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## WORKLOAD AND JOB SATISFACTION AMONG POLICE OFFICERS IN TWO JOB CATEGORIES

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## SUMMARY

This paper deals with the workload of two groups of police officers: neighbourhood police officers and team leaders C. For our empirical analyses we make use of the data from a survey among the two groups. According to this survey many of them feel that they have too much work to do, while only few feel underloaded. In terms of skills it is quite the opposite: many experience an underutilisation of their skills, while relatively few report a lack of skills for their job. Emotional imbalance also plays a role: about 37 percent of neighbourhood police officers have regularly or often experienced events during their work that strongly touched them emotionally. Of these indicators, workload imbalance with respect to the quantity of work has by far the highest correlation with satisfaction with the workload. Emotional events from the past have some influence, but the utilisation of skills appears to have no significant influence at all on satisfaction with the workload.

First we investigate to what extent satisfaction with the workload affects overall job satisfaction by regressing the latter on satisfaction with the workload, other job aspects and personal characteristics. Satisfaction with the workload appears to be an important determinant of overall job satisfaction. Its weight in overall job satisfaction is higher than that of the other job aspects apart from job content, which has the highest weight in overall job satisfaction. Satisfaction with the workload captures both overload in terms of the quantity of work and emotional imbalance, but it is not correlated at all with the underutilisation of skills. However, if we add the latter variable to the regression for overall job satisfaction, it appears to be insignificant. Although underutilisation of skills appears not to be important for police workers, it is still important for the police organisation, as it points to inefficient use of labour.

Then we run regressions for two measures indicating imbalances between workload and work capacity, the first one relating to the quantity of work and the other one relating to the utilisation of skills. An important finding is that the discrepancy between the quantity of the work that needs to be done and what a police officer can handle mainly depends on organisational factors. In case of neighbourhood police workers the factors involved are job autonomy, work scheduling, the role of the supervisor and overtime. In the regression for team leaders C support services and overtime are significant. For both groups neither the content of the work nor the contacts with colleagues is significant. For both groups underutilisation of skills appears to diminish with age. Furthermore, higher educated workers are more likely to underutilise their skills. For team leaders C underutilisation of skills is also correlated with the satisfaction with support services. This is probably caused by the fact that poor quality services imply that team leaders must spend a lot of time on activities that could also be carried out by lower qualified workers.

Our results suggest that the quantitative and qualitative imbalances between workload and work capacity can be reduced by the following organisational measures: 1) improving work schedules by giving neighbourhood police workers a greater role in the work scheduling process, 2) improving supervision, coaching and personnel management, 3) improving support services by bringing at least part of these services under the control of regional police management again, and 4) reducing overtime. The imbalances cannot simply be solved by attracting more people, but the latter is also part of the solution. Team leaders need more assistants who can take over some of their duties, particularly in the field of supervision, coaching and personnel management. Only then problems in the field of workload can get enough attention, both in a preventive and a curative sense. More staff in other job categories would reduce the need to deploy neighbourhood police workers in tasks that do not belong to their job.

Finally, we pay attention to the fact that the police does not make optimal use of the data it has. In principle, it is possible to enrich survey data with administrative data. Furthermore, a longitudinal database could be created by linking data from different years. This type of data is much more suitable for investigating causal relationships than the data we used in this paper.

## INTRODUCTION

This paper deals with the workload of police officers in the Netherlands and its impact on job satisfaction. Surveys among police officers (Schouten and Nelissen (2016, 2017) indicate that many among them have too much work to do. At the same time, these surveys provide evidence that work underload is also prevalent. However, it appears that work overload primarily refers to the quantity of work, while in most cases work underload has to do with underutilisation of skills. Furthermore, many police officers are confronted in their work with situations that affect them strongly emotionally, physically or both. This may have lasting negative effects on their work capacity, which may lead to work overload.

The first question we are dealing with is what the weights of overload and underload in overall job satisfaction are. Are overload and underload the most important determinants of job satisfaction or are factors like job content and the role of supervisors equally important or even more important? The second central question is which factors influence work overload and work underload. According to the job demands-resources model improving job aspects that are valued positively by a worker will increase the quantity of work he can manage and will therefore reduce work overload. We will test this hypothesis.

The surveys referred to were held on behalf of the police organisation. The micro data from these surveys are not available for research. Therefore, for a study by De Koning et al (2018) dealing with work overload among police officers, a new survey was held. This study presents descriptive statistics and the results of interviews and group discussions. For our present paper we used the survey data to carry out multivariate analyses with respect to job satisfaction and workload. In this way the central questions could be tested more rigorously. However, the 2018 study contains qualitative information that provides valuable additional information about factors that could not be included in the econometric analyses. In the paper we refer to this information in some cases.

Our survey is conducted among two categories of police officers: team leaders C and neighbourhood police officers. A team leader C manages a group of police officers with executive police duties. The group size varies, but some team leaders C are responsible for more than 100 police officers. Team chiefs are not only supposed to manage their teams, but also have considerable freedom in decision-making concerning the actions taken with respect to crime and other problems. A neighbourhood police officer works together with other colleagues like colleagues involved in surveillance or crime investigation. He has many contacts in his neighbourhood and knows what is going on there, which makes it possible to prevent problems or solve them at an early stage. Prevention of radicalisation of young people is an example of the issues neighbourhood police workers are dealing with. The outcomes of the previous surveys held in 2017 and 2018 suggest that overload and underload is also common among other executive job categories within the police force. Therefore, our results are probably exemplary for a much larger group of police officers. The police organisation is planning new studies involving other job categories than team leaders C and neighbourhood police officers.

