduce” potential workers for whom wages were hitherto lower than the so-called reservation wage, i.e. the minimum wage for which they were prepared to join the labour market (Killingsworth and Heckman 1986). Wage drift theory predicts that these high wages will spread after some time to other companies and sectors, and may give rise to inflationary processes (Holden 1989; Hibbs and Locking 1996).

Less stringent job requirements

In the context of his job competition theory, Thurow (1975) and others have explained how employers categorize different individuals or groups. Thurow links employers’ preferences primarily to trainability. Phelps (1972) refers more generally to expected productivity and assumes that an employer’s experience with individuals from a particular category is projected onto all workers in that category. In this context, Becker (1957) has already pointed that employers might have “a taste for discrimination” against some groups. Job competition theory assumes that employers rank the available candidates in a fictitious order of preference

(a job queue) and select the candidates in turn, until their demand for labour has been met. In the so-called job queue the most productive employees are at the front; they are the first choice. If there are no first-choice workers available, or if they have all been selected, the employer has to resort to his second choice.

A number of target groups (women, older workers, ethnic workers and the disabled) is often identified as alternatives to the indigenous male labour force, which in many organizations traditionally constitutes the core of the workforce. From a job-search theoretical perspective (Phelps 1970), employers associate each of these groups to a greater or lesser degree with higher labour or training costs – or lower expected benefits in terms of output – compared with the reference group of indigenous male workers.

Opportunities, constraints and strategies

A basic tenet of the theory of organization is that organizations are goal-oriented systems that strive towards profit maximization, continuity and a healthy market position (Kalleberg, Knoke, Marsden and Speath 1996). These could be described as basic organizational goals. Labour shortages are assumed to hamper the realization of these organizational goals. The choices made by organizations with regard to the reduction of labour shortages will largely depend on the opportunities and constraints with which the organizations are confronted. Not all organizations will make the same choices. While one organization will rely primarily on the wage instrument to consolidate its competitive position in recruiting labour, other organizations might focus primarily on reducing the demand for labour. Institutional theory emphasizes the impact of the institutional environment on organizational practices. The institutional environment refers to rules and regulations, but also to norms and social expectations (e.g. Di Maggio and Powell 1983; Scott 1995). For example, when there is a general norm that the workforce of organizations should reflect the composition of the populations – such as is the case in the public sector – organizations may be pressured to tap into new groups of potential workers. In this article we will focus on the opportunities and constraints that relate to the *product market* and the place of the organization in the economic structure of society, as well as the *labour market*. We will elaborate on these constraints below.

Product-market constraints

The industrial sector within which an organization operates will partly determine the choices made to obviate labour shortages. Organizations that are subject to budgetary constraints – organizations especially in the collective sector – are less likely to offer higher wages to attract new labour. Their budgeting and remuneration systems tend to be fixed, and the transparency of employment terms within organizations in the collective sector is considerable. Industrial sectors in which the match between the education system and the inflow of new labour is less rigid will have a greater tendency to experiment with solutions involving changes to job requirements. One can assume that organizations in the public or the service sectors are able to demand less stringent requirements of new entrants than organizations in the healthcare and construction sectors, where workers are often required to undergo specialist training. Healthcare and construction are more likely then to resort to existing, trained staff. The options of less stringent job requirements and taking on new categories of workers from non-first-choice groups are more likely to be used by organizations in the public or service sectors. Because a rigid coupling between capital and labour is less important for the production process in these sectors, the option of expanding the range of tasks employees can carry out and increasing their employability is one relatively often resorted to (van der Lippe and Schippers 2005).

Organizations operating in a highly competitive product market are also likely to place greater reliance on increasing productivity among existing personnel than organizations that are able to postpone meeting demand or that can meet demand from stocks, for example. In a highly competitive market, the failure to meet demand (or the failure to meet demand on time) will be punished by loss of custom; this is not the case in less competitive or non-competitive markets.

Labour-market constraints

With respect to labour-market constraints we distinguish between the opportunities and constraints of the internal labour market and the opportunities and constraints of the external labour market.

The degree to which an organization can resort more to existing workers depends on the degree of potential spare labour. In this respect, the possibilities in an organization whose employees all work full-time are more limited than in organizations that employ many part-timers. The gains from making greater use of older workers depend on the number of older workers in the organization. An organization with a larger proportion of highly skilled workers is assumed to offer more scope to increase the range of work and for other measures designed to increase functional flexibility.

We assume that large organizations will be more likely than small organizations to absorb workers from new target groups. Large organizations often have greater scope to match workers and jobs more closely, and so do justice to the diversity of the labour supply.

Summarizing our hypotheses we expect:

- organizations in the collective sector to offer higher wages less often to attract new labour;
- organizations in the public or the service sectors to demand less stringent requirements of new entrants than organizations in the healthcare and construction sectors;
- that taking on new categories of workers from non-first-choice groups is more likely to be used by organizations in the public or service sectors;
- organizations operating in a highly competitive product market to place greater reliance on increasing productivity among existing personnel than organizations that are able to postpone meeting demand;
- organizations with a higher percentage of part-time workers and older workers are expected to turn to current staff for additional labour supply more often than organizations that employ mostly full-timers and youngsters;
- organizations with a larger proportion of highly skilled workers to increase functional flexibility more often than organizations with a smaller proportion of highly skilled workers; and
- large organizations to be more likely than small organizations to absorb workers from new target groups.

Methods

Data

In May 2002 a questionnaire was sent to 3,433 companies and organizations with more than nine employees (see Visser et al. 2003). The names and addresses of the private-sector organizations were taken from a sample drawn from the trade register of the Chamber of Commerce. To include public-sector organizations, questionnaires were sent to all Dutch municipalities, general hospitals, nursing homes and homes for the elderly. The total response rate was 31% – lower than the average response of individual surveys but substantially higher than the response generally found in corporate surveys. In Europe and the United States, response rates have been

found to be at most 20 to 30% (see Brewster, Hegewisch, Mayne and Tregaskis 1994; Kalleberg et al. 1996). The questionnaires were completed by a board member/managing director (21%), the company owner (8%), office manager/plant manager (7%), head of personnel (35%), or by a personnel officer (19%), an administrative member of staff (6%) or a head of team/section or department (4%). About 60% of respondents were men, and their average age was 44. The breakdown of responses by industrial sector was as follows: health/welfare (30%), manufacturing/construction (23%), services (banking, transport, insurance, trade, hotels and restaurants) (25%) and local government (22%).

Variables

Measures to deal with labour shortages

The questionnaire included 19 measures. For each of these measures respondents were asked whether it “is being implemented”, “is being or will be considered” or “will not be considered”.

Measures to limit the demand for labour focus on the organization of work (in the form of investment in labour-saving technology), collaborating with other organizations, and outsourcing. Another option to limit demand is to relocate production capacity to a different region within the Netherlands or abroad. Measures relating to the greater use of existing personnel were also included: increasing the length of the full-time working week through overtime, and asking part-timers to work more hours. Respondents were also asked about measures to increase the employability of workers and retain older workers. This last variable was operationalized by asking respondents whether they encouraged workers to continue working until they reach the age of 65.

Measures to increase the supply of labour include offering higher wages, less stringent job requirements, and recruiting among specific target groups (women, the elderly, ethnic workers and the disabled). Respondents were also asked whether they were recruiting new personnel from abroad, and whether use was being made of employment and recruitment agencies to find additional staff.

Product-market constraints

First of all, managers were given a list of industrial sectors (as defined by Eurostat 1990) and asked to indicate the sector in which their own organization operated. We grouped these industrial sectors into the following more general categories: manufacturing/construction, services, local government and health/welfare.

Second, to gain an insight into the level of competition faced by these organizations, respondents were asked to indicate whether their organization operated in a competitive market. The answer categories were: “yes, we operate in a strongly competitive market,” “yes, we operate in a fairly competitive market,” “there is a market, but competition is almost absent” and “there is no market”.