The fact that overload and underload occur so often may at least partly be due to major changes that took place in 2013. First, a new job classification system was introduced which considerably reduced the number of job categories and changed their content. Many police officers complain that their current job is not as well matched to their skills as their old job. Neighbourhood police officers, for example, are now supposed to involve other police experts in their work in the neighbourhood, while they used to do the work all by themselves. Another factor causing major changes was the introduction of the new Police Act, which implied a complete reorganisation of police work.<sup>i</sup> Police districts used to have a considerable degree of autonomy, which resulted in a large variety in the organisation of the work. Now there is one national police organisation organised in districts and basic teams covering all police functions.<sup>ii</sup> All regions and teams are now organised according to the same principles. The introduction of the new Police Act was accompanied by a major budget cut for the police, which meant that for several years staff who retired or left for another job could not be replaced. Furthermore, the new Police Act led to centralisation of support services. Executive police officers must now communicate their demand for these services via a digital system. Service workers in the police organisation do no longer provide these services. Instead, they supervise external providers that are contracted. This procedure must even be followed if a bulb needs replacing. This has caused a huge

bureaucracy and slow service provision. Several reports have concluded that so far, the new job classification system and the new Police Act have not led to improvements, but rather to a deterioration of the situation (Veldhuisen et al., 2017; Ministry of Justice and Security, 2017).

Imbalances between work capacity and workload among police officers can have negative effects. When a police officer is overloaded for a long time, this can lead to health problems and reduced employability. And if overload is quite common among police officers, as some studies suggest, this could cause growing absence due to sickness and, eventually, disability, a further increase in the workload for the remaining police officers and even more sick and disabled police workers. A vicious circle. Consequently, the need for new recruits, which is expected to increase strongly as the workforce is ageing and many police officers will go on retirement in the next decade, will further grow. The capacity of the police academy is not sufficient to train the required number of new recruits. Furthermore, the number of young people is declining and the police must increasingly compete with other sectors for the young people available. Therefore there are major concerns as to whether the police will be able to continue to perform their duties properly.

The paper is structured as follows. The next section provides the analytical framework for the paper and discusses the available literature about workload and job satisfaction. Then we present the outcomes of our explanatory analyses for job satisfaction, the ratio between workload and work capacity in terms of the quantity of work and the ratio between required skills and available skills. This is done in three sections. In each section results are presented for neighbourhood police workers and team leaders C separately. The final section summarises the outcomes and discusses the policy implications.

## ANALYTICAL FRAMEWORK

If a person's workload is higher than he is capable of, he is likely to experience work overload. If the reverse is true, there is a situation of underload. Work has different dimensions: the quantity of it, the skills it requires and the emotions it evokes. On all three aspects there is a limit to what workers can take. On all three aspects an imbalance may occur, either overload or underload. Not in every case a discrepancy between workload and capacity will be seen as something negative by the workers. Suppose that a worker has less work to do than he could manage during his working time. For some, this means boredom and is therefore negative. But others may be quite happy with this situation.<sup>iii</sup> Similarly, workers may not always feel bad if their work requires less skills than they could provide, particularly if they can use some of these skills in free-time activities that are less stressful. For others paid work will play a central role in fulfilling their aspirations in terms of income and achievements. For these workers underload will be a negative thing. Finally, it is difficult to imagine that a person would feel negative about a situation in which his work is giving less emotional stress than he can take. Underload does not seem to be that relevant here. Overall our hypothesis is that while work overload will be generally seen as a problem by workers, this will not always be the case for underload.

Possibly, there is a connection between the three aspects of workload. Suppose that a worker is over-skilled for his job. Then it is possible that he can organise his work more efficiently and be more productive than a worker with less skills doing the same type of job. Then the higher skilled worker is less likely to face work overload than his less qualified colleague. An under-skilled worker is more likely to face work overload. It also seems likely that workers experiencing negative psychological effects of events from the past are less able to do their work properly. This would mean that they are more likely to report work overload.

In this paper we measure work overload and work underload based on the experiences as reported by police officers. However, are the latter always a reliable source? During the last couple of years reducing work overload has been one of the key objectives of the unions of police officers, but only recently the police organisation and the Ministry of Justice and Safety have recognised that the unions have a point in their claims on this point. The fact that until recently overload was not recognised may have induced police officers to over-report it. However, one could also argue for an element of under-reporting. As we will show later in this paper most police officers like their work and are very motivated for it. This work ethic induces them to work hard. Furthermore, executive police work implies that officers must frequently work overtime and during the weekend. For many, work time is irregular. The effects of working too hard will often not be felt immediately, but only after several years. Particularly if one likes one's work there might be a tendency to ignore signals of health problems. What adds to this problem is that in the police culture there is not much room for

complaining. Therefore, it is quite possible that police officers are working harder than is healthy for them, but do not report work overload until serious health problems become visible.

Obviously, it is not right to assume that over- and underreporting wipe out each other at the individual level, because they may not apply to the same person. Therefore, our data with respect to overload and underload may be subject to measurement error. However, there are three reasons why we think that the data gives a reasonable picture. Firstly, we do not have just one but several indicators for overload and these appear to be strongly correlated (see the section about the data). Secondly, the estimation results are generally in line with what De Koning et al (2018) find based on a review of existing studies and on qualitative analyses (using the information obtained from in-depth interviews and group discussions). Thirdly, the respondents report an increase in work overload between 2015 and 2018, which is consistent with the budget cut that has taken place.

Overload and underload are the result of work capacity and actual workload. Hence, in an explanatory analysis we must include both factors affecting work capacity and actual workload. Probably, the latter are not independent of each other. As we have argued earlier imbalances between the two may affect work capacity. When workers are enduringly subjected to overload, their health and their work capacity may deteriorate. Furthermore, it is likely that actual workload will at least partly be adjusted to an imbalance between workload and work capacity. To some extent this is institutionalised in arrangements making it possible for older workers to work less hours and to exempt them from overtime and irregular work. It is also likely that within teams the division of work is partly adjusted to differences in work capacity between individual workers. A special form of interdependence is suggested by the job-demand resources model, which suggests that work aspects like work content are directly related to work capacity. We will come back to this model later. From the foregoing we can conclude that there are both formal and informal ways to reduce imbalances between work capacity and workload. As we only have data about imbalances and not about workload and work capacity separately, we are unable to model these adjustment processes.

In addition to the imbalance between workload and work capacity, potential factors influencing work capacity are age, work experience, education, personality traits, private situation and personnel policies of the police organisation. At a certain age mental and physical health will start deteriorating, leading to a decreasing work capacity. As wages are not decreasing at older age, or not to the same degree as productivity, this would mean that for employers younger workers are more attractive than older workers. However, more recent studies that use matched employer-employee data and take into account that the age distribution of employees in a firm is endogenous, hardly find evidence for a decreasing productivity of older workers who have not yet reached pension age (Goebel and Zwick (2009); Van Ours and Stoeldraijer, 2010). The latter studies deal with workers in general. Perhaps, it is different for heavy and arduous occupations like executive police work.

Various aspects of the home situation, such as the time spent on domestic work and the emotional support of a partner, seem relevant to the perception of the workload. In practice, women are still spending more time on household work and care taking than men. This means that the total workload of women may be higher than of men, particularly for full time women. Furthermore, the macho culture within the police force, which is more and more criticized but far from overcome, may have negative effects on the work situation of female police workers. Hence, gender could be an important background variable too. The same is true for personnel policies, which include, for example, coaching by a supervisor and fitness programs.

The actual workload is to a large extent determined by the size of the team of which the police officer forms part in proportion to the amount of work that the team must perform.<sup>iv</sup> We could have taken this factor into account if survey data would have been available for more than one year and if we would have known to which team respondents belong. But unfortunately, we do not have this information. For team leaders the number of workers they are managing might be an important determinant of their workload. The qualitative research by De Koning et al (2018) suggests that many team leaders have more people under their responsibility than they can handle. Another factor that might lead to overload of team leaders is the new centralised system for support services. Particularly among team leaders there is a lot of complaining about this new system. In their view the bureaucracy it implies costs them a lot of time. Furthermore, the reorganisation and the new job classification system led to the situation that police workers had to apply for a new job and the impression is that there was not always a good match. This could also have a negative effect on their role in personnel

management. Finally, there is also a widespread feeling among both team leaders and neighbourhood police workers that there is too much paperwork, which takes too much time.

Organisational aspects are also relevant. We already mentioned the fact that one of the consequences of the reorganisation is that there is greater distance between the executive and the supporting staff. Particularly team leaders and other managing staff complain that while this change was meant to increase efficiency, it costs more time. Other relevant organisational aspects are the quality of the work scheduling and the degree to which overtime is concentrated among a smaller group of workers or distributed more evenly.

According to the job demands-resources (JDR-)model people can cope with a high workload if their work has enough aspects that give them positive 'energy' (Bakker and Demerouti (2007)). According to this model, increasing work capacity rather than reducing workload is the obvious recipe for reducing work overload. This can be achieved by giving the employee extra resources that give him more 'energy'. For example, one could make the work more interesting, create a better work atmosphere or improve the supervision. It is not exactly clear what 'energy' means in this context. Obviously, some people will be stimulated to work harder the more interesting their work is. Similarly, a supervisor offering coaching and guidance can have a stimulating effect on the worker. But how long do these positive effects last for workers who are already working (too) hard? Initially, negative health effects may not be felt or recognised, and workers may continue to work harder than is good for their health. After some time, however, this could end in serious physical or mental health problems. If workers are complaining that they are regularly or often overloaded with work, measures that make it possible to obtain the same or even higher output with reduced effort make more sense than measures stimulating workers to work even harder. Measures like training increase the human capital of the worker and can be said to provide additional resources to him, which lead to an increase in his output per hour given his effort. In that case the worker's work capacity increases. Incentives to make him work harder, do not provide additional resources and seem to be risky because his workload is already high. Increasing individual work capacity may not always be possible. In that case possible solutions are to expand the workforce or to reduce output. In the latter case one could imagine that the police pay less attention to less serious forms of crime.

In our view the JDR-model offers a useful framework for analysing work overload, as long as it is recognised that there is a limit to increasing a worker's work capacity. The impression from the qualitative information collected by De Koning et al (2018) is that for many police officers their workload is persistently higher than the level that would keep them healthy in the long term. HRM personnel, however, referring (perhaps wrongly) to the JDR-model, tend to think that the problem can be completely solved without expansion of the staff or additional investment in human capital.

## DATA

Our analysis makes use of the data resulting from an online survey. A random sample of size 1.300 has been drawn from the population of neighbourhood police workers. This is roughly 50 per cent of the total number of neighbourhood police workers. The total population of team leaders C, consisting of 375 persons was approached. The number of respondents amounted to 569 (43,8%) for neighbourhood police workers and 181 (48,3%) for team leaders C. As far as we could verify, the non-response was not selective. Almost every respondent answered the questionnaire completely. The relatively low number of team leaders in the response makes it more difficult to find significant results for this function group.

Earlier in this paper we discussed whether the data with respect to overload and underload are reliable. Are the reported figures not subject to error? We cannot give a final answer to this question. However, we have several indicators for the imbalance between workload and work capacity and we can thus check whether these different indicators are significantly correlated. In that case there is at least consistency in the answers.

For neighbourhood police workers we have three indicators one would expect to be correlated and a fourth one which one would expect to be correlated with at least the second one:

- The ratio between workload and work capacity in terms of the quantity of work;
- Satisfaction with the workload;
- The frequency of events from the past with strong emotional effects on the police worker;
- The ratio between available and required skills.

Table 1 contains the correlation coefficients. Particularly, the correlation between the first two variables is high. It is understandable that the two are not perfectly correlated because satisfaction with the workload will not only depend on overload or underload with respect to the quantity of work. It is also logical that the third variable is less correlated with the other two, because police officers who do not suffer from the effects of events from the past may still experience overload or underload in their work owing to other factors. The ratio between available and required skills is not correlated with any of the other three indicators.