Labour-market constraints

The degree of perceived tightness in the labour market was measured by asking respondents to what extent they encountered problems finding staff. The answer categories were: “for a relatively large number of positions,” “for some positions,” and “hardly ever”. The unemployment rate in the local labour market region (we distinguish 40 regions in the Netherlands) in which the organization was based was added to the database as an indicator of the local labour market situation faced by the companies¹.

We used four indicators relating to the internal labour market constraints confronted by employers. First, the workers' level of education was determined by asking managers to give the percentage of highly educated staff (higher vocational training or university level) within the organization (continuous variable). Second, we measured the percentage of workers aged 50 or over. Third, we determined the percentage of staff working part time. Finally, we included company size as measured by the number of employees as a variable in the analyses.

Analyses

Factor analysis was used to identify the relationship between the 19 different measures to deal with shortages, and to find out whether this relationship can be expressed in terms of a number of dimensions. Principal components analysis is a statistical technique that linearly transforms an original set of variables into a substantially smaller set of uncorrelated variables that represent most of the information in the original set of variables (Dunteman 1989).

Factor analysis was used with principal components analysis and varimax rotation, by far the most commonly used rotation algorithm. Rotation results in variables loading primarily on one factor and having either high or low loadings on a factor, and hence in many instances brings about a simplification of the initial solution, where variables might have moderate loadings across a number of factors (Dunteman 1989). The simplicity of the rotated factor loading matrix makes interpretation easier. The factor scores are calculated as a factor loading-weighted average of all items. All analyses have also been carried out using promax rotation. This did not change our results however.

For the explanatory analyses, we used multivariate regression analysis. The dimensions of the strategies were used as dependent variables and the organizational and labour market characteristics were used as independent variables.

Results

Labour shortages

Table 1 summarizes by sector the degree to which organizations were experiencing labour shortages. Over two-thirds of organizations indicated that they were encountering problems finding staff. Most (52.5%) said they were experiencing problems finding staff for some positions, and almost one in five organizations had problems finding staff "for a relatively large number of positions". Of respondents, 30% said that, as a rule, they had no problems finding staff.

There are clear differences by sector ($\chi^2_{(6)} = 32.8; p < 0.01$). A quarter of organizations in manufacturing/construction had difficulties finding workers for a relatively large number of

Table 1. Degree to which organizations were experiencing problems recruiting labour, by sector 2002 (%).

Sector	For a relatively large number of positions	For some positions	Hardly ever	Total %	N
Manufacturing/construction	25.1	42.9	32.0	100	220
Services	15.6	46.0	38.4	100	250
Local government	15.4	62.5	22.1	100	272
Health/welfare	18.3	55.4	26.3	100	312
Average	18.3	52.5	29.2	100	1054

positions. This figure was higher than the average for the other sectors. A relatively high proportion of organizations in local government and to a slightly lesser extent in health/welfare had problems finding staff for some positions. In the service sector 38% of organizations hardly ever had problems; in the manufacturing/construction sector the figure was 32%.

Measures to reduce the demand for labour

Table 2 summarizes the measures that organizations take to tackle the problem of staff shortages. These measures are first categorized as either demand-reducing or supply-generating, and then grouped according to their popularity with employers. The percentages are presented separately for organizations with many staffing problems, organizations with some staffing problems and organizations with no problems to fill their vacancies.

Collaborating with other organizations is most frequently mentioned as a solution to staff shortages. Increasing the employability of workers as a way to reduce the demand for labour was the second most frequently mentioned measure. Almost half of the organizations with staffing problems were already outsourcing work or encouraging staff to work overtime. Almost one in three organizations were encouraging part-timers to work extra hours to cope with their staff shortages.

Table 2. Measures taken by organizations in response to current or near-term staff shortages 2002 (N = 1054).

<i>Measures</i>	<i>Staffing shortages</i>		
	<i>For a relatively large number of positions (N = 193) %</i>	<i>For some positions (N = 553) %</i>	<i>Hardly ever (N = 308) %</i>
To reduce the demand for labour			
Collaborating with other organizations	63	52	34
Increasing the employability of workers	50	49	31
Outsourcing work	48	43	27
Encouraging staff to work overtime	48	36	16
Encouraging part-timers to work extra hours	33	35	18
Substituting technology for labour	18	15	18
Encouraging workers to continue working until the age of 65	18	17	10
Increasing the length of the full-time working week	4	6	4
Relocating production capacity abroad	3	1	2
Relocating production capacity to another region within the Netherlands	1	1	1
To increase the supply of labour			
Using employment and recruitment agencies	79	69	40
Reintegrating the disabled	52	48	32
Recruiting ethnic workers	48	39	27
Recruiting more women workers	44	45	28
Offering higher wages	35	28	14
Recruiting more elderly workers	19	23	11
Recruiting staff from abroad	16	8	6
Less stringent job requirements	14	10	2
Calling back retired employees or staff who have taken early retirement	9	9	4

Measures focusing on substituting technology for labour contribute more to a structural solution to shortages in the labour market, albeit only in the longer term; however, such measures were being implemented by few of the organizations that responded. In addition, respondents gave little priority to encouraging workers to continue working until they reach the age of 65.

The other measures were mentioned hardly at all. One should note though that for many companies relocating production capacity abroad is not an option. Almost all the companies that have relocated production are in the construction and manufacturing industries, where 7% of organizations said they had already relocated capacity.

Measures to increase the supply of labour

Employment and recruitment agencies are frequently used to increase the supply of labour. No fewer than 79% of organizations with staffing problems for many positions said that they used such agencies to try to resolve staff shortages. Moreover, organizations that experienced no difficulties in the recruitment of personnel use this measure frequently.

The second most popular measure reported was to reintegrate the disabled. The recruitment of more women and ethnic workers was also frequently mentioned. One in four organizations regarded pay rises as a remedy for shortages in the labour market, and a third said they expected to increase wages if labour continued to be scarce or if they were confronted with staff shortages. Relatively little priority was given to increasing the labour supply by making greater use of older workers.

Calling back retired employees or staff who had taken early retirement was seldom mentioned as an option (only 9% in case of staffing problems). Recruiting staff from abroad and introducing less stringent job requirements seem to be only options when there are staffing problems with a large number of vacancies.

Strategies in the event of staff shortages

Can a pattern be discerned in the behaviours and preferences regarding measures to deal with a tight labour market? Did some organizations focus primarily on reducing the demand for labour and others on increasing the supply of labour? It can, however, also not be ruled out that there is no relationship at all between different measures and that only one dimension is relevant: organizations do “much” or “little”. From a theoretical perspective there is no *a priori* reason to expect specific strategies to emerge. We used factor analysis to determine whether there is a relationship between the various measures to obviate staff shortages. With the help of factor analysis (varimax rotation), scores for the 19 measures to deal with staff shortages were reduced to four factors with an eigenvalue greater than 1. The results of this analysis are given in Table 3. Each of the constructed factors reflects a series of measures that relate to a particular strategy. These new constructed variables are given a name corresponding to the variables that correlate highly with them (correlation coefficient > 0.35). We then denote these new variables as the strategies for dealing with staff shortages.

Strategy 1: Tapping into new target groups

The first dimension can be termed “tapping into new target groups”. *Recruiting more women workers, recruiting more elderly workers, recruiting more ethnic workers and reintegrating the disabled* load high on factor 1. This means that, relatively speaking, organizations often implemented these measures in combination. *Increasing the employability of workers* also scores high on this dimension. This factor explains 12% of the variance in all the measures.

Table 3. Results of factor analyses (with varimax rotation) of measures to cope with staff shortages.