*Table 1 Correlation matrix of various indicators of overload with respect to the quantity of work: neighbourhood police officers*

	Ratio between workload and work capacity	Satisfaction with the workload	Frequency of events with strong emotional effects	Ratio between available and required skills
Ratio between workload and work capacity	1	-,616**	,149**	.023
Satisfaction with the workload		1	-,204**	-,049
Frequency of events with strong emotional effects			1	,040
Ratio between available and required skills				1

\*\* Pearson correlation is significant at the 0.01 level (2-tailed).

The question concerning events in the past was not included in the questionnaire for team leaders C. For the latter group we even find a stronger correlation between the first two variables (table 2). The questions relating to the third indicator was not asked to this job category. However, another question was asked, namely, whether they had enough time to carry out all the tasks that are part of their job. This variable is highly correlated with the other two. Here too, it is understandable that the correlation is not perfect. The qualitative information presented by De Koning et al (2018) that was taken from in-depth interviews and group discussions shows that some of the team leaders solve this problem by setting priorities in their work. As a result, these team leaders do not have a work overload or at least less so than team leaders who try do everything according to the book. In total 54 neighbourhood police officers and team leaders C from three police districts were involved in the in-depth interviews and the group discussions for this study.

*Table 2 Correlation matrix of various indicators of overload with respect +to the quantity of work: neighbourhood police officers*

	Ratio between workload and work capacity	Satisfaction with the workload	Does the team leader have enough time for what he must do	Ratio between available and required skills
Ratio between workload and work capacity	1	-,738**	,593**	-,010
Satisfaction with the workload		1	-,521**	-,072
Does the team leader have enough time for he must do			1	-,046
Ratio between available and required skills				1

\*\* Pearson correlation is significant at the 0.01 level (2-tailed).

Table 3 gives statistics with respect to the variables that will be included in the analyses. For each variable the sample mean, and the sample standard deviation are given. Furthermore, a description is given of how the variable is measured. We pay somewhat more attention to the indicators relating to overload, underload and job satisfaction. On average the police workers in both job categories report that they are overloaded with respect to the quantity of work but underutilise their skills. Overload with respect to the quantity of work has increased compared to three years before. The of skills, on the other hand, did hardly change on average. In the past, the average neighbourhood police worker is sometimes confronted with events that strongly affected him emotionally or physically. These last two variables are not available for team leaders C. On average, team leaders C tend to have too little time to perform all the tasks in their jobs.

On average police workers are positive about their job and the work climate. For neighbourhood police workers the average score on job satisfaction is between neutral and positive; for team chefs C it is even positive. As could be expected, the workload is valued negatively on average. But both job categories are positive about several other job aspects (work content, autonomy, the contacts with colleagues and the role of the supervisor). Both job categories are very dissatisfied with the support services provided by the police organisation. Neighbourhood police workers are on average negative about the work schedule. On average the latter value their salary between negative and neutral, while it is neutral for team leaders C. On average team leaders value the degree to which their work receives appreciation from their supervisor positively, while neighbourhood police workers are neutral in this respect. Questions about four aspects of the role of the supervisor (quality of management, management style, quality of the coaching and quality of the contact) were asked, but these aspects proved to be highly correlated. Therefore, we use the average of the four variables. The average score of the variable is only just above neutral for neighbourhood police workers and somewhat higher for team leaders.

Age and tenure are highly correlated. In the regressions we use age, not tenure. Therefore, only age is included in table 2. Average age is somewhat over 50. The questionnaire contains a question about the type of contract, because uncertainty about the continuity of the job is likely to have a negative effect on the worker's job satisfaction. However, it appears that all respondents have a permanent contract and cannot be fired if they behave reasonably.



**Table 3** Descriptive statistics of the variables

Variable	Coding	Mean	Standard deviation	Mean	Standard deviation
		Neighbourhood police officers		Team leaders C	
Ratio between workload and work capacity	1=regularly or always underloaded 2=sometimes underloaded 3= balance between workload and work capacity 4=regularly overloaded 5=often or (almost) always overloaded	3,53	,734	3,68	,808
Ratio between actual and required skills	1=skills are highly insufficient 2=skills are insufficient 3=balance between actual and required skills 4=more skills than required 5=considerable more skills than required	3,43	,676	3,57	,660
Change in the ratio between workload and work capacity compared with three years ago	Varies between tussen -4 and +4	,48	1,179	,25	1,221
Change in the ratio between actual and required skills	Varies between tussen -4 and +4	-,03	,686	,04	,849
Has the police worker been emotionally touched strongly by work-related events In the past (only asked to neighbourhood policemen)	1=Never 2=occasionally 3=Sometimes 4=Regularly 5=Often	3,15	1,016	-	-
Has the police worker been physically affected strongly by work-related events In the past	1=Never 2=occasionally 3=Sometimes 4=Regularly 5=Often	1,87	,765	-	-
Does the police worker has enough time for all the tasks that belong to his job description (only asked to team leaders C)	1=more than enough time 2=enough time 3=insufficient time	-	-	2,64	,548
Overall satisfaction with job and work climate	1=very negative 2=negative 3=neutral 4=positive 5=very positive	3,70	,904	4,00	,771
Satisfaction with job content		3,86	,728	3,94	,783
Satisfaction with autonomy		4,11	,713	4,02	,922
Satisfaction with workload		2,72	,888	2,65	,952
Satisfaction with salary		2,74	,921	3,03	,986

Satisfaction with the contacts with colleagues		4,16	,624	4,20	,600
Satisfaction with the appreciation police workers get for their work		3,00	,958	3,41	,868
Satisfaction with the supervisor		3,22	,810*	3,54	,750
Variable	Coding	Mean	Standard deviation	Mean	Standard deviation
		Neighbourhood police officers		Team leaders C	
Satisfaction with the support services provided by the police organisation	1=very negative 2=negative 3=neutral	2,50	,808	2,10	,849
Satisfaction with the work scheduling (only asked to neighbourhood policemen)	4=negative 5=very negative	2,74	1,157	-	-
Participation in measures developed by the National Police to promote fitness and prevent stress	0=No Participation 1=Participation	,08	,275	,12	,321
Does the employee undertake activities on his own initiative to increase his fitness and to combat stress?	0=No 1=Yes	,73	,443	,91	,293
Age	20=Younger than 25 30=At least 25 but younger than 35 40= At least 35 but younger than 45 50= At least 45 but younger than 55 60= At least 60 but younger than 65 65=65 or older	50,59	9,660	52,49	8,4266
Gender	Male=1 Female=0	,82	,386	,77	,420
Level of the highest educational level reached	1=preparatory secondary vocational education or lower 2=secondary education 3=higher education	2,05	,561	2,90	,342
Contractual working hours per week	Number of hours	36,00	3,385	38,02	3,560
Does the police worker work overtime	0=Never 1=One or a few weeks per year 2=One or a few weeks per month	1,20	,460	1,64	,482
Type of duty roster	1=Day schedule 2=Irregular without night shifts 3=Irregular with night shifts	2,39	,574	1,42	,702
Is the police worker a lateral-entry worker	0=No 1=Yes	,05	,222	,11	,314

## WHAT IS THE WEIGHT OF WORKLOAD IN JOB SATISFACTION?

Almost half of the neighbourhood police officers and team leaders C indicate that they have too much work to do. Furthermore, many police officers experience imbalances with respect to the utilisation of their skills and as a result of mental or physical incidents during their work in the past. We use ordinal regressions to estimate the effects of the various imbalances on overall job satisfaction. In the questionnaire questions were asked with respect to various job aspects, namely job content, job autonomy, workload, salary, contact with colleagues, appreciation for the work done, the role of the supervisor, the support services from the police organisation and the work scheduling (the latter only for neighbourhood police workers).

Table 4 contains the results of the regression explaining overall job satisfaction from the satisfaction with the various job aspects, the extent to which police workers have experienced events that affected them strongly emotionally or physically, job characteristics and personal characteristics. Separate regressions were run for neighbourhood police workers and team leaders C. We used ordinal regressions because the dependent variable is measured by an ordinal scale ranging from 1 (very dissatisfied) to 5 (very satisfied). In addition to the parameters of the explanatory variables also threshold values for the intervals of the underlying continuous variable must be estimated. The latter estimates are not shown in the table. For the results shown a logit link function was used. However, alternatives like a normal link function or a linear model give very similar results.

Satisfaction with the workload can be seen as an overall indicator for imbalances with respect to the workload. If we regress satisfaction with the workload on the latter indicator we find for neighbourhood police workers that overload with respect to the quantity of work, the extent to which the worker has experienced mentally disturbing events, satisfaction with support services and satisfaction with the work scheduling are all significant. In case of team leaders C overload with respect to the quantity of work and the satisfaction with support services (the other variables are not available for this job category). Not surprisingly, the utilisation of skills is insignificant for both job groups.

With respect to the various job aspects there are many similarities between the results for the two job categories, particularly when we realise that the number of observations is much smaller for team leaders C than for neighbourhood police officers. As a result standard errors of the estimated coefficients for team leaders will tend to be much higher than for neighbourhood police officers. For both job categories job content is the most important job aspect. Satisfaction with job autonomy and workload are also significant for both job categories. Furthermore, salary and the appreciation a worker gets for his work have coefficient of similar size, although these variables are only significant in the case of neighbourhood police workers. Satisfaction with the role of the supervisor is much more important for the latter job category than for team leaders C. Precisely the opposite is the case with respect to satisfaction with the support services from the police organisation. The contacts with colleagues only play a minor role. In the case of neighbourhood police workers, the role of the supervisor is much more important than the contacts with colleagues.

Three variables are only available for neighbourhood police workers. Events from the past affecting workers emotionally or physically do have the right sign but are not significant. The second one of the two seems to be most important and is almost significant at the 5 per cent level. Satisfaction with the work scheduling is significant.

Some of the job aspects that are significant are valued negatively or neutral by the average police worker: workload, salary, appreciation of the work done, work scheduling (in case of neighbourhood police workers) and support services. Hence, improvement of these job aspects would be most effective in further increasing overall job satisfaction. In case of neighbourhood police workers, the role of the supervisor could be added to that list. This job aspect is second in weight in overall job satisfaction and its appreciation is only just above neutral.

Only for neighbourhood police workers some of the other characteristics are significant. Lateral-entry workers are less satisfied with their job than the ones who started their career as a police worker. Furthermore, both age and age-squared are significant. The resulting pattern implies that initially job satisfaction declines with age, but after reaching the age of 46 it starts increasing again. It is difficult to explain this pattern from policies reducing the workload of older workers as workload is already represented by other variables like satisfaction

with the workload. Finally, overtime is weakly significant. The positive sign implies that overtime has a positive effect on job satisfaction. A possible explanation is that police workers have a stronger preference for work compared to leisure. Although age and age-quadrated are not significant in the regression for team leaders C, the coefficients found for the latter job category gives a similar shape for the relationship between job satisfaction and age, namely a parabola that opens upward. The lowest level of satisfaction is reached at the age of 50.