<i>Measures to cope with staff shortages</i>	<i>Factor 1</i>	<i>Factor 2</i>	<i>Factor 3</i>	<i>Factor 4</i>
Offering higher wages	.00	.10	.53	-.16
Encouraging staff to work overtime	.07	.44	.21	.11
Recruiting more women workers	.68	-.04	.06	.06
Less stringent job requirements	.06	.25	.07	.00
Encouraging part-timers to work extra hours	.35	.53	-.20	-.12
Recruiting staff from abroad	.03	.16	.07	.52
Relocating production capacity to another region within the Netherlands	.08	.02	-.13	.60
Relocating production capacity abroad	-.08	.01	-.04	.73
Increasing the length of the full-time working week	-.10	.40	.27	.23
Recruiting more elderly workers	.51	.35	-.06	.02
Encouraging workers to continue working until the age of 65	.31	.47	.07	-.01
Substituting technology for labour	.22	-.16	.22	.57
Increasing the employability of workers	.49	.01	.31	.19
Recruiting ethnic workers	.75	.10	.06	.06
Reintegrating the disabled	.64	.30	.05	-.05
Outsourcing work	-.06	-.00	.74	.19
Using employment and recruitment agencies	.29	.10	.61	.10
Collaborating with other organizations	.16	.31	.44	-.15
Calling back retired employees or staff who have taken early retirement	-.00	.72	-.02	.01
Eigenvalue	2.34	1.82	1.74	1.69
R ²	12.31	9.57	9.18	8.91

Strategy 2: Increasing the supply of labour from among existing workers

The second dimension can be termed “increasing the supply of labour from among existing workers”. The following measures load high on factor 2: *encouraging staff to work overtime*, *encouraging part-timers to work extra hours*, *increasing the length of the full-time working week*, *encouraging workers to continue working until the age of 65* and *calling back employees who have taken early retirement*. This factor explains 10% of the variance in the measures.

Strategy 3: Outsourcing work and collaborating

The third dimension can be termed “outsourcing work and collaborating”. Factor 3 has high scores for *outsourcing work*, *using employment and recruitment agencies*, *collaborating with other organizations* and *offering higher wages*. This factor explains 9% of the variance in the measures.

Strategy 4: Structural adjustments

The fourth dimension can be termed “structural adjustments”. Relocating production capacity to another region within the Netherlands or abroad and substituting technology for labour load high on this factor, as does recruiting staff from abroad. The fourth factor explains also about 9% of the variance in the measures.

Clearly, each of these four strategies combines both demand-reducing and supply-generating measures. However, in the case of “tapping into new target groups” the emphasis (logically) was on expanding the labour supply. Recruiting from among new target groups was often combined though with measures to increase the employability of workers. Within the strategy “structural

adjustments” the emphasis was largely on demand-reducing measures. The two other strategies identified had no specific orientation; the accent was neither specifically on the demand side nor on the supply side of the labour market. Apparently, employers scarcely ever made the distinction – emphasized so emphatically in economic theory – between demand-reducing and supply-generating measures. However, the distinction between the short-term and the long-term did seem relevant: the fourth strategy in particular, but also the first, focus more on long-term structural solutions, whereas the second and third strategies focus primarily on the short-term.

Explaining the strategies used to cope with staff shortages

We assume that the choice of strategy is determined by the restrictions with which organizations are confronted on the product and labour markets. The results of our multivariate regression analysis, with the four strategies as the dependent variables, are given in Table 4.

The first column of figures (with the *t* values in the second column) gives the results of our analysis of why employers opt for strategy one (“tapping into new target groups”). This strategy was largely dictated by labour market considerations. The greater the need for staff, the more employers tried to solve the problem of staff shortages by resorting to new categories of workers. In addition, this strategy is more often used in larger organizations and organizations in the service sector and in the health and welfare sector.

“Increasing the supply of labour from among existing workers” (columns 3 and 4) was also a strategy to which employers were more inclined to resort as staff shortages became greater. One of the attractions of this strategy is that existing staff do not need to be trained and inducted, and it was used partly in response to pressure from the market. Organizations facing strong competition in the market were more likely to try to increase the supply of labour from among existing workers, as do organizations in local government and the health and welfare sector. The size of the organization had no influence on the degree to which this strategy was used. Surprisingly, the composition of the existing workforce (in terms of level of education, age, or proportion of part-timers) appeared to have had no effect on the degree to which this strategy was employed, nor did the level of competition on the product market play a role. The third strategy (“outsourcing work and collaborating”) (columns 5 and 6) seems primarily focused on absorbing peaks and troughs in the demand for labour and ensuring flexibility in the labour supply. Again, this strategy is more common in organizations that report staff shortages. In addition, it was used mainly in local government and less often in case the proportion of part-timers was relatively high.

Unlike the first three strategies, the fourth strategy, “structural adjustments” (columns 7 and 8), was not primarily dictated by specific difficulties in finding staff. It was resorted to more often by larger organizations – almost all of them in the manufacturing/construction sectors. None of the other explanatory variables we have included influenced the degree to which this strategy was used.

Remarkably, the long-term “structural adjustments” strategy was the only strategy *not* to have been influenced by the degree to which organizations were experiencing difficulties finding staff at the time of the survey. Apparently, Dutch organizations that are engaged in a structural review of staffing policy use this strategy quite separately from the issue of specific labour shortages (van der Lippe and Schippers 2005).

Conclusions and discussion

Organizations take a variety of measures in response to staff shortages. One can in fact empirically distinguish four strategies (coherent clusters of measures). The first relates to the

Table 4. Strategies of measures to cope with staff shortages: results of multivariate regression analyses.

<i>Explanatory variables</i>	<i>Unstandardized regression coefficients (t values)</i>							
	<i>Tapping into new target groups</i>		<i>Increasing the supply of labour from among existing workers</i>		<i>Outsourcing work and collaborating</i>		<i>Structural adjustments</i>	
Constant	-0.29	(-1.67)	0.20	(1.22)	0.89**	(5.49)	0.59**	(3.72)
Product-market constraints								
Manufacturing/construction sectors (reference category)								
Local government sector (1 = yes) ^a	0.15	(1.26)	0.33**	(3.09)	0.53**	(5.11)	-0.99**	(-9.31)
Service sector (1 = yes) ^a	0.20*	(2.08)	-0.19*	(-2.13)	-0.07	(-0.79)	-0.42**	(-4.74)
Health and welfare sector (1 = yes) ^a	0.30*	(2.09)	0.66**	(4.94)	-0.20	(-1.49)	-0.88**	(-6.67)
Market forces	0.00	(0.09)	0.08**	(2.68)	0.03	(1.03)	0.03	(1.02)
Labour-market constraints								
Regional unemployment rate	-0.02	(-0.54)	-0.04	(-1.49)	-0.01	(-0.29)	-0.02	(-0.67)
No staffing problems (reference category)								
Staffing problems some positions	0.25**	(3.54)	0.29**	(4.34)	0.48**	(7.60)	0.06	(0.98)
Staffing problems many positions	0.36**	(3.90)	0.37**	(4.37)	0.60**	(7.36)	0.06	(0.66)
Size of the organization / 1,000	0.07**	(2.82)	0.01	(0.57)	0.03	(1.66)	0.07**	(3.09)
Percentage of part-time staff	0.12	(0.73)	0.28	(1.78)	-0.92**	(-6.06)	-0.23	(-1.44)
Percentage of highly educated workers	-0.07	(-0.44)	0.01	(0.06)	-0.22	(-1.64)	0.21	(1.55)
Percentage of workers over 50 years	0.28	(0.98)	0.25	(0.92)	0.21	(0.82)	-0.28	(-1.08)
Adjusted R ²	3.9		16.4		24.8		19.4	

* Significant at p < 0.05; ** significant at p < 0.01.