**Table 4 Ordinal regressions job satisfaction<sup>a/b)</sup>**

	Neighbourhood police workers		Team leaders C	
	Coefficient	Standard error	Coefficient	Standard error
Extent to which the police worker has been emotionally touched by work-related events in the past	-,062	,094	-	-
Extent to which the police worker has been affected physically by work-related events in the past	-,193	,122	-	-
Satisfaction with job content	,967**	,139	1,743**	,286
Satisfaction with job autonomy	,310**	,141	,466**	,218
Satisfaction with workload	,571**	,126	,877**	,232
Satisfaction with salary	,243**	,106	,238	,191
Satisfaction with contacts with colleagues	,142	,144	,292	,317
Satisfaction with the appreciation for the work done	,321**	,123	,274	,255
Satisfaction with the supervisor	,831**	,146	,207	,275
Satisfaction with the support services provided by the police organisation	,044	,124	,556**	,231
Satisfaction with the work scheduling	,317**	,089	-	-
Number of contractual hours	,047	,029	-,081	,055
Age	-,199*	,105	-,403	,256
Age-quadrated	,002**	,001	,004	,003
Day shift	-,730	,440	,345	,407
Overtime	,351*	,207	,230	,382
Men	-,318	,278	-,368	,452
Higher educated	,069	,236	-,514	,623
Lateral-entry worker	-,844**	,393	,069	,590
Constant term	-	-	-	-
-2 Log Likelihood	999,109		245,999	
Pseudo-R <sup>2</sup> (Nagelkerke)	,519		,624	
N	552		181	

a) Link function: Logit; constant term included in thresholds (not shown in table).

b) \*\*=significant at 5 per cent significance; \*=significant at 10 per cent

How do these results compare to the findings of other studies dealing with the determinants of job satisfaction? Sousa-Poza and Sousa-Poza (2000) did a meta-analysis with respect to such studies. They looked at studies in all kinds of sectors and trades. Based on the outcomes of these studies they arranged the determining factors of job satisfaction according to the size of their effect. Some of our findings are consistent with theirs. In the first place, like them, we find that job content is the most important determinant of overall job satisfaction. Also consistent with their findings is our result that the contact with the supervisor is more important than the contacts with colleagues. Our findings are also in agreement with theirs in the sense that salary is not that important. This conclusion is also drawn by Judge et al (2010) on the basis of a meta-analysis.

And finally, like Sousa-Poza and Sousa-Poza we find that personal characteristics are not very important. In our case only age has a significant effect in the equation for neighbourhood police officers. Our results differ from Sousa-Poza and Sousa-Poza in the sense that in our case workload appears to be more important.

We did not have data about personality traits, which might be relevant according to a study by Staw en Ross (1985). Arvey et al (1989) compare identical twins and find that their job satisfaction is similar, even when they have very different types of jobs.

## WHAT DETERMINES WORK OVERLOAD?

Table 5 gives the results of ordinal regressions with respect to the ratio between the amount of work that a police worker must do and his work capacity. The latter variable is measured by a five-point scale, which goes from 'could do much more than the current workload' to 'considerable overload'. The following groups of variables have been included: a) the extent to which events have taken place in the past that affected the worker strongly emotionally or physically, b) satisfaction with various job aspect (except workload of course), c) job characteristics, and d) personal characteristics. Some of the variables are not available for team leaders C because the aspects involved are not relevant for them.

*Table 5 Ordinal regressions with respect to the ratio between workload and work capacity<sup>a,b)</sup>*

	Neighbourhood police workers		Team leaders C	
	Coefficiënt	Standard error	Coëfficiënt	Standard error
Extent to which the police worker has been emotionally touched by work-related events in the past	,208**	,088	-	-
Extent to which the police worker has been affected physically by work-related events in the past	,213*	,116	-	-
Satisfaction with job content	-,145	,128	,064	,214
Satisfaction with job autonomy	-,252*	,135	-,035	,183
Satisfaction with salary	,029	,099	-,330**	,160
Satisfaction with contacts with colleagues	,021	,139	,355	,258
Satisfaction with the appreciation for the work done	-,055	,115	-,229	,214
Satisfaction with the supervisor	-,307**	,133	-,041	,230
Satisfaction with the support services provided by the police organisation	-,063	,116	-,526**	,187
Satisfaction with the work scheduling	-,275**	,080	-	-
Higher educated	-,171	,222	,249	,511
Contractual hours	-,051*	,028	-,007	,043
Age	-,004	,010	,040**	,018
Day shift	-,044	,420	1,111**	,347
Overtime	,895**	,199	,858**	,319
Men	,359	,257	,543	,380
Constant	-	-	-	-
-2 Log likelihood	1108,889		376,937	
Nagelkerke R Square	,187		,255	
N	552		179	

a) Link function: Logit; constant term included in thresholds (not shown in table).

b) \*\*=significant at 5 per cent significance; \*=significant at 10 per cent

Events from the past that still affect neighbourhood police workers emotionally or physically significantly increase the ratio between the amount of work and work capacity and therefore also the chance of work overload. Evidently, these events reduce work capacity. One could imagine that workers that do not have enough skills for their work, also experience an overload in terms of the quantity of work, but if we include this variable in the equation it is not significant.

The regression results do not give much support to the job demands-resources model. Many Job aspects (job content, the contacts with colleagues and the appreciation one gets for the work done) are not significant for both neighbourhood police worker and team leaders C. The job demands-resources model hypothesises that making the job more attractive on these points would give workers more 'energy' and would thus reduce work overload. In the case of neighbourhood police workers, the following job aspects are significant: job autonomy, satisfaction with the supervisor, satisfaction with work scheduling, contractual hours and overtime. However, the last three aspects affect the workload rather than the work capacity of the police worker. Only job autonomy and the role of the supervisor might affect work capacity as both factors could induce extra motivation of the worker. However, it is equally possible that these factors primarily affect the workload. A higher job autonomy may give the worker the opportunity to organise his own work more efficiently and reduce his workload. More satisfaction with the supervisor may come from the fact that the latter organises the work more efficiently, which also leads to a lower workload. The coefficients have the expected sign with one exception: the coefficient that belongs to contractual hours. One would expect that part-time workers are less likely to experience work overload than full-time workers, but according to the estimation results it is the other way around. However, it is possible that part-time workers have to work harder during their shorter worktime.