recruitment of new groups of workers: groups that traditionally were not perhaps a preferred choice (such as women and ethnic workers and to a lesser extent the elderly). Reintegrating the disabled and increasing the employability of existing workers were also part of this strategy. The second strategy focused on existing workers. Overtime, encouraging part-timers to work extra hours and a structural increase in the length of the working week were part of this strategy. This also holds for the greater use of older workers and calling back workers who had recently retired. One should note, however, that very few organizations actually encouraged workers to continue working until they reached the age of retirement (65), and calling back retired employees or staff who had taken early retirement was given no priority whatsoever. The measures constituting the third strategy were of a different type, and seemed designed more to ensure the continuation of current activities than to reduce the structural shortage of staff. Generally, these measures were adopted in order to cope with temporary peaks. Work was outsourced, a recruitment agency used, and higher wages offered to try to fill a vacancy. As regards the fourth strategy, a few organizations focused on substituting technology/capital for labour. Measures extending to the geographical relocation of production were the preserve of a select group of organizations, mostly from the manufacturing/construction and service sectors; local government simply did not have this option. All the strategies included a mix of demand-reducing and supply-generating measures. However, there was a clear distinction between strategies focused on the short term (“increasing the supply of labour from among existing workers” and “outsourcing work and collaborating”) and strategies focused on the long term (mainly “structural adjustments” and to a lesser extent “tapping into new target groups”). The question as to why some organizations adopt a short-term strategy while others focus more on the long-term lies beyond the scope of the present study, but it is certainly an issue deserving attention.

Our explanatory regression analyses show that the responses to labour shortages differ substantially by industrial sector. The service sector, as well as the health and welfare sector, is more involved in recruiting new target groups. This was only partially in accordance with our hypothesis which assumed that the service sector demands less stringent job requirements in terms of educational background. The finding that also the health and welfare sector is recruiting from new target groups may be due to the fact that both the service and the health care sector experienced the largest growth in workforce over the last few decades. Apparently organizations in these sectors are already aware of the necessity to look beyond traditional borders.

With regard to increasing the supply of the existing workforce it is clear that labour shortages put pressure on existing employees. Interesting is that we find this option more in the local government sector, and the health and welfare sector. These sectors have been confronted over the years with substantial budget cuts and a halt on recruitment on the external labour market, which stimulated a focus on their own workforce. Finally, the results with respect to the structural adjustments suggest that these measures take place irrespective of labour market considerations. The results suggest that organizations that opt for the structural adjustments operate in the global economy in which technological innovation is the most important cause of productivity growth. This introduction of new technology increases the specific demand of highly educated workers that are recruited in the international labour market. Companies that opt for structural adjustments are also more inclined to relocate production capacity abroad.

Dutch employers are busily adjusting to the new situation in the labour market, which seems to have changed structurally when compared with the past. Demographic developments point largely in the direction of growing shortages in the labour market. Nonetheless, the structural character of these shortages is only gradually being appreciated. This is why – as economic theory predicts and our study also shows – many organizations initially rely on their existing workforce when faced with staff shortages, with possible negative effects on workers job pressure and work-life balance. Government policies aimed at promoting labour participation of

groups that still lag behind in this respect can also contribute to preventing the loss of workers through sickness or disability, since it offers an alternative to overtime and to increasing pressure on existing workers. For many employers, recruitment among non-traditional groups is a step towards solving staff shortages. Interestingly, many employers view the reintegration of disabled workers as a solution for their staffing problems. Apparently, employers assume a substantial work capacity among disabled workers underscoring earlier estimates of hidden unemployment (Koning and van Vuuren 2007). However, in the future, individual employers will increasingly find that they are fishing in the same pond as their colleagues and competitors. An important result of this study is that even in the case of severe labour shortages few employers aim at increasing the number of older workers. This result underscores the finding of van Dalen and Henkens (2005b) that there is a double standard in attitudes towards retirement. While agreeing that working longer may well become necessary in the future, workers and employers still do not think it will apply to them individually.

Note

1. Note, however, that not all organizations depend on the local labour market to the same extent. In particular, companies with a relatively highly educated workforce rely more on the national labour market than on a local or regional market.

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