In the case of team leaders C significant job aspects are salary, the support services provided by the police organisation, day shift and overtime. Of these variables only salary could be interpreted as a factor increasing work capacity by motivating the worker. However, it is also possible that more productive team leaders are less overloaded and earn more money because of their higher productivity. The positive sign of day shift is unexpected: day shift is less demanding than night shift or irregular work. The positive sign may have to do with the fact that there is a big variation in the number of police workers controlled by a team leader. Team leaders who must manage large team are perhaps exempted from night shifts or irregular work.

In case of team leaders C age has a positive effect on the ratio between workload and work capacity. Hence, older team leaders have a higher probability of experiencing work overload. Gender and education are not significant. Other variables that are not shown like regional and functional mobility within the police organisation are neither significant.

For the models used in table 5 we used a logit link function. Other link functions produced similar results. Logit models in which the dependent variable is 1 in case of overload and 0 otherwise, also lead to similar results as the ordinal regressions shown in table 5.

Some aspects that are likely to be relevant could not be included in the analysis. As a result of the budget cuts in the past it might well be that the police organisation has not enough personnel to carry out all its tasks. The ratio between the staff size of a team and the crime rate in the geographical area covered by the team could be used as an explanatory variable for overload on neighbourhood police officers. This ratio varies between teams, because adjustments of team size to changes in crime patterns are implemented with a certain delay. We wanted to include this variable in the analysis, but for privacy reasons we were not allowed to ask respondents which team they belong to. The percentage of older workers in a team could also be relevant, because older workers are exempted from irregular work and overtime and often have a shorter work time, which might increase the workload of younger workers. For team leaders the number of police workers under their command would be a good indicator of workload. However, we neither have information about the last two variables.

Open questions in the questionnaire and qualitative information described in De Koning et al (2018) may give some indications of the role of factors that could not be included in the models. Of the factors causing overload the administrative burden is mentioned most by both groups. In the case of team leaders C this factor is related

to a factor included in the model, namely dissatisfaction with the support services. The lack of enough support implies that team leaders C have to do many tasks that could easily be done by assistant team leaders or other staff. Probably, this is also the reason why so many team leaders C are of the opinion that their skills are underutilised. In this respect they point to the fact that among their current tasks are things like authorisation of travel expense claims, ordering phone cases and requests for a new password for colleagues.

Neighbourhood police workers complain that due to understaffing in other job categories they are used for other tasks during a large part of their working time. As a result, they have less time available for their work in the neighbourhood, which leads to a higher work pressure. Furthermore, in their view the other tasks (tasks like emergency assistance, surveillance, arms controls and execution of outstanding fines) are below their skills level.

Particularly neighbourhood police workers consider staff expansion to be a necessary condition for reducing overload. Team leaders C on the other hand, tend to think that setting priorities in their work is a more feasible solution. Many among them are of the opinion that it will be difficult if not impossible to increase the workforce. The share of young people in the population is decreasing, which leads to a diminishing number of young people entering the labour market. A lot of senior police workers will go into retirement. And finally, the police academy might not have the capacity to train enough recruits.

## WHAT DETERMINES UNDERUTILISATION OF SKILLS?

In the regression analysis for the ratio between the skills that a police worker has and the skills required that the police organisation requires, we use the same types of explanatory variables as in the previous section (see table 6 for the regression results). Two variables are significant for both job categories: age and level of education. Older workers are less likely to experience underutilisation of skills, while higher educated workers are more likely to be over-skilled. The fact that older workers experience a better use of their skills may have to do with higher responsibilities for older workers.

For team leaders two other variables are significant: satisfaction with the supervisor and satisfaction with the support services. Satisfaction with the supervisor may depend on the degree to which the latter gives the team leader room to make his own decisions. In the qualitative research some of the team leaders involved felt that, although they were fairly satisfied with their job, their superior was still inclined to interfere with their decisions too much. This could explain the connection between the level of satisfaction with the supervisor and the utilisation of skills. The qualitative research also reveals that the bureaucracy concerning support services implies that team leaders must spend a lot of time on activities that do not belong to their function and could easily be done by lower qualified staff. Hence, part of their work is below their competence level.

We now turn to the other variables that are significant in the equation for neighbourhood police workers. First, the latter more likely to experience underutilisation of their skills when they have experienced work-related events in the past that had physical consequences for them. Possibly, as a result of these physical consequences their job content has been simplified. Second, workers with a higher satisfaction with the appreciation for their work are less likely to experience underutilisation of skills. We suspect that here the causality is the other way around: workers who make better use of their skills are performing better and are thus more appreciated. The positive sign of the coefficient of the third significant factor, satisfaction with job autonomy, is more difficult to interpret. This result implies that workers are more likely to experience underutilisation of their skills the higher their satisfaction with job autonomy. Perhaps, workers who like job autonomy have higher ambitions in their work and are therefore more inclined to report skills underutilisation.

Here too other link functions lead to similar as the logit link function. And again the results obtained with logit analysis are very similar to the results presented in table 6. Variables that have not been included in the equation shown in table 6 are not significant.

Table 6 Ordinal regressions with respect to the ratio between available and required skills <sup>a)b)</sup>

	Neighbourhood police workers		Team leaders C	
	Coefficiënt	Standard error	Coëfficiënt	Standard error
Extent to which the police worker has been emotionally touched by work-related events In the past	-,019	,090	-	-
Extent to which the police worker has been affected physically by work-related events In the past	,437**	,120	-	-
Satisfaction with job content	-,061	,131	-,021	,227
Satisfaction with job autonomy	,348**	,140	-,071	,192
Satisfaction with salary	-,037	,102	,199	,172
Satisfaction with contacts with colleagues	,250	,144	,259	,271
Satisfaction with the appreciation for the work done	-,346**	,118	-,255	,229
Satisfaction with the supervisor	-,087	,134	-,527**	,244
Satisfaction with the support services provided by the police organisation	-,061	,131	-,492**	,204
Satisfaction with the work scheduling	,034	,082		
Contractual hours	,035	,029	,010	,047
Age	-,046**	,010	-,046**	,019
Day shift	,280	,422	-,374	,355
Overtime	-,005	,198	,241	,337
Men	,450*	,268	,422	,409
Higher educated	,659**	,224	1,708**	,715
Constant term	-	-	-	-
-2 Log Likelihood	1020,287		299,702	
Pseudo-R <sup>2</sup> (Nagelkerke)	,155		,200	
N	552		179	

a) Link function: Logit; constant term included in threshold (not given in table).

b) \*\*=5 per cent significance; \*=10 per cent significance.\*\*

## CONCLUDING REMARKS

Among Dutch executive police workers work overload is a widespread problem. In this paper we concentrate on two job categories: neighbourhood police workers and a specific category of team leaders. Our statistical analyses indicate that satisfaction with workload has a large weight in overall work satisfaction. This means that dissatisfaction with the workload experienced by many workers in both job categories has a strong negative effect on their overall job satisfaction. If satisfaction with workload is included in the model for overall job satisfaction other indicators of workload or discrepancies between workload and work capacity are not significant. Satisfaction with workload in turn depends significantly on the discrepancy between workload and work capacity as well as the extent to which past events are still affecting police workers. The discrepancy between required and available skills, however, is not significant. Hence, the latter variable neither influences overall job satisfaction directly nor indirectly.



Other factors also have a negative impact. Neighbourhood police workers tend to be negative about the scheduling of their work, which reduces their job satisfaction. For team leaders C it is the dissatisfaction with the support services that has the highest negative impact. However, other job aspects that determine overall job satisfaction like job content are valued positively and outweigh the negative factors. On average workers in both job categories value their overall job satisfaction 'neutral' (negative nor positive) and 'positive'.

Overload in terms of the quantity of work is mainly determined by organisational factors and, in case of neighbourhood police officers, the extent to which they experienced events during their career that harmed them emotionally or physically. This means that measures in the organisational field should have priority: better alignment of work scheduling to workers' needs, more job autonomy, more involvement of supervisor's in the implementation of personnel policies, improvement of the support services and reduction in overtime combined with more staff. Some of these points are related to each other. The fact that currently, work scheduling and personnel policies are not optimal is at least partly due to the overload on team chefs, who play a key role in the implementation of these activities. Their overload is caused by insufficient support services and by team sizes surpassing the span of control. In case of neighbourhood police workers overtime is concentrated on a minority and could perhaps be distributed more evenly, but it is also due to an insufficient number of staff. The latter is no surprise given the considerable budget cuts that went hand in hand with the reorganisation.

Also measures dealing with the consequences of events that harmed police officers considerably are necessary. Talking openly about problems, especially mental problems, is not customary in the police force. It is only recently that post-traumatic stress disorders have received the attention and the recognition that led to procedures for early identification and treatment of it.

More generally the personnel problems with the police have received wide recognition and additional budget is provided to the police to solve the problems. For most of the points mentioned plans are developed for solving them. One of the plans is to expend the formation for executive personnel by some 1100 (in full-time equivalents) which is an increase of almost three per cent. As far as we know there is no plan to relieve the workload of team leaders by adding more workers with management responsibilities to teams.

A three per cent increase in the workforce may not seem as a drastic change, but it is turning point after a period of diminishing employment. Furthermore, in the coming period many police workers will go on retirement and will have to be replaced. Hence, the increase in job openings will be much higher than 3 per cent.

Another important goal is the further development of HRM policies. Unfortunately, not much is known about the effectiveness of these policies. The Job Demands Resources Model is a popular theory among practitioners in HRM. However, we think that this theory is not a good guide. It suggests that by making the work more attractive, workers get more 'energy' out of it, which enables them to work harder. As a result, work overload will diminish or even vanish. However, our results show that job aspects like job content do not influence on work overload. Our results do not exclude the possibility that workers can be stimulated to work harder when they have a better relationship with their supervisor or when they have more autonomy in their job, even when they feel overloaded. But if a person is already working (too) hard, there is a danger that such a strategy will in the end lead to a burn-out. Therefore, in our view the answer to workers reporting overload is not to give them more 'energy', but to make the work more efficient or to increase their human capital.

Ideally, the development of new policy involves an experiment or another strategy to evaluate its effects, benefits and costs. Unfortunately, such an approach is not envisaged by the police organisation. Therefore, it will be unclear whether the new personnel policies work. To find out what works, it is necessary that administrative data becomes available for research and linked to survey data. Longitudinal administrative data is also desirable for the type of analyses we carried out for this paper. We had to rely completely on data from a one-off survey, which is far from ideal for identifying causal relationships. A second disadvantage is that many indicators are based on opinions of the respondents. The police organisation has a lot of data making it possible to construct indicators at different levels (the level of the individual worker, the level of a team). Examples are the incidence of sickness leave, the number of police workers in relation to the number of crimes and the number of workers a team leader is responsible for. Linking microdata raises privacy issues. but adequate

solutions can be found for this. An obvious possibility is to give the data to the Dutch Statistical Agency and to make remote access to the data possible for researchers under strict regulations. For other microdata this has already been done.

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## NOTES

<sup>i</sup> See: Inrichtingsplan Nationale Politie, december 2012, versie 3.0, that contains an organisation chart, as well as the division of tasks, the powers and the responsibilities of all employees.

<sup>ii</sup> In addition, a regional unit consists of the following services: regional operational centre, regional investigation, regional information unit, regional operational co-operation, operational management unit and a staff department (see: Inrichtingsplan Nationale Politie, 2012).

<sup>iii</sup> There is even a theoretical model in labour economics, the shirking model, that assumes that workers tend to produce less than they are capable of, when there is no incentive to work harder (Shapiro and Stiglitz, 1984; Akerlof and Yellen, 1985). The model offers an

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explanation for the existence of unemployment as it implies that employers have to pay workers more than the market clearing wage to keep them motivated.

<sup>iv</sup> The workload of a team depends on the population size of the area it is responsible for and on the geographical size of the area and the crime rate in it